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# Interstate Bridge Replacement Program

## Navigation Impact Report

November 2021  
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# Interstate Bridge Replacement Program

## Navigation Impact Report

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## EXECUTIVE SUMMARY

The Interstate Bridge Replacement (IBR) program, previously referred to as the Columbia River Crossing (CRC) Project, is a bridge, public transit, highway, and active transportation improvement project that would improve safety and mobility in the Interstate 5 (I-5) corridor between Portland, Oregon, and Vancouver, Washington. The IBR program includes replacement of the existing I-5 crossings of the Columbia River and Oregon Slough.

Construction of the proposed I-5 bridges will require bridge permits issued pursuant to Section 9 of the Rivers and Harbors Act of 1899 by the U.S. Coast Guard (USCG). One requirement of the process is the completion of a Navigation Impact Report (NIR) to assess impacts on navigation from the proposed bridges. The CRC Project developed an NIR in 2012 in support of a bridge permit that was issued by the USCG, but the permit subsequently expired. The IBR program utilized the navigation information developed for the CRC Project and updated and validated the information to reflect changed conditions since development of the CRC NIR and to reflect the USCG bridge permitting guidance adopted since 2012.

To determine updated navigation information, known river users, including commercial, recreational, passenger cruise, and federal users, as well as marine contractors and fabricators, were contacted to confirm the accuracy of existing information and determine whether any changes had occurred to their vessels or operations. To capture information about users that may not have been included in prior studies, additional outreach was conducted directly with marinas, through maritime and general publications, through an online survey, and through presentations to maritime groups. In addition, I-5 bridge lift data and other river use information were updated to reflect the time between the prior CRC NIR and the present. Land use data were also collected to identify land use changes or activities that could affect future navigation. Additional water level data were evaluated to update river levels and potential impacts on vertical navigation clearance.

Required openings of the I-5 bridge declined from an average of 289 per year from 1997 to 2011 to 157 per year from 2012 to 2020. From 2012 to 2020, 58% of the bridge openings were for tugs, 17% for sailboats, and the remainder for other vessel types. These openings represent 5% to 7% of the river traffic based on openings of the BNSF railroad bridge just downstream of the I-5 bridges and use of the locks at the Bonneville dam. Some vessel traffic has changed due to new vessels being added by existing users such as Tidewater Barge Lines, changed practices such as the Navy no longer using escort vessels for reactor shipments to Hanford, and vessels no longer in service in the area, such as the *Hawaiian Chieftain*. No deep-draft vessel use was documented as passing upriver of the I-5 bridge. There have been limited new marine development activities upriver of the I-5 bridge, and a number of facilities have ceased operations.

An impact analysis was conducted using the navigation information collected and comparing the information against the proposed bridge heights. Bridge heights of 116 feet and 121 feet (as measured above 0 Columbia River Datum [CRD]) were considered. These heights represent the Locally Preferred Alternative from the CRC that balances the needs of navigation with other constraints, including aviation, environmental impacts, and surface transportation needs and an allowance of an additional 5



feet that could potentially be provided by refined bridge designs but may reduce the horizontal clearance between bridge piers. The ordinary high water mark of 16 feet above 0 CRD was used to represent water levels and is a level that has only been exceeded 1.2% of the time from 1972 to 2020. An air gap of 10 feet was also used and represents an additional distance above the air draft of the vessel (highest point of the vessel above the water) to provide a safety margin.

The analysis found that construction of a 116-foot bridge would result in impacts to eight vessels/users. Further analysis showed that reducing the air gap to 5 feet and modifying specific vessel operations would reduce the impacts to four vessels/users. Increasing the bridge height to 121 feet would result in the same reduction in impacts. Table ES-1 summarizes the impacted vessels.

**Table ES-1 Impacted Vessels/Users**

Vessel	Owner	Vessel Type	Air Draft (feet)	Trip Frequency
TBD (fabricator's tallest future shipment)	Greenberry Industrial	Barge with fabricated materials	136	Any time of the year
TBD (fabricator's tallest future shipment)	Vigor	Barge with fabricated materials	130	Any time of the year
TBD (fabricator's tallest reported shipment)	Thompson Metal Fab	Barge with fabricated materials	165	Any time of the year
DB Taylor	JT Marine	Marine contractor vessel	131	Up to 10 trips per month at all times of the year

The IBR program has committed to mitigation for these impacted users. Specific mitigation agreements would be determined prior to application for a bridge permit and undertaking construction.

Navigation under the I-5 bridge across the Oregon Slough is limited to small recreational vessels and limited commercial vessels that can navigate under the existing fixed bridge height of 35 feet. The IBR program has committed to meeting or exceeding the vertical and horizontal clearance provided by the



existing bridge for new and replacement bridges on the Oregon Slough. No impacts to navigation or mitigation have been identified for Oregon Slough users.



# TABLE OF CONTENTS

<b>1.</b>	<b>PART 1: INTRODUCTION AND BACKGROUND .....</b>	<b>1-1</b>
1.1	Summary .....	1-1
1.2	Prior Efforts.....	1-2
1.3	Proposed Project.....	1-2
1.4	Purpose of this Report .....	1-3
1.5	Project Description .....	1-3
1.5.1	Columbia River Bridges .....	1-4
1.5.1.1	Location .....	1-4
1.5.1.2	Vertical and Horizontal Clearance .....	1-4
1.5.1.3	Pier Locations .....	1-5
1.5.1.4	Oregon Slough Bridge(s) .....	1-5
1.5.1.5	Columbia River Bridge Heights Considered during CRC Project NEPA Process .....	1-5
1.6	IBR Program Purpose and Need .....	1-9
1.6.1	Project Purpose .....	1-9
1.6.2	Project Need .....	1-9
<b>2.</b>	<b>PART 2: NAVIGATION IMPACTS .....</b>	<b>2-1</b>
2.1	Means of Data Collection .....	2-1
2.1.1	Methodology.....	2-1
2.1.1.1	River User Data .....	2-2
2.1.1.2	Bridge Opening Data.....	2-6
2.1.1.3	Bridge Openings as a Share of Total Navigation Activity .....	2-9
2.2	Present Governing Structures .....	2-10
2.2.1	Columbia River .....	2-10
2.2.2	Oregon Slough.....	2-13
2.3	Waterway Characteristics .....	2-14
2.3.1	Introduction .....	2-14
2.3.2	River Water Level at the I-5 Bridges .....	2-14
2.3.2.1	Waterway Stages .....	2-16
2.3.2.2	Potential Climate Change Impacts .....	2-16
2.3.3	Natural Flow of the Waterway .....	2-18
2.3.4	Waterway Width and Depth .....	2-18
2.3.4.1	Columbia River .....	2-18



2.3.4.2	Oregon Slough .....	2-19
2.3.5	Channel and Waterway Alignment .....	2-20
2.4	Emergency Operation, National Defense and Channel Maintenance Vessels .....	2-22
2.5	Federal Navigation Projects .....	2-25
2.5.1	Channel Details .....	2-26
2.5.2	Proposed Channel Changes.....	2-28
2.6	Present and Prospective Recreational Navigation .....	2-29
2.7	Present and Prospective Commercial Navigation .....	2-31
2.7.1	Cruise Vessels.....	2-31
2.7.2	Commercial Tugs, Tows, and Barges .....	2-34
2.7.3	Marine Contractors .....	2-37
2.7.4	Fabricators .....	2-45
2.7.5	Annual Cargo Movements.....	2-46
2.7.5.1	Columbia/Snake River System .....	2-46
2.7.5.2	Oregon Slough .....	2-47
2.7.6	Impacts to Commercial/Industrial Development .....	2-48
2.7.6.1	Summary of Findings by Subarea.....	2-49
2.8	Marine Facilities.....	2-53
2.9	Local Service Facilities.....	2-56
2.10	Alternate Routes .....	2-57
2.11	Harbor Refuge.....	2-57
2.12	Waterway Bends.....	2-57
2.13	Other Factors .....	2-58
2.14	Hydraulic Conditions.....	2-58
2.15	Atmospheric Conditions.....	2-59
2.15.1	Wind and Wave Environment .....	2-59
2.15.2	Visibility.....	2-61
2.15.3	Guide Clearances .....	2-61
2.15.4	Other Natural or Human-made Conditions .....	2-61
2.16	Additional Factors .....	2-62
2.17	Impacts to Navigation .....	2-66
2.17.1	Temporary Impacts .....	2-66
2.17.1.1	Columbia River .....	2-66
2.17.1.2	Oregon Slough .....	2-67
2.17.2	Long-Term Impacts .....	2-67



2.17.2.1	Columbia River Bridges .....	2-69
2.17.2.2	Oregon Slough Bridge .....	2-70
2.18	Potential Mitigation for Impacted Users .....	2-70
2.18.1	Mitigation for Unavoidable Short-term Impacts .....	2-70
2.18.1.1	Main Span Columbia River .....	2-70
2.18.1.2	Oregon Slough .....	2-72
2.18.2	Mitigation for Unavoidable Long-Term Impacts .....	2-73
2.18.2.1	Avoidance and Minimization Overview .....	2-73
2.18.2.2	Mitigation Timeline and Overview .....	2-73
3.	REFERENCES .....	3-1

## FIGURES

Figure 2.1-1.	Vertical Reference Diagram .....	2-3
Figure 2.1-2.	Bridge Opening by Vessel Type by Year: 2012 to 2020 .....	2-8
Figure 2.1-3.	Bridge Openings by Vessel Type 2012 to 2020 .....	2-9
Figure 2.2-1.	Columbia-Snake River System Map .....	2-13
Figure 2.3-1.	Columbia River Water Elevation at the Interstate Bridges (1972–2012) .....	2-15
Figure 2.3-2.	Columbia River Width .....	2-19
Figure 2.3-3.	Existing I-5 Columbia River Navigation Clearances .....	2-20
Figure 2.3-4.	Existing Columbia River Navigation Channels .....	2-21
Figure 2.3-5.	Proposed Columbia River Navigation Channels .....	2-21
Figure 2.4-1.	2.4 Emergency Operation, National Defense and Channel Maintenance Vessels Air Draft and Air Gap Results .....	2-23
Figure 2.5-1	Oregon Slough Federal Project Limits .....	2-28
Figure 2.7-1.	Cruise Vessels Air Draft and Air Gap Results .....	2-33
Figure 2.7-2.	Commercial Tugs, Tows, and Barges .....	2-36
Figure 2.7-3.	Marine Contractors Air Draft and Air Gap Results .....	2-41
Figure 2.8-1.	Marine Facilities within 3 Miles of the Interstate 5 Bridge .....	2-53
Figure 2.15-1.	Portland Airport Windrose Plot .....	2-60
Figure 2.18-1.	Construction Staging .....	2-72

## TABLES

Table ES-1	Impacted Vessels/Users .....	ii
Table 2.1-1.	Commercial, Marine Contractor, Passenger Cruise, and Federal River Users Contacted .....	2-4
Table 2.2-1.	Existing Columbia Navigation Clearances .....	2-11
Table 2.2-2.	Existing Structures on the Oregon Slough .....	2-13
Table 2.3-1.	Columbia River Currents .....	2-18
Table 2.5-1.	Federal Navigation Projects .....	2-26
Table 2.5-2.	Tug and Barge Details .....	2-27



Table 2.7-1.	Port of Portland Oregon Slough Vessel Call Data by Berth and Year .....	2-47
Table 2.8-1.	Marine Facilities within 3 Miles of the Interstate 5 Bridge.....	2-54
Table 2.14-1.	Columbia River Currents .....	2-58
Table 2.17-1.	Vessels Restricted by a 116-foot Bridge Under Assumed Conditions.....	2-67

## APPENDICES

APPENDIX A	FUTURE LAND USE ANALYSIS DETAILS .....	A-1
APPENDIX B	IMPACTED USERS AND VESSEL DATA SUMMARY TABLES .....	B-1
APPENDIX C	OTHER USERS INVENTORIED .....	C-1
APPENDIX D	COLUMBIA AND SNAKE RIVER NAVIGATION CLEARANCES .....	D-1
APPENDIX E	INTERSTATE DRAWBRIDGE OPERATIONS DATA .....	E-1
APPENDIX F	COLUMBIA WATER LEVEL .....	F-1



## ACRONYMS AND ABBREVIATIONS

BPAG	Bridge Permit Application Guide
CFR	Code of Federal Regulations
CRC report	CRC River User Data Report
CRC	Columbia River Crossing
CRD	Columbia River Datum
DEIS	Draft Environmental Impact Statement
Diversified Marine	Diversified Marine, Inc.
EIS	Environmental Impact Statement
FEIS	Final Environmental Impact Statement
FHWA	Federal Highway Administration
Foss	Foss Maritime Company
FTA	Federal Transit Administration
Greenberry	Greenberry Industrial LLC
HME	Hickey Marine Enterprises
hp	Horsepower
I-205	Interstate 205
I-5	Interstate 5
I-84	Interstate 84
IBR	Interstate Bridge Replacement
Knife River	Knife River Corporation
LPA	Locally Preferred Alternative
Manson	Manson Construction Co.
NEPA	National Environmental Policy Act
NIR	Navigation Impact Report
NOAA	North American Oceanic and Atmospheric Administration
ODOT	Oregon Department of Transportation
PSNS	Puget Sound Naval Shipyard
RM	River Mile
ROD	Record of Decision
Ross Island	Ross Island Sand and Gravel
Schooner Creek	Schooner Creek Boat Works
SDS	SDS Lumber Company and SDS Tug & Barge



## Navigation Impact Report

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SR	State Route
Tidewater	Tidewater Barge Lines
USCG	U.S. Coast Guard
UVTB	Upper Vancouver Turning Basin
Vigor	Vigor Works, LLC
WSDOT	Washington State Department of Transportation



# 1. PART 1: INTRODUCTION AND BACKGROUND

## 1.1 Summary

As one of the largest rivers in North America, the Columbia River is among the defining geographic features of the Pacific Northwest. It serves as an important transportation corridor, and its resources have provided the economic and cultural foundations of Native American and western settlements.

Through the Portland-Vancouver metropolitan area, the Columbia River is crossed by bridges at four locations: the Interstate 5 (I-5) crossing, known as the Interstate Bridge; the Interstate 205 (I-205) crossing, known as the Glenn L. Jackson Memorial Bridge; the BNSF Vancouver railroad bridge; and the I-5 Oregon Slough (also known as the North Portland Harbor) Bridge. Like the river, the I-5 corridor is a major regional and national resource. It is the principal north-south corridor for the movement of goods and services on the West Coast of the U.S. from Canada to Mexico. Within the metropolitan area, it provides access to major economic centers such as the Ports of Portland and Vancouver and commercial and business districts throughout the region.

The Interstate Bridge Replacement (IBR) program, previously referred to as the Columbia River Crossing (CRC) Project, is a bridge, public transit, highway, and active transportation improvement project that would improve safety and mobility in the I-5 corridor between Portland, Oregon, and Vancouver, Washington. The IBR program area begins at State Route (SR) 500 in Vancouver and extends to Columbia Boulevard in Portland and includes the existing I-5 crossing of the Columbia River. Replacing the aging bridges across the Columbia River with modern, seismically resilient, multimodal structures that provide improved mobility for people, goods and services is a high priority for Oregon and Washington.

Construction of the proposed I-5 bridge will require bridge permits issued pursuant to Section 9 of the Rivers and Harbors Act of 1899 by the U.S. Coast Guard (USCG). The USCG permits the location and plans of bridges in the interest of public navigation. A bridge permit is the written approval of the location and plans of a bridge constructed across a navigable waterway of the U.S. The Columbia River, including both the main channel and the Oregon Slough, is considered a navigable waterbody.

A primary requirement of the Section 9 permit is the completion of a Navigation Impact Report (NIR) to assess the impacts on navigation from the proposed bridge. NIRs provide the most accurate picture of current and prospective navigation on a waterway. The NIR is submitted to the USCG and used as part of the USCG's evaluation and issuance of a preliminary navigational clearance determination. The application for bridge permits will be completed after the National Environmental Policy Act (NEPA) process has been finalized and when construction funding has been secured or is more certain. Separate bridge permits will be necessary for the main span I-5 bridges and the separate bridge(s) over the Oregon Slough. This NIR report was prepared consistent with Appendix A of the USCG Bridge Permit Application Guide (BPAG) (USCG 2016). This report is an update to the 2012 CRC NIR (ODOT and WSDOT 2012) to reflect changed conditions since development of the original NIR and to reflect the



USCG guidance adopted since the CRC Project was stopped. Part 1 of this report provides background information and project details. Part 2 addresses the requirements of Appendix A to the BPAG.

## 1.2 Prior Efforts

An Environmental Impact Statement (EIS) was prepared for the CRC Project, with a Final EIS (FEIS) published in September 2011 and a Record of Decision (ROD) in December 2011. Following the ROD, the CRC NIR was completed in 2012 in support of the Section 9 bridge permit application. The CRC NIR contains the results of a comprehensive analysis of the navigation needs of the Columbia River at the project site, as well as conclusions regarding the impacts to navigation of the then-proposed replacement of the existing I-5 bridge over the Columbia River. The data collected regarding navigation needs of the Columbia River at that time represent a significant resource that will be used as a data source for completing the Section 9 bridge permit for the IBR program. These data are assumed to be accurate but will require validation for any changes that may have occurred regarding the navigation needs described in the CRC NIR.

The CRC FEIS and NIR evaluated navigation impacts, costs, and environmental and landside impacts of mid-level bridges ranging from 95 to 125 feet above 0 feet (Columbia River Datum [CRD].) All bridge heights and vertical clearances noted in this report are based on a water level of 0 feet CRD unless specified otherwise. Bridge heights greater than 125 feet had been dismissed during the alternatives screening process for the CRC Project because they would encroach on protected airspace for Pearson Field airport and provided only a minimal reduction in navigation impacts while increasing costs and resulting in other landside impacts. Low-level bridges were similarly dismissed because they would have required a movable span that would disrupt traffic, cause more accidents, impact navigation, and be more expensive to construct, maintain and operate. The CRC Project proposed to construct a bridge with a vertical clearance of 116 feet because that design balanced the needs of navigation, airfield operations, and surface transportation, while minimizing additional landslide and environmental impacts, as discussed in the 2012 CRC Bridge Height NEPA Re-Evaluation (CRC 2012).

A Section 9 permit from the USCG was granted in September 2013 for the construction of the replacement bridges as proposed by the CRC Project. That permit expired when the CRC Project was stopped and construction had not commenced within three years, and a new Section 9 permit(s) will be required for the IBR program.

## 1.3 Proposed Project

The Interstate Bridge Replacement Program (IBR) program is a multimodal transportation project to improve Interstate 5 (I-5) corridor mobility by addressing present and future travel demand and mobility needs in the program area. The IBR program will implement new river crossings over the Columbia River and the Oregon Slough, with associated improvements to I-5. This report provides detailed consideration of a fixed-span bridge over the Columbia River with a vertical clearance of 116 feet to 121 feet above 0 feet Columbia River Datum (CRD). For the Oregon Slough crossing(s) the replacement or supplemental bridges will meet or exceed the vertical and horizontal clearances provide by the existing I-5 bridge.



The existing I-5 bridges over the Columbia River have a maximum vertical clearance of 178 feet provide by the lift span with varying fixed clearances at the barge channel and alternate barge channel. The existing I-5 bridge over the Oregon Slough provides for a vertical clearance of 35 feet. The vertical clearance design evaluated in this report was considered during the NEPA process for the CRC Project. The analysis in this report provides updated vessel and river use data and user impact analysis. A detailed description of the IBR program and the bridge design used for conducting the impact analysis is contained in Section 1.5.

## 1.4 Purpose of this Report

This report is provided to meet the requirements for a Navigation Impact Report (NIR) as defined in the USCG Bridge Permit Application Guide (BPAG) Appendix A (USCG 2016). The purpose of the NIR is to accurately determine the current and prospective navigation on the waterway and to analyze the navigational impacts of bridge design alternatives. This report describes the physical features of the Columbia/Snake River system, the current and prospective navigation needs, the proposed replacement bridges, potential navigation impacts to navigation as result of the proposed replacement bridges, and potential mitigation strategies to address identified impacts to navigation. The report follows the order of information consistent with BPAG Appendix A beginning at Part 2. This introductory section provides background information regarding the IBR program.

Information and findings in this report will be used by the USCG to issue a preliminary navigation clearance determination and help inform the program's application for a bridge permit from the USCG. The preliminary navigation clearance determination is the USCG's evaluation of whether the proposed bridge clearances meet the reasonable needs of navigation and are a reasonable alternative to be analyzed in the environmental documentation. As outlined in the BPAG and in the 2014 Memorandum of Understanding between the USCG, Federal Highway Administration (FHWA), Federal Transit Administration (FTA), and Federal Railroad Administration, this preliminary determination is normally completed prior to or concurrent with the NEPA scoping process (USCG 2014). Since a ROD was already issued for the CRC Project the process will vary from that described in the BPAG. The IBR program is undertaking a NEPA re-evaluation and expects to complete a Supplemental Environmental Impact Statement (EIS) to reflect changes to the program and existing conditions. Issuance of the preliminary navigation clearance determination is expected to occur prior the Supplemental EIS so that its findings can be used in the NEPA process.

## 1.5 Project Description

The IBR program will implement replacement river crossings over the Columbia River with associated improvements to I- 5. This report provides details regarding replacing the current bridges over the main Columbia River channel with fixed-span bridges with a vertical clearance of 116 to 121 feet. The I- 5 Oregon Slough bridge will also be replaced and will provide horizontal and vertical clearance that meets or exceeds what is currently provided at the existing bridge. Other project elements could include:

1. Improvements to the existing I-5 mainline and interchanges within Washington and Oregon.



2. A variety of active transportation improvements throughout the project corridor, including a multiuse path connecting to the existing system. The path would allow users to travel from north Portland, to and across Hayden Island and over the Columbia River, into downtown Vancouver.
3. Provisions for high-capacity transit.
4. Transportation demand and system management measures to be implemented with the program, including the use of tolls, subject to the authority of the Washington and Oregon transportation commissions.

While the IBR program will utilize past work to inform the current effort, the details of a bridge replacement solution have not been finalized. Given the variety of changes that have occurred since the CRC Project, design refinements will need to be considered by the IBR program including to the bridges. Upcoming efforts to identify a multimodal solution that meets community needs and priorities include working with local agencies and the community to look at such design options as high-capacity transit options, interchange improvements, urban design, interchanges, travel lanes, bridge height and type, and multiuse path facilities and connections. The bridge design for the main channel that is used in evaluating impacts to navigation is the design of the bridge permitted by the USCG in 2014 and is reflected in the details below. The actual design of the program that will be permitted may be different than that described herein, but vertical and horizontal clearances are expected to be maintained.

## 1.5.1 Columbia River Bridges

The parallel bridges that form the existing I-5 crossing over the Columbia River will be replaced by two new parallel bridges with an upper and lower deck. The eastern structure will accommodate northbound highway traffic on the bridge deck, with a bicycle and pedestrian path on the lower deck; the western structure will carry southbound traffic on the bridge deck, with transit provisions on the lower deck. Whereas the existing bridges have only three lanes each, with virtually no shoulders, each of the new bridges was designed to be wide enough to accommodate three through lanes and up two add/drop lanes. Lanes and shoulders will be built to full Washington State Department of Transportation (WSDOT) and Oregon Department of Transportation (ODOT) design standards. The existing bridges will be completely removed following construction of the replacement bridges.

### 1.5.1.1 Location

The replacement bridges will be located just downstream of the existing bridge to accommodate maintenance of traffic during construction.

### 1.5.1.2 Vertical and Horizontal Clearance

The replacement bridges, as selected in the ROD and the 2014 NEPA Re-evaluation, will have a maximum vertical clearance of 116 feet for the primary channel and 113 feet and 99 feet respectively for the alternate barge channel and barge channel spans each over a 300-foot-wide navigation clearance. To provide 300 feet of navigation clearance between bridge piers would require bridge spans greater than 400 feet. The design includes spans of 465 feet. The IBR program is evaluating



design options that may allow for additional vertical clearance without additional encroachment on the protected airspace for Pearson Airfield. To reflect this potential, an alternative is included that increases the vertical clearance by 5 feet.

A history of the different bridge heights considered, and the reasoning behind the bridge height of 116 feet is detailed later in this report.

### 1.5.1.3 Pier Locations

The existing bridges over the Columbia River have nine in-water pier sets. Each of the new bridges will be built on six pairs of in-water piers plus two pairs of piers on land. Each of these pier sets will be supported by a foundation of approximately sixteen 10-foot-diameter drilled shafts. Each group of shafts will be tied together with a concrete cap measuring approximately 75 by 75 feet at the water line. Columns or pier walls will rise from the shaft caps and connect to the superstructure of the bridges.

### 1.5.1.4 Oregon Slough Bridge(s)

The existing bridge over the Oregon Slough will be replaced. In 2012, the CRC Project did not propose replacing the existing structure and proposed adding one or more bridges for transit and other roadways. The IBR program has determined that the existing structure will need to be replaced for seismic safety. The design of the replacement bridge including the need for supplemental bridges has not been developed, but the IBR program has committed to providing vertical and horizontal clearances that will be the same or greater than the existing clearances of the Oregon Slough bridge. This would result in a minimum vertical clearance of 35 feet and a minimum horizontal clearance of 215 feet. The location of the Oregon Slough crossing has not been determined. It is likely that new or replacement bridges will need to be located at least partly outside the current bridge footprint to accommodate maintenance of traffic during construction as well as transit and active transportation connections.

### 1.5.1.5 Columbia River Bridge Heights Considered during CRC Project NEPA Process

Elements of the CRC Project have been proposed and studied since the early 1990s. In 2002, the I-5 Transportation and Trade Partnership produced an evaluation of multiple highway, transit, and river crossing improvements in this corridor and other parts of I-5 (Portland-Vancouver 2002). This process gathered public and stakeholder input on issues and potential solutions for transportation problems in the I-5 corridor, and the partnership recommended that the region move forward with several specific projects, including the CRC Project in 2012, and now the IBR program.

After FTA and FHWA issued a Notice of Intent to prepare an EIS in September 2005, the CRC Project team began working closely with the public, stakeholders, and local jurisdictions to develop the CRC Project's purpose and need. Following the adoption of the purpose and need, the project team developed an evaluation framework that is based on the purpose and need and set forth the criteria by which project components would be evaluated and screened for further consideration. The project team began soliciting ideas and identifying possible transportation components (for example, various



transit technologies and river crossing types and locations), and over 70 such components were identified. With public and agency input, the project team performed two rounds of evaluation and screening, as well as conducted additional evaluation and research, to narrow these options and assemble these components into 12 alternative packages. The project team then analyzed how well each alternative would address the criteria from the evaluation framework. In January 2007, the project team launched an intensive public involvement effort to present the results of this evaluation and invite comments on which alternatives should move forward into the DEIS.

During the CRC Project's early NEPA analysis and community outreach, a variety of bridge types and heights were considered. Bridge heights were evaluated in relation to impacts on river users; traffic safety; airspace; transit; downtown Vancouver, Washington; Hayden Island, Oregon; and the overall project footprint. Local communities and the two states recognized the need to balance these sometimes competing interests as potential solutions were evaluated. The bi-state CRC Task Force considered the need for the following:

1. Improved navigational safety and access.
2. Observing Federal Aviation Administration requirements that obstructions should be avoided for the safe operation of aircraft.
3. Replacement of substandard features and improved sightlines for safety on I-5.
4. Improved interstate traffic and freight mobility.
5. Grades that would accommodate transit.
6. Bridge landings that are compatible with local land use and community plans.
7. Improved bicycle and pedestrian access.
8. Safer connections to the adjacent state highway system.

In 2006, a long list of project components—including multiple transit modes, various bridge heights, various highway configurations, and other options—were evaluated to determine which should advance into further alternatives analysis. For the purposes of the analyses at that time, three representative bridge heights were evaluated for the main span: low with a movable span (around 65 feet), mid (95 to 110 feet), and high (around 130 feet). Based on study results and input, the bi-state task force recommended the following:

1. Removing the low level, movable span bridge components from consideration due to negative impacts to highway mobility, highway safety, freight movement, maintenance costs, and the lack of a significant difference in community impacts when compared to a higher mid-level fixed-span bridge.
2. Removing four high-level bridge components (greater than 130 feet) because of safety concerns with Pearson Field and 2004 findings that all known commercial and recreational vessels could be accommodated at 125 feet.
3. Advancing the mid-range height component based on the 2004 boat survey findings that a fixed span of 80 feet would accommodate all but six known vessels.



Also in 2006, the USCG accepted “cooperating agency” status and provided critical guidance to the project, including offering a public hearing for review and comment of a mid-level replacement bridge. At the September 2006 USCG public hearing, 17 people testified; one construction barge owner requested a bridge with a “high” level of navigation clearance, and one fabricator requested 100 feet.

During this same period, the Federal Aviation Administration reported it had “no objections” to the mid-level bridge height provided for the agency’s consideration.

The bi-state task force moved the mid-level bridge component forward within different multimodal alternatives for technical analysis in the DEIS. About 1,600 public and agency comments were received on the DEIS in 2008. Of the comments stating a preference on the bridge element, the majority favored a replacement (mid-level bridge) as compared to no action or a supplemental bridge. Of the 1,024 comments expressing an opinion on the replacement bridge, 66% were favorable and 34% were unfavorable. Only 346 comments expressed an opinion on the supplemental bridge, with 48% favorable and 52% unfavorable.

Based on the technical analysis in the DEIS and public and agency comments, the bi-state task force and six boards and councils of each local sponsor agency unanimously recommended a replacement bridge at mid-range height with an extension of light rail to Clark College in Vancouver for the Locally Preferred Alternative (LPA). The development and refinement of the LPA was informed by public input—over 29,000 public contacts at more than 1,000 public events.

In early 2011, the Oregon and Washington governors initiated a three-month bridge type review process and ultimately identified a composite deck truss design for the replacement river crossing structures. More than 250 people and organizations provided comment. Of those, 12 commented on vertical navigational clearance or highway grade. Only one (a private citizen) said the mid-level height would potentially impede river navigation. The other 11 suggested that a higher bridge could impact aviation and bicycle and pedestrian mobility. The USCG did not submit comments at that time.

During 2011, approximately three years after the DEIS was issued, the USCG forwarded an amended height request from an existing river user, and a new river user was also identified with concerns about the bridge height. In September 2011, the FEIS was published. During this time, the USCG expressed written concern regarding the proposed 95-foot bridge height based on comments received from river users and notified the project team that 125 feet clearance would be given serious consideration during their review.

Following the issuance of the ROD the project entered the final design and permitting phase. In response to the concerns raised by the USCG, impacts to the ability of the USACE dredge *Yaquina* to transit the bridge and concerns raised by other river users over the bridge height in the ROD, the project evaluated options for a mid-level bridge with greater vertical clearance for navigation. Based on the analysis in the CRC NIR and this additional evaluation the project decided to refine the bridge design and increase the vertical clearance to 116 feet.

In 2012 the CRC Project team conducted a NEPA re-evaluation to determine whether refining the bridge’s proposed vertical clearance to 116 feet and the new information on river users and vessels would result in any new significant adverse environmental impacts that were not evaluated in the



previous NEPA process. The re-evaluation concluded that there were no new significant impacts under NEPA for the 116-foot bridge (CRC 2012). A permit application and supporting materials were provided to the USCG and a permit was issued for a bridge with this vertical clearance in 2013.

A bridge height of 116 feet was selected based on the vessel analysis contained within the 2012 NIR and because that height balances the needs of navigation and surface transportation, while minimizing additional landside and environmental impacts. A bridge height of 116 feet would allow the project to avoid or minimize impacts to nearly all river users and vessels, and to mitigate the remaining impacts. A mid-level bridge higher than 116 feet would provide only minimal reductions in navigation impacts, but would add construction costs and increase environmental and landside impacts as follows:

1. 120- or 125-foot bridge would have the same impact on the tallest known vessels/users as the 116-foot bridge. Without mitigation, these vessels could not pass at any time of year. The mitigation for these vessels/users would be the same with each of these vertical clearances.
2. A 120-foot or 125-foot bridge would have higher landside and environmental impacts than a 116-foot bridge (as discussed in the 2012 NIR) and higher construction costs.

A bridge lower than 116 feet would have lower construction costs, but would have greater impacts on navigation:

1. A bridge with 115 feet or less of vertical clearance would not meet the vertical clearance requested by the USACE for their dredge vessel Yaquina.
2. A bridge with 110 feet of vertical clearance would reduce the construction cost, but would potentially impact up to seven additional vessels.
3. A bridge with 105 feet of vertical clearance would reduce the construction cost, but would potentially impact up to 14 additional vessels.

Design issues and impacts associated with increased bridge heights are summarized generally below:

4. Maximum mainline grades: The maximum grade of the mainline traffic lanes on the north and south ends of the bridges. Typically, the higher the bridge, the steeper the mainline grade required. As the grade increases traffic performance and traffic safety may decrease because it is more difficult for vehicles to accelerate and maintain speeds as they climb steeper grades.
5. Changes in entrance ramp grades: Higher bridges will result in longer or steeper on-ramps, which will require additional traffic analyses and potentially design changes to ensure safe merging and weaving operations, especially for heavy trucks.
6. Transit grade and stations: On the Washington side, increased bridge heights will result in changes in the grade of dedicated transit elements. This could affect transit performance and could create changes in station locations and affect the planned downtown Vancouver street network.
7. Protected airspace: Take-offs and landings from the Pearson Field are directed to use Federal Aviation Administration-designated air space (known as the Part 77 Imaginary Surface). With increasing bridge heights (greater than 95 feet of vertical clearance), there are two primary locations where intrusions into the protected airspace are of concern. One location is on the main span of the bridge over the Columbia River, and the other is at the SR 14/I-5 interchange



(the loop ramp in the northeast quadrant of the interchange). Typical illumination on the interstate is in the range of 50 feet above the road surface. With bridge heights of 105 to 110 feet and above, luminaires on the bridge would penetrate the Part 77 surface. Luminaires and sign gantries on the highest ramps within the SR 14 interchange would start to penetrate the Part 77 surface when the bridge exceeds about 115 feet.

8. Foundation sizes: The size of the bridge piers and foundations. This is of concern not only because of increasing costs, but also because of the potential for impacts to the river beyond those previously identified and addressed.
9. Southbound I-5 access from Vancouver: Under some of the bridge heights considered, the planned southbound on-ramp to I-5 from 6th Street may no longer be feasible because of the change to on-ramp alignment. This would be a direct result of the lengthened structures on the bridge touch down points in Vancouver.

The effects of bridge heights from 95 feet to 125 feet in increments of 5 feet on each of these elements was detailed in Section 7.3.2 of the 2012 NIR. Additional analysis was also provided in Section 7.3.2 for bridge heights providing up to 178 feet of vertical clearance and for a bridges incorporating a movable span.

## 1.6 IBR Program Purpose and Need

The purpose and need statements below are based on the 2012 FEIS and ROD, which was developed by the lead agencies, project sponsors, and CRC Task Force. The IBR program is using the ROD as the basis of the program and will not change the purpose and need.

### 1.6.1 Project Purpose

The purpose of the proposed action is to improve I-5 corridor mobility by addressing present and future travel demand and mobility needs in the IBR program area. The program area extends from approximately Columbia Boulevard in the south to SR 500 in the north. Relative to the No-Build Alternative, the proposed action is intended to achieve the following objectives: a) improve travel safety and traffic operations on the I-5 bridges and associated interchanges; b) improve connectivity, reliability, travel times, and operations of public transportation modal alternatives in the program area; c) improve highway freight mobility and address interstate travel and commerce needs in the program area; and d) improve the I-5 river crossing's structural integrity (seismic stability).

### 1.6.2 Project Need

The specific needs to be addressed by the proposed action are:

1. **Growing travel demand and congestion:** Existing travel demand exceeds capacity of the I-5 bridges and associated interchanges. This corridor experiences heavy congestion and delays lasting 4 to 6 hours daily during the morning and afternoon peak travel periods and when traffic accidents, vehicle breakdowns, or bridge lifts occur. Due to excess travel demand and congestion in the I-5 bridge corridor, many motorists take



the longer, alternative I-205 route across the river. Spillover traffic from I-5 onto parallel arterials such as Martin Luther King Jr. Boulevard and Interstate Avenue increases local congestion. In 2005, the two crossings carried 280,000 vehicle trips across the Columbia River daily. Daily traffic demand over the I-5 crossing is projected to increase by more than 35% during the next 20 years, with stop-and-go conditions increasing to approximately 15 hours daily if no improvements are made.

2. **Impaired freight movement:** I-5 is part of the National Truck Network, and the most important freight highway on the West Coast, linking international, national, and regional markets in Canada, Mexico, and the Pacific Rim with destinations throughout the western U.S. In the center of the program area, I-5 intersects with the Columbia River's deepwater shipping and barging, as well as two river-level transcontinental rail lines. The I-5 crossing provides direct and important highway connections to the Port of Vancouver and Port of Portland facilities located on the Columbia River, as well as the majority of the area's freight consolidation facilities and distribution terminals. Freight volumes moved by truck to and from the area are projected to more than double over the next 25 years. Vehicle-hours of delay on truck routes in the Portland-Vancouver area are projected to increase by more than 90% over the next 20 years. Growing demand and congestion will result in increased delay, costs and uncertainty for all businesses that rely on this corridor for freight movement.
3. **Limited public transportation operation, connectivity, and reliability:** Due to limited public transportation options, a number of transportation markets are not well served. The key transit markets include trips between the Portland Central City and the city of Vancouver and Clark County; trips between north/northeast Portland and the city of Vancouver and Clark County; and trips connecting the city of Vancouver and Clark County with the regional transit system in Oregon. Current congestion in the corridor adversely impacts public transportation service reliability and travel speed. Southbound bus travel times across the bridge are currently up to three times longer during parts of the a.m. peak compared to off-peak. Travel times for public transit using general purpose lanes on I-5 in the program area are expected to increase substantially by 2030.
4. **Safety and vulnerability to incidents:** The I-5 river crossing and its approach sections experience crash rates more than twice the statewide averages for comparable facilities. Incident evaluations generally attribute these crashes to traffic congestion and weaving movements associated with closely spaced interchanges and short merge distances. Without breakdown lanes or shoulders, even minor traffic accidents or stalls cause severe delay or more serious accidents.
5. **Substandard bicycle and pedestrian facilities:** The bike/pedestrian facilities on the I-5 bridges are about 3.5 to 4 feet wide, narrower than the 10-foot standard, and are located extremely close to traffic lanes, thus impacting safety for pedestrians and bicyclists. Direct pedestrian and bicycle connectivity are poor in the program area.
6. **Seismic vulnerability:** The existing I-5 bridges are in a seismically active zone. They do not meet current seismic standards and are vulnerable to failure in an earthquake.



## 2. PART 2: NAVIGATION IMPACTS

### 2.1 Means of Data Collection

This section describes the methods used to obtain navigation data.

#### 2.1.1 Methodology

To obtain information on the current and potential future navigation needs and characteristics of the vessels that transit the bridge location, the program team conducted the following activities.

1. Identified known river users. The CRC River User Data Report (CRC report) was the primary source for known river users, including commercial, recreational, passenger cruise, and federal users, as well as marine contractors and fabricators. Additional and updated information was obtained from the Hood River-White Salmon Bridge Replacement Project NIR (completed in September 2019). Contact information for known river users was also updated and/or verified through internet research and consultation with industry groups and organizations. Known recreational users were identified through contact with area marinas and other recreational vessel service providers within an approximately 3-mile radius of the project location.
2. Prepared and distributed (via email as the preferred method) a letter and river user data sheet to identified known river users to request vessel navigation and dimensional characteristics.
3. Prepared an online survey to collect river user data from the general public (unknown users) and distributed via public notices (described below) and through the IBR program website.
4. Collected USACE data on lock usage at Bonneville and BNSF data on bridge openings on the Columbia River and Oregon Slough.
5. Collected bridge lift data from ODOT to determine if vessels required a lift that were not otherwise captured in the outreach to known river users. For the users that were not included within the known users data and did not provide information through the river user survey, attempts were made to locate the vessels through internet research and/or contact the owners through email and/or telephone.
6. Held discussions with specific users such as fabricators and shipyards to discuss unique user needs.
7. Prepared a public notice for distribution and publication in the USCG Local Notice to Mariners, in local newspapers and specialty publications as identified in Appendix C, and on the program website and social media accounts.
8. Conducted presentations about the program to the Pacific Northwest Waterways Association, the Lower Columbia River Harbor Safety Committee and indicated the need to obtain river user data. The program team encouraged attendees to complete the river user data survey and/or update or verify the information on the known river user data sheets.
9. Sent an email notice and request for information for distribution by the Pacific Northwest Waterways Association to its members.



10. Reviewed land use and zoning along the waterway and public port authority plans to identify future business/industrial property plans that could influence the types and characteristics of vessels that would require transit under the proposed bridge.
11. Followed up with specific river users via telephone or email after they had received the river user data sheet to answer any questions and facilitate a timely response.

### 2.1.1.1 River User Data

The following information was collected through the river user outreach efforts. A copy of all correspondence and a full reporting of the outreach efforts is included in Appendix B and C. Known Columbia River users who transit under the existing bridges were contacted and surveyed regarding the navigation and dimensional features of their vessels and equipment. Known river users were identified consistent with the methodology identified above. Vessel data sheets were provided, requesting the following information:

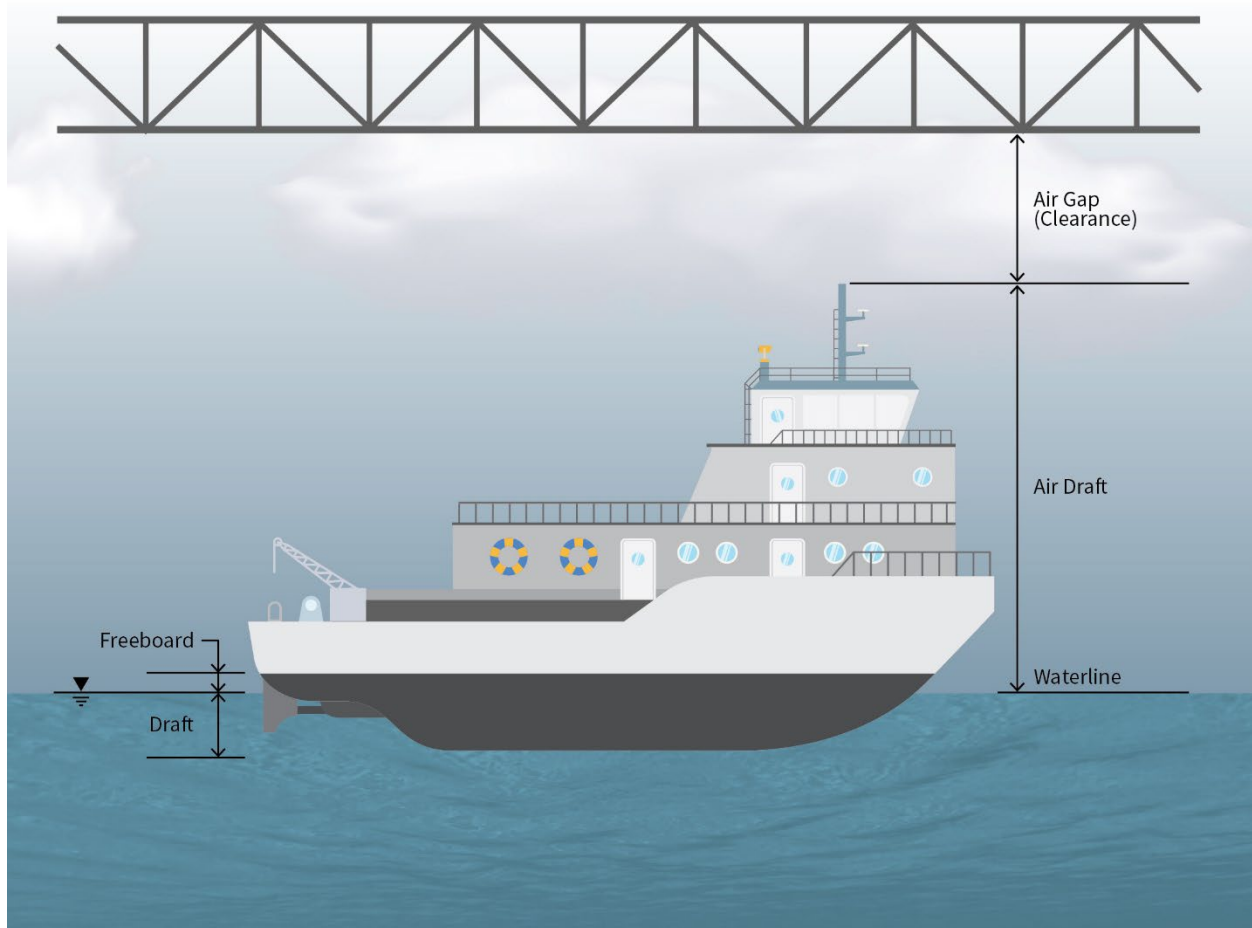
1. Company and/or owner of the vessel and contact information.
2. Vessel name.
3. Vessel type.
4. Specialized vessel (e.g. limited maneuverability due to design or mode of operation).
5. Vessel category.
6. USCG document number.
7. Primary mooring location.
8. Type and quantity of cargo, if applicable.
9. Length (overall) in feet.
10. Beam (width) in feet.
11. Draft (depth of hull below waterline, unladen) in feet.
12. Air draft (height of the highest fixed point above the waterline, unladen) in feet.
13. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of the bridge) in feet.
14. Safety margin (horizontal clearance required by vessel to navigate through the bridge) in feet.
15. Transit speed under Interstate Bridge and load configuration.
16. Time of year of passage.
17. Tug assistance requirement.
18. Frequency of passage under Interstate Bridge main channel (typical per month).
19. Frequency of passage under the Oregon Slough (North Portland Harbor) bridge (typical per month).

Information on recreational vessels was obtained through the online survey, marina contacts, and individual contact with vessel owners if needed. All the information gathered during the user survey was self-reported. However, some information was verified by field surveys for the CRC Project. Figure



2.1-1 is a diagram of vertical reference descriptions listed on the river user data sheet using a tug as the example vessel.

Figure 2.1-1. Vertical Reference Diagram



The bridge vertical clearance is the distance from the water surface to the lowest member of the bridge structure. The air gap is the additional height above the highest point on a vessel necessary to allow for a safety factor when transiting under a bridge due to wave- and wind-induced movements in the vertical plane. This is especially applicable for sailboats and other low weight vessels since they have greater responses to wave conditions. Vessel responses are unique for a given ship's geometry and weight distribution and vary with the ship's forward speed, the channel bathymetry, and environmental conditions such as wind and wave direction, height, and length. The amount of air gap is also influenced by visibility. For a project with a long design life, the long-term impacts caused by changing river runoff characteristics, sea level rise, and land subsidence are potential considerations as well. Air gap is in general provided by the vessel operator but may be adjusted if a request air gap seems unreasonable.



Since the river level fluctuates, a river level that is exceeded only 1.2% or less of the time during the life of a project is a conservative design criterion for determining the near maximum surface for a heavily used channel. At the I-5 bridges, this design river level is 16 feet CRD and is used to determine whether a vessel is height restricted.

## Users Contacted

Known river users were identified from the CRC report and the Hood River-White Salmon Bridge Replacement NIR. Users were contacted by email and telephone. Users were divided into the following categories: commercial tugs, tows, and barges; marine contractors; federal/emergency/maintenance; passenger cruise; and recreation.

### *Commercial, Marine Contractor, Passenger Cruise, and Federal Users*

Forty commercial, marine contractor, fabricator, shipyard owner, federal, and passenger cruise users were contacted. Approximately half have responded confirming the vessel data obtained from prior reports and/or providing updated vessel information. Table 2.1-1 lists the commercial, marine contractor, passenger cruise, and federal river users contacted, the vessel category, and indicates if a response was received. Many responders in these categories operate multiple vessels.

**Table 2.1-1. Commercial, Marine Contractor, Passenger Cruise, and Federal River Users Contacted**

Company Name	Category	Response
Advanced American Construction	Marine Contractor	No
American Cruise Lines	Passenger Cruise	Yes
American Queen Steamboat Company	Passenger Cruise	No
American Waterways, Inc.	Passenger Cruise	Yes
Bergerson Construction	Marine Contractor	No
Bernert Barge Lines	Commercial Tugs/Tows/Barges	Yes
Brusco Tug and Barge	Commercial Tugs/Tows/Barges	No
Cadman	Industrial	Yes
Cal Portland	Marine Contractor	No
Centerline Logistics (previously Olympic Tug & Barge)	Commercial Tugs/Tows/Barges	No
Diversified Marine	Marine Contractor	Yes
The Dutra Group	Marine Contractor	No
Foss	Commercial Tugs/Tows/Barges	No
General Construction (Kiewit)	Marine Contractor	Yes
Greenberry Industrial LLC	Fabricator	Yes
Grays Harbor Historical Seaport	Passenger Cruise	No
Hickey Marine	Marine Contractor	No
JE McAmis	Marine Contractor	No



**Table 2.1-1. Commercial, Marine Contractor, Passenger Cruise, and Federal River Users Contacted**

Company Name	Category	Response
JT Marine	Marine Contractor	Yes
Knife River	Marine Contractor	No
Legendary Yachts	Shipyard	Yes
Lindblad/National Geographic Expeditions	Passenger Cruise	Yes
Manson Construction	Marine Contractor	No
Mark Marine Service	Marine Contractor	No
NorthBank Civil and Marine	Marine Contractor	Yes
Puget Sound Naval Shipyard	Federal	Yes
Ross Island	Marine Contractor	Yes
SDS Tug & Barge	Commercial Tugs/Tows/Barges	No
Schnitzer Steel Industries	Fabricator	Yes
Schooner Creek Boat Works	Shipyard	Yes
Shaver	Commercial Tugs/Tows/Barges	Yes
Thompson Metal Fab	Fabricator	Yes
Tidewater	Commercial Tugs/Tows/Barges	Yes
Tongue Point Job Corps (Maritime Training Program)	Federal	No
UnCruise	Passenger Cruise	No
USACE	Federal	Yes
USCG, Marine Safety Unit (Portland)	Federal	Yes
Vigor Works, LLC	Fabricator	Yes

### *Recreational Users*

Recreational users were not generally contacted individually, and information was obtained from recreational marinas in the project vicinity, as well as through responses to the online river user survey. Marinas contacted are listed below. Of the marinas contacted, only Hood River and St. Helens provided a response. Both marinas indicated they do not have boats that exceed 80 feet in height. The marinas that did not respond may have distributed the online survey link to their tenants, as several respondents to the online survey indicated a mooring location at one of the marinas listed below.

#### **Marinas Contacted**

1. Astoria Yacht Club
2. Big Eddy Marina
3. Camas-Washougal Marina
4. Columbia River Yacht Club



5. Dolphin Yacht Club
6. Grand Banks Yacht Club
7. Hayden Bay Marina
8. Hayden Island Yacht Club
9. Hood River Marina
10. Jantzen Bay Marina
11. Longview Yacht Club
12. McCuddy's Marina
13. Multnomah Channel Yacht Club
14. Nots Boating Club
15. Portland Yacht Club
16. Riverside Yacht Club
17. Rose City Yacht Club
18. Sauvie Island Yacht Club
19. St. Helens Marina
20. The Dalles Marina
21. Tomahawk Bay Marina
22. Tomahawk Bay Yacht Club
23. Tyee Yacht Club

### *Online Survey*

As of the date of this report, the online survey has received 39 responses. Five surveys were received for commercial vessels, three for cruise vessels (one large passenger cruise vessel and two smaller vessels that self-reported as cruise vessels), seven for recreational motor vessels, 23 for sailboats, and one for a kayak.

#### **2.1.1.2 Bridge Opening Data**

The primary channel under the existing Interstate Bridge provides a vertical clearance of 39 feet when the lift span is in the lowered position. Navigation lights below the structure reduce the clearance to 38 feet in the lowered position. The barge channel and alternate barge channel provide for vertical clearance of 58 feet and 72 feet, respectively. Vessels that require a clearance greater than this or that cannot safely negotiate the alternate channels require that the lift span be raised.

Vessels that require the lift span to be raised indicate that the particular vessel could be impacted by the replacement bridge height. However, as noted above, the lift spans are also raised because of



maneuverability limitations, and thus not all vessels that require a lift span are constrained by the height of the existing fixed spans, and this must be considered in reviewing bridge opening trends. To identify vessels that have historically and currently required bridge lift span openings, the program team reviewed bridge lift data provided by ODOT. The bridge tenders operating the lift spans of the existing bridges record details of each lift in a logbook. Information recorded in the log includes the date and time of the opening, the name of the vessel or vessels transiting, the type of vessel, the lift elevation, the current water level, and weather conditions, among other data. The 2012 CRC NIR reported lift data from January 1, 1987, to December 17, 2011, and this was supplemented with data from 2012 to 2020.

The program team reviewed the logs and categorized bridge openings by type of vessel:

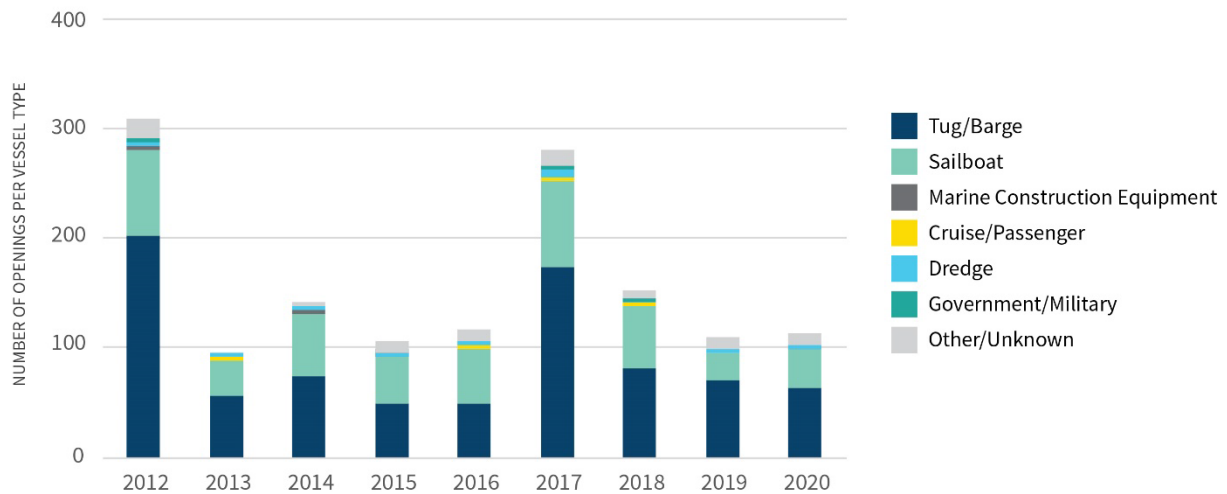
- Tugs and barges (including tugs proceeding with no barge or with barges in tow).
- Sailboats.
- Construction equipment (defined as power barges, crane barges, derricks, etc.).
- Cruise and passenger boats (vessels providing passenger service between downriver and upriver locations).
- Dredges (including the USACE dredge Yaquina and other privately owned dredges).
- Government or military vessels (U.S. Navy, USCG, and the Astoria Job Corps, etc.).
- Other/Unknown (vessels that had no name or designation).

Many vessels that transit under the existing bridges do not require an opening of the lift span. These vessels are either are low enough to pass through the lift span in the lowered position or use one of the two alternate channels to the south of the lift span.

Bridge opening trends from 2012 to 2020 are presented in Figure 2.1-2. The number of bridge opening events (excluding openings for bridge maintenance, in which no vessel transited) ranged from a low of 92 events (2013) to a high of 309 events (2012), with an average of 157 events per year. This compares with a low of 70 events (2004) and a high of 863 events (1997), with an average of 289 events per year from 1997 through 2011. A spreadsheet of all bridge openings from 1997 to 2020 is included in Appendix E.



Figure 2.1-2. Bridge Opening by Vessel Type by Year: 2012 to 2020

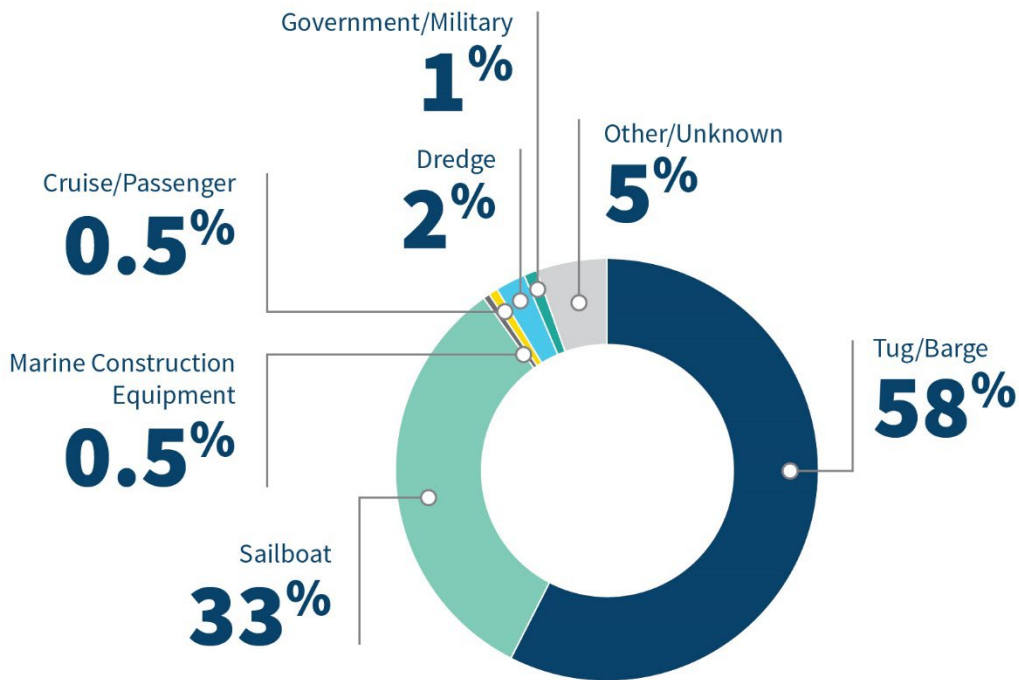


Source: I-5 Bridge Tender Logs as categorized by the project team.

Figure 2.2-3 summarizes the share of bridge opening events by type of vessel over a nine-year period (2012 to 2020). Tugs and barges accounted for over half (58%) of all openings, followed by sailboats at 33% and vessels where a type could not be determined at 5%. Each of the remaining vessel types accounted for between 1 and 2%. Comparing this with the data from 1987 and 2011 shows little change in openings except for the reduction in lifts involving construction equipment. From 1987 to 2011, tugs and barges accounted for over half of all openings, followed by sailboats at 22% and construction equipment at 17%, with each of the remaining vessel types accounting for 1% to 4%.



Figure 2.1-3. Bridge Openings by Vessel Type 2012 to 2020



Source: I-5 Bridge Tender Logs as categorized by the project team.

#### 2.1.1.3 Bridge Openings as a Share of Total Navigation Activity

There are no sources of information that directly compare the number of bridge opening events with all river activity because the only recorded transits of the bridge are those that require a bridge opening. However, data are available that characterize the annual vessel activity for commercial tugs and barges and recreational boats, as discussed below.

The number of commercial lockages at the Bonneville dam provides a useful estimate of the total transits (or events) that occur at the existing bridges, because nearly all of the traffic passing through the Bonneville lock was linked to terminals located downriver of the bridges. BNSF bridge opening data also provide information on vessel transits that may also occur at the existing I-5 bridge as most commercial vessels and sailboats require an opening of the BNSF bridge.

Bonneville lock data from the years 2000 through 2011, as reported in the CRC NIR, show an average of 2,596 commercial lockages at the dam, where the share of this traffic that required an opening at the bridges represented an average of 3.6% of estimated total trips. From 2012 through 2020, 22,584 passages were recorded, showing an average of 2,258 per year (USACE 2021d). Where the share of this traffic that required an opening at the bridges represented an average of 7% of estimated total trips.



The number of openings of the BNSF bridge can provide information on total commercial vessel traffic and most sailboats, as they require an opening to navigate the bridge, and there are limited origins/destinations between the BNSF bridge and the existing I-5 bridge, and most vessels would have to pass both bridges. The BNSF rail bridge (BNSF Columbia Draw 9.6) saw a total of 19,636 openings between the years 2015 and 2020, where the share of this traffic that required an opening at the bridges represented an average of 4% of estimated total trips.

## 2.2 Present Governing Structures

Existing bridges and other structures spanning the river, such as electric transmission lines, can restrict vessel use based on their existing horizontal and vertical clearances. This section describes the governing structures affecting navigation at the project location and defines the limits of navigation that could be impacted by the proposed replacement bridges.

### 2.2.1 Columbia River

Table 2.2-1 contains details of the existing structures crossing the Columbia River between the mouth of the Columbia River and the BNSF railroad bridge at Celilo. The existing Interstate Bridge is a governing structure as all bridges downstream currently provide greater vertical clearance. The BNSF bridge at Celilo is located at RM 201.2, which is approximately 10 miles upriver from The Dalles lock and dam (RM 191.5). The lift span provides a maximum vertical clearance of 79 feet above the normal pool elevation behind The Dalles dam when open, making it a controlling factor for vertical clearance. This means that the height constraint imposed by a vertical clearance of 116 to 121 feet potentially affects river traffic vertical clearance for approximately 95 miles, or 20% of the river system. Vessels originating upstream of this location or downstream and traveling to an upstream destination upriver of the BNSF rail bridge at Celilo, are limited to a vertical clearance of 79 feet included an air gap in order to transit through the bridge. Upstream of the BNSF rail bridge at Celilo, there are other bridges with navigation clearances lower or similar. These include the Interstate 82 Bridge (71 feet), and Union Pacific Railroad Bridge upriver of McNary Dam (72 feet). A complete list of bridges and other crossings are shown in Appendix D.



Table 2.2-1. Existing Columbia Navigation Clearances

Bridge	River Mile	Horizontal Clearance (feet)	Vertical Clearance (feet)	Vertical Clearance with Span Open (feet)
Astoria-Megler Bridge	13.5	1,070	193	NA
Power Cable	40.0	NA	230	NA
Power Cable	62.4	NA	216	NA
Lewis & Clark Bridge	66.0	1,120	187	NA
Power Cable	104.2	NA	220	NA
BNSF Rail Bridge	105.6	200	39	Unlimited
Existing Interstate Bridge	106.5	263	39	178
Glenn L. Jackson Memorial Bridge (I-205)	112.7	469	136	NA
Power Cable (directly west of Bonneville Lock and Dam)	145.1	NA	210	NA
Bonneville Lock and Dam (navigation lock)	145.3	86	Unknown	Unlimited
Power Cable	146.6	NA	190	NA
Bridge of the Gods	148.3	655	135	NA
Hood River-White Salmon Bridge	169.8	246	67	148
Power Cable	171.1	NA	155	NA
Power Cable	173.8	NA	159	NA
Power Cable	186.2	NA	155	NA



Table 2.2-1. Existing Columbia Navigation Clearances

Bridge	River Mile	Horizontal Clearance (feet)	Vertical Clearance (feet)	Vertical Clearance with Span Open (feet)
The Dalles Bridge (navigation lock approach)	191.6	250	100	NA
The Dalles Bridge (main span)	191.6	551	81	NA
The Dalles Lock & Dam	191.8	86	NA	100
Power Cable	191.9	NA	125	NA
Power Cable	201	NA	123	NA
BNSF Celilo Bridge	201.2	300	20	79

Key:

NA = not applicable

I-205 = Interstate 205

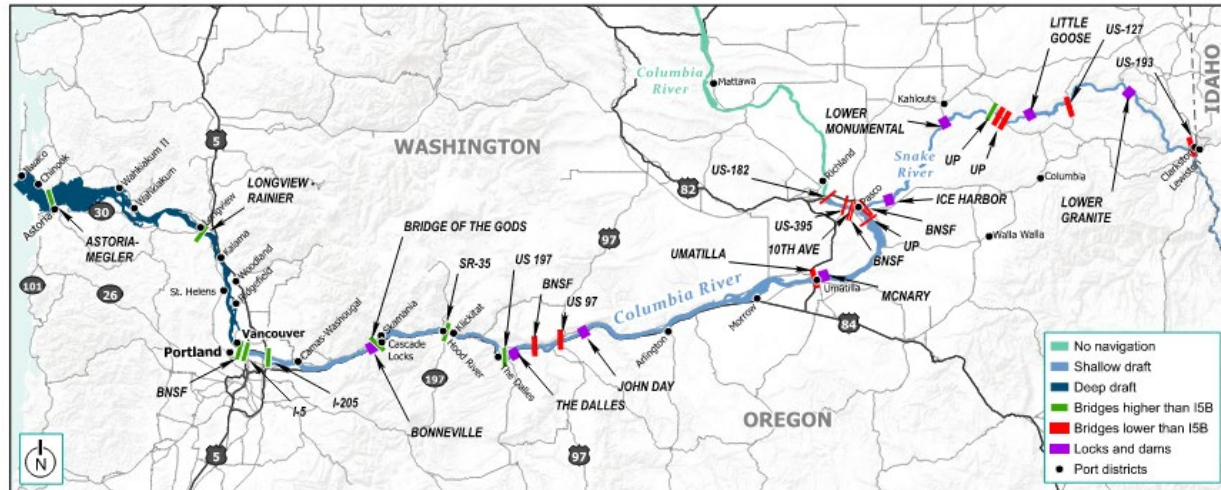
The Bonneville Lock and Dam at the navigation lock approach (RM 145.3) is currently the most restrictive horizontal clearance at 86 feet. This is not representative of the horizontal clearance at bridges as vessels approach and depart the locks at low speeds but does represent the limiting factor for vessels navigating above the Bonneville dam. The most restrictive horizontal clearance of 200 feet is provided by the BNSF railroad bridge, located approximately 1 mile downstream of the existing I-5 bridges in Vancouver.

Plans are currently underway for a fixed height bridge to replace the existing SR 35 bridge located in Hood River (RM 106.5) identified in Table 2.2-1. The existing SR 35 bridge includes a lift span with a vertical clearance of 67 feet in the closed position and 148 feet in the open position above the normal pool elevation behind the Bonneville dam. The analysis for replacement bridges assessed impacts to users based on two proposed navigation envelopes—80 feet of vertical clearance across a 450-foot horizontal clearance and 90 feet of vertical clearance across a 250-foot horizontal clearance at the center span of the bridge (WSP 2019). A preliminary navigation clearance determination was issued by the USCG for the replacement bridge. This NIR does not consider the replacement bridge but were this bridge to be completed it would change the governing structures and reduce the area with the potential to be impacted by height restrictions from the IBR program.

Figure 2.2-1 shows the location of the governing structures on the Columbia-Snake River System. Appendix D includes details on the navigation clearances for all bridges, cables, and locks across the Columbia River (from the mouth to Richland, Washington), and across the Snake River (from the mouth to Lewiston, Idaho).



Figure 2.2-1. Columbia-Snake River System Map



## 2.2.2 Oregon Slough

Table 2.2-2 contains details of the existing structures on the Oregon Slough.

Table 2.2-2. Existing Structures on the Oregon Slough

Bridge	River Mile <sup>1</sup>	Horizontal Clearance (feet)	Vertical Clearance (feet)	Vertical Clearance with Span Open (feet)
Power Cables	104.2	NA	160	NA
BNSF Railroad	105.6	200	39	Unlimited
I-5	106.5	215	35	NA
Power Cable	106.7	NA	54	NA

Note:

<sup>1</sup> River mile reference is to the Columbia River since Oregon Slough is not numbered separately

Key:

I-5 = Interstate 5

NA = not applicable

Because the existing I-5 bridge across the Oregon Slough has vertical clearance of 35 feet, it represents the most restrictive vertical clearance on the waterway. The most restrictive horizontal clearance is the BNSF Railroad bridge.



## 2.3 Waterway Characteristics

The following section identifies the navigational characteristics of these two navigable waters in the immediate program area.

### 2.3.1 Introduction

The Columbia River headwaters are located in British Columbia, Canada, through which it flows for approximately 425 miles before entering the continental U.S. in northeast Washington. From the border it flows generally south to its confluence with the Snake River where it turns west and forms the boundary between Washington and Oregon for the remainder of its course to the Pacific Ocean. The river is an important natural resource and also serves a vital role for power generation, irrigation, navigation, and recreational purposes. The river is navigable for deep-draft vessels from its mouth to Portland, Oregon, and Vancouver, Washington, and for shallow-draft vessels to Lewiston, Idaho via the Snake River.

The Columbia River's deep-draft navigation system provides for a 43-foot-deep by 600-foot-wide channel from inside the Columbia River Bar upriver to ports on both the Washington and Oregon sides of the river at approximately river mile (RM) 106. The upriver end of this section of the channel, known as the Columbia and Lower Willamette, is just downriver from the existing I-5 bridges.

From just downstream of the I-5 bridges to the head of navigation in Lewiston, Idaho, the Columbia River is maintained as a shallow-draft system predominantly supporting tug and tow vessel traffic. The shallow-draft system has a controlling depth of approximately 15 feet. Just east of The Dalles is a BNSF railroad bridge at Celilo Falls with a vertical clearance of 79 feet, which is notably less than the bridge heights under consideration for the IBR program.

Between the I-5 bridges and the Celilo Falls BNSF railroad bridge 95 miles to the east, many shoreline land uses are dependent on the Columbia River. In general, the Columbia River shoreline is identified by local jurisdictions as a resource to be leveraged for river-dependent uses that are more in line with recreational, environmental, habitat, or economical purposes than with industrial marine, water-dependent uses. The intrinsic value of the Columbia River is largely in its natural beauty, especially within the National Scenic Area located roughly 50 miles east of I-5. The most significant land use control is the 85-mile-long Columbia River Gorge National Scenic Area, which protects the natural beauty of the gorge and severely limits industrial development outside of existing incorporated communities.

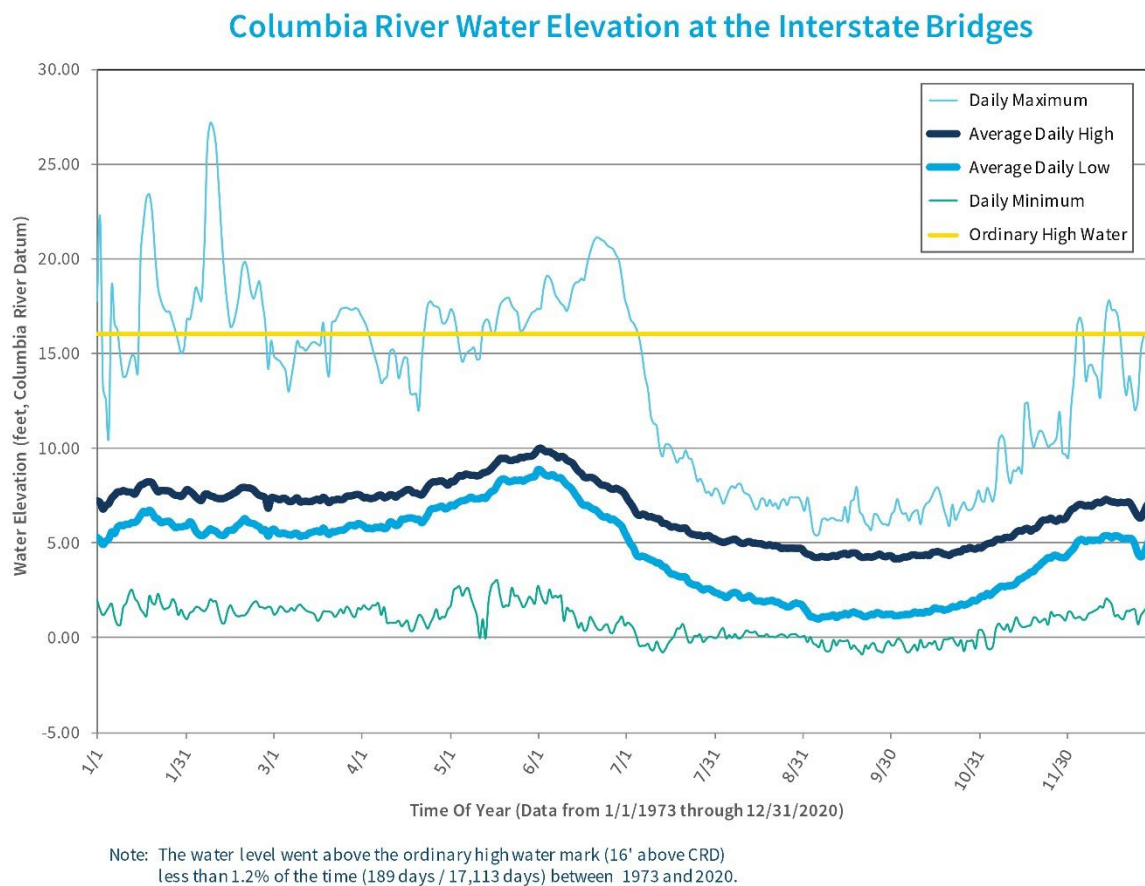
### 2.3.2 River Water Level at the I-5 Bridges

One of the critical factors influencing vertical clearance is river water level, which fluctuates daily and over the course of the year. Figure 2.3-1 summarizes the variability in water levels for the Columbia River at the I-5 bridges from 1972 through 2020. Included in the figure are daily maximum, daily



minimum, average daily high, and average daily low water levels. Appendix F contains the data used to develop this chart.

Figure 2.3-1. Columbia River Water Elevation at the Interstate Bridges (1972–2012)



The Columbia River generally follows a seasonal trend of lowest water levels in late summer, moderately higher than average water levels in the winter (except for occasional storm-induced high water), and the highest average water levels in May and June coinciding with peaks in spring snowmelt and rainfall. In general, the following river water level trends can be observed from the data collected over the past 50 years:

- The highest average daily high is approximately 10 feet above CRD and occurs in late May/early June. The lowest average daily low is approximately 2 feet above CRD and occurs in early September.
- The ordinary high water level of 16 feet above CRD was exceeded less than 1.2% of the time over the past 50 years. This is used as the “analysis level” for identifying vessels that would be impacted by different vertical clearances, as discussed in Section 2.17.



River levels at the I-5 bridges are influenced primarily by variations in runoff. However, the river level is tidally influenced between its mouth at the Pacific Ocean and the Bonneville dam. The tidal influence is less at high river flow conditions and greater during low flow conditions. According to NOAA Chart 18526, the diurnal range of the tide during low river stages is 1.8 feet at Vancouver. The range becomes progressively smaller with higher stages of the river.

### 2.3.2.1 Waterway Stages

According to records maintained by the National Weather Service, the following are the flood categories and river stages for the Columbia River downstream of the I-5 bridge:

- Action Stage – 15 feet above CRD
- Flood Stage – 16 feet above CRD
- Moderate Flood Stage – 20 feet above CRD
- Major Flood Stage – 25 feet above CRD

According to the Federal Emergency Management Agency National Flood Insurance Study for Clark County, Washington, the 100-year flood level is 26.12 above CRD (FEMA 2018).

The top five historical river crests (feet above CRD) for the Columbia River downstream of the I-5 bridges are:

1. 31.0 feet on June 13, 1948
2. 30.8 feet on June 1, 1948
3. 27.7 feet on December 25, 1964
4. 27.6 feet on June 4, 1956
5. 27.2 feet on February 9, 1996

The top four low water records for the Columbia River downstream of the I-5 bridges are:

1. -1.20 feet on January 7, 1937
2. -1.10 feet on November 8, 1936
3. -0.80 feet on July 30, 1978, and July 24, 1989
4. -0.74 feet on July 14, 2001

While many vessels will not transit during very high water stages, self-reported observations from marine contractors included reports of being very busy during the February 1996 flood event, when they had to perform many rescues and temporary repairs of vessels, docks, and moorings, and had frequent transits under the lift span of the I-5 bridges.

### 2.3.2.2 Potential Climate Change Impacts

Climate change could affect future Columbia River water levels, as described in Chapter 3 of the CRC FEIS. This was based on reviewing research conducted by the University of Washington's Climate



Change Impacts Group. Section 3.19 of the FEIS summarizes how the project might perform under potentially changing conditions predicted because of climate change. Updated information from the Climate Change Impacts Groups (Miller 2018) and other sources was also reviewed. Based on the published information, the impacts of climate change in the IBR program area that could be relevant to future Columbia River water levels and vessel clearance are projected as follows:

- Relative sea level rise in the Pacific Northwest will vary regionally based on uplift and subsistence. For 2100, the projected absolute sea level rise is 1.0 to 2.2 feet in the low scenario and 1.4 to 2.8 feet in a high scenario. For 2150, the projected ranges are 1.5 to 3.8 in the low scenario and 2.3 to 4.9 feet in a high scenario.
- Warmer winter temperatures in the Columbia River Basin will result in lower snowpack and higher winter base flows. Lower base flows are expected in the spring and summer months, and an increased likelihood of more intense storms may increase the chance of flooding. Average annual precipitation is likely to stay within the range of 20th century variability; however, there will be a shift in the amount and timing of seasonal precipitation, with a trend toward more winter precipitation.
- Seasonal shift in temperature and precipitation will likely impact base and peak flows and river water levels. Warmer, wetter winters will likely lead to higher winter base flows and river stages, while lower base flows and river stages will likely occur in spring and summer months.

There is uncertainty associated with these predictions, and the best available science does not provide specific predictions for how climate change impacts would change the daily or monthly average highs and lows at the bridge crossing. Further, while numerous studies have been performed on the impacts of climate change on the Columbia River, they have focused on hydrology. No known studies have evaluated the potential changes to the stage of the Columbia River, which is affected by river management and discharge as well as tide in the lower Columbia.

However, based on existing data regarding how Pacific Ocean tidal changes affect river water levels at the bridges, it is reasonable to expect that if sea levels rise as predicted, there would be a resulting increase in water levels at the bridge during low runoff periods that is less than the absolute increase in sea levels projected at the coast and little to no impact during the higher runoff periods. As indicated above, the climate change predictions, if accurate, suggest that average spring flows, which are historically the highest of the year, will be lower in the future; that average winter flows will be higher (peak average flows could shift away from the spring and toward the winter season); and that average summer flows, historically the lowest of the year, will be even lower in the future.

Because the best available science provides no quantitative predictions of how daily or monthly average flows could change, it is difficult to translate the general climate change predictions into precise conclusions regarding future vessel clearances. However, given that the average annual precipitation is not expected to change, this suggests that average annual runoff would be similar, and thus average annual river levels at the bridge would likely be similar to what they have been in the past 50 years. Sea level rise could have a minor impact on these water levels during low runoff periods.

Given the predictions in seasonal precipitation changes, however, any impact of sea level rise could be counteracted by low flows being even lower in the future. This combination could result in slightly



more vertical clearance during the spring and summer months compared to recent history, and slightly less during the winter months, at least during the days following storms or major precipitation events. However, these changes would not be expected to affect the ordinary high water level, which is the water level considered for evaluating vertical clearance available to vessels.

### 2.3.3 Natural Flow of the Waterway

Currents at the bridge location are generated by flows released at Bonneville dam. According to the Federal Emergency Management Agency Flood Insurance Study for Portland, Multnomah County, Oregon dated November 26, 2010, the average cross sectional velocity for the 100 year flood near the I5 bridge is 3.8 feet/sec (2.25 knots) (FEMA 2018). Note that this velocity is the average of the entire cross section. Localized velocities, especially near the center of the channel, could be greater. During low flow periods the current is affected by tides, such that slack tide can result in very little to no current. Currents used in the simulation effort are shown in Table 2.3-1. No current information was found for the Oregon Slough.

Table 2.3-1. Columbia River Currents

Designation	Discharge at The Dalles (KCFS)	River Gage @I-5 Bridge (CRD)	Current Magnitude (fps/knots)
Normal	140	2.8	1.84/1.09
Transition	400	14.5	3.65/2.16
10-Year	540	19.1	4.35/2.58

Key:

CRD = Columbia River Datum

fps = feet per second

I-5 = Interstate 5

KCFS = 1,000 cubic feet per second

When traveling with a river current, vessels need to maintain a faster speed than the current to provide steerage. Consequently, at higher river velocities, speed over ground is increased and the required distance to negotiate turns becomes greater. Should the vessel need to stop for any reason, it must compensate for the river flow by backing down. If the vessel is towing a non-self-propelled barge or other vessel, the tow can lose control and the only chance to stop the tow would be to turn around. Barges being towed often have a tug alongside them while transiting under bridges and along other parts of the river to provide greater control.

### 2.3.4 Waterway Width and Depth

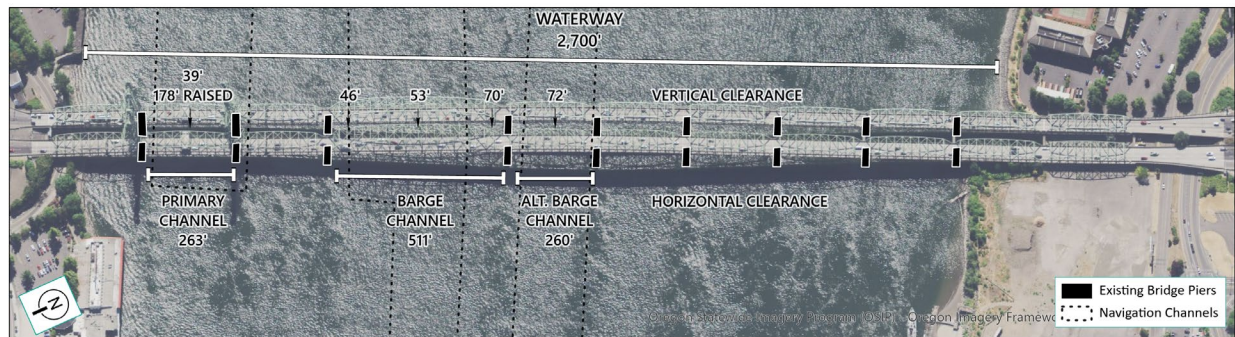
#### 2.3.4.1 Columbia River

The main Columbia River at the location of the I-5 bridge has a width of approximately 2,700 feet. The river is constrained by urban development with hardened banks. The width is relatively consistent up-



and downstream of the bridge for a considerable distance. The maintained federal channel widths and the overall river width are shown in Figure 2.3-2.

Figure 2.3-2. Columbia River Width



As noted previously, the channel depths maintained at the bridge by the USACE are either 15 or 17 feet. Available depth as shown by the most recent channel surveys completed by the USACE show water depths of 30 feet in the primary channel, 21 to 25 feet in the barge channels and depths of up to 48 feet outside the channels. Water shallower than 20 feet is limited to within 50 feet of the Washington shoreline and 300 feet of the Oregon shoreline (USACE 2021b).

Water depths in the UVTB and the Lower Columbia and Willamette project downstream of the bridge are currently less than the authorized depth of 35 feet. The most recent channel survey from the USACE in August of 2021 shows water depths of 20 to 30 feet downstream of the bridge for approximately 3,300 feet (USACE 2021c).

#### 2.3.4.2 Oregon Slough

The Oregon Slough is a side channel of the Columbia River that separates Hayden Island and the Oregon shore. This waterway is also known as the North Portland Harbor, and this name is used on many maps, charts, and in other documents. Oregon Slough is used in this report for consistency with the name used on the bridge permit issued for the construction of the existing I-5 bridge and for the federal navigation project that is on portions of the waterway. However, North Portland Harbor is used in many prior documents, including other IBR program documents, and may be shown in figures and maps. The names should be used interchangeably.

The Oregon Slough at the location of the I-5 bridge has a width of approximately 950 feet. The waterway is constrained by a federal levee on the south bank and urban development and infrastructure on both shorelines. The river widens just upstream but is a relatively consistent width downstream to its confluence with the main Columbia River channel. The Oregon Slough has numerous floating home and recreational and commercial moorage facilities that constrain the channel both up- and downstream of the I-5 bridge. This restricts the available width of the waterway for navigation to approximately 350 feet just upstream with even narrow widths available further east. These constraints are not generally present downstream of the BNSF bridge.



Water depths at the Oregon Slough are shown as approximately 8 to 10 feet at the I-5 bridge on North American Oceanic and Atmospheric Administration (NOAA) charts (NOAA 2020). Water depths vary considerably up- and downstream of the bridge, with depths of 40 feet or more downstream near the Port of Portland berths and shoaling at the upstream confluence with the Columbia, with depths as shallow as 3 to 4 feet. There are no available USACE surveys of the waterway at the existing bridge as it is not a federal project.

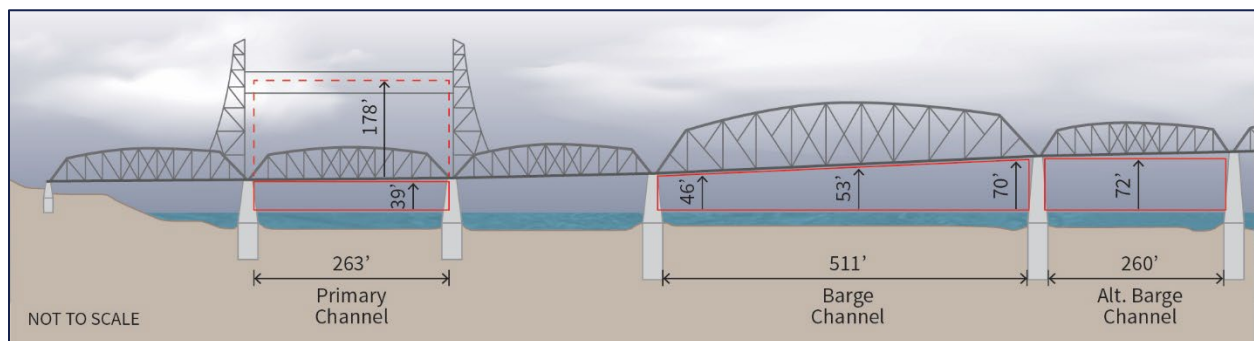
## 2.3.5 Channel and Waterway Alignment

There are three bridges crossing the main channel of the Columbia River in the program area: the northbound and southbound structures of the I-5 bridges and the BNSF railroad bridge.

Under the I-5 bridges, vessels that are restricted to the navigation channel (the majority of commercial vessel traffic) pass through one of three designated federal navigation channels: the primary channel, the barge channel and the alternate barge channel (see Figure 2.3-3).

- The primary channel corresponds with the bridges' lift spans and has a horizontal clearance of 263 feet and a vertical clearance of 39 feet in the closed position and 178 feet in the raised position.
- The barge channel lies under the wide spans of the bridges and has a horizontal clearance of 511 feet and a vertical clearance ranging from 46 feet to 70 feet.
- The alternate barge channel occupies the span directly to the south of the wide span and has a horizontal clearance of 260 feet and a vertical clearance of 72 feet.

Figure 2.3-3. Existing I-5 Columbia River Navigation Clearances



The third bridge in the program area—the BNSF railroad bridge—is located approximately 1 mile downstream (westerly) from the I-5 bridges and provides unlimited vertical clearance through a 200-foot-wide movable swing span. It provides a vertical clearance of 39 feet in the closed position. There is only a single federal channel corresponding with the swing span. The vertical clearance of 39 feet is generally available on the fixed spans across the width of the bridge outside the federal navigation channel.

The most direct vessel route through this river section is through the I-5 bridges' primary channel lift spans and through the BNSF bridge's swing span. This route is relatively straight and is preferred



during times of high velocity river flow and for vessels with limited maneuverability when traveling downstream regardless of vessel height. Vessels that require a vertical clearance over 39 feet necessitate the lift spans and swing span to open to complete the transit. The Code of Federal Regulations (CFR) stipulates that the I-5 draw shall not be opened Monday through Friday from 6:30 a.m. to 9 a.m. or from 2:30 p.m. to 6 p.m. (CFR Title 33 Chapter I Subchapter J, Part 117 § 117.869).

Vessel operators can avoid the need for a bridge lift by utilizing the I-5 bridges' barge or alternate barge channels as vertical clearance and vessel maneuverability allows. Vessels are generally prohibited from requesting a lift span when they can pass without a lift (CFR Title 33 Section 117.11). The use of these channels requires a more complex maneuver than does the route through the primary channel and requires the vessel to navigate a relatively complex "S" curve path between the I-5 bridges and the BNSF bridge to pass through the BNSF swing span. The alternate barge channel (the southernmost channel) requires a more pronounced maneuver than the barge channel. These routes are generally shown in Figure 2.3-4 and are designated as the barge channel route and the alternate barge channel route. The channel locations would be modified to accommodate the proposed vertical clearance locations and location of the bridge piers. Proposed navigation channels are shown in Figure 2.3-5.

Figure 2.3-4. Existing Columbia River Navigation Channels

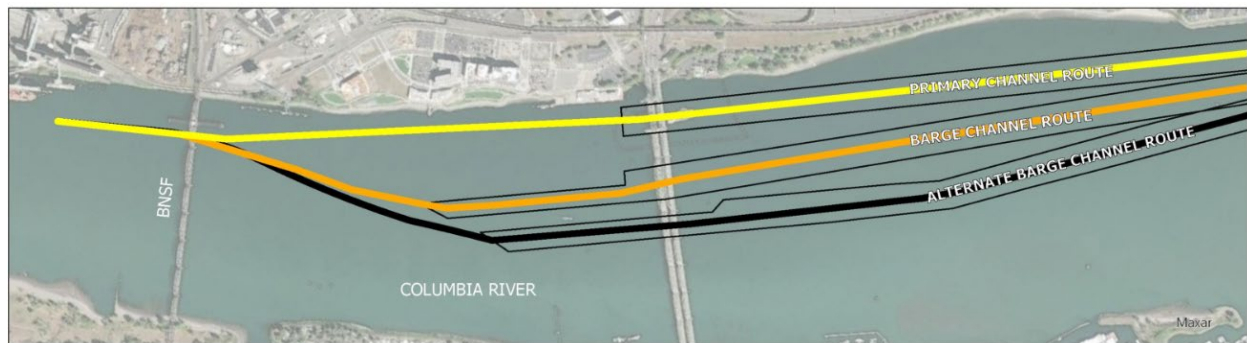
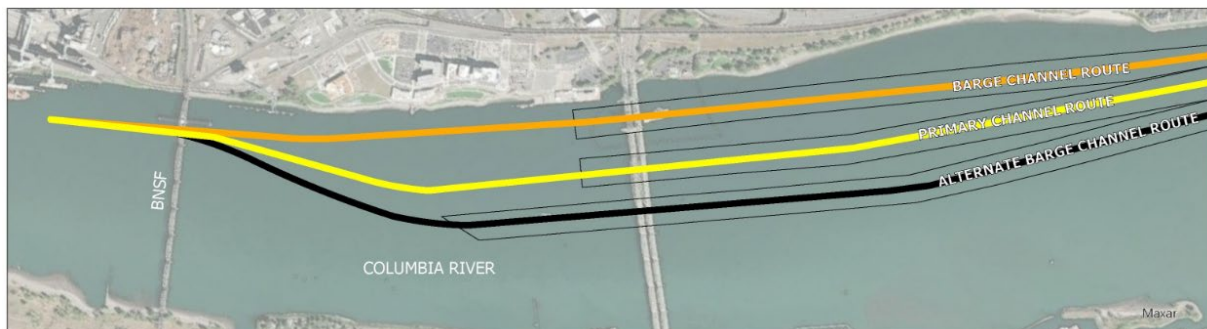


Figure 2.3-5. Proposed Columbia River Navigation Channels





## 2.4 Emergency Operation, National Defense and Channel Maintenance Vessels

Vessels operated by the USACE, USCG, and U.S. Navy s, as well as training vessels from the Tongue Point Job Corps Maritime Training Program and a dredge operated by the Port of Portland operate on the rivers. These vessels are described below, and air drafts and air gaps from the river user survey are included on Figure 2.4-1. User and survey data on these vessels are included in Appendix B and C.

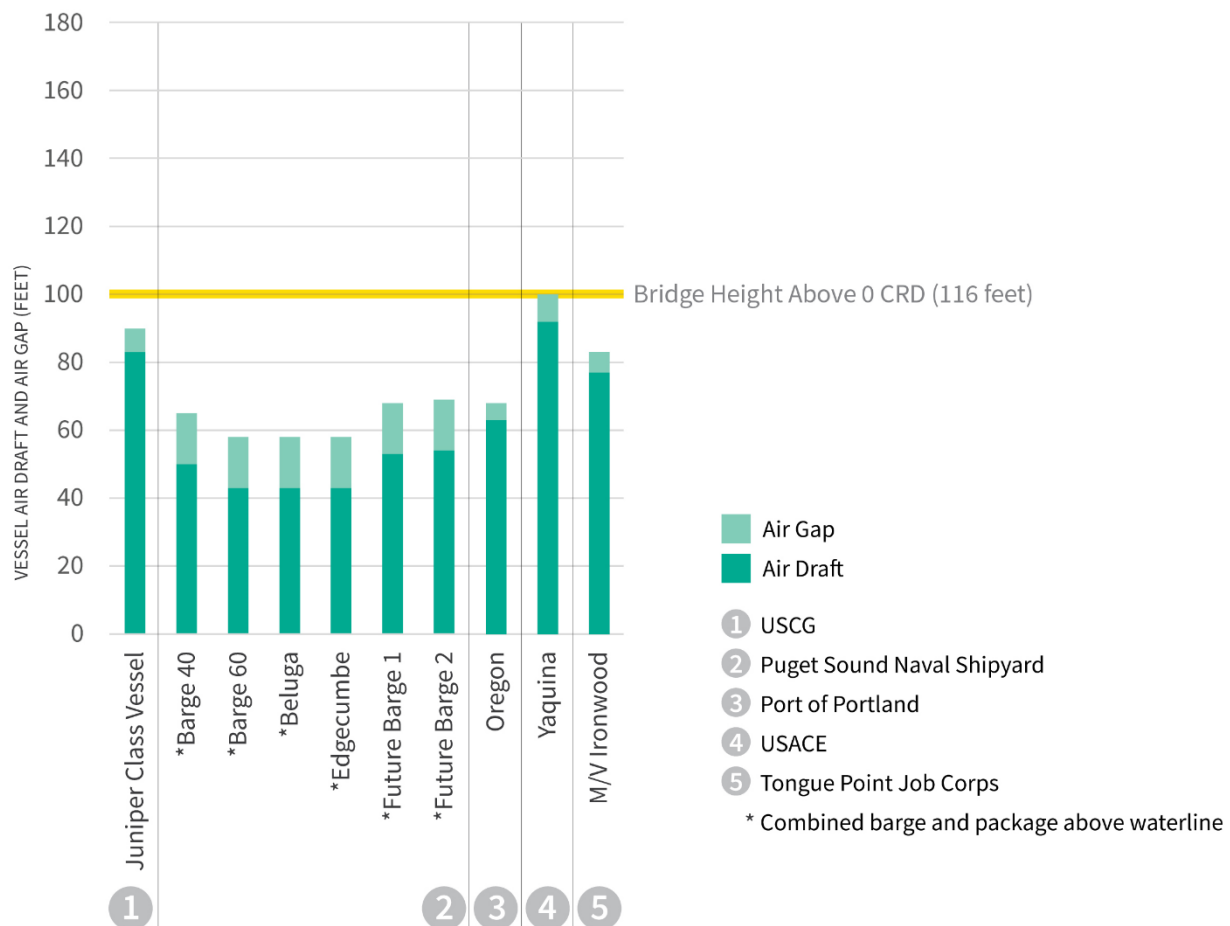
- The Port of Portland provided vessel characteristics for the *Dredge Oregon*. The port indicated an air draft of 63 feet with a desired air gap of 5 feet. They noted that the dredge utilizes “spuds” to hold itself on position and navigate within the channel. When in the stowed position for transit, the spuds are the highest point on the dredge at approximately 75 feet above the waterline. However, the port indicated that if the dredge were required to transit upriver from the Interstate Bridge, it would be reasonable to hire a derrick barge and crane to remove the spuds at the port’s facility in the Swan Island harbor and place them on a barge, then reinstall them after the dredge has been towed upriver from the bridge. The port did not provide typical frequency of transit under the Interstate Bridge by month. They noted the dredge has transited under the I-5 bridge six times in the past.
- U.S. Navy Puget Sound Naval Shipyard (PSNS) in Bremerton, Washington, dismantles nuclear reactor compartments from deactivated nuclear submarines and cruisers. These compartments are then shipped via barge from Bremerton to the Port of Benton, where they are transferred to a large trailer for permanent disposal at the U.S. Department of Energy Hanford Reservation, approximately 7 miles from the Port of Benton. The U.S. Navy PSNS provided information on six freight barges, including two future barges (Barge 40, Barge 60, Beluga, Edgumbe, Future Barge 1, and Future Barge 2) with air drafts ranging from 43 to 59 feet and desired air gaps of 15 feet. The vessels typically transit the bridge location during mid-March to mid-April and September through October. Shipment time and frequency will vary but could average two per year per vessel. U.S. Navy PSNS indicated that they use contract tugboats with the above vessels, and Tidewater holds the current contractor for the river portion of the trip.
- The USACE Portland District confirmed their hopper dredge (*Yaquina*) is the tallest USACE vessel that is expected to transit the bridge location. The *Yaquina* was surveyed as part of the CRC NIR, which noted a 92-foot air draft and an 8-foot desired air gap. The USACE confirmed that the dredge typically works during the in-water work window of August 1 to September 30; however, the dredge needs to be able to transit under the bridge at any time of year to address shoals.
- The USCG Marine Safety Unit (Portland) indicated that the information they provided in response to the Hood River-White Salmon Bridge Replacement river user survey was still accurate. For that project, the USCG provided information on a Juniper-class buoy tender. The vessel’s primary mission is as a buoy tender; however, all USCG buoy tenders can perform other USCG missions, including search and rescue, maritime law enforcement, and marine environmental protection. The USCG indicated an air draft of 83 feet and air gap of 7 feet is



needed. The vessel is all-weather capable, and its frequency of passage depends on operations and situations.

- Tongue Point Job Corps Maritime Training Program did not respond to the request for information. They also did not respond to the request as part of the Hood River-White Salmon Bridge Replacement NIR. The CRC NIR indicated that Tongue Point uses the retired USCG *M/V Ironwood* buoy tender as a training vessel for students. The vessel was surveyed as part of the CRC NIR, which indicated an air draft of 77 feet and required air gap of 6 feet. Tongue Point reported one trip per month from May to August.
- The City of Vancouver, City of Portland, Clark County and Multnomah County operate small fire fighting, rescue and law enforcement vessels in the area. These vessels are small and would not be restricted.

Figure 2.4-1. 2.4 Emergency Operation, National Defense and Channel Maintenance Vessels Vessels Air Draft and Air Gap Results





## Navigation Impact Report

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Bridge lift data indicate that dredges accounted for an average of 3% of bridge opening events, ranging from a low of 0 (1989) to a high of 10% (2005). Bridge opening events for dredges averaged three to four per year between 2012 and 2020.

Other government vessels accounted for an average of 1% of bridge opening events, ranging from a low of 0% (there were several years when a government vessel did not request an opening, including 2000, 2002- 2004, 2014 and 2020 among others) to a high of 5% (1994). Government vessels that have required bridge openings include Puget Sound Naval Shipyard nuclear transporters, the USCG Cutter *Henry Blake*, and the *M/V Ironwood*.

Under the assumed conditions, the USACE dredge *Yaquina* would be able to pass under a bridge height of 116 feet in the vessel's current configuration more than 90% of the days of each month of the year. Because the dredge needs to be able to transit at any time of the year as necessary to address potential dredging needs, it is considered impacted by the proposed replacement bridges. The dredge would be essentially unaffected if only a 5-foot air gap is required (it could pass between 98% and 100% of the days in each month) or if the bridge height was 121 feet. The USACE requested a minimum 8-foot air gap for the *Yaquina*. With an 8-foot air gap, it could pass under the 116-foot bridge on more than 98% of the days each month of the year. Accordingly, for the purposes of this analysis, there is no substantial impact.

The USACE maintains the Columbia River navigation channel through dredging. Dredging keeps the navigation channel at its authorized depth and ensures that navigation features are maintained. As indicated above, the existing water depths at the I-5 bridge exceed the authorized depths without maintenance dredging. The CRC team conducted an analysis of capital and maintenance dredging needs associated with the proposed channels described above in January 2014 (CRC 2014). The report found that there would be no need for dredging to establish the channels and that there are no records of dredging within the navigation channels at the existing I-5 bridge for the past 30 years.

### Future Vessels

A wide variety of vessel types and configurations can be used for dredging, including suction dredges, barges that use clamshell buckets, and ships equipped with suction equipment.

Equipment used for dredging downstream of the I-5 bridge location would not be constrained by the replacement bridges as it is located or based downstream of the I-5 bridges and does not need to navigate the bridge for other purposes (e.g., maintenance or refueling).

Navigation on the Columbia-Snake system extends nearly 230 miles along the Columbia River to Richland/Pasco/Kennewick, Washington, and also runs along 140 miles of the Snake River from the confluence at Pasco to Lewiston, Idaho. Along this channel, there are also numerous facilities such as docks, boat launches, marinas, intakes, outfalls, dams, and locks that may require regular or infrequent maintenance dredging, which will need equipment in the future to transit through the proposed replacement bridges. Equipment needed for dredging upriver of the BNSF railroad bridge at Celilo is constrained by its height and do not require further consideration.



The USACE typically conducts maintenance dredging yearly on the Vancouver to The Dalles project during the summer season. For 2020 the USACE reported an amount of 132,936 cubic yards (USACE 2021e). The USACE indicates that the dredge Yaquina typically completes this. There is no indication that the type and frequency of dredging will change in the future under current conditions. As discussed in Section 3, the Vancouver to The Dalles project is authorized to a depth of 27 feet but is only maintained to 17 feet. Should conditions change and the USACE undertake dredging of the channel to 27 feet, the capital dredging needs and ongoing maintenance needs would likely require different equipment than presently used. Considering the current channel use, existing facilities, available properties, and other factors, it is not likely that the channel would be extended to its authorized depth.

The USACE has indicated that there are no current plans for replacement of the Yaquina, but, based on the age of the vessel, it will likely require replacement during the life span of the replacement bridges. If the USACE were to replace the Yaquina, it is reasonable that the height of the proposed replacement bridges (if constructed) would be considered in the design specifications for the replacement dredge.

Dredging at berths and for other facilities is typically done by mechanical dredging or by small cutter section dredges due to the small volume of dredging needed. Mechanical dredging is most typically done by clamshell bucket operated by a crane from a barge, which are widely available. Future efforts would be expected to be similar and conducted by equipment that would not be constrained by the replacement bridges.

There is no evidence that the amount of dredging that occurs upriver of the proposed I-5 bridges is likely to be substantially different than in past years. No dredge equipment that would be constrained by the BNSF Celilo Falls rail bridge will be constrained by the proposed I-5 bridges; therefore, only dredge work between the existing I-5 bridges and the Celilo Falls Bridge is potentially impacted.

Government vessels include USCG, U.S. Navy, Tongue Point Job Corps Center, and other government-owned vessels, excluding dredges. As reported no government vessels using the Columbia River are identified as being height constrained by the proposed replacement bridges. There is no known reason to project an increase or change in the type of government vessels transiting upstream of the replacement bridges to change.

## 2.5 Federal Navigation Projects

The Columbia River and Oregon Slough include several federal navigation projects that are relevant to navigation within the project area. Table 2.5-1 provides a summary of the project details. There are numerous other federal navigation projects on the river including side channels, turning basins, small boat harbors, and anchorages that are not detailed here.



Table 2.5-1. Federal Navigation Projects

Project Name	Limits (RM)	Authorized Depth (feet)	Maintained Depth (feet)	Type of Project	Status
Mouth of the Columbia River	Offshore to RM 3	55	55	Channel	Operational
Columbia and Lower Willamette	RM 3 to RM 105.5	43 (to RM 105.5 and Oregon Slough RM 1.5)  35 (RM 105.5 to 106.5)	43	Channel	Operational  Oregon Slough not maintained to 35 feet for entire length
Vancouver Upper Turning Basin	RM 106.5	35	35	Turning Basin	Operational Used infrequently
Vancouver to The Dalles	RM 106.5 to RM 189.7	27	17	Channel	Maintained for barge traffic
Barge Channel	RM 106.5 to 107.5	15	15	Channel	Operational
Alternate Barge Channel	RM 106.5 to 108	17	17	Channel	Operational
Oregon Slough – Upstream Entrance	Oregon Slough RM 5.8 to RM 109	10	10	Channel	Last maintained in 2001

### 2.5.1 Channel Details

Of the projects listed in Table 2.5-1, the Columbia and Lower Willamette, Vancouver Turning Basin, Vancouver to The Dalles (main or primary channel), barge channel, and alternate barge channel correspond with or are in proximity to the proposed bridge replacements. Figure 2.3-4 shows the existing channel configuration in the vicinity of the existing I-5 bridges.

The Columbia and Lower Willamette project ends just below the existing I-5 bridge. Deep-draft vessels utilizing the channel below the BNSF bridge do not typically use the channel between the two bridges, as there are no suitable berths and the waterway depths are not authorized or maintained to an adequate depth. Therefore, design vessels for the Lower Columbia and Willamette project are not addressed in this NIR.



The portion of the Columbia and Lower Willamette channel between the BNSF bridge and existing I-5 crossing and the Upper Vancouver Turning Basin (UVTB) are located just downstream of the existing I-5 bridge. Because the proposed replacement bridges will be located downstream (west) of the existing bridge, they will be located over the federal navigation projects. The channel was originally authorized in 1878 and the turning basin in 1962. The design vessel used by the USACE for these projects could not be determined. A design vessel was selected for the turning basin in the 2014 Ship Navigation Study (ODOT et al. 2014a), including future operations at the Lafarge facility near the BNSF bridge. The vessel is a small tanker with dimensions of 580 feet length overall, 101 feet beam, and drafts of 20 and 33 feet for ballasted and loaded conditions, respectively.

The Vancouver to The Dalles project begins just downstream of the existing I-5 bridge and was originally authorized by the Rivers and Harbors Act of 1937 with a depth of 27 feet for deep-draft vessels. The design vessel used by the USACE for this project could not be determined. No deep-draft vessel traffic currently uses this channel. The USACE maintains the channel to 17 feet based on current uses, and there are no deep-draft vessel facilities in operation upriver of the I-5 bridge. However, a design vessel was selected for this federal navigation project based on criteria discussed in the 2014 Ship Navigation Study (ODOT et al. 2014a). The vessel is a small product tanker with dimensions of 452 feet length overall, 75 feet beam, and a draft of 25 feet.

The Vancouver to The Dalles channel and the secondary channels located at the existing I-5 bridges are primarily used for shallow-draft barges being pushed by tugs or towboats. The specific design vessel used by the USACE for the project could not be determined. However, a design vessel was selected for this federal navigation project in the 2014 Tow Navigation Study (ODOT et al. 2014b) based on information on present vessels using the navigation channel through contacts with commercial shipping interests and operators. The primary limitation on vessels is dictated by the lock dimensions at the Bonneville dam. Many tugs and barges use the river and vary in size. For the simulation effort, a model tug and typical barges were selected based on equipment in use on the river under four different configurations. Table 2.5-2 lists the tug and barge details used.

**Table 2.5-2. Tug and Barge Details**

Vessel	Length Overall	Beam	Depth <sup>1</sup>	Other
Tug	95 feet	31 feet	11 feet 6 inches	2,800 horsepower
Grain Barge	275 feet	42 feet	16 feet 6 inches	120,000 bushel capacity

Note:

1. Depth is from top of deck to bottom of keel.

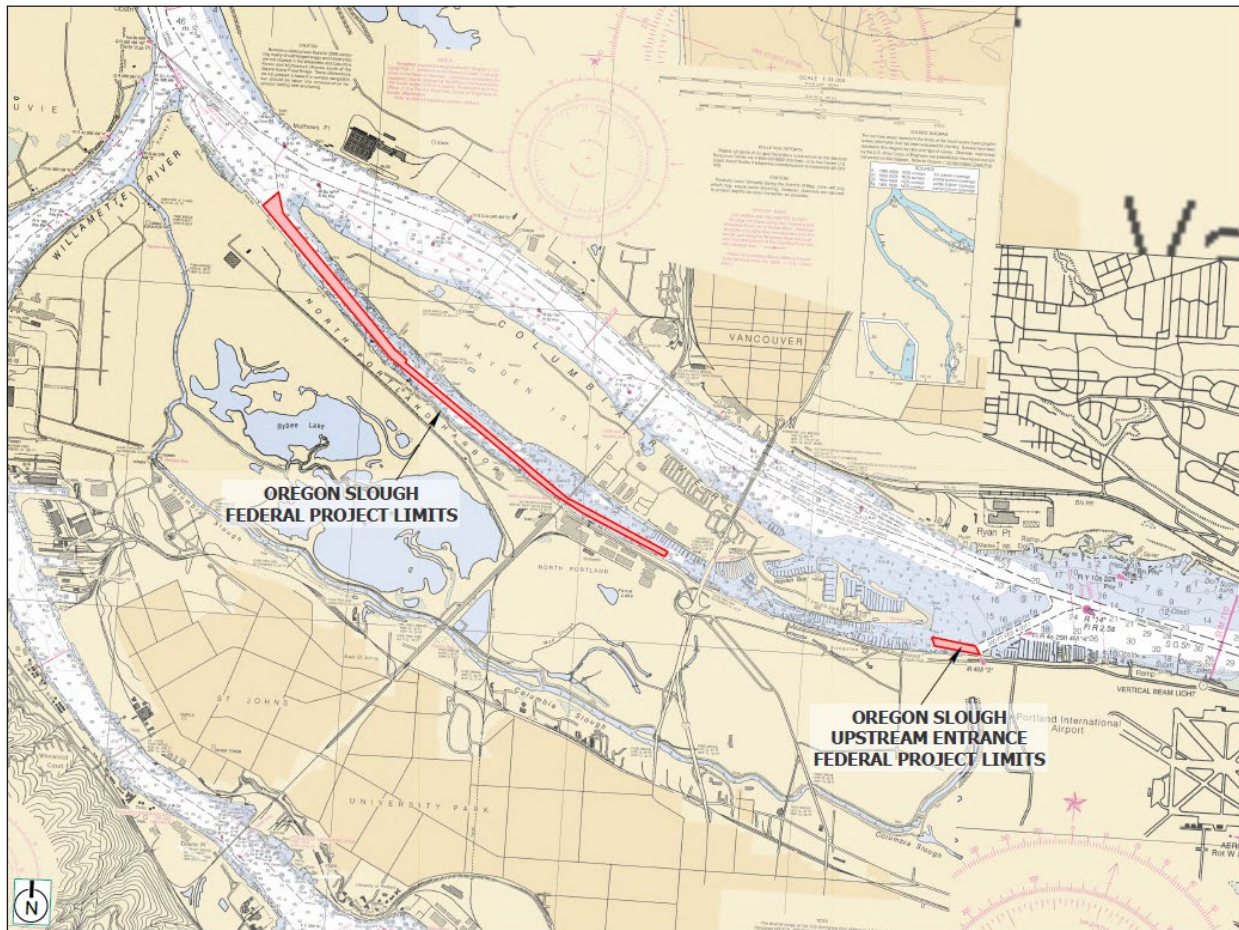
Navigation continues on the Columbia-Snake system beyond The Dalles. Vessels using that project are assumed to be the same as the Vancouver to The Dalles project.

On the Oregon Slough, the Columbia and Lower Willamette federal navigation channel does not extend to the existing I-5 bridge. Project limits extend for 1.5 miles, approximately 1,500 feet downstream from



the existing I-5 bridge. The Oregon Slough – Upstream Entrance project begins approximately 1.5 miles upstream of the existing bridge. Figure 2.5-1 shows the extent of the federal projects on the Oregon Slough. Design vessels for this project are not considered as the channel does not correspond to the bridge location. The USACE recently completed updated environmental documentation to maintain the Oregon Slough – Upstream Entrance to its authorized depth, but the timing of this work is unknown. Since that effort is primarily to support existing navigation, no changes to vessel use or characteristics are anticipated as result of this project.

**Figure 2.5-1 Oregon Slough Federal Project Limits**



## 2.5.2 Proposed Channel Changes

The replacement bridges will result in the need to modify the federal project channel locations and the upstream extent of the Vancouver Upper Turning Basin. These changes will be subject to review and authorization by the USACE under a separate process established in Section 14 of the Rivers and Harbors Act of 1899, codified at 33 U.S. Code 408 (Section 408). A decision under Section 408 will be completed prior to the issuance of a Section 9 Bridge Permit by the USCG. The IBR program team will coordinate with the USCG to keep the agency informed through the review process. While these



changes will not be subject to USCG authority, they do have the potential to affect navigation and will be considered as part of this NIR. This section describes the proposed changes, shown in Figure 2.3-5, above.

To maintain the current bridge in an operational condition during construction, the replacement bridges will be placed downstream of the existing bridges. This overlaps with the UVTB, which will be shifted west. No specific definition of the UVTB coordinates and dimensions was located other than an interim report that recommended dimensions of 800 by 2,000 feet. Drawings of the navigation project hydrographic surveys show the dimension to be approximately 800 by 2,250 feet. Based on the information available, it is estimated that the length will be reduced by approximately 200 feet resulting in an assumed length of 1,800 feet.

The three navigation channels (primary, barge, and alternate barge) will be renamed and some locations revised to correspond with the maximum vertical clearance provided by the replacement bridges and based on operational practices described by the towing companies.

The alternate barge channel is currently the southernmost channel. It is also referred to in the industry as the “High Span” and is almost exclusively used by upbound tows and tows with construction equipment that require the higher clearance but do not require using the lift span. Therefore, the current primary use of the alternate barge channel is by upbound tows, which are mostly empty. These tows are generally more controllable than downbound tows and can make the “S” turn needed to transition from the location of the BNSF bridge opening to the alternate barge channel alignment.

The barge channel, the middle of the three channels, is primarily reserved for downbound tows since they have less control, with currents pushing them downstream resulting in greater speed over the ground and less speed through the water. Therefore, these tows need the barge (also referred to in the industry as the “wide span”) navigation channel. This is because use of this channel requires less maneuvering to move toward the Washington shore to align with the BNSF railroad bridge.

Tows requiring air draft that is not available in the wide and high spans must use the lift span, which corresponds to the primary channel. The primary channel will be moved to the south and become the middle channel to correspond with the highest vertical clearance provided by the replacement bridges. The two flanking channels will be designated as barge channels. The barge channel to the north will have a minimum of 99 feet of vertical clearance and would accommodate the majority of commercial traffic on the waterway based on bridge height. The barge channel to the south would have a minimum of 113 feet of vertical clearance.

## 2.6 Present and Prospective Recreational Navigation

The Columbia River is an active recreational waterway. Recreational vessels are described below. User and survey data on these vessels are included in Appendix B and C. The majority of recreational vessel use consists of small power and sailboats that would not be impacted by bridge heights and widths. Only those vessels with the potential to be impacted are addressed in this section.

- Schooner Creek Boat Works (Schooner Creek) provided information on one sailboat, *Rage*. The vessel has a reported air draft of 90 feet and a desired air gap of 10 feet. *Rage* passes under the



Interstate Bridge typically one time per month in January, February, October, November, and December; five times per month in March and September; seven times per month in April and August; and 10 times per month May through July.

- A private individual provided information on their sailboat, *Make It So*. The boat has a reported air draft of 87 feet and a desired air gap of 10 feet. The boat passes under the Interstate Bridge typically once per month March through May and in September, and two times per month June through August. The CRC NIR indicated that *Make It So* was surveyed and has a surveyed air draft of 90 feet.
- The CRC NIR included information from Legendary Yachts Inc. and their sailboat, *Radiance*. The company confirmed that the information provided for the CRC report remained accurate which indicated a surveyed air draft of 85 feet with a desired air gap of 3 feet. The boat transits under the Interstate Bridge approximately two times per month from July through September. It is moored on the Columbia River in Vancouver. The company also indicated that their operation has been moved to a Vancouver location and that there are no vessels in or planned for production. They would utilize existing facilities (such as other vessel service locations) for any in-water needs.
- The CRC NIR provided information on 14 vessels surveyed at the Portland Yacht Club. The tallest of these vessels had an air draft of 74 feet. The report also provided information on vessels from the Rose City Yacht Club, where the tallest vessel had an air draft of 63 feet. See the CRC NIR pages 6-18 and 6-19 for additional information.

The 2012 CRC NIR identified a sailboat being constructed by Schooner Creek with 139-foot air draft and would not be able to pass under the proposed replacement bridge at any time within a calendar year without mitigation. Schooner Creek was contacted and did not provide any information on this potential vessel. Because no additional information was provided, it is assumed that this vessel was either completed and moved from the area or was never produced and thus would not be impacted by the proposed bridge height.

No recreational power vessels were found to be impacted under the assumed condition. Two sailboats (*Make It So* and *Rage*) were measured with an air draft of 90 feet. Under the assumed condition, the vessels would not be height restricted but it is included in this discussion because of the small margin of error.

Larger recreational sailboats with an air draft exceeding 90 or 95 feet would not be able to pass under the bridge under the assumed conditions. There are no known sailboats of this size in the area, and it is unlikely that this condition would change in the future due to the nature of the waterbody and vessel activity.

Sailboats accounted for an average of 28% of bridge opening events, ranging from a low of 13% (2001) to a high of 45% (2016). The data show that sailboats account for the greater percentage of bridge openings in more recent years than in the past.

Recreational sailboats and powerboats typically use the river more frequently during the peak recreational boating season which occurs between April and October. Sailboats that are affected by the



existing bridges generally had an air draft ranging from 50 to 90 feet, with an average of approximately 70 feet. The majority of the sailboats within the bridge opening data would be able to transit the bridge height options proposed.

Powerboat air drafts ranged from 20 feet to 25 feet and almost never required a bridge opening. There was at least one large private vessel (M/V Meduse) that required a bridge lift within the data.

### Future Vessels

Most of the sailboat activity that transits the bridge is generated by residents living in or near the greater Portland area, defined as: Portland Metro Area (Clackamas, Columbia and Multnomah counties in Oregon and Clark and Skamania counties in Washington); adjacent Oregon counties surrounding the Portland Metro Area (Washington, Yamhill, Polk, Marion, Linn, Wasco, Hood River and Sherman Counties); and adjacent Washington counties surrounding the Portland Metro Area (Cowlitz, Lewis, Yakima and Klickitat Counties). Sailboats surveyed in 2021 had an average air draft of 44 feet compared to 66 feet from 2012 data. It is anticipated that sailboat activity and sizing would not likely change significantly from the existing situation.

## 2.7 Present and Prospective Commercial Navigation

Commercial vessels on the Columbia River include cruise vessels, tugs, tows and barges and marine contractors. In addition, this category addresses specialty fabricators that operate in the area. While these are not vessels they do utilize the waterway. Users and vessels are described below by each category. User and survey data on these vessels are included in Appendix B and C.

### 2.7.1 Cruise Vessels

Several passenger cruise lines host tours up and down the Columbia and Snake Rivers. These vessels require frequent passage under the Interstate Bridge during the cruise season. Six passenger cruise lines were contacted, and three responded. Vessel characteristics by company are summarized below, and height clearances from the river user survey are provided on Figure 2.7-1 below.

- American Cruise Lines completed the online survey for three vessels: the *American Pride*, *Queen of the West*, and *American Song*. The *American Pride* and *Queen of the West* have a reported air draft of 63 feet. The *American Song* has a reported air draft of 56 feet. All three vessels have a desired air gap of 10 feet. The vessels transit under the Interstate Bridge approximately 16 times per month during April through November.
- American Queen Steamboat Company did not respond to the request for information. The company did respond to the request as part of the Hood River-White Salmon Bridge Replacement NIR and indicated they have one passenger cruise vessel (*American Empress*) that travels on the Columbia and Snake Rivers. This vessel has an air draft of 52 feet and requires a 10-foot air gap. The Hood River-White Salmon NIR indicated that the *American Empress* passes under the existing Hood River-White Salmon bridge one to two times a week between March and December. Given the cruise route on the company website, this would likely be similar for the Interstate Bridge (<https://www.americancruiselines.com/cruises/columbia-and-snake->



[river-cruises](#)). The American Queen Steamboat Company was not part of the river user outreach for the CRC NIR.

- American Waterways, Inc., provides passenger service on the Columbia River. The company provided information for a cruise vessel (*Portland Spirit*), which has an air draft of 48 feet and requires at least a 10-foot air gap. The company also indicated that they operated the *Columbia Gorge Sternwheeler*, which is similar in size to the *Portland Spirit*, and the *Willamette Star*, *Crystal Dolphin*, and the *Explorer*, which are much smaller. Frequency of transit was not provided. The CRC NIR indicated that the vessels average about 80 trips per month each on the Columbia River main channel and Oregon Slough from June through October, with fewer trips the rest of the year.
- Lindblad/National Geographic Expeditions provided confirmation regarding their vessels that operate on the Columbia River (*National Geographic Quest*, *National Geographic Sea Lion*, and *National Geographic Sea Bird*). The *National Geographic Quest* has a 62-foot air draft and requires an air gap of at least 10 feet. The *National Geographic Sea Lion* and *Sea Bird* both have air drafts of 59 feet with a 6-foot desired air gap. The *National Geographic Quest* transits under the Interstate Bridge approximately one time per month in September and three times per month in October. The *National Geographic Sea Lion* transits under the Interstate Bridge approximately three times per month in September and one time per month in October. The *National Geographic Sea Bird* transits under the Interstate Bridge approximately three times per month in September, four times per month in October, and one time per month in November.
- Grays Harbor Historical Seaport Authority did not respond to the request for information. They did provide information on two sailing ships (*Lady Washington* and *Hawaiian Chieftain*) during the Hood River-White Salmon Bridge Replacement NIR. Since that time, the *Hawaiian Chieftain* has been sold and is no longer in the area (Olympian 2021). The *Lady Washington* has a raised mast air draft of 90 feet and a stepped-down mast height of 65 feet with a required 15-foot air gap. The maneuverability of these vessels is limited because of their height and auxiliary sails. Grays Harbor Historical Seaport Authority is not currently operating tours due to the COVID-19 pandemic. It is assumed that future transits to upriver destinations could occur and would require transit under the Interstate Bridge. Vessel information for the *Lady Washington* was also included in the CRC NIR, but frequency of transit under the Interstate Bridge was not provided.
- UnCruise Adventures operates one passenger cruise vessel (*S.S. Legacy*) on the Columbia/Snake River system. The program team was not able to reach UnCruise to obtain vessel characteristics. According to its website, the company offers Columbia/Snake River cruises from Portland, Oregon, to Clarkston, Washington, September through December with an upstream destination of Richland, Washington (<https://www.uncruise.com/destinations/columbia-river-cruises/columbia-river-itineraries>). This route requires the transit of the Celilo railroad bridge (79-foot clearance), the Kalan railroad bridge (72.6-foot clearance), and others. Therefore, it is assumed that the air draft and air gap are less than 72.6 feet.



Figure 2.7-1. Cruise Vessels Air Draft and Air Gap Results



No passenger cruise vessels were identified that were unable to pass under the assumed conditions for the proposed bridge height.

### Future Vessels

Cruise and passenger vessels include vessels that operate only on the Columbia and Snake Rivers, as well as those that offer seasonal itineraries. Included in this category are sightseeing boats and overnight cruise vessels.

Future passenger vessels are expected to remain at the heights of existing passenger vessels that transit the area. The cruise and passenger vessels that regularly operate in this area are constrained by other bridges; it is in the best interest of the operators to use vessels that can clear all of the bridges in the region. For example, the Sellwood Bridge in Portland has a vertical clearance lower than that proposed for the IBR program. To operate upriver of the Sellwood Bridge, vessels will necessarily be



able to clear the proposed I-5 bridges. The BNSF Celilo Bridge 95 miles upstream of the I-5 bridges has a vertical clearance significantly lower than the I-5 bridges, and bridges on the Snake River are even lower. Any cruise vessel operating up to Lewiston will be able to clear the proposed I-5 bridges.

## 2.7.2 Commercial Tugs, Tows, and Barges

This vessel group includes tugboats, towboats, and commercial barges. Tugboat and towboats are referred to generically as tugs. Crane barges associated with marine construction are included in the marine contractor category. Barges requiring tug or tow move up- and downriver with a variety of bulk and container cargoes. Most cargo moves from upriver origins to downriver destinations. Tugs can move without barges or with one or more barges. Barges in general use on the Columbia River for grain, petroleum and other typically uses are not generally included as they have lower vertical clearances than tugs. Some specialty barge information is included.

In the Columbia River, lock dimensions limit tows to 84 feet in width and 650 feet in length (up to four barges). Air drafts and air gaps for commercial tugs, tows and specialty barges are described below by company, and heights provided in the river user survey are presented on Figure 2.7-1.

- Bernert Barge Lines provided information on four towing vessels (*Kathryn B*, *Lori B*, *Diane B*, and *Mary B*) that transit the bridge location. The largest air draft for these vessels is approximately 54 feet (*Kathryn B*). The vessels pass under the existing Interstate Bridge up to eight times per month throughout the year. For each of these vessels, a 5-foot air gap is desired.
- Cadman, Inc., an affiliate of Lehigh Hanson (Heidelberg Group), operates one self-unloading aggregate hopper barge that transits the bridge location three times per month in January, four times per month in February through June, five times per month in July through September, four times per month in October, and three times per month in November and December. Its air draft is approximately 49 feet, with a desired air gap of 1 foot. The barge has no mechanical propulsion and requires a tug, which is provided by contract. The company indicated that the tug air draft is typically 52 feet.
- Mark Bernert Tugboat Company provided information via the online survey for one tugboat (*Claire B*). This vessel has a reported air draft of 48 feet with a desired air gap of 4 feet. The vessel transits under the existing Interstate Bridge four times per month March through October.
- SDS Lumber Company and SDS Tug & Barge (SDS) manufacture lumber, plywood, power, and pulp, as well as offering tug and barge services through the marine subsidiary. The company is located in Bingen, Washington. They did not respond to requests to verify or update vessel information. Information for three tugboats (*Dauby*, *Wallace E*, and *Bruce M*) was provided by SDS as part of the Hood River-White Salmon Bridge Replacement NIR. Based on that prior data, the greatest air draft is 56 feet with a desired air gap between 10 and 20 feet depending on the water level and conditions. SDS also transports vessels with spuds that can be lowered to a maximum height of 65 feet with a desired air draft of 15 feet. The CRC NIR reported about 10 trips per month all year for these vessels. The CRC NIR also noted the potential for shipments of loads on SDS barges as tall as 100 feet, but this information was not provided for the more



recent Hood River-White Salmon Bridge Replacement Bridge NIR and is not considered in the impact analysis.

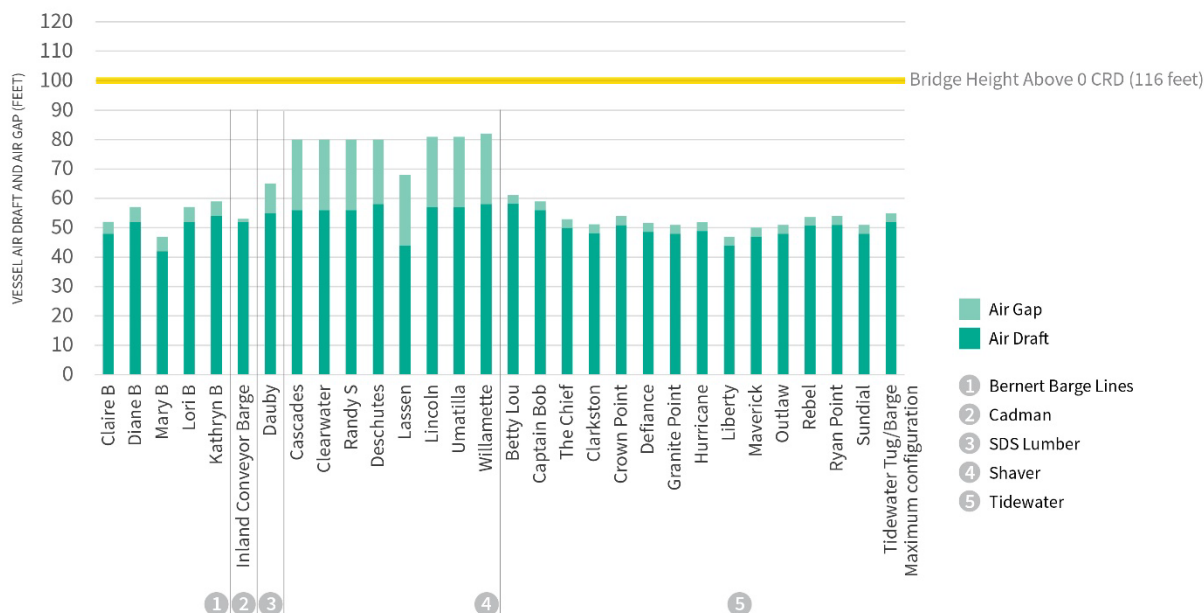
- Shaver Transportation provided information on eight tugboats (*Cascades* [push knee], *Clearwater* [push knee], *Deschutes* [tractor tug], *Lassen* [push knee], *Lincoln* [push knee], *Umatilla* [push knee], *Willamette* [tractor tug], and *Randy S* [type not specified]). These vessels were noted as requiring a total clearance (air draft and air gap) of 80 feet. Air drafts range from 44 feet to 58 feet. The vessel data sheets indicated that tug assistance would be required during construction until the existing bridge is removed. The tugs transit under the existing bridge at all times throughout the year.
- Tidewater Barge Lines (Tidewater) provided vessel data sheets for 14 tugboats (*Betty Lou*, *Captain Bob*, *Chief*, *Clarkston*, *Crown Point*, *Defiance*, *Granite Point*, *Hurricane*, *Liberty*, *Maverick*, *Outlaw*, *Rebel*, *Ryan Point*, and *Sundial*). The maximum configuration of these vessels is a tug and four barges. On average, Tidewater vessels pass under the Interstate Bridge 70 times per month. The greatest air draft of these tugboats is 52 feet, with an air gap of 3 feet.

The following companies did not respond to the river user survey, and vessel information was not provided in prior reports. Information was obtained from publicly available sources. As the information was not verified through direct contact, vessel characteristics for this group are not included on Figure 2.7-1, and impacts are not assessed.

- The Brusco Tug and Barge Company website indicates that its Columbia River fleet provides towboat service on the Columbia, Snake, and Willamette Rivers for private customers and for the USACE to tow government-owned tank barges.
- Centerline Logistics (previously Olympic Tug and Barge and Harley Marine Services), according to their website, provides marine petroleum transportation services on the West, East, and Gulf Coasts of the U.S. The company website provides vessel specifications and indicates that two vessels operate in Oregon (the *Investigator* [barge] and *Lizzy Too* [tug]). The *Lizzy Too* has an air draft of 48 feet. The Hood River-White Salmon Bridge Replacement NIR noted that the *Investigator* has an air draft of 26 feet. The company website does not currently list an air draft for this vessel. The Hood River-White Salmon Bridge Replacement NIR also listed the *Willamette Champion* as a vessel that operates in the Portland area, but the current website does not include this vessel.
- Foss Maritime Company (Foss) provides a variety of tug services, including escort and ship assist, oceangoing cargo, and contractor support. For the Columbia/Snake River system, the company website indicates that they provide regional towing service. The CRC NIR indicated that Foss performs harbor-assist work and does not typically transit upriver of the I-5 bridge. Special projects in the past have required transit to the upper Columbia and Snake Rivers. Foss was reported as selling its Columbia River operations in 2013 (Oregonian 2013). Based on this information transit by Foss vessels would be infrequent.



Figure 2.7-2. Commercial Tugs, Tows, and Barges



No tugs or tows were identified that were unable to pass under the assumed conditions for the proposed bridge height.

Tugs and tows transiting this region fall into one of two categories: ocean tugs and barges that serve the metal fabricators at the Columbia Business Center, and tugs and barges that carry commodities on the shallow-draft river system between Portland/Vancouver and Lewiston.

River barges are sized to transit the locks and bridges in the Columbia-Snake River System. Tugs are higher than barges and are the more height-constrained component of this group. Tugs operating in the river system typically have a highest fixed point less than 55 feet high and are constrained by numerous bridges on the Columbia and Snake River system that have lower vertical clearances than the replacement bridges. Future river tugs are expected to remain within these height ranges. An example of this are three new tugs—the *Crown Point*, *Granite Point*, and *Ryan Point*—that were constructed for Tidewater after the analysis was completed for the CRC Project. As shown in Section 5, these tugs have a maximum air draft of 52 feet.

River barges are typically 150 to 273 feet long with a beam (width) of up to 42 feet. A standard tow consists of a tug with four barges lashed two abreast. This tow configuration can pass through the Bonneville lock, which has a lock chamber that is 86 feet wide and 675 feet long. Future river barges are expected to remain within these dimensions due to the lock restrictions.

Commercial tugs and barges have the highest share of river usage and transit year round accounting for approximately 54% of the bridge opening events across the 35-year study period. Their usage share ranged from a low of 25% (2005) to a high of 65% (2012). Tugs and barges generally ranges from 28 to



61 feet, and the tugs and barges are usually able to use the barge channel or alternate barge channel. Tugs and barges will request an opening of the I-5 bridge to provide sufficient vertical clearance or to make a straight course between the I-5 bridge and the BNSF bridge downstream. The largest share of these bridge lifts for tugs and barges occurs during the spring, when high rainfall and mountain snowmelt combine to increase the current and raise the river level at I-5. Twenty-four to 42% of bridge lifts for tugs and barges occurred in April, May, and June.

### Future Vessels

Tugs and tows transiting this region fall into one of two categories: ocean tugs and barges that serve the metal fabricators at the Columbia Business Center, and tugs and barges that carry commodities on the shallow-draft river system between Portland/Vancouver and Lewiston.

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### 2.7.3 Marine Contractors

The marine contractors category includes vessels such as crane barges, dredges, and other construction equipment transported by construction contractors on the Columbia River. Transits are not limited to a particular time of year or frequency, as construction work is typically performed on an as-needed or contract basis. Crane barges can conduct a wide range of water-related construction activities and are typically used by marine contractors. Crane barges are not motorized and are moved with tugs or tows. Spuds or anchors are used to keep barges stationary. During travel, the spuds are either raised to a level high enough to prevent the barge spuds from grounding or they are removed and lashed to the deck. The CRC NIR indicated most crane barges in the Columbia River travel with their spuds raised (as this requires the least amount of work), and when raised, the spuds are typically the highest points of the vessel.

Air drafts and air gaps for marine contractor vessels are shown below by company, and information obtained through the river user survey is presented in Figure 2.7-2.

- Advanced American Construction did not respond to the request for information. They also did not respond to the request as part of the Hood River-White Salmon Bridge Replacement NIR. The CRC NIR included information on five crane barges (*DB 125*, *DB 4000*, *DB 4041*, *DB 4100*, and



*Paul Bunyan*) and one tugboat (*Lindy Marie*). According to the CRC NIR, the barges have an air draft ranging from 78 to 92 feet (with spuds raised), and a 2-foot desired air gap. The *DB 4100* is the tallest crane, with a reported height of 92 feet with the spuds raised. The minimum crane gantry height for the *DB 125* is 51 feet, and for the *DB 4000*, *DB 4041*, and *DB 4100* is 35 feet. The *Paul Bunyan* is a spud barge, and the other barges are portable cranes on spud barges. The tugboat has a 35-foot air draft and a desired air gap of 5 feet. The vessels travel up and down the Columbia River a couple of times a month, all year. A review of the Advanced American Construction website confirmed the vessel characteristics identified above. The *Paul Bunyan* is not listed on the company's website. Therefore, it is unknown whether the *Paul Bunyan* is still part of their fleet. The website also includes descriptions of additional barges and tugs, but it is unknown whether those vessels transit the bridge location.

- Bergerson Construction did not respond to the request for information. They also did not respond to the request as part of the Hood River-White Salmon Bridge Replacement NIR. The CRC NIR included information on two barges (*Carr Barge* and *Sectional Barge*) and two tugboats (*Darryl B* and *Olaf J.*). The CRC NIR indicated that the two barges have air drafts ranging from 40 to 150 with the spuds raised. The air draft on the largest vessel with the spuds lowered is 78 feet and the crane lowered is 52 feet. The two tugboats have air drafts of 20 and 35 feet. All four vessels require at least a 10-foot air gap. The vessels transit the Columbia River as contracts require. The Bergerson Construction website does not provide information on their vessels.
- CalPortland Company did not respond to the request for information. The CRC NIR indicated that CalPortland operates a tugboat (*Johnny Peterson*) and a dredge (*Sanderling*), each with an air draft of 32 feet and a preferred air gap of at least 4 feet. The report further noted that the tugboat and dredge transits under the existing Interstate Bridge approximately eight times a month all year.
- Diversified Marine, Inc. (Diversified Marine) provided information on three derrick barges (*DB Freedom*, *DB Lucy*, and *DB Vulcan*), two spud barges (*BMC44* and *BRG22*), two barges (*DMI 100* and *DMI 60*) and three tugboats (*Cougar*, *Mariner*, and *Tiger*). The *DB Freedom* is the largest of the derrick barges, with an air draft of 119 feet with the crane lowered. The *DB Lucy* has a reported air draft of 85 feet (the CRC NIR noted an air draft of 73 feet with the crane lowered), and the *DB Vulcan* has an air draft of 89 feet (the CRC NIR noted that this height was with the crane lowered). The derrick barges have a desired air gap of 10 feet. The two spud barges (*BMC44* and *BRG22*) have air drafts of 78 and 85 feet, respectively, with spuds raised. The two barges (*DMI 100* and *DMI 60*) both have air drafts of 60 feet. Diversified Marine's three tugboats (*Cougar*, *Mariner*, and *Tiger*) have air drafts of 50, 45, and 38 feet, respectively. Diversified Marine did not provide any information related to frequency of transit. However, as part of the CRC NIR, they indicated that their vessels travel on the Columbia River as contracts are awarded and one trip a month all year is estimated for each vessel.
- The Dutra Group did not respond to the river user survey. They also did not respond to the request as part of the Hood River-White Salmon Bridge Replacement NIR. The CRC NIR included information on two crane barges (*Derrick 24* and *Paula Lee*). The CRC NIR indicated that the crane barges have the potential to work on the Columbia River. The highest point on the cranes



during transit is the A-frame. The *Derrick 24* has an A-frame height of 67 feet 4 inches, and the *Paula Lee* has an A-frame height of 77 feet 6 inches. The CRC NIR also indicated that the height of the A-frame above the waterline assumes the freeboard is half the hull height (halfway between the light- and full-loaded draft). Both vessels are still listed as part of the Dutra Group's fleet on the company website (<http://www.dutragroup.com/equipment-aggregates-dredging-marine-construction.html?id=39>).

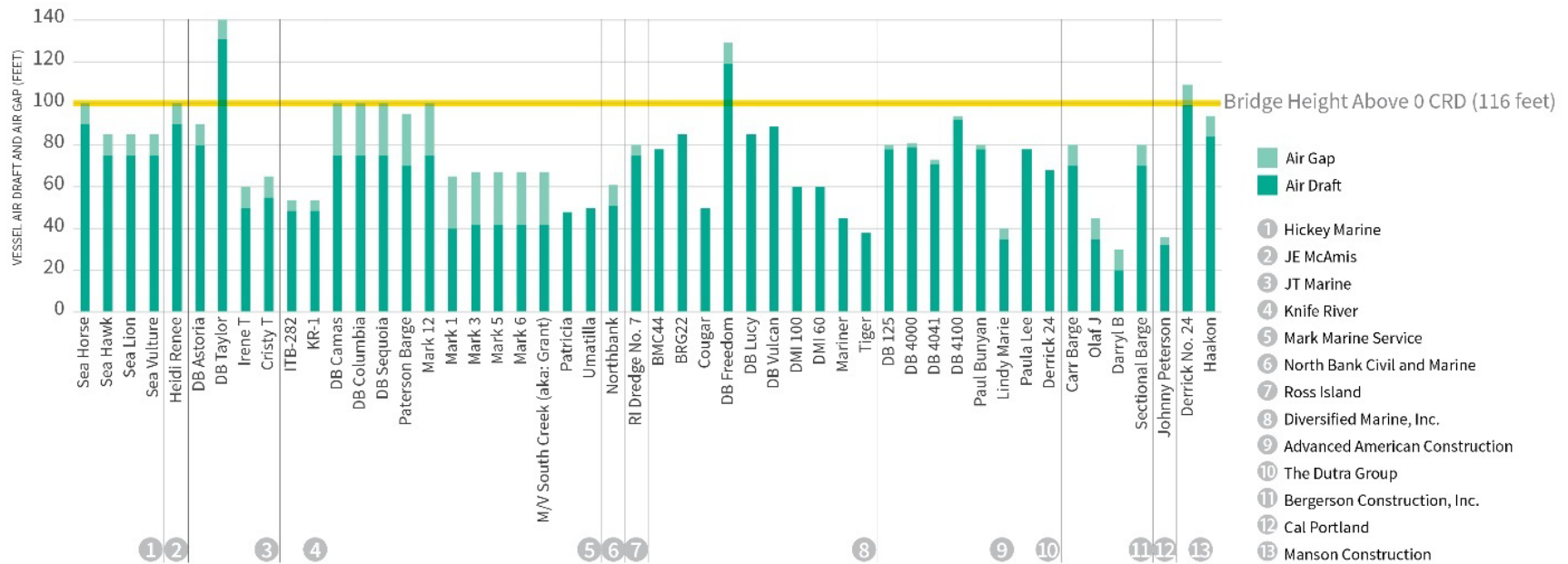
- Hickey Marine Enterprises (HME) did not respond to the request for information. As part of the river user outreach for the Hood River-White Salmon Bridge Replacement NIR, HME provided information on four derrick barges (*Sea Hawk*, *Sea Horse*, *Sea Lion*, and *Sea Vulture*). HME indicated on the vessel data sheets that the *Sea Hawk*, *Sea Lion*, and *Sea Vulture* all have an air draft of 75 feet and a desired air gap of 10 feet, and the *Sea Horse* has a spud height of 90 feet and a desired air gap of 10 feet. The *Sea Horse* has a gantry height of 75 feet. Information on the gantry heights for *Sea Hawk*, *Sea Lion*, and *Sea Vulture* was not provided in the Hood River-White Salmon Bridge Replacement NIR river user survey. The CRC NIR indicated gantry heights of 28 feet, 34 feet, and 43 feet, respectively. The CRC NIR also indicated that trips primarily occur between October and March during the in-water work window, and the company estimated that their barges go upriver approximately six times per year.
- JE McAmis did not respond to the request for information. As part of the river user outreach effort for the Hood River-White Salmon Bridge Replacement NIR, JE McAmis provided information on one derrick barge (*Heidi Renee*). They indicated that the *Heidi Renee* is primarily used for dredging and marine construction and has an air draft of 90 feet (spuds up) and a desired air gap of 10 feet. The spuds can be lowered or removed (the data sheet for the Hood River-White Salmon Bridge Replacement NIR indicated that this is not ideal) for transit. The CRC NIR indicated a height of 12 feet with the spuds removed. The CRC NIR also noted that the company transits the river as required when contracts are awarded.
- JT Marine provided information on two tugboats (*Christy T* and *Irene T*), two crane barges, (*DB Astoria* and *DB Taylor*), and one towboat (*LeAnne T*). *Christy T* has an air draft of 55 feet and *Irene T* has an air draft of 50 with a desired air gap of 10 feet. *DB Astoria* has a height of 80 feet with spuds up and 30 feet with spuds removed. *DB Taylor* has an air draft of 90 feet with spuds and 75 feet with spuds removed. The *DB Taylor* can operate with a boom of 160 feet or 220 feet. The longer boom cannot be lowered to the cradle and has an air draft of 131 feet. A desired air gap of 10 feet was reported for both vessels. An air draft was not reported for the *LeAnne T*. JT Marine indicated that the vessels transit under the Interstate Bridge approximately 10 times per month, all year and one time per month all year under the Oregon Slough bridge.
- Kiewit Corporation confirmed that the vessel information provided for the CRC remained accurate. Six crane barges (*DB General*, *DB Alameda*, *DB Oakland*, *DB Olympia*, *DB Pacific*, and *DB Seattle*) were identified as having been upriver in the past. Air drafts for these barges range from 70 to 93 feet, with the *DB General* as the tallest vessel. Desired air gaps are 5 to 10 feet. The CRC NIR indicated that there is an optimal angle for the crane boom to be positioned while being towed. If the height is too tall to transit under a bridge, the vessel is moored near the bridge, the crane is lowered to pass under the bridge, and then the vessel is moored again, and the crane raised to the proper tow height.



- Knife River Corporation (Knife River) did not respond to the request for information. As part of the river user outreach for the Hood River-White Salmon Bridge Replacement NIR, Knife River provided information on two deck barges (*KR-1* and *ITB-282*), both with an air draft of 48.5 feet and a desired air gap of 5 feet. In the CRC NIR, Knife River provided information on the *KR-1* and indicated that the deck barge transits the area approximately 4 to 19 times a month all year.
- Manson Construction did not respond to the request for information. They also did not respond to the request as part of the Hood River-White Salmon Bridge Replacement NIR. The CRC NIR included information on two crane barges (*Derrick No. 24* and *Haakon*). The *Derrick No. 24* is a crane barge with an air draft of approximately 99 feet and a desired air gap of 6 feet. The *Haakon* has an 84-foot air draft and a desired air gap of 5 to 10 feet. The height provided is for the gantry, and no information was provided regarding the ability to modify for lower clearances. The CRC NIR indicated that the *Derrick 24* had not been in the Columbia River system for 10 years but would go into the system if contracted to do.
- Mark Marine Services did not respond to the request for information. The company did respond to the request for the Hood River-White Salmon Bridge Replacement and the CRC Projects. The company provided information on different vessels for the two prior reports. It is not known whether the reported vessels differed due to the different locations of the projects on the Columbia River or if it were due to changes in their fleet. Vessel characteristics as reported in both prior reports is included here. For the Hood River-White Salmon Bridge Replacement NIR, Mark Marine Services provided information on nine barges (*DB Camas*, *DB Columbia*, *DB Sequoia*, *Paterson Barge*, *Mark 12*, *Mark 1*, *Mark 3*, *Mark 5*, and *Mark 6*) and one tugboat (*M/V South Creek*). Of these vessels, the highest air draft is 75 feet, and all desired air gaps are 25 feet. No information was provided in the Hood River-White Salmon Bridge Replacement river user survey regarding whether they can be modified for lower clearances. The CRC NIR indicated that the *DB Camas* spud height is 75 feet and can be lowered. The CRC NIR provided information on four crane barges (*DB Camas* and *DB Columbia*, as reported above, the *Amazon*, indicated as retired, and *Barge #7*, indicated as under construction). No vessel characteristics were provided for *Barge #7* in the CRC NIR or the Hood River-White Salmon Bridge Replacement NIR. The CRC report also provided information on two towboats, *Patricia* and *Umatilla*, with heights of 48 and 50 feet, respectively. The CRC NIR indicated that the company's busiest season is November through February, corresponding with the in-water work window. The company reported passing under the Interstate Bridge an average of one trip per month for the three crane barges and one round trip per year to the Oregon Slough, but the vessels access the slough from downstream and do not cross under the Oregon Slough bridge.
- NorthBank Civil and Marine provided information on one crane barge (*Northbank*), and the vessel data sheet indicated an air draft of 51 feet with the crane boom down in the travel position and a desired air gap of 10 feet.
- Ross Island Sand and Gravel (Ross Island) provided information on one dredge (*Dredge #7*) and one tug (*Rossisle*). Ross Island indicated that *Dredge #7* requires a vertical clearance of 75 feet with its positioning spuds raised. The vessels transit under the Interstate Bridge two to four times per year.



Figure 2.7-3. Marine Contractors Air Draft and Air Gap Results





Construction equipment used by marine contractors accounted for an average of 17% of bridge opening events, ranging from no lifts (2013) to a high of 32% (1989 and 2000). Opening events, ranging from no lifts (2013) to a high of 32% (1989 and 2000). Bridge transits by marine contractors are dependent upon their home location and the location of the construction project. Three marine contractors are located upriver of the I-5 bridges (including JT Marine, Mark Marine Services and SDS Tug & Barge). These contractors transit the I-5 bridges for downriver construction projects or to pick up supplies from downriver locations. Contractors that are located downriver of the I-5 bridges must transit the bridges for projects located upriver of the bridges.

Marine contractors reported they use the river on an as-needed basis all months of the year depending on the timing of the construction project. Air drafts for construction equipment ranged from 40 to 131 feet.

Marine contractor derrick barges make up the majority of the identified vessels that are impacted by the bridge heights studied due to the height of the crane elements. Contractors typically operate crane barges that conduct a wide range of water-related construction activities. FHWA regulations for bridges specify that special navigation clearances shall normally not be provided for floating construction equipment unless required for navigation channel maintenance (23 CFR 650.807(g)). Derrick barges are often used for dredging and could be used for maintenance or repair of navigation locks. No information was available to determine the status of the specific equipment related to these activities, and no equipment was eliminated from consideration specifically because of these regulations. The following vessels (arranged by the contractors) were considered to be potentially impacted.

### Advanced American Construction

Under the assumed conditions, the *DB 4100* would not be able to pass under a bridge height of 116 feet in the vessel's current configuration. The *DB 4100* could pass at least 90 % of the days of each month of the year with a 10-foot air gap, and greater than 98% of days in all months of the year with a 5-foot air gap. The *DB 4100* would not be impacted under the assumed conditions for a bridge height of 121 feet. Accordingly, for the purposes of this analysis, there is no substantial impact at either height.

### General Construction Company

Under the assumed conditions, the *DB General* would not be able to pass under a bridge height of 116 feet in the vessel's current configuration. However, when considering the seasonal variations in the river stages and the ability to use a smaller air gap, the *DB General* would be able to pass under a 116-foot bridge during much of the year. The *DB General* could pass under the replacement bridges more than 90% of the days in all the months of the year except the highest-flow months of May and June, when it could pass about 85% and 80% of the days, respectively. The *DB General* would not be impacted under the assumed conditions for a bridge height of 121 feet. The *DB General* also cannot go any farther up the river than the Bonneville dam due to the vessel's beam. Accordingly, for the purposes of this analysis, there is no substantial impact.



## JT Marine

Under the assumed conditions, the *DB Taylor* would not be able to pass under a bridge height of 116 feet or 121 feet in the vessel's current configuration when outfitted with a 220-foot crane boom.

## Diversified Marine

The *DB Freedom* has an air draft of 119 feet with the crane lowered and would not be able to pass under a bridge height of 116 feet or 121 feet in the vessel's current configuration. Their normal setup for transporting the vessel is to place the crane boom over the top of the tug placed at the stern of the barge. In that position it requires an air draft of up to 119 feet (depending on the tug used for moving the barge). When needed for transiting under obstacles with limited clearance, they have rotated the crane boom to the side of the tug, and lowered it to the level needed to pass under the obstruction. This requires that a crane operator be placed on the barge while in transit. Accordingly, for the purposes of this analysis, there is no substantial impact.

## Manson Construction Company

*Derrick No. 24* has an air draft of approximately 99 feet and a desired air gap of 6 feet and would be impacted under the assumed conditions for a bridge height of 116 feet. Based on water levels it could pass with a 5-foot air gap at least 90% of the days in all the months of the year except the highest-flow months of May and June, when it could pass at least 75% of the days. It could pass at least 80% of the days of the year, including at least 50% of the days during the high water months of May and June. It would also be impacted by a bridge height of 121 feet but the frequency of days that it would not be able to pass would decrease. Utilizing the air gap indicated by the owner would result in no impact for a bridge height of 121 feet. Information provided by the company indicates there are no plans to bring the vessel to the Columbia River. Accordingly for the purpose of this analysis, there is no substantial impact.

## SDS Lumber Company

One reported possible future shipment made by SDS would be obstructed at some point in the year by the proposed 116-foot bridge. SDS has a barge that can ship loads as high as 100 feet. Under the assumed conditions, it could pass under a 116-foot bridge between 55% and 95% of days per month for 5 months of the year (July through November), between 25% and 37% of the days per month for 5 months of the year (December through April), and between 12% and 22% of the days in May and June. With a 5-foot air gap, it could pass more than 88% of the days each month except in May and June when it could pass between 72% and 78% of the days per month. A bridge height of 121 feet would reduce the days in which it would not be able to pass but would not eliminate the restriction. The future load is speculative and is not based on history or a specific future market and updated information was not provided by SDS. Accordingly, for the purposes of this analysis, there is no substantial impact.



## Future Vessels

Bridge transits by marine contractors are dependent on their home location and the location of the construction project. Three businesses that provide marine contracting services or operate crane barges are located upriver of the I-5 bridge (JT Marine, Mark Marine Services, and SDS). These contractors transit beneath the I-5 bridge for downriver construction projects or to pick up supplies from downriver locations. Contractors that are located downriver of the I-5 bridges must transit the bridges for projects located upriver of the bridges.

As discussed previously in this report, the BNSF Celilo Bridge, located 95 miles upstream of the IBR program, has a lower vertical clearance than that proposed for the replacement bridges, and any marine construction project used upstream of the Celilo Bridge will not be height constrained by the proposed I-5 bridges. Therefore, the only marine construction projects that would be constrained by the proposed I-5 bridges are those located between the current I-5 bridge and the BNSF Celilo Bridge and that are performed by firms based downstream of the IBR program, and those located downstream of the proposed bridges that are performed by firms based upstream of the IBR program.

The volume of marine construction located between the I-5 bridges and Celilo Bridge in the future will be limited by the amount of property available for development and future construction activity. As discussed under the Future Land Use Analysis, most of this area is in the Columbia River Gorge National Scenic Area, which strictly limits the types of development that may occur. Downstream of the National Scenic Area there are a limited number of sites available for water-dependent development.

Future infrastructure projects between the I-5 bridges location and the Celilo Bridge that may require water-based construction equipment could include bridge replacements, construction of docks or other in-water construction, dredging, or work on The Dalles or Bonneville dams or locks. There are known projects, such as the planned replacement of the Hood River-White Salmon bridge over the Columbia River, and unplanned projects such as dam maintenance and repair, that will likely require floating construction equipment. Since these projects are still in the planning phases or are not currently anticipated, the type and size of this equipment needed cannot be determined. However, past projects can provide an indication of potential needs.

In 2019, emergency repairs were conducted on the Bonneville dam navigation lock by Advanced American Construction. Information published by the company noted that crane barge DB 125 was needed for the repair (AAC n.d.). As shown in Section 5, this vessels would be height constrained by the replacement bridges. Another recent project was The Dalles Dam Upstream Navigation Lock Gate project in 2016. The gate was fabricated by Greenberry at the Columbia Business Center and was transported by barge upstream, where shore-based cranes installed the gate. Photographs show the equipment in transit as being lower than the tug Dauby transporting it and would not be height constrained, as shown in Section 5 (Greenberry Industrial 2021).

Many, but not all, of the marine construction vessels discussed in Section 5 will be able to transit the proposed bridge, given the current figuration of the equipment. It is also important to note that 23 CFR 650.807(g) specifies that special navigation clearances shall normally not be provided for floating construction equipment unless required for navigation channel. Based on past trends and future land



use, future marine construction is not expected to exceed past averages and would not be expected to be height constrained by the replacement bridges. Equipment that, as currently configured, is not able to pass under the proposed I-5 bridges is not precluded from working on projects past the replacement bridges but may require a temporary or permanent modification to transit the bridge.

## 2.7.4 Fabricators

Fabricators were contacted individually by the program team to discuss their unique navigational needs and identify future business plans that might impact the size and/or type of vessels that transit the bridge location. A summary of the information provided by each company is included below. Additional details are included in Appendix B.

- Greenberry Industrial (Greenberry) is a general industrial fabricator and contractor. The company website indicates that their Vancouver, Washington, location fabricates and ships large tanks, pressure vessels, modules, bridge steel, and large structural components. Greenberry responded to the request for information and completed a vessel data sheet. The data sheet provides additional information on the type of fabricated materials they produce. They indicated that the vessels transporting their cargo have a maximum air draft of 136 feet, with a desired 1-foot air gap.
- Thompson Metal Fab is a heavy structural steel and plate fabrication company located in Vancouver, Washington. Thompson Metal Fab responded to the request for information and provided an extensive summary of their current and potential future operations, as well as information on the height and other characteristics of their past projects that have required a bridge lift. Thompson Metal Fab indicated that they need the same clearance currently provided by the bridge lift span (178 feet) to accommodate their operations. The total height (vessel, cargo, and air gap) of the example projects they provided that previously required a bridge lift ranged from 54 feet to 161 feet. Of the 40 projects included, six had heights above 116 feet, one had a height of 116 feet, and 33 had heights below 116 feet.
- Vigor Works, LLC (Vigor) is a heavy industrial fabrication company that serves the marine, hydroelectric, nuclear, oil and gas, and steel bridge industries. Vigor merged with Oregon Iron Works in 2014 (Vigor 2014) and Oregon Iron Works information was addressed in the 2012 CRC NIR. Vigor responded to the request for information and provided an overview of their current and potential future operations at three locations and around the Columbia Business Center. Vigor operates an aluminum fabrication facility at the former Christensen Yachts site in the Columbia Business Center. This facility will focus on aluminum ships including the construction of a landing craft for the U.S. Navy (Vancouver Business Journal 2019). They indicated that their products and equipment result in an air draft of 130 feet, and they recommend accommodating an air draft of 150 feet.

Due to lack of detail in the bridge tenders' logs, it is difficult to define the bridge lifts associated with metal fabricators located at the Columbia Business Center, which is located just upstream of the Interstate Bridge in Vancouver. However, discussions with the reveal that there is a shipment every year or two, consisting of structures for the oil industry (oil rig modules), local Pacific Northwest industries (structures for forest products plants and other local firms), USACE (lock gates, fish weirs



and other structures) and departments of transportation (mainly bridge structures). Not all these shipments require bridge openings or transits under the bridge. In addition, these firms are currently fabricating structures that support offshore energy programs (wind and tidal power).

Marine industries and fabricators ship products or have vessels transiting under the bridges on an as-needed basis all months of the year.

The tallest projected future shipments from Greenberry, Thompson Metal Fab, and Vigor would not be able to pass unrestricted under a bridge height of 116 feet or 121 feet. The lower reported shipments could pass under all of the studied bridges at least during some part of the year.

Users did not provide information on specific shipments that would be impacted but based the request on past shipments and potential future shipments. Thompson Metal Fab provided detailed information on past shipments from 1973 to 2020, including height of the shipment and air gap provided. The total height (vessel, cargo, and air gap) of the example projects they provided that previously required a bridge lift ranged from 54 to 161 feet. Of the 40 projects included, 19 would be height restricted by the replacement bridges in the assumed condition, and of these nine would be restricted under any stage.

Based on this information, the frequency and type of future shipments that could be impacted is unknown but could be impacted by a bridge height of 116 feet or 121 feet. It is also not known whether it is feasible to modify the way that future shipments are constructed, assembled, or shipped such that they could transit under the replacement bridges. Therefore, these users are potentially impacted by the replacement bridges.

Based on information provided by fabricators and a review of literature, some of the fabricated structures manufactured at the Columbia Business Center could be taller in the future than the tallest shipments in the past. Oil rigs are growing in dimensions in response to new technologies such as directional drilling of oil fields. However, the primary market for these rigs is Alaska, and this area has seen a significant reduction in crude oil production and changing conditions may affect the future demand for the type of drill rigs shipped in the past. These structures may require transiting heights in excess of 125 feet. Other structures, such as fish weirs and bridge trusses, are unlikely to change significantly in the future and would not be height restricted.

Most of the fabricated metal structures are transported by ocean barges bound for destinations located outside of the Columbia River, including Alaska, California and elsewhere. Ocean barges are larger than river barges, with lengths of 400 or more feet and a beam (width) of 100 feet or more. Ocean barges cannot transit through the Bonneville lock because their beam exceeds the width of the lock chamber. As a result, future fabricated metal operations in the affected region of the river are limited to the area downstream of the Bonneville dam.

## 2.7.5 Annual Cargo Movements

### 2.7.5.1 Columbia/Snake River System

The Columbia River originates in British Columbia, Canada, and flows for 1,175 miles to its mouth on the Pacific Ocean between Oregon and Washington. The Snake River is one of the main tributaries to



the Columbia River and originates in Wyoming. It flows approximately 868 miles to the confluence with the Columbia at Columbia RM 283. The navigable portion of Columbia/Snake River System begins at the mouth of the Columbia River and extends to the head of navigation in Lewiston, Idaho, at the confluence of the Snake and Clearwater Rivers, approximately 465 miles upriver from Astoria, Oregon, as shown in Figure 2.2-1. The navigable sections include a portion that supports deep-draft oceangoing vessels and a shallow-draft system supporting primarily shallow-draft barges being pushed by towboats or tugs.

The deep-draft navigation system provides for a 43-foot-deep by 600-foot-wide channel from inside the Columbia Bar to Portland, Oregon, and Vancouver, Washington, on the Columbia River—a distance of approximately 105 miles. This section of the channel, known as the Lower Columbia- Willamette, provides deepwater access to facilities at the Washington ports of Longview, Kalama, Woodland, and Vancouver and to the Oregon ports of Astoria, St. Helens and Portland, as well as to industrial facilities and private facilities located in this area. Approximately 60 million tons of cargo passed via the mouth of the Columbia River in 2019 (including both inbound and outbound directions).

The shallow-draft navigation system begins just downstream of the I-5 bridge (at RM 106.5). The Vancouver to The Dalles portion of this section was authorized as a deep-draft system (27 feet authorized depth) to serve oceangoing vessels common at the time. However, the USACE currently maintains the channel to 17 feet based on usage. The controlling depth for the rest of the shallow-draft system (from The Dalles to Lewiston, Idaho) is 14 feet. The section of the river from Vancouver to The Dalles handled approximately 8.4 million tons of cargo annually over a five-year average from 2013 to 2017 (USACE 2021a). More than 90% of this cargo passed through the locks at Bonneville, moving mainly from upriver ports to downriver ports (primarily grain moving down river and petroleum products moving upriver).

### 2.7.5.2 Oregon Slough

The lower entrance to the Oregon Slough is at Columbia RM 102.5, and the upper entrance (east) is at Columbia RM 108.8. The lower end is the location of several berths operated by the Port of Portland for deep-draft cargo vessels. These include auto berths (601 and 607) and container berths (603, 604, and 605). As reported by the USACE (2019), cargo volumes in 2019 were 330,981 tons. The Port of Portland uses this lower section for storage and staging of equipment associated with the *Dredge Oregon*.

The Port of Portland provided data on vessel calls for their existing berths on the Oregon Slough, as shown in Table 2.7-1. These berths are all deep water facilities and serve vessels using the deep-draft system downstream to the mouth of the river and do not transit upriver to the I-5 bridge location.

Table 2.7-1. Port of Portland Oregon Slough Vessel Call Data by Berth and Year

Berth	2016	2017	2018	2019	2020
601	64	60	57	68	66
603	0	2	1	3	1
604	0	1	5	4	0



605	0	5	23	10	49
607	71	45	71	39	12

Upriver of the BNSF rail bridge, the waterway is dominated by floating homes and recreational vessel moorage, with some commercial traffic associated with an existing marine contractor and shipyard located just downstream of the existing I-5 bridge. The BNSF railroad bridge on the waterway saw a total of 644 openings from January 2015 to July 2021, with an average of 92 openings per year (BNSF 2021). There are relatively few vessels moored between the two bridges and the openings are likely associated with the marine contractor and shipyard

## 2.7.6 Impacts to Commercial/Industrial Development

The replacement bridges will likely be in place for 100 years or more, and the NIR needs to consider potential impacts from prospective upstream commercial development that could result in different navigation on the waterway. Appendix A to this report assesses land uses along the Columbia River upstream of the I-5 bridge to evaluate the potential for development that could result in prospective navigation different than that currently using the waterway. The appendix includes an analysis of existing commercial and industrial development and land uses suitable for this type of development to identify their likelihood of creating additional navigation activities that could be impacted by the proposed replacement bridges.

The analysis in Appendix A concluded that both political and geographic constraints were the primary factors affecting commercial/industrial development along the waterway. Land use restrictions imposed by the Columbia River Gorge National Scenic Area, topography, transportation access parallel to shorelines (SR 14, Interstate 84 [I-84], and BNSF and Union Pacific railroads), and existing open spaces limited the areas for future water-dependent land uses. All the industrial uses between the BNSF bridge and BNSF Celilo Falls rail bridge are in urban areas and primarily within established industrial parks (e.g., Columbia Business Center, Port of Cascade Locks Industrial Park). There were no planned developments within the study area that would be served by marine transport that could be impacted by the proposed replacement bridge height.

### Industrial Campuses Trend

Based on interviews and a literature review, most of the industrially zoned sites along the Columbia River that are owned by ports are being planned as industrial campuses that support light industrial and commercial uses and that will not generate marine traffic or include marine facilities (e.g., docks). This includes properties at the Columbia Business Center, Port of Cascade Locks, Port of Hood River, the Troutdale Reynolds Industrial Park, The Dalles, and Stevenson.

### Existing Site Constraints

In many cases, the linear rights-of-way of SR 14, I-84, and the BNSF and Union Pacific railroads, on both sides of the river, can restrict lot depth, making the area less conducive to certain types of



development. Given the steep topography and limited area for placement of these rights-of-way, they often run along the shoreline, precluding industrial development.

### Riverfront Trails

Many jurisdictions (such as Hood River, The Dalles, and Vancouver) have recreation trails and plans for future recreation trails and trail expansions along the river. Such trails can create a barrier to other marine-dependent uses of the Columbia River shoreline.

### Redevelopment Potential of Industrial Sites with Existing Marine Structures

Redevelopment of sites that have existing marine traffic docking structures could be significantly easier and less expensive because redevelopment of such sites would have the potential to bypass, or have less arduous, environmental permitting requirements than required for new development.

#### 2.7.6.1 Summary of Findings by Subarea

Within the program area, there are undeveloped and potentially re-developable sites along the Columbia River, which are zoned for industrial and other uses that could generate marine traffic that requires varying navigational clearances. Additionally, there are sites that have existing marine infrastructure, such as lumber mills, that could also be redeveloped with different water-dependent uses in the future and that could use the existing marine infrastructure. These sites are primarily located within incorporated jurisdictions.

This section summarizes the findings by subarea.

#### Clark County, Washington (Vancouver)

The water-dependent industrial sites within the jurisdiction of the city of Vancouver include industrial uses at the Columbia Business Center (metal fabricators include Thompson Metal Fab, Vigor and Greenberry, and JT Marine, a marine contractor), the Western Forest Products property, and the Lafarge property. Recreational water-dependent uses exist at the recreational moorage at Steamboat Landing Marina, Tidewater Cover Marina, and several docks associated with private residences.

It is uncertain whether all of the parcels in the Columbia Business Center will remain in industrial use over the long run. Some of the main fabrication buildings were built in the 1940s. If these areas are redeveloped, it could be as mixed use (residential, commercial and retail uses) like the area immediately to the west. A portion of the eastern shoreline of the Columbia Business Center is owned by Vigor, which has indicated that it will continue in long-term industrial use.

Only the uses at the Columbia Business Center are currently height constrained in the affected area in the city of Vancouver. The height-constrained uses include fabricated structures such as oil rig modules and fish weirs, among others, and marine equipment owned by JT Marine. Based on existing land use regulations, there are no vacant waterfront parcels that could be placed in industrial use.



The Steamboat Landing Marina and private moorages typically serve smaller powerboats and sailboats (up to 40 feet) and are not known to be height constrained. Tidewater Cover Marina has slips available for vessels ranging from 40 to 110 feet. Some recreational sailboats may experience height constraints, depending on the option under consideration.

### Clark County, Washington (Camas)

There are two existing water-dependent sites within the jurisdiction of the city of Camas, including the Georgia Pacific Camas Mill and the city of Camas Boat Ramp. The Georgia Pacific Camas Mill has ceased operations of its marine facilities but they remain in place. It is likely that both sites could remain under marine uses in the future.

The Georgia Pacific mill site would not be constrained because it already has a height constraint imposed by the bridges that connect U.S. 14 to Lady Island.

The city of Camas leases a portion of the Columbia River shoreline to Mark Marine Service. The city is in the process of renewing the property lease for an additional five years beyond the current lease. Future use of this parcel could remain in industrial use or change to public access. Mark Marine Vessels are addressed earlier in this report.

### Clark County, Washington (Washougal)

The waterfront industrial property in Washougal has been rezoned to highway commercial zoning and is undergoing a process of waterfront revitalization, focusing on mixed-use development (residential and commercial). This development encompasses the Port of Camas-Washougal marina, the site of the former Hambleton Lumber Mill, and the Port of Camas-Washougal's 6th Street property. These three properties are collectively referred to as the Washougal Waterfront.

Most of the moorage slips at the Port of Camas-Washougal marina are covered and are only usable by power boats, which are not height constrained. It is possible that some of sailboats at the marina could be height constrained by the bridge height options being studied. However, most of the sailboats are 50 feet or less in length, and sailboats of this size will not be height constrained by the IBR program.

Industrial development in Washougal is centered in the Port of Washougal's industrial properties at the eastern edge of the city. Heavy industrial zoning at this site accommodates uses such as bulk petroleum product terminals, plants, and storage facilities, which could generate marine traffic. However, a levee and recreation areas/trails parallel the river and separate the industrial site from the water, which inhibits marine industrial uses along the riverfront in Washougal.

### Skamania County, Washington

The industrial waterfront properties in Skamania County have traditionally been used by the forest products industry, including the mill sites at Stevenson, Home Valley, and Underwood. As the forest product sector has declined, properties have been held by forest product firms for potential future reuse as a mill site or have been planned for redevelopment to resort or mixed-use development. The



proposed I-5 bridges do not impose a height constraint on shipping activities because log rafts or barges can easily pass under the bridge for destinations transiting downriver of the bridge.

The Port of Skamania owns a business park, cruise terminal, and boat launch at Stevenson. The port's property at Stevenson Landing is on the waterfront and has a cruise ship dock but does not offer waterfront access for water-dependent firms requiring barge service. Within the city of Stevenson, there is interest by the community to enhance recreational waterfront with public access.

Other land holdings in Skamania County provide space for commercial and industrial tenants but do not have direct access to the Columbia River (e.g., the Port of Skamania County's Cascades Business Park, the Lewis and Clark Business Park, and the Wind River Business Park).

### Klickitat County, Washington

Most of the occupied industrial lots along the riverfront in Klickitat County are used by the timber industry, which generates cargoes (logs, wood chips, and aggregates, etc.) that are not height constrained. It is expected that the bridge will not have any impacts to shipping related to the timber industry. SDS operates a marine subsidiary from their location in Bingen. Vessels operated by SDS are addressed in Section 5.4.

There are some undeveloped industrial lots along the river in Klickitat County. The county's Industrial Park zoning allows for boat building, assembly, and fabrication of metal products, and additional manufacturing activities as uses permitted outright. However, many of the industrially designated lots are constrained by the railroad right of way, which creates shallow lots from the river and potentially limits large industrial structures on the site.

There are also vacant developable industrial lands at Dallesport Industrial Park. However, the BNSF railroad right of way cuts through the property near the river, leaving a narrow band of land adjacent to the river that is currently used by a barge terminal. It is unlikely that future uses would be height constrained at this location.

### Multnomah County, Oregon (Portland)

There are many recreational marinas in the area between Hayden Island and Government Island that are used by both powerboats and sailboats. There are no known plans to change land uses in this section of the riverfront.

### Multnomah County, Oregon (Fairview and Troutdale)

The industrially zoned sites in this area generate marine traffic that primarily consists of tugs and barges, which are not height constrained.

The Knife River aggregates terminal in Troutdale is not expected to change uses in the near future. Tugs and barges serving this facility are not height constrained.

Sundial Tug & Barge Works shipyard was closed by Tidewater in early 2011 because the vessel repair and construction business was cyclical and not a core business function. The facility is currently idle,



many of the marine facilities have been removed and the site could be sold or redeveloped. (Oregonian 2011)

The recently developed Troutdale Reynolds Industrial Park is located on the former 700-acre brownfield previously used by Troutdale Aluminum. The site's main tenants are Amazon and FedEx. The development does not include marine facilities, none are planned by the Port of Portland and shallow water would make development of marine facilities difficult.

### Hood River County, Oregon (Cascade Locks)

There are undeveloped industrial lots along the river in the city of Cascade Locks. Some of these lots are zoned as light or heavy industrial and could be developed with marine uses. Other available lots in Cascade Locks have been identified for types of development that would not generate marine traffic, such as a business park serving non-water-dependent firms, or entertainment and recreational uses, potentially including a casino.

Cascade Locks is positioning itself as a sailboat racing destination. In general, there is a desire to attract the international sailing community, but the sailboats using this area are smaller and not height constrained by the proposed bridges.

### Hood River County, Oregon (Hood River)

Activities that generate marine cargo are limited along Hood River's riverfront, due to the railroad tracks that abut the river for a large portion of the shoreline. In the Port of Hood River area, the emphasis is on recreational development and business park development rather than marine-based industrial uses.

Cruise ships that call Hood River are addressed in Section 5.4. The sailboats homeported in Hood River or calling on a transient basis at Hood River are typically less than 40 feet long and, as a result, are not constrained by the proposed height of the replacement bridges.

There are no known existing or future activities that would be height constrained in Hood River.

### Wasco County, Oregon

Bernert Barge Lines and Mid Columbia Producers have barge terminals at the Port of The Dalles. The tugs and barges calling at these terminals are not constrained by the proposed height of the IBR program. The sailboats homeported at or visiting the port's marina are typically smaller and are not height constrained by the replacement bridges.

A new cruise dock was opened in The Dalles in September 2012 that provides a float to serve transient recreational boats, as well as a fixed pier for cruise ships.

Other industrial developments are focused on redevelopment of the Northwest Aluminum site, which offers approximately 120 acres for commercial and industrial development. This site does not provide riverfront access.



## Summary of Redevelopment Opportunities

Based on the analysis in Appendix A, there are no known planned developments that would significantly increase navigation or require the use of vessels that would be height constrained by the proposed replacement bridges. Efforts are underway in upriver counties to reuse vacant or underutilized industrial waterfront parcels in forest products manufacturing (which is not height constrained) or in non-water-dependent uses, including commercial business parks, mixed-use residential/commercial developments, and tourist centers.

The sections below further summarize the 2012–2020 bridge lift data by vessel type.

## 2.8 Marine Facilities

The Columbia River near the program area has a high concentration of marine facilities. These include many marinas and services for recreational vessels, as well as a number of ship maintenance facilities. There is a higher concentration on Oregon Slough than on the main Columbia River channel. Recreational facilities are concentrated upstream of the I-5 bridges while cargo terminals are concentrated downstream. Figure 2.8-1 shows the location of the facilities within 3 miles and Table 2.8-1 contains details on the name, contact information and type of facility.

Figure 2.8-1. Marine Facilities within 3 Miles of the Interstate 5 Bridge

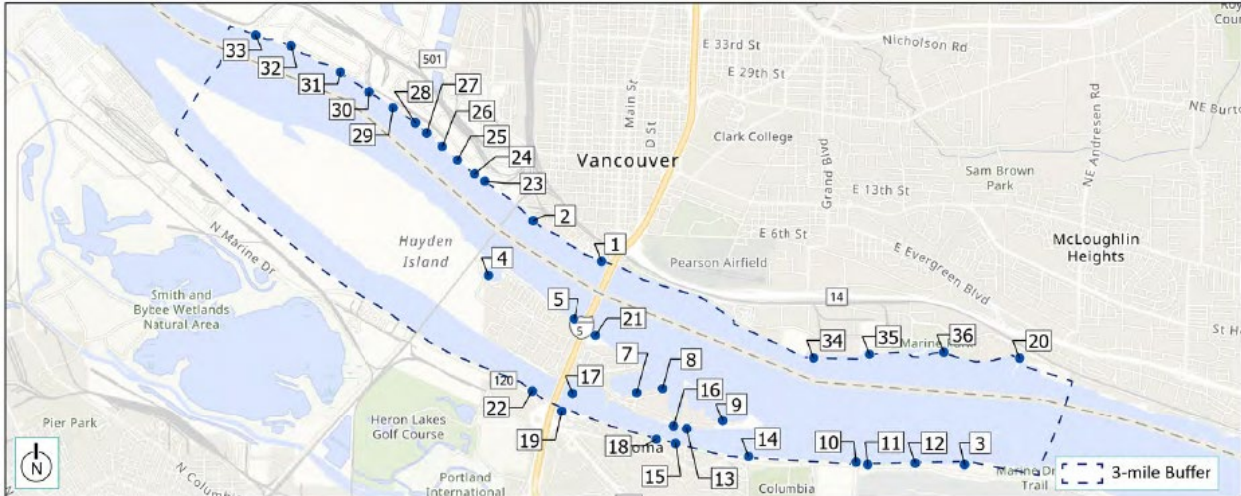




Table 2.8-1. Marine Facilities within 3 Miles of the Interstate 5 Bridge

Map ID	Name	Type of Facility	Contact Information
1	Terminal 1	Public dock, cruise vessels and small craft	<a href="mailto:info@portvanusa.com">info@portvanusa.com</a> , 360-693-3611
2	Lafarge Terminal	Private cement terminal	<a href="mailto:nicholas.stevens@lafargeholcim.com">nicholas.stevens@lafargeholcim.com</a> 360-695-9208
3	James M Gleeson Boat Ramp	Boat launch (small craft)	<a href="mailto:parksguestservices@oregonmetro.gov">parksguestservices@oregonmetro.gov</a> , 503-665-4995
4	Schooner Creek Boat Works	Vessel services	<a href="mailto:Info@schoonercreek.com">Info@schoonercreek.com</a> , 503-735-0569
5	Old Red Lion Dock	Abandoned recreation dock	N/A
6	Jantzen Bay Marina	Marina	<a href="mailto:leasing@columbiacrossings.com">leasing@columbiacrossings.com</a> , 503-283-2444
7	Hayden Bay Marina	Marina	<a href="mailto:leasing@columbiacrossings.com">leasing@columbiacrossings.com</a> , 503-283-2444
8	Columbia River Yacht Club	Yacht club	503-289-6561
9	Tomahawk Bay Marina	Marina	<a href="mailto:leasing@columbiacrossings.com">leasing@columbiacrossings.com</a> , 503-283-2444
10	McCuddy's Marina	Marina	<a href="mailto:mark@mccuddysmarina.com">mark@mccuddysmarina.com</a> , 503-808-9992
11	Tyee Yacht Club	Yacht club	<a href="https://www.tyeyc.com/contact">https://www.tyeyc.com/contact</a> , 503-284-4771
12	Rose City Yacht Club	Yacht club	<a href="https://rosecityyachtclub.org/about">https://rosecityyachtclub.org/about</a> , 503-652-1549
13	Tomahawk Island Marina	Marina	<a href="mailto:info@tomahawkislandmarina.com">info@tomahawkislandmarina.com</a> , 503-289-5511
14	Portland Yacht Club	Yacht Club	<a href="mailto:admin@portlandyc.com">admin@portlandyc.com</a> , 503-285-1922
15	Columbia Way West Marina	Marina	503-839-4459
16	McCuddy's Marina	Marina	<a href="mailto:mark@mccuddysmarina.com">mark@mccuddysmarina.com</a> , 503-808-9992



Table 2.8-1. Marine Facilities within 3 Miles of the Interstate 5 Bridge

Map ID	Name	Type of Facility	Contact Information
17	Jantzen Beach Fuel Dock	Fueling station	503-863-9641
18	Captain's Moorage	Floating home moorage	503-908-5995
19	Marineland at Pier 99	Marina	503-286-8221
20	Tidewater Cove Marina	Marina	360-977-2015
21	Red Lion Hotel on the River Jantzen Beach	General dock (cruise vessel use)	503-283-4466
22	Diversified Marine	Vessel services, marine contractor	<a href="mailto:kurt@dmipdx.com">kurt@dmipdx.com</a> , 503-289-2669
23	Grain Elevator	Grains (includes barge offloading)	<a href="mailto:info@portvanusa.com">info@portvanusa.com</a> , 360-693-3611
24	Berth 1	Break bulk	
25	Berth 2	Heavy lift and bulk export	
26	Berth 3	Heavy lift	
27	Berth 4	Roll on Roll off	
28	Berth 5	Liquid bulk	
29	Berth 7	Dry bulk	
30	Berth 8	Multi Use	
31	Berth 9	Multi Use	
32	Berth 10	Auto & Roll on Roll off	
33	Berth 13 and 14	Lay berth	
34	JT Marine	Vessels services, marine contractor	<a href="mailto:timo@jtmarineinc.com">timo@jtmarineinc.com</a> , <a href="tel:360-750-1300">360-750-1300</a>
35	Marine Park Boat Launch	Boat launch (small craft)	<a href="mailto:parksrecculture@cityofvancover.us">parksrecculture@cityofvancover.us</a> , <a href="tel:360-487-8311">360-487-8311</a>
36	City Boat Basin	Fire boat moorage, vessel launch and outfitting	<a href="mailto:Chad.eiken@cityofvancouver.us">Chad.eiken@cityofvancouver.us</a> , <a href="tel:360-487-7882">360-487-7882</a>

These facilities predominantly serve small recreational craft (power and sail). Except as noted below the facilities will not be directly or indirectly impacted by the replacement bridges.

There are three existing shipyards or vessel repair facilities within 3 miles of the program area: JT Marine, Schooner Creek Boat Works, and Diversified Marine.



JT Marine is located approximately 1.5 miles upstream of I-5 in the Columbia Business Center in Vancouver. JT Marine offers a full range of shipyard services including dry dock, vessel repair, new vessel construction and vessel deconstruction. Facilities include a 1,200 ton dry dock, 1,000 feet of dock space and overhead cranes (JT Marine 2021).

Schooner Creek Boat Works is located approximately .75 miles downstream of the program area on Hayden Island between the BNSF railroad bridge and the existing Interstate Bridge. Schooner Creek provides full service boat repair and manufacturing of small recreational and commercial vessels. Facilities include in-water docks, upland yard, and 35-ton and 70-ton travel lifts (Schooner Creek 2021).

Diversified Marine is located on Oregon Slough just downstream of the existing I-5 bridge. This yard offers repair, retrofit and construction of tugs, barges and commercial steel vessels. Vessels up to 100 feet wide and 300 feet long can be accommodated. Facilities include 100 ton and 700 ton dry docks (Diversified Marine 2021).

The Port of Vancouver's Terminal 1 facility is located on the north bank of the river just downstream of the existing I-5 bridges. This facility is partially within the bridge footprint and would potentially require portions of the existing dock and building to be removed. This site consists of a timber dock occupied by a vacant restaurant and hotel buildings. Currently, the timber dock and portions of an adjacent downstream concrete dock are used by river cruise vessels. Only a portion of the dock is anticipated to be impacted and would not impact the ability to use the dock for its current purpose. In addition, the Port of Vancouver has plans to remove the existing buildings on the dock and rebuild the dock with a modern structure and redevelop the upland elements (Port of Vancouver 2021).

Just downstream of the bridge on the Oregon side of the river is a facility that used to serve as a dock for a hotel that has since been demolished. This dock is not serviceable, and several abandoned vessels are located just offshore. This facility will likely be removed to accommodate the replacement bridges. Since it does not provide any marine services, the removal will not impact navigation or services.

On the Oregon Slough, the I-5 bridge is flanked by private moorage facilities for floating homes and recreational vessels. Portions of these facilities may be impacted by the replacement bridge over Oregon Slough, but details have not been determined (FHWA and FTA 2011). They do not provide any critical marine services such as fuel or repair activities and would not reduce available marine services on the waterway.

## 2.9 Local Service Facilities

The proposed bridge will not block access to any of the facilities noted in the prior section. The JT Marine facility is located upstream of the bridge and offers shipyard services. Vessels that are not able to transit under a bridge height of 116 feet would not be able to access the facility. Based on the size of the shipyard facility and information on past jobs provided on the companies' website, the shipyard primarily serves smaller vessels such as tugs, fishing vessels and barges. Vessels within these categories were not shown to be impacted by the proposed bridge. Larger shipyards such as Vigor on Swan Island are located downstream of I-5 and are available to serve larger vessels.



## 2.10 Alternate Routes

Alternate routes can provide vessels that are restricted from transiting the bridge location a way to avoid the restriction. The main Columbia River does not have an alternate route available. However, vessels that may be restricted by the proposed bridges over the Oregon Slough can use the main Columbia River as an alternate route, as it has greater horizontal and vertical clearances. Because of the existing clearances on the Oregon Slough bridge, there will be no change in the number of vessels that will need to use this alternative route.

## 2.11 Harbor Refuge

Harbors of refuge can play a critical safety role by allowing craft to seek shelter in protected waters during weather events or flooding. A harbor of refuge is defined as a naturally or artificially protected water area that provides a place of relative safety or refuge for commercial and recreational vessels traveling along the coast or operating in a region (USCG 2016). The Columbia River is not an open ocean or a coastal area and is therefore not subject to the same type of conditions that require harbors of refuge. Wind and wave conditions on the river do not affect vessels the same way as the conditions would in coastal areas near the mouth of the Columbia River.

Nearby marinas and the Oregon Slough can provide refuge for small craft during extreme weather events. There are several boating facilities located upriver from the project bridge, such as Donaldson Marina, Steamboat Landing, and the M. James Gleason Ramp, which can provide small craft refuge (OSMB 2007). The project would not block access to these sites, and small craft are not likely to be affected by changes to vertical or horizontal clearances. Commercial vessels are not generally impacted by weather conditions on the Columbia River and Oregon Slough and are too large to find refuge outside the channel. These larger vessels would either seek dock space or anchor as needed, should weather conditions dictate.

## 2.12 Waterway Bends

NOAA Chart 18526 (NOAA) shows the nature of the waterway and navigation channel within the project vicinity. This chart indicates that there are not bends in the waterway within .5 mile of the I-5 bridge. However, under the I-5 bridges, vessels pass through one of three channels: the primary channel, the barge channel, or the alternate barge channel. The primary channel lies under the bridges' lift spans and has a horizontal clearance of 263 feet and a vertical clearance of 39 feet in the closed position and 178 feet in the raised position.

The highest clearance of these alternate channels provides a vertical clearance of 72 feet. Typically, vessels require bridge openings either because they are too tall to pass under the alternate channel fixed spans or because the location of the primary channel provides a safer line for navigating between the I-5 bridges and the bridge opening in the BNSF bridge just downriver. The primary channel under the I-5 bridges lines up with the opening in the BNSF bridge, while the alternate channels under the I-5 bridges are located toward the center and south bank of the river, thus requiring vessels to make an S-curve maneuver between the I-5 bridges and the BNSF bridge opening.



## 2.13 Other Factors

Factors such as dockages, lightering areas, and existing bridges located within 0.5 miles of the proposed bridges may create hazardous passage through the proposed structure. There are not existing bridges within 0.5 miles of either crossing. However, BNSF railroad bridges are located approximately 1 mile downstream.

Marine facilities and dockages are addressed in Section 8. There are three facilities within 0.5 miles of the bridge. There are two facilities on the Oregon shoreline that do not impact navigation as they are located away from the navigation channel and areas where most navigation occurs. The Port of Vancouver's Terminal 1 is located just downstream of the I-5 bridges. The dock face is close the navigation channel and when cruise or other vessels are moored at the facility, they may come close to or infringe on the primary channel. This situation may require special consideration when vessels are transiting the primary channel.

According to USACE navigation project information and NOAA charts, there are no designated anchorages or lightering areas within the vicinity of either bridge on the main Columbia River or in the Oregon Slough. USCG regulations do not establish any regulated navigation areas proximate to the replacement bridge locations. Oregon Slough is subject to "Slow-No Wake" requirements by the State of Oregon which limits vessel speed within 200 feet of marinas and/or floating home moorages and 5 mph speed limit from west of the BNSF bridge east to the eastern entrance to the waterway from the Columbia River.

## 2.14 Hydraulic Conditions

Currents at the bridge location are generated by flows released at Bonneville dam. According to the Federal Emergency Management Agency Flood Insurance Study for Portland, Multnomah County, Oregon dated November 26, 2010, the average cross-sectional velocity for the 100 year flood near the I5 bridge is 3.8 feet/sec (2.25 knots) (FEMA 2018). Note that this velocity is the average of the entire cross section. Localized velocities, especially near the center of the channel, could be greater. During low flow periods the current is affected by tides, such that slack tide can result in very little to no current. Currents used in the simulation effort are shown in Table 2.14-1. No current information was found for the Oregon Slough.

**Table 2.14-1. Columbia River Currents**

Designation	Discharge at The Dalles (KCFS)	River Gage @I-5 Bridge (CRD)	Current Magnitude (fps/knots)
Normal	140	2.8	1.84/1.09
Transition	400	14.5	3.65/2.16
10-Year	540	19.1	4.35/2.58

Key:

CRD = Columbia River Datum  
fps = feet per second

I-5 = Interstate 5  
KCFS = 1,000 cubic feet per second



When traveling with a river current, vessels need to maintain a faster speed than the current to provide steerage. Consequently, at higher river velocities, speed over ground is increased and the required distance to negotiate turns becomes greater. Should the vessel need to stop for any reason, it must compensate for the river flow by backing down. If the vessel is towing a non-self-propelled barge or other vessel, the tow can lose control and the only chance to stop the tow would be to turn around. Barges being towed often have a tug alongside them while transiting under bridges and along other parts of the river to provide greater control.

## 2.15 Atmospheric Conditions

### 2.15.1 Wind and Wave Environment

Wind forces on a vessel produce two impacts: a sideways drift and a turning moment. The degree to which wind affects a vessel depends on the relative direction of the wind, the ratio of wind speed to vessel speed, the depth to draught ratio, the vessel profile and whether the vessel is in a light or loaded condition. The impacts of waves and when they should be considered in navigation channel design is discussed at length in USACE EM 1110-2-1613, Chapter 5-2 and 6-4 (USACE 1995). For large ships and tows, waves must have a length of approximately half the length of the vessel. This would require swell waves that occur near the entrance of the river to the ocean. In the program area, the waves that would be present would be local wind-generated waves that have a much shorter wavelength than would be required to affect the vessel's behavior.

Winds from the bow are generally not a concern for wind speeds less than 10 times the vessel speed. However, winds become a greater concern as they increase or shift abeam. The maximum impact occurs when the wind direction is perpendicular to the ship's beam. Transiting in a strong wind or through a curve requires more skills and room for navigational tolerance than transiting in a light wind. Wind observations from the Portland airport weather station show that when strong winds occur they are predominantly from the northwest and southeast, in general alignment with the river and channel. Winds can occur from the south but are not the predominant direction (see Figure 2.15-1).

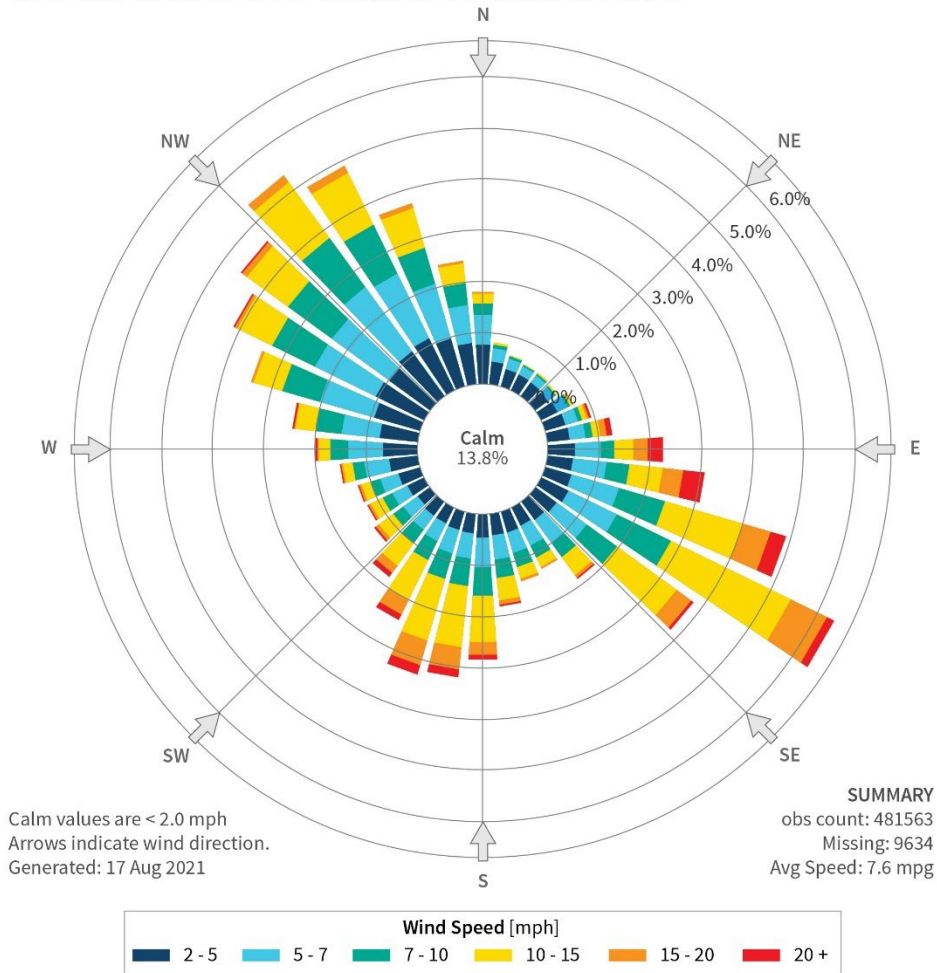


Figure 2.15-1. Portland Airport Windrose Plot

**[PDX] PORTLAND INTL ARPT**

Windrose Plot

Time Bounds: 31 Dec 1969 11:00 PM - 16 Aug 2021 11:53 PM America/Los\_Angeles



Source: Iowa State University (2021)

Wind waves are not a hazard to navigation in rivers except during storms (USACE 1980). Studies completed in the area have evaluated wave conditions (Coast & Harbor Engineering 2012). Waves in this stretch of the river are generated by passing ships and windstorm events. Waves of this size would not be expected to affect tugs and tows and larger commercial vessels due to their weight and length at the waterline, which serve to reduce the impacts of waves on the vessels. For smaller vessels, the specified air gap should provide adequate margins to accommodate vessel movements based on the height of waves in the area.



No wave information was found for the Oregon Slough. Because of the narrowness of the waterbody, the limited fetch, and the many shoreline restrictions, only very small waves would be expected in the area of the proposed replacement bridge and would not be expected to impact available vertical clearances.

### 2.15.2 Visibility

Fog, rain and transiting at night reduce visibility. The net result is that there is less time to react should a vessel need to maneuver quickly. Even with radar, vessels will travel slower than they normally would during periods of good visibility. This affects vessel steering and maneuverability. In addition, knowing the bridge clearance and the vessel's height becomes extremely important because it may not be possible to simply "eyeball" whether the vessel will clear a bridge height. Users may want a greater air gap while transiting during these conditions. Fog is most prevalent in the area during the fall and winter when visibility can be reduced to 0.5 miles or less on four to eight days per month (DOC et al. 2021).

### 2.15.3 Guide Clearances

The USCG publishes bridge guide clearances for certain navigable waters of the U.S., and compliance with these guide clearances will ordinarily receive favorable consideration under the bridge permitting process as providing for the reasonable needs of navigation. According to the clearance guide<sup>1</sup> for the Columbia River from the BNSF railroad bridge at Vancouver (RM 105.6) to The Dalles, the horizontal navigational clearance is indicated as 450 feet, and the vertical navigational clearance is indicated as 135 feet as measured from a river stage of 600,000 cubic feet per second. Upriver of The Dalles, the horizontal clearance is indicated as 400 feet and the vertical clearance as 60 feet (based on 2% flowline). No guide clearance is provided for the Oregon Slough. The USCG notes that guide clearances are not intended to be regulatory, and greater or lesser clearances may be required or approved as necessary to meet the navigation needs at a particular location.

A bridge height of 116 feet or 121 feet would be less than the published guide clearance. The 400 feet of horizontal clearance would also be less than what is published in the guide clearance.

### 2.15.4 Other Natural or Human-made Conditions

There are no known natural or human-made conditions that affect navigation that are not addressed elsewhere in this NIR.

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<sup>1</sup> <https://www.dco.uscg.mil/Our-Organization/Assistant-Commandant-for-Prevention-Policy-CG-5P/Marine-Transportation-Systems-CG-5PW/Office-of-Bridge-Programs/Bridge-Guide-Clearances/>



## 2.16 Additional Factors

Vertical clearance is just one of the factors that vessels transiting in a channel or under a bridge must consider when determining whether a passage can be accomplished safely. These factors are both operational and physical. The major operational factors considered by the USACE that affect the vessel transits in channels include the following:

“Wind, wave, and current conditions; visibility (day, night, fog, and haze), water level (including possible use of tidal advantage for additional water depth), traffic conditions (one- or two-way, push-tows, cross traffic), speed restrictions, tug assistance and pilots, under keel clearance, and ice” (USACE 1984, 1995, 1999).

Physical factors affecting safe transit include vertical and horizontal clearance of human-made structures, as well as natural obstacles. For the I-5 bridge, the human-made physical factors include the bridge height and the width between piers. The proximity of, and channel alignment with, other human-made structures (such as other bridges) may also impact safe transit. Before proceeding into the details of vessel clearance, this section discusses operational factors because changes in the physical surroundings may result in users having to address the operational factors differently, even though the factors themselves do not change.

This navigation technical analysis does not include a discussion of operator skills or experience. Vessel operators are assumed to have sufficient training and qualifications to transit the Columbia River. This includes an understanding of the factors that affect their vessels, knowledge of the aids-to-navigation in the area, and knowledge of the presence of natural and human-made river obstacles.

From a navigation perspective, vessel operators consider the following when transiting between bridge piers:

1. Vessel size and maneuverability
2. Dredged channel width and distance to bridge piers
3. Operational factors
4. Risk of collisions
5. Vessel operator’s experience

Bridge piers should be placed outside the top of the dredged channel’s slopes. Any width greater than that increases the safety margin of the transit. The USACE Engineering Manual for shallow-draft navigation projects indicates that the span should be somewhat wider than the designed width of the channel and depends on the alignment and velocity of currents, channel alignment approaching the bridge particularly from the upstream direction and impacts of the prevailing winds (USACE 1980).

To accommodate the proposed replacement bridges, the program proposes to modify the federal navigation projects authorized in the program. These changes will modify the way that vessels that are restricted to the channel navigate the area, and the potential impacts of those changes on navigation are discussed in this section. While the authority to modify these channels is through the USACE, the



changes are considered applicable to the preliminary navigation clearance determination to the extent that they affect navigation.

The analysis in this section is based primarily on vessel simulation efforts completed in 2014 by Waterway Simulation Technology, Inc., for the CRC Project. Simulation efforts were completed for deep-draft vessel use of the UVTB and the primary channel and for tug and tow use of the three navigation channels at the bridge location. The simulations were completed in support of the Section 408 process with the USACE to determine the impacts on navigation of the proposed channel modifications in accordance with EM 1110-2-1643 and EM 1110-2-1611. These manuals require that all proposed modifications to a new or authorized federal navigation channel be modeled for the final design, either with a physical model or ship and/or tow maneuvering model study, to ensure safe and efficient navigation. USACE ER 1110-2-1403 regulates this modeling. During the completion of this effort, the CRC Project was halted, and the simulation efforts were not finalized. All modeling was completed, and draft final reports were issued. The remaining tasks prior to finalization and submittal were limited to review by the USACE and an Independent Expert Panel Review process. The ship simulation studies and reports will be reviewed and finalized prior to issuance of Section 408 authorization by the USACE but the effort and reports completed to date provide a detailed analysis of navigation conditions suitable to support the IBR program NIR and preliminary navigation clearance determination.

Shallow-draft vessel navigation simulations were conducted based on the existing conditions and practices, interim conditions during construction based on the construction sequencing discussed in Section 8.5.1 and on the proposed conditions following construction. The shallow-draft vessel navigation simulations resulted in the following conclusions and recommendations:

### Conclusions:

- The existing I-5 bridge spans and navigation channels are considered safe by the pilots, and this was demonstrated by the simulations.
- The pilots were able to make successful transits for all conditions without any accidents or collisions, under all conditions tested.
- The pilots were pleased with the navigation conditions with the proposed project.
- The proposed conditions for navigation will be better and safer than the existing conditions.
- Based on simulation results and pilot input, the proposed layouts of the navigation channels are safe for transits in this reach of the Columbia River.
- The proposed replacement bridges will aid in navigation and should be completed as soon as possible.
- The BNSF railroad bridge will continue to be critical and the most difficult location to transit this reach of the river.

### Recommendations:

- Proposed Conditions (Post-Construction):



## Navigation Impact Report

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- The pile caps of the piers near the water level should have the corners marked with directional lighting since they extend out further into the navigation channel than the upper part of the pier.
- Mark the bridge piers on either side of each navigation span with red lights on the pier, lights on each corner of the wide portion of the pier near the waterline, three vertical green lights on the center of each navigation span, and buoys upstream and downstream of the piers on either side of a navigation channel, separated by approximately 200 feet to allow identification on radar during fog.
- Interim Conditions (During Construction)
- Provide all tows an assist tug with 2500- to 3000-horsepower (hp) Z-drive between the United Grain Terminal to upriver of the I-5 bridges.
- Develop guidance on the operation of the lift span so that pilots know what the operating rules will be.
- Provide tie-off or mooring facilities between the Junction Buoy and Ryan Point on both sides of the river.
- Restrict recreational and fishing boats from the construction area navigation channels; marked by buoys and enforced—there is no allowance for interfering traffic while the tows are maneuvering through this restricted area.
- Provide a point of contact during construction to provide information about the operations and location of equipment to pilots upon request using radio or phone and post conditions on the internet for access by towing companies and pilots.
- Operations will be suspended during fog.
- Construction equipment must be well lighted during night operations.
- Provide training for all pilots prior to beginning construction using the simulation models developed and improved to increase realism. Improve the empty tow models by making measurements of the tows in operations on the river and modifying the tow models to respond appropriately in the wind.

Because the Vancouver to The Dalles channel was authorized as a deep-draft (27-foot) channel, simulations were conducted for deep-draft vessel transits even though the USACE only maintains the channel for shallow-draft vessels and no deep-draft vessels currently navigate this stretch of the Columbia River. Since no deep-draft vessels pass under the I-5 bridge presently, simulations were conducted only in the proposed channel configuration and limited to the use of the UVTB and the primary channel. The deep-draft vessel navigation simulations resulted in the following conclusions and recommendations:

### Conclusions:

- Two distinct scenarios for approaching the UVTB and performing a tug-assisted turn of the design ships (580 by 101 feet) were tested. The simulations showed that both scenarios were safe for the design ships using two 3,000-hp tractor tugs. These two scenarios were (a)



transiting directly through the BNSF railroad bridge into the turning basin and (b) coming off the Lafarge dock and driving into the turning basin.

- Both loaded and ships in ballast were tested and found to be safely turned in the UVTB and aligned for departure through the BNSF railroad bridge.
- The scenario in which the design ship departed the Lafarge dock (port-side-to) and backed through the BNSF railroad bridge with tug assist was not shown to be safe. However, restricted capabilities of the simulator visuals and tug operations limited the ability of the pilots to direct this maneuver; therefore, definitive evaluation was not possible based on the limited number of runs completed. The pilots did note that they do the backing through the bridge at other sites and that this is a common practice, and they did not expect that there would be a problem in real life if the ship beams were in the range of 88 to 96 feet rather than the test ship's beam of 101 feet.
- Transit of the deep-draft design vessel for the primary channel was shown to be safe for upbound and downbound transits. The controlling factor for these maneuvers was passing through the BNSF railroad bridge.
- The pilots thought that an assist tug should be used to slow a downbound ship after the I-5 bridge and then passing through the BNSF railroad bridge.
- Based on ship simulation results and input from the pilots, the proposed layouts for the primary channel and the UVTB are safe for navigation of the deep-draft design vessel.

Recommendations:

- Two 3,000-hp tractor tugs are recommended for turning the design ship in the UVTB.
- Navigation markers are needed to mark the southern (Oregon side) edge of the UVTB.
- For transits of deep-draft ships under the proposed I-5 bridge, navigation markers are needed above and below the two bridge piers bordering the primary channel. The channel upriver of the bridge should have un-gated buoys marking the channel bends.

Based on the results of the tug and two and ship simulation efforts the proposed channel modifications will increase navigation safety and will not impact the reasonable needs of existing and prospective navigation on the waterway.

The program team also conducted a focus group meeting with key members of the navigation community representing barge companies, a marine contractor and cruise vessels to explain the program and obtain feedback on the navigation conditions during construction and following completion of the I-5 bridges. The members attending indicated that conditions would improve with the project consistent with the findings of the simulation efforts. They also indicated that conditions during construction would present some difficult navigations conditions but could be addressed with careful planning and implementation of mitigation measures.



## 2.17 Impacts to Navigation

### 2.17.1 Temporary Impacts

#### 2.17.1.1 Columbia River

The replacement bridges over the Columbia River must be constructed in stages because they occupy some of the same area occupied by the existing bridges and the need to maintain navigation. Over the existing navigation channel, the pier locations for the new bridges will be further apart than the existing bridges. Although vessels will navigate, temporarily, through a longer clearance envelope, it is not anticipated that this will create an adverse impact to navigation or safety levels that cannot be mitigated.

Due to an anticipated length of construction of several years, it is imperative to accommodate frequent users, such as tugs and tows, during construction. Most vessels that currently use the navigation channel would be able to continue to use the channel throughout most of the construction period. If necessary, it may be possible to temporarily restrict infrequent or recreational vessels.

During construction, the height and width of the navigation envelope will be reduced due to construction equipment and pier placement prior to removal of the existing I-5 bridges. A temporary construction navigation envelope (height and width of unobstructed clearance for navigation) will be maintained during construction with a minimum clearance of 75 feet (vertical) by 200 feet (horizontal) that meets the vessel clearance needs of the majority of waterway users including tugs and tows, passenger cruise vessels, and the majority of other vessel use on the waterway. However, there could be some temporary restrictions due to blockages from barges and cranes used to construct piers and lift bridge segments into place. Navigation on the river upriver of Bonneville is subject to yearly lock maintenance closures and anticipated closures for the bridge construction would be much shorter than what already occurs on the river. The length of the navigation channel underneath structures will temporarily increase when the new I-5 bridges are under construction and the existing I-5 bridges are still in use.

A potential construction staging sequence is presented in Section 2.18.2 that maintains the required temporary construction clearance envelope. The replacement bridges would not overlap the existing bridges' adjacent piers, enabling the piers of adjacent bridges to be constructed together, reducing construction time.

During construction, some of the new bridge piers, outside of the navigation channel, would not line up with the existing bridge piers. While the new crossing is under construction and the existing crossing is still operational, this would result in more obstacles in the river and more difficulty in navigation for vessels that may not utilize the main channel. Also during construction, the program will establish navigational haul routes on the river for the movement of construction materials and equipment.

The Tug and Two simulation discussed in Section 2.17.3 included simulation runs for different construction staging scenarios where were completed safely with no incidents. Under these scenarios the pilots often commented that even though they made the run successfully, there was no room for



error, misjudgment, or mechanical failures or for unexpected situations that might develop, and therefore, they considered these conditions unsafe. Providing an assist tug on the front of the tow gave the conning pilot control of the front of the tow and allowed the safe movement of tows through the temporary navigation channels in the construction zone with good control under all conditions. Additional recommendations are summarized in Section 2.17.3.

See Section 18 for discussion of construction methods and staging schemes to minimize and mitigate temporary navigation impacts.

### 2.17.1.2 Oregon Slough

The bridge(s) that will be built over the Oregon Slough will match or exceed, in height, the vertical clearance of the existing bridge over the harbor. Short duration in-water work windows and constructability issues suggest that the new structures over the Oregon Slough would most likely incorporate bridge elements that use prefabricated superstructure elements such as steel girders or precast segmental girders. These types of construction would eliminate the need for extensive supports in the Oregon Slough. However, some temporary restrictions may be necessary due to barges and cranes used to lift bridge segments into place and during demolition of the existing bridge. Since extensive temporary supports are not likely, the navigation clearance will not be significantly reduced from today’s clearance envelope. In addition, the Columbia River provides for an alternative route that provides greater navigational clearance than what is provided on Oregon Slough. Therefore, navigation on Oregon Slough will not be adversely affected during construction.

## 2.17.2 Long-Term Impacts

The IBR program proposes to replace the existing lift span that is 178 feet above ) CRD in the raised position with a fixed span providing 116 feet or 121 feet of vertical clearance and 400 feet of horizontal clearance. On average, about 2,600 commercial vessel trips occur each year, and more than 230,000 recreational activity days per year occurred in the Columbia River in Multnomah County. As described in earlier sections of this NIR the proposed bridge height accommodates the majority of users. With a 116-foot bridge, a total of eight vessels/users would be unable to pass with a 10-foot air gap when the river level is 16 feet above 0 CRD as shown in Table 2.17-1. A bridge height of 121 feet would reduce the number of impacted vessels/users to five.

Table 2.17-1. Vessels Restricted by a 116-foot Bridge Under Assumed Conditions

Vessel	Owner	Vessel Type	Air Draft (feet)	Trip Frequency
TBD (fabricator’s tallest future shipment)	Greenberry Industrial	Barge with fabricated materials	136	Any time of the year



## Navigation Impact Report

Vessel	Owner	Vessel Type	Air Draft (feet)	Trip Frequency
TBD (fabricator's tallest future shipment)	Vigor	Barge with fabricated materials	130	Any time of the year
TBD (fabricator's tallest reported shipment)	Thompson Metal Fab	Barge with fabricated materials	165	Any time of the year
DB Taylor	JT Marine	Marine contractor vessel	131	Up to 10 trips per month at all times of the year
DB Freedom	Diversified Marine	Marine contractor vessel	119	10 trips/year
DB 4100	Advanced American Construction	Marine contractor vessel	92	1–2 times per month, all months of the year
DB General	General Construction	Marine contractor vessel	93	Varies; can be any month of the year
Yaquina	U.S. Army Corps of Engineers	Hopper dredge	92	Twice a month October through July; 4 times a month August and September

As noted, these impacts are based on reasonable assumptions regarding river level and vessel air gap. While the impacted vessels would not have unrestricted, year-round access under the bridge height analyzed, some of those impacted vessels would be able to pass under that height, and lower bridge heights, for most or at least part of the year. This and other factors are important when considering the reasonable needs of navigation.

It is also worth noting that the identified navigation impacts all relate to restricting the frequency of passage; they do not adversely affect navigation safety, and they impact the passage of a very small portion of marine traffic. Of those impacted, a share could not pass for some days of the year and a smaller portion could not pass at any time, without mitigation. This is an important point for



permitting considerations, as described above. The USCG Bridge Administration Manual states that “the safety of navigation is a paramount consideration that cannot be compromised when addressing bridge program issues” (USCG 2004, Chapter 2 E.1). Navigation safety was an important factor when developing and screening alternatives during the CRC Project’s NEPA process. As discussed in the ROD, under existing conditions “[m]arine vessels traveling this section of the Columbia River must navigate under one of the fixed spans or through the lift span of the I-5 bridges, and must also navigate through the swing span of the Burlington Northern Santa Fe (BNSF) railroad bridge one mile downstream. Navigation safety for these vessels, especially when traveling downstream (with the current), would be substantially improved with a replacement river crossing.” While navigation safety is not part of the basic purpose and need for the project, navigation safety would benefit from the project as defined in the ROD.

The proposed horizontal clearance would not result in any impacts vessels or river users.

### 2.17.2.1 Columbia River Bridges

To determine whether a vessel had the potential to be impacted by the proposed replacement bridges that are part of the IBR program, vessel air draft and air gap were compared to the proposed vertical clearance of the replacement bridges. A vessel was determined to be “impacted” if it could not pass under the replacement bridges with a 10-foot air gap (vertical clearance between the highest point of the vessel and the lowest point of the underside of the bridge) while the river water level is at 16 feet CRD or higher. This combination of air gap and 16-foot river stage is called the “assumed condition.” The 16-foot river stage is known as the ordinary high water level and represents a near-worst-case analysis. The Columbia River level fluctuates in this area but is lower than 16 feet CRD more than 98% of the time. Since the river level fluctuates daily as well as seasonally, there can be months during the course of a year when a vessel that would be impacted at 16 feet CRD is not impacted at all. In addition, the inclusion of a 10-foot air gap in the analysis is a worst-case assumption of impacts because many vessels can safely pass with less air gap.

User heights were determined during the user identification and data-gathering phase of the work described in Section 1. Once vessel heights were confirmed, an impact analysis was conducted with a proposed bridge height of 116 feet. If a vessel was impacted based on the assumed conditions further analysis was done to determine the percentage of time it was impacted based on water levels or whether or conditions influenced its ability to transit under the proposed bridge height. To consider the potential for design refinements to allow for increased vertical clearance an additional assessment was done for a bridge height of 121 feet.

While extensive work was performed to identify vessels that could be impacted by the bridge heights studied, there may be other vessels that have not yet been identified. Some local vessel owners may not have responded to the program’s outreach efforts. Some vessels noted in the I-5 bridge logs could not be verified. Also, vessels from out of the area that have transited in the past may not be aware of the IBR program. Marine contractors from out of the area may come into the area if they are awarded a contract.



There are other factors besides vertical clearance that also affect safe passage, including horizontal clearance between bridge piers and channel configuration and alignment. Horizontal clearance was evaluated by comparing the proposed horizontal clearance with the authorized navigation channel widths and channel widths from USACE engineering manuals. Channel configuration and alignment were assessed by evaluating previously completed ship and tug and tow simulation efforts.

#### 2.17.2.2 Oregon Slough Bridge

The proposed replacement bridge(s) over the Oregon Slough will provide the same or greater vertical and horizontal clearances compared to the existing bridge. Limited information was provided by users on use of this waterway through the data-gathering phase. Because users of Oregon Slough are already constrained by the existing bridge and the Columbia River will provide an alternative route, no additional impacts to users will occur and a vessel-specific analysis of impacts was not conducted.

## 2.18 Potential Mitigation for Impacted Users

### 2.18.1 Mitigation for Unavoidable Short-term Impacts

Mitigation for temporary impacts on navigation will be addressed, in large part, by the construction methods and staging. The following sections describe several of many possible construction staging schemes that could be used to construct the bridges while maintaining sufficient clearance to minimize adverse impacts on navigation.

#### 2.18.1.1 Main Span Columbia River

A construction staging scheme will be developed to provide a 200-foot-wide and 75-foot-tall navigation clearance envelop at nearly all times, which meets the vessel clearance needs of the tugs and tows, passenger vessels, and the majority of sailboat and construction equipment identified.

The construction staging and impacts on navigation will be generally as follows:

Phase I – Construct the new I-5 bridges to the west of the existing bridges. Figure 2.18-1 illustrates the construction sequence.

Stage 1 – Construct Piers 2, 3, and 4 for all bridges.

- Existing primary channel – In service, no navigation encroachment.
- Existing barge channel – In service, no navigation encroachment.
- Existing alternate barge channel – Out of service due to adjacent pier construction.

The alternate barge channel is out of service due to the adjacent construction of Pier 4. This may cause some inconvenience; however, both the existing primary and barge channels are in full service. The impact to vessel navigation is considered minimal. It may require more frequent operation of the lift span due to the reduced clearance in the barge channel but that will not impact navigation.

Stage 2 – Construct Piers 6, 7, Spans at Piers 2, 3, 4, and 7 for all bridges.



## Navigation Impact Report

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- Existing primary channel – In service, some navigation encroachment.
- Existing barge channel – In service, no navigation encroachment.
- Existing alternate barge channel – In service, some navigation encroachment.

Both the existing primary and alternate barge channels have construction activity overhead, and vessels may experience some inconvenience. With the barge channel in full service, the impact to vessel navigation is considered minimal.

Stage 3 – Construct the remainder of the piers and spans: Pier 5, Spans at Piers 5 and 6 for all bridges.

- Existing primary channel – In service, some navigation encroachment.
- Existing barge channel – Out of service, significant navigation encroachment.
- Existing alternate barge channel – In service; existing piers are in line with new Pier 4, but vessels should be angling away from Pier 4 as they start to align with the BNSF railroad swing span.

Both the existing primary and alternate barge channels are in service. The existing primary channel has some overhead construction activity, but it is not anticipated to interrupt service. The construction of Pier 5 eliminates the use of the barge channel. Vessels that cannot (or choose not to) use the alternate barge channel may experience some delays, as the lift span restriction periods are still present.

At the conclusion of Stage 3, the new bridges are fully constructed.

Phase II – Traffic switched to new bridges, remove existing bridges.

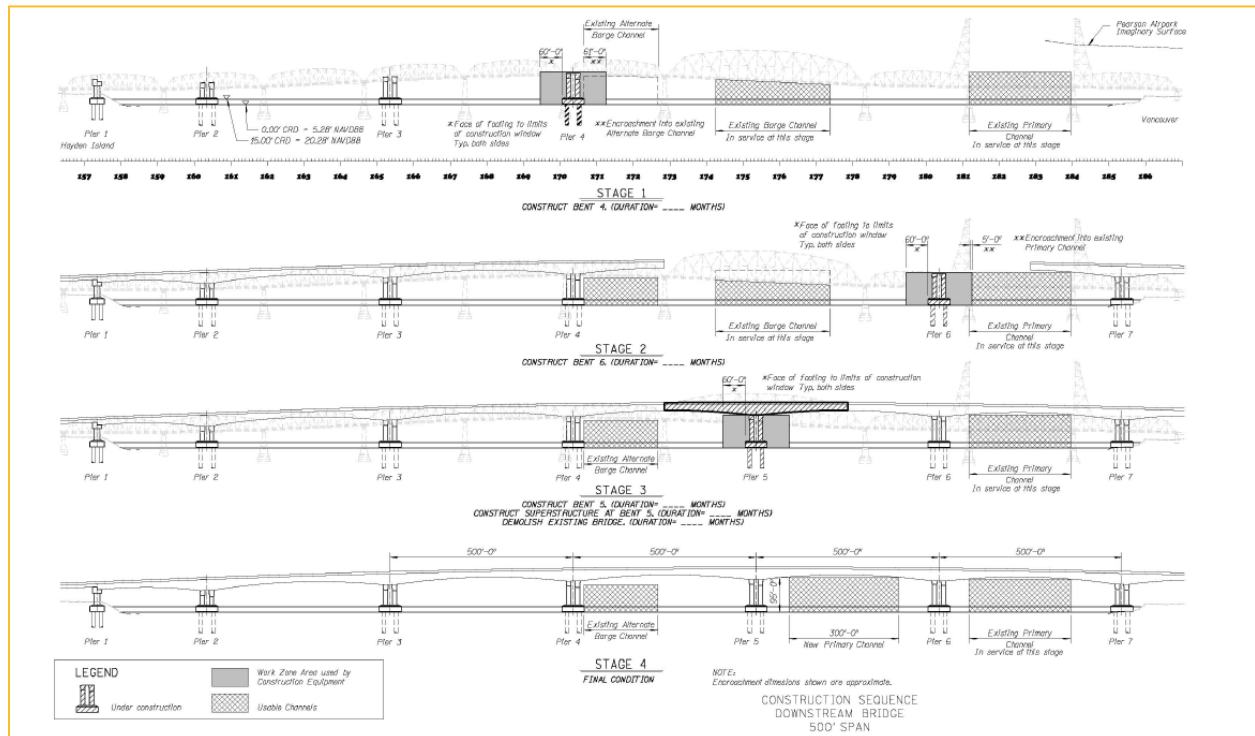
Stage 4 – Demolition and removal of existing I-5 bridges' piers between new Piers 5 and 6.

- Until the existing piers between the new Piers 5 and 6 are completely removed, the impact to vessel navigation is the same as construction Stage 3.
- Once the existing piers between the new Piers 5 and 6 are removed, the new primary channel is in full service and the existing channels can be removed from “official” service.

In summary, the locations of the proposed piers cause no apparent significant adverse impact to the route that vessel pilots must take to traverse this portion of the Columbia River during the construction of the permanent bridges. This is possible because all the in-water work could be completed at once without complicated staging.



Figure 2.18-1. Construction Staging



In addition to construction staging, communication of closures and clearance restrictions to users will be critical to reduce impacts on users.

Additional tugs may be needed to assist vessels through areas of reduced clearance, especially during times of high water. The USCG would review construction plans to determine potential impacts.

### 2.18.1.2 Oregon Slough

Construction staging schemes will be devised that minimize adverse impacts to navigation on Oregon Slough. Construction activities could temporarily reduce available clearances at due to the need for work bridges and platforms or from floating construction equipment and barges. The main Columbia River channel provides an alternate navigation route that can be used by vessels impacted by the reduced clearances. This results in an inconvenience due to the longer transit but will result in no impacts to navigation. Timing of the construction in Oregon Slough in relation to the main channel construction is unknown but is not expected to occur at the same time. It will be essential to communicate restrictions or temporary closures of the navigation channel and the availability of the alternate route to the marinas and moorages on the waterway as these are the primary users of North Portland Harbor at this crossing.



## 2.18.2 Mitigation for Unavoidable Long-Term Impacts

This section identifies potential mitigation measures for the affected users. Mitigation can include modifications to vessels, modification to cargo or how cargo is handled, the availability of alternative routes, transiting at lower water levels and other efforts. A prime consideration is the economic feasibility of the mitigation and whether users can adjust operations without economic loss. The mitigation measures identified herein are not final and would be subject to future decisions and agreements between the program and the affected users that would be finalized prior to issuance of the USCG bridge permit and/or construction of the project. Some of the mitigation measures identified are based on discussions with affected users that occurred for the CRC Project. Because the project was stopped those mitigation measures were never finalized nor was the mitigation undertaken. However, the mitigation that was identified and the status is included in the discussion below.

### 2.18.2.1 Avoidance and Minimization Overview

Avoidance and minimization measures typically precede the consideration or at least commitment of mitigation measures. Most of the impacted vessels could still pass at some time of the year although some would be too tall to pass at any time of year without mitigation. The 2012 CRC examined several bridge heights ranging from 95 to 178 feet in vertical clearance based on the findings in the ROD. The selected (at the time) bridge height of 116 feet had the most minimal impact to both vessel users and car traffic and thus was the preferred option moving forward. In addition, constructing a higher level bridge would not significantly reduce the number of impacted vessels or users.

Other minimization considered included modifying the “impact threshold,” as defined by river level and air gap. A less conservative air gap (5 feet rather than 10 feet) would reduce the number of impacted vessels to two pieces of floating construction equipment but would not change potential impacts to the three businesses.

### 2.18.2.2 Mitigation Timeline and Overview

The IBR program will further explore the mitigation measures with affected vessel owners and develop commitments as the program advances through the environmental review and design process. Mitigation discussions with affected owners and commitments to mitigation will advance through the re-evaluation and permitting processes. For each impacted vessel owner or business, mitigation discussions and documentation will include the following:

- Identify proposed clearance being discussed for mitigation.
- Describe the proposed mitigation for impacted users.
- Evaluate the viability of the mitigation.
- Develop statements from both parties to document status of mitigation discussions at key milestones.

The coordination and documentation would lead to specific mitigation commitments and mitigation work plans.



For this analysis, mitigation options are discussed for each vessel group rather than each individual vessel. Individual vessel mitigation requires understanding more about the specific vessel's operations, navigating constraints and vessel architecture, and is not generally included for each impacted vessel. However, there are several exceptions where this chapter describes mitigation specific to individual vessels. No recommendation is made at this time as to who would be responsible for funding or executing the mitigation. It is assumed that this would be determined as part of the negotiation process with impacted vessels and the permitting process.

The mitigation described below is for impacts associated with vessel transit on the Columbia River under the proposed I-5 bridges. No mitigation is identified for the proposed Oregon Slough bridges as no impacts were identified or concerns raised by river users. The vertical and horizontal clearances for the proposed bridges over Oregon Slough meet or exceed the clearance of the existing Oregon Slough bridge. In addition, users in the vicinity of the proposed Oregon Slough bridges are primarily recreational with clearance requirements that would not be impacted, and it is also possible to avoid the Oregon Slough bridges by utilizing the Columbia River. Oregon Slough bridges may be required to have navigation aids such as vertical clearance gages, lighting, or other navigation aids, as determined by the USCG through the bridge permit process.

### Emergency Operation, National Defense and Channel Maintenance Vessels

The USACE hopper dredge Yaquina was the only federal vessel identified as being potentially impacted by the proposed replacement bridges. As discussed in Section 4, the USACE has indicated that a bridge height of 116 feet is adequate to allow the Yaquina to transit and none of the mitigation options are necessary. However, because this would not meet the assumed condition (minimum air gap of 10 feet), mitigation options are discussed here. Mitigation would not be necessary for a bridge height of 121 feet.

#### Mitigation Option 1 – Modify the mast structure and appurtenances.

Modifying the antenna and mast so that it could be lowered would reduce the air draft of the Yaquina. Everything higher than the crow's nest would need to be removed; the mast would then need to be outfitted with a hinge, then reinstalled. Whenever the Yaquina transits under the bridge, the mast could be unhinged and lowered either manually or electrically.

#### Mitigation Option 2 – Purchase a new dredge.

This option involves replacing the hopper dredge with one that has a smaller air draft than that required to pass under the bridge, considering the 16-foot river level and 10-foot air gap. To replace the Yaquina, the new dredge would, at a minimum, require the same capacity and capabilities as the existing dredge.

#### Mitigation Option 3 – Contract dredging to private dredges.

Contracting with private dredging contractors to perform upstream maintenance dredging that can be conducted with smaller dredges would eliminate the need for the Yaquina to pass under the new I-5 bridges. Due to occasional emergency situations, the contractors would have to be available on short



notice and have the properly sized hopper dredge. In addition, the USACE would need to have expedited contracting methods to select and contract with a contractor on short notice.

#### Mitigation Option 4 – Travel during times when river level permits.

The Yaquina's full height is 92 feet. With a 10-foot safety gap, up to a 14-foot river stage would allow safe passage for the vessel through the replacement bridges. The river stage is at or below 14 feet approximately 75% of the year, so trips could be scheduled based on historical river levels. However, this may not correspond with the times that dredging is needed.

### Commercial Vessels

#### *Marine Contractors*

The analysis identified four contractor vessels as not being able to transit year round under the proposed bridge height of 116 feet or 121 feet. Marine contractors transit under the bridge while traveling to work sites. Of the vessels identified as being potentially impacted, some may not transit under the bridge in a given year, whereas others may transit multiple times. Given that there are numerous contractors and that marine construction services will continue to be needed on both sides of the bridge, acquisition of crane barges is not considered a mitigation option.

Ballasting the barge, while possible, will not provide enough additional air gap to make a significant height difference. Ballasting can be used when only a couple of feet are all that is needed to clear the bridge. Ballasting is usually performed on the end of the barge that supports the crane, so the height of the crane is lowered along with the freeboard.

#### Mitigation Option 1 – Remove the spuds.

Some crane barges have height limitations caused by traveling with raised spuds. The spuds need to be raised high enough to prevent grounding during transit, not only in the navigational channel but along the route to the desired destination. The spud heights are typically 70 to 90 feet. Removing the spuds prior to transit will reduce the vessel height to the next lowest point on the crane barge, typically a gantry or slightly elevated boom. A number of users indicated that it would take one-half to one day to remove the spuds and similar time to replace them. Removing spuds is an activity that is possible, although not always preferred by the operator, especially for those users that cannot self-remove them or need to travel only short distances. For instance, if the barge's own crane cannot lift the spuds out and lay them on the deck, another crane would be needed to perform this work. If the barge is not tied up to a dock or to shore when the spuds are removed, the barge will have to either anchor or have a tug assist it by holding the barge in place.

#### Mitigation Option 2 – Remove the boom.

If the boom tip is the highest point of the vessel, the boom can be removed prior to transit. This requires a considerable amount of work because all of the rigging needs to be removed, and another crane needs to be used to lift off the boom. If the boom is especially long and the barge it is removed from is too short, the boom may need to be transported on a separate barge.



### Mitigation Option 3 – Remove the gantry.

If the gantry is the highest point of the vessel, it can be removed prior to the transit. It can take up to a week to lower the gantry and another week to raise it. It is a labor- and equipment-intensive activity and cannot be done frequently. It is not feasible for crane barges that need to transit under the bridge several times a month or more.

### Mitigation Option 4 – Reconfigure the crane.

The crane gantry may be modified to reduce its height. The modification would require the services of a naval architect working with the crane barge owner to redesign the crane to ensure it can achieve the same lifting capacity and reach.

### Mitigation Option 5 – Use mobile cranes mounted on barges upriver of the bridge.

If crane barges cannot transit under the bridge, it may be possible to transport a deck barge upriver, then load a land-based mobile crane from shore once the deck barge is upriver of the bridge. This is not a solution to getting an existing floating crane barge under the bridge, but rather an alternate method of getting equipment to work locations. Depending on the size of the mobile crane needed, there may be issues transporting the mobile crane over the highways and to the loading area.

### *Mitigation Options by Impacted Vessels*

*DB 4100* is constrained by the height of the spuds and mitigation Option 1 would be available for this vessel assuming an air draft of less than 10 feet cannot be accommodated or water levels are within 3 feet of the ordinary high water mark. Because of the limited time in which the vessel is height constrained, the ability to utilize a lesser air draft and the ability to remove or lower the spuds a small amount to accommodate a transit no specific mitigation for this vessel is anticipated.

The *DB General* is height constrained by the gantry and Mitigation Option 3 and 4 would be available to this vessel assuming an air draft of less than 10 feet cannot be accommodated or water levels are within 3 feet of the ordinary high water mark. Because of the limited time in which the vessel is height constrained and the ability to utilize a lesser air draft no specific mitigation for this vessel is anticipated. Another important consideration is that due to the width of this vessel it is not able to transit upriver of Bonneville dam in its present configuration and therefore is only constrained from a shorter stretch of the Columbia River system. The IBR program would not propose to undertake any mitigation of this vessel.

*DB Freedom* is constrained by height of the boom during transit. Mitigation Options 2 or 4 could be available for this vessel if it cannot operate as described earlier with the boom stationed temporarily to the side of the tug pushing the barge. The CRC program was working with the vessel owner to develop a plan for a temporary cradle to allow the vessel to transit more securely when placed to the side of the tug. Because of ability to transit in a manner that eliminates the height constraint no specific mitigation for this vessel is anticipated. The IBR program will consult with the vessel owner to confirm operating conditions and evaluate mitigation options if needed.



*DB Taylor* is constrained by height of the boom during transit when the longer of two booms available for this vessel is in use. Mitigation Options 2 or 4 could be available for this vessel. The CRC Project engaged in negotiations with the owner of this vessel. An analysis of options to retrofit the vessel was conducted and a solution was identified to allow the boom to be lowered further during transit by installing a new boom. A draft mitigation agreement to provide compensation in the amount equal to the estimated retrofit costs was presented to the vessel owner by the CRC. During the mitigation process the vessel owner made a decision to terminate negotiations and the agreement was never finalized.

### *Marine Industries and Fabricators*

Occasional historical and anticipated future shipments from the three major upriver fabricators (Thompson Metal Fab, Vigor, and Greenberry) would not be able to pass under the bridge height of 116 feet under the assumed conditions year round. Increasing the bridge height to 121 feet would not change the impact. Discussions would be conducted with each fabricator to identify and evaluate mitigation options to address potential impacts to their operations and to reach formal agreement on mitigation prior to beginning construction of the project.

Negotiations with Thompson Metal Fab and Greenberry occurred in support of the CRC Project. The CRC Project worked separately with the two companies to identify appropriate mitigation strategies to allow them to continue to pursue current and future anticipated markets following construction of the bridge. Negotiations occurred under confidentiality agreements for the purposes of preserving proprietary company financial information. Work included the evaluation of potential business losses resulting from lost market opportunities, and also the consideration of opportunities and potential costs for relocation of their operations. The anticipated mitigation agreements would have resulted in payments to the companies that would be used by the companies at their business direction and control. One potential outcome would be a decision by the companies to relocate downstream of the bridge at a site of their choosing.

Vigor did not have any operations in the area at the time of the CRC Project that would have been impacted and no discussions occurred with them.



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## APPENDIX A FUTURE LAND USE ANALYSIS DETAILS





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## Appendix A

# Future Use Analysis

October 2021



## Appendix A

# Future Use Analysis

Prepared for:



Prepared by:



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## TABLE OF CONTENTS

<b>1.</b>	<b>INTRODUCTION AND METHODOLOGY .....</b>	<b>1-1</b>
1.1	Purpose .....	1-1
1.2	Subject Area .....	1-1
1.3	Data Sources .....	1-1
1.4	Land Use Assumptions .....	1-2
1.5	Other Assumptions .....	1-2
1.6	Site Suitability .....	1-3
1.7	State and Federal Environmental Permitting Requirements .....	1-3
1.7.1	Columbia Gorge National Scenic Area .....	1-3
1.7.2	Washington’s Shoreline Management Act .....	1-4
<b>2.</b>	<b>REVIEW OF LAND USES IN AFFECTED COUNTIES.....</b>	<b>2-1</b>
2.1	Clark County, Washington (Vancouver) .....	2-1
2.1.1	Existing Uses .....	2-1
2.1.2	Overview of Land Use Regulations.....	2-7
2.1.3	Key Findings .....	2-7
2.2	Clark County, Washington (Camas) .....	2-8
2.2.1	Existing Uses .....	2-8
2.2.2	Overview of Land Use Regulations.....	2-10
2.2.3	Key Findings .....	2-11
2.3	Clark County, Washington (Washougal) .....	2-11
2.3.1	Existing Uses .....	2-11
2.3.2	Overview of Land Use Regulations.....	2-14
2.3.3	Key Findings .....	2-15
2.4	Skamania County, Washington.....	2-16
2.4.1	Existing Uses .....	2-16
2.4.2	Overview of Land Use Regulations.....	2-20
2.4.3	Key Findings .....	2-21
2.5	Klickitat County, Washington .....	2-21
2.5.1	Existing Uses .....	2-21
2.5.2	Overview of Land Use Regulations.....	2-25
2.5.3	Key Findings .....	2-26
2.6	Multnomah County, Oregon (Portland) .....	2-27



2.6.1	Existing Uses .....	2-27
2.6.2	Overview of Land Use Regulations.....	2-28
2.6.3	Key Findings .....	2-28
2.7	Multnomah County, Oregon (Fairview) .....	2-28
2.7.1	Existing Uses .....	2-28
2.7.2	Overview of Land Use Regulations.....	2-29
2.7.3	Key Findings .....	2-30
2.8	Multnomah County, Oregon (Troutdale) .....	2-30
2.8.1	Existing Uses .....	2-30
2.8.2	Overview of Land Use Regulations.....	2-33
2.8.3	Key Findings .....	2-33
2.9	Hood River County, Oregon (Cascade Locks) .....	2-33
2.9.1	Existing Uses .....	2-33
2.9.2	Overview of Land Use Regulations.....	2-36
2.9.3	Key Findings .....	2-37
2.10	Hood River County, Oregon (Hood River) .....	2-37
2.10.1	Existing Uses .....	2-37
2.10.2	Overview of Land Use Regulations.....	2-39
2.10.3	Key Findings .....	2-39
2.11	Wasco County, Oregon .....	2-40
2.11.1	Existing Uses .....	2-40
2.11.2	Overview of Land Use Regulations.....	2-44
2.11.3	Key Findings .....	2-44
3.	<b>ANALYSIS SUMMARY .....</b>	<b>3-1</b>

## FIGURES

Figure A.2-1.	Columbia Business Center.....	2-3
Figure A.2-2.	City Boat Basin 901 SE Marine Park Way .....	2-4
Figure A.2-3.	Tidewater Cove Marina.....	2-5
Figure A.2-4.	McCuddy’s Steamboat Landing Marina .....	2-6
Figure A.2-5.	Western Forest Products Construction Property .....	2-7
Figure A.2-6.	Georgia Pacific Camas Mill .....	2-9
Figure A.2-7.	City of Camas Slip.....	2-10



## Future Use Analysis

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Figure A.2-8. City of Washougal Waterfront .....	2-12
Figure A.2-9. Washougal Waterfront at Parker’s Landing Proposed Master Plan.....	2-13
Figure A.2-10. Port of Camas-Washougal Industrial Park and Steigerwald Commerce Center.....	2-14
Figure A.2-11. Stevenson Co-Ply Property.....	2-17
Figure A.2-12. Stevenson Waterfront.....	2-18
Figure A.2-13. Home Valley .....	2-19
Figure A.2-14. Broughton Landing.....	2-20
Figure A.2-15. SDS Lumber Mill.....	2-22
Figure A.2-16. Port of Klickitat Bingen Point Industrial Park .....	2-23
Figure A.2-17. Port of Klickitat Bingen Marina.....	2-24
Figure A.2-18. Port of Klickitat Dallesport Industrial Park .....	2-25
Figure A.2-19. Pacific Northwest Aggregates.....	2-27
Figure A.2-20. CalPortland Blue Lake Aggregate Yard.....	2-29
Figure A.2-21. Chinook Fairview Terminal.....	2-29
Figure A.2-22. Sundial Marine Tug & Barge Works .....	2-31
Figure A.2-23. Knife River Aggregates Terminal.....	2-32
Figure A.2-24. Troutdale Reynolds Industrial Park.....	2-33
Figure A.2-25. Port of Cascade Locks Business Park.....	2-34
Figure A.2-26. Port of Cascade Locks Marina .....	2-35
Figure A.2-27. Port of Cascade Locks Marine Park.....	2-36
Figure A.2-28. Port of Hood River Business Park .....	2-38
Figure A.2-29. Port of Hood River Marina .....	2-39
Figure A.2-30. Barge Terminals in The Dalles .....	2-41
Figure A.2-31. Port of The Dalles Marina.....	2-42
Figure A.2-32. The Dalles Commercial Dock .....	2-43
Figure A.2-33. Former Northwest Aluminum Site (3313 West 2nd Street).....	2-44



## ACRONYMS AND ABBREVIATIONS

CBC	Columbia Business Center
GI	Greenberry Industrial
I-5	Interstate 5
I-84	Interstate 84
IBR	Interstate Bridge Replacement
MLLW	Mean Low Low Water
NIR	Navigation Impact Report
NSA	National Scenic Area
OIW	Oregon Iron Works
SMA	Shoreline Management Act
SR	State Route
Vigor	Vigor Industrial
WKO	Wilkins, Kaiser & Olsen Inc.



# 1. INTRODUCTION AND METHODOLOGY

## 1.1 Purpose

Federal law prohibits the construction of any bridge across the navigable waters of the U.S. unless first authorized by the U.S. Coast Guard. The Bridge Permit Application Guide (COMDTPUB P16591.3D) requires the development of Navigation Impact Report (NIR) to identify the current and prospective navigation on the waterway. This includes the potential for future navigation needs from the development of land uses along the waterway. This appendix includes an analysis of existing and potential commercial/industrial development and examines the likelihood of creating additional navigation activities that could be impacted by the proposed Interstate Bridge Replacement (IBR) program.

This appendix is an update of the work completed in support of the Columbia River Crossing NIR completed in 2012.

## 1.2 Subject Area

The geographical extent analyzed extends from the proposed new Interstate 5 (I-5) bridge to the BNSF Railway rail bridge at Celilo Falls. The geographical extent analyzed landward from the river is approximately 0.5 miles. Together, these geographical extents compose the “subject area.” Land uses farther inland may generate marine traffic; however, those cargoes would be transported to waterfront facilities for transfer to barges or other vessels within the project area.

Locations upriver of the BNSF Railway rail bridge at Celilo Falls would not be expected to generate vessels or cargoes that would be impacted by the I-5 bridges due to existing height (79 feet when raised) and width restrictions imposed by the Celilo Falls bridge and others located upstream (see Section 3.1 in the main report). Areas downstream of the I-5 bridge and the BNSF Railway would also not be expected to generate vessels or cargo that would be impacted by the I-5 bridge because most vessel transit is generated from upstream of the I-5 bridge. Furthermore, there is minimal cargo generation or transit from downstream locations that are not already limited by upstream height or width restrictions.

## 1.3 Data Sources

The land use assessment is an update to the land use assessment completed for the 2012 Columbia River Crossing NIR, Appendix A. Using aerial imagery, planning documents (e.g., Comprehensive Plans), and interviews with staff, the marine-dependent uses within each county were updated to reflect current land uses. This update relied on the following information:

- 2012 Columbia River Crossing NIR, Appendix A: Future Land Use Analysis, prepared by David Evans and Associates, Inc.
- Google Earth aerial imagery.



- Interviews: WSP USA Inc. interviewed city/county planning departments by telephone to confirm the key findings and identify potential concerns related to river traffic.

## 1.4 Land Use Assumptions

Comprehensive plan land use designations and policies and zoning and development regulations state what types of land uses can be set in each zoning area. Some uses are allowed “by right,” which means they are permitted through a simple application process. Other uses are often referred to as “conditional” or “limited uses” and are subject to extra requirements and additional review. Base zone requirements, which developments may have to meet regardless of whether they are permitted outright, typically include dimensional regulations such as height and setbacks. Zoning overlays are additional designations that may further restrict uses or developments, such as requiring additional and potential mitigation related to floodplain, riparian, wetlands, and wildlife habitat. The land use permitting process ensures that development is compatible with the designated uses and standards of the zone.

In the subject area, zoning is typically industrial, residential, commercial, and open space/parks/recreation. Each jurisdiction typically will have variations in uses allowed in each zoning designation. For analysis purposes, the following assumptions are made regarding the various uses and their potential to generate marine-dependent uses:

- Industrial: Typically allows for varying levels of manufacturing and production. Marine-dependent uses can include ship building, metal fabricating, timber processing, and boat building. These sites may also have the capability of generating large objects, such as oil rigs.
- Commercial: These uses include restaurants, stores, and offices. Commercial uses may include commercial marinas; however, most commercial uses are unlikely to generate marine traffic. The marine traffic that could be generated by commercial uses is likely individually owned recreational boats, which could include sailboats, touring boats, or passenger (cruise) vessels.
- Residential: Residences with various tax lot sizes and accessory structures such as docks. The marine traffic that would be generated by residential uses is likely privately owned recreational boats. This could include sailboats.
- Open space/parks/recreation: Areas designated as open space/parks/recreation are typically used for habitat conservation and/or passive and active recreation. Public docks and marinas may be included with these uses for recreation purposes. Sailboats may use the docks and marinas.
- Zoning overlays: It is assumed that, depending on the local jurisdiction, floodplain, riparian, and other natural resource overlay standards may apply to all sites along the river.

## 1.5 Other Assumptions

There may be land uses outside of the project area, specifically agricultural, that may generate or be supported by marine traffic. However, because the goods would have to be transported by another



freight method to the riverfront, they could be accommodated by barge or shipped on boats that would not have any vertical clearance issues. Additionally, businesses outside of the area may provide service to the area. For example, marine contractors are likely needed upriver in the future for a variety of projects.

## 1.6 Site Suitability

Although lots may be zoned for use along the Columbia River, there may be additional factors that limit or leverage development potential. These include:

- Plotted tax lot size and dimensions can reduce development potential by limiting the necessary space to accommodate development and meet zoning setback requirements.
- Lots can be constrained by roads, freeways (such as Interstate 84 [I-84]), railroad (Union Pacific Railroad or BNSF line), or other public infrastructure (such as power lines). In addition, easements, particularly recreational trail easements, may create a buffer between a development and the riverfront.
- Regulated natural resources, such as wetlands or Endangered Species Act habitat, can prohibit development or make development cost-prohibitive because of the fees and mitigation requirements for environmental permitting, as well as local, state, and federal permitting (see following sections).
- Bathymetric and other river conditions may prohibit or restrict access to the navigable portions of the river from the shoreline.
- Sites with existing infrastructure, especially docks (see Section A.2.7), are more conducive to uses and redevelopment that may generate varying degrees of marine traffic. Depending on the development, these sites also would likely not be subject to as stringent environmental permitting requirements.

## 1.7 State and Federal Environmental Permitting Requirements

Water-dependent uses need access to the water, which typically involves a structure into the river. Depending on the type of development, where exactly development would occur in proximity to the river, and whether there is work below ordinary high water in the Columbia River, state and federal permits could potentially be required. This document does not cover whether the marine uses discussed require state or federal permits.

### 1.7.1 Columbia Gorge National Scenic Area

The Columbia River Gorge National Scenic Area (NSA) lies to the east of Portland, Oregon, and Vancouver, Washington. It stretches about 83 miles, from the Sandy River on the west to the Deschutes River on the east in Oregon, and from Gibbons Creek in Clark County to a line 4 miles east of Wishram in Washington. The NSA covers portions of six counties: Clark, Skamania, and Klickitat Counties in Washington, and Multnomah, Hood River, and Wasco Counties in Oregon.



The Columbia River Gorge Commission, a regional commission representing local, state, and national interests, was established in 1987 to develop and implement policies and programs that protect and enhance the scenic, natural, cultural, and recreational resources of the NSA, while encouraging growth within existing urban areas and allowing development outside urban areas consistent with resource protection.

To achieve the purposes of the Columbia River Gorge NSA Act, Congress called for preparation of a management plan that would treat the two-state, six-county area as a region. Congress established a two-tiered management approach for preparing the management plan. It divided responsibility between the U.S. Forest Service and the Columbia River Gorge Commission. The six Columbia River Gorge counties were authorized to implement the management plan through their land use ordinances.

The NSA is divided into three categories of land: urban areas, the special management area, and the general management area. Congress designated 13 cities and towns as urban areas: North Bonneville, Stevenson, Carson, Home Valley, White Salmon, Bingen, Lyle, Dallesport, and Wishram on the Washington side of the river and Cascade Locks, Hood River, Mosier, and The Dalles on the Oregon side. The urban areas are exempt from the management plan, but are eligible to receive federal funds authorized to implement it. Per the management plan, the urban areas are the primary focus for growth and economic development. In addition, the management plan states that new industrial development will not be allowed in the NSA outside the urban areas.

There are five established ports within the NSA: Skamania and Klickitat on the Washington side of the river and Cascade Locks, Hood River, and The Dalles on the Oregon side. All five of these ports are within the designated urban areas. Land use regulations regarding development and redevelopment of property in the NSA are promulgated through the Columbia River Gorge Commission's Land Use Ordinance (Chapter 350, Division 81). This code defines industrial and water-dependent uses. Any future expansions or development projects that would use the established ports as a water-dependent use would need to be within a designated urban area.

The NSA does not allow industrial development outside of the urban areas. It also confines development to the relatively small urban areas, thus limiting the amount of space for industrial uses and the additional services used to support industrial uses. In addition, less developed areas could lack the skilled labor necessary for an industrial use.

The NSA promotes recreation and water-dependent recreation and protects the resources of the Columbia River Gorge, which has ideal freshwater sailing conditions from spring through fall. As a result of these conditions, the Columbia River Gorge attracts sailors, including many from outside the area. Water levels are often highest during the sail season, and the number of sailboats visiting the gorge is anticipated to increase with additional waterfront developments and population changes.

## 1.7.2 Washington's Shoreline Management Act

Washington's Shoreline Management Act (SMA) was passed by the state Legislature in 1971 and adopted in 1972. The goal of the SMA is "to prevent the inherent harm in an uncoordinated and



piecemeal development of the state's shorelines." The SMA applies to the counties within the affected area as they have "shorelines of the state." Each jurisdiction prepares its own Shoreline Management Plan to be in compliance with the SMA. Preferred uses include single-family residences, ports, shoreline recreational uses, water-dependent industrial and commercial developments, and other developments that provide public access opportunities. Per the SMA, to the maximum extent possible, the shorelines should be reserved for water-oriented uses, including water-dependent, water-related, and water-enjoyment uses. The SMA emphasizes accommodation of appropriate uses that require a shoreline location, protection of shoreline environmental resources, and protection of the public's right to access and use the shorelines (Revised Code of Washington 90.58.020). The SMA supports the use of the Columbia River shoreline for water-dependent industrial uses. However, development must meet the SMA's "no net loss of shoreline ecological function" basis which can add costs for mitigation.



## 2. REVIEW OF LAND USES IN AFFECTED COUNTIES

The following sections identify the potential land uses existing and potential future capability to generate marine traffic. This review includes an evaluation of policies in comprehensive plans and zoning designations to ascertain long-term goals for river front tax lots. The jurisdictions evaluated include the six counties and cities located in the Columbia Gorge NSA on the Columbia River between the I-5 bridges and the BNSF Bridge at Celilo Falls, per Section 6.5 of the NIR:

- Washington
  - Clark County (Vancouver, Camas, Washougal)
  - Skamania County (North Bonneville, Stevenson, Home Valley)
  - Klickitat County (Bingen, Dallesport)
- Oregon
  - Multnomah County (Portland, Fairview, Troutdale)
  - Hood River County (Cascade Locks, Hood River)
  - Wasco County (The Dalles)

A summary of regulatory standards and any key issues/areas of concern are described for each jurisdiction.

### 2.1 Clark County, Washington (Vancouver)

This section describes the existing and expected future land uses along the riverfront in the city of Vancouver in Clark County.

#### 2.1.1 Existing Uses

The shoreline in Vancouver contains a wide mix of uses, including heavy industry, residential, and recreational uses.

##### Port of Vancouver

The Port of Vancouver is located along the Columbia River's deep-draft channel that extends from the Pacific Ocean to just downstream of the I-5 bridge. Terminals downriver from the BNSF bridge are not included in this analysis because they would not likely contribute to changes in vessel traffic not captured by the upriver analysis. For example, the grain terminal includes facilities for the receipt of grain barges. These barges originate at barge-loading facilities upstream of I-5, upriver of the BNSF rail bridge include Terminal 1, the Vancouver Waterfront, and at the La Farge property. Terminal 1 is the eastern-most portion of the Port of Vancouver's waterfront development. The Port of Vancouver's master plan for Terminal 1 includes office, residential, and retail space and will have over 950,000 square feet of new mixed-use development. This includes removal the existing structures located on the dock. Terminal 1 will also include bike and pedestrian trails and a public dock for pleasure boats.



## Future Use Analysis

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Per the master plan, Terminal 1 will not be devoted to cargo handling and thus would not involve changes to navigation for these types of vessels. Terminal 1 will continue to be made available to cruise vessels. Cruise vessels are addressed in Section 5 of the NIR. Terminal 1 is identified for potential partial acquisition by the program but adequate dock space should remain to support continued cruise vessel use.

### La Farge Site

La Farge North America operates a cement handling facility on approximately 1.83 acres immediately east of the BNSF rail line. The site includes marine access and is presently the only facility that is accessed by deep-draft traffic above the BNSF bridge.<sup>1</sup> The deep-draft traffic that accesses the site does not use the Upper Vancouver Turning Basin and would not be impacted by the replacement bridges. No other deep-draft traffic passes above the BNSF railroad bridge.<sup>2</sup>

### Vancouver Waterfront

The Vancouver Waterfront is a development located along the Columbia River between the BNSF rail bridge and the existing I-5 bridge. The 32-acre site extends across the Columbia waterfront and includes a variety of mixed-use, residential, and commercial space. The site includes an expansive open space that spans the entire site. The site does not include any marine facilities or land uses that would generate vessel traffic.

### Columbia Business Center

The Columbia Business Center (CBC) is an industrial parcel located approximately 1.2 miles upriver from the I-5 bridges. To the west of the CBC is a mixed-use development, which includes residential housing, retail, and restaurants. To the east of the CBC is a city park with a boat ramp and an industrial waterfront site used by facilities operating out of the CBC.<sup>3</sup>

The CBC includes approximately 2.3 million square feet of space in 27 buildings and approximately 1.0 million square feet of open leasable space, as shown in Figure A.2-1. In 2021, it was reported that the CBC is essentially completely occupied with approximately 54,000 square feet of leasable area available.<sup>4</sup>

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<sup>1</sup> <https://books.google.com/books?id=q2qtQeTdmrkC&pg=RA4-PA92&lpg=RA4-PA92&dq=cement+dock+vancouver+washington&source=bl&ots=3fNmwkYnAO&sig=ACfU3U0mwsQMcVzxJ9Gr06PnSHL11ILJdQ&hl=en&sa=X&ved=2ahUKEwje5PycionyAhXPg-AKHbCwCvUQ6AF6BAGQEAM#v=onepage&q&f=false>, page 92.

<sup>2</sup> Ship Navigation Study of Changes to Federal Deep-Draft Navigation Channels due to the Interstate 5 Columbia River Crossing Replacement Bridge, February 2014, David Evans and Associates and Waterway Simulation Technology, Inc., page 6.

<sup>3</sup> <https://columbiabusinesscenter.com/>.

<sup>4</sup> Personal conversation with Dave Brown, Senior Broker Columbia Commercial Properties LLC, September 21, 2021.



Figure A.2-1. Columbia Business Center



Source: CBC, <https://columbiabusinesscenter.com/>.

The CBC provides both barge and rail access. The BNSF mainline borders the north side of the property. Rail access within the CBC is provided by a private switching service, expediting transfer of goods on and off cars and reducing demurrage charges. The CBC has a barge slip accommodating river and ocean barges. The East Slip is 130 feet long with water depth at minus 10 feet Mean Low Low Water (MLLW). The East Slip is used to receive and ship fabricated steel products, construction materials, and supplies. The West Slip is not active and there are no plans to improve it. There is a dock located just to the west of the West Slip, which is used by JT Marine. JT Marine vessels and shipyard activities are addressed in the main body of the NIR.

The CBC area has the following water-dependent users:

Thompson Metal Fab, the largest tenant at the CBC, provides fabrication for a wide range of industrial uses including U.S. Army Corps of Engineers, oil and gas, nuclear, tank and vessel, marine and hydro, renewable energy, bridge and structural, and other high-tech industries. The oil rigs and some other structures (fish weirs for the U.S. ACE) are height constrained. Thompson Metal Fab has increased its presence at the CBC from approximately 200,000 square feet in 2006 to its current 717,762 square feet, which represents 30.8% of the net rentable area in the CBC. The 2011 expansion consisted of primary leasing two large older buildings (Buildings 40 and 41) and a large portion of the outside working area located between Building 40 and the Columbia River.<sup>5</sup>

<sup>5</sup> Source: Presale Report GS Mortgage Securities Trust, Series 2012-GCJ7, DBRS, May 2012, pages 17-22.



Vigor Industrial (Vigor) acquired Oregon Iron Works in 2014.<sup>6</sup> Vigor fabricates structures for the alternative energy industry in the Pacific Northwest (systems for tidal power and ocean-based wind energy systems), bridges and transportation equipment for state and local transportation projects, and structures for the U.S. Army Corps of Engineers (fish weirs, lock gates, and other products). Vigor leases approximately 75,000 square feet from CBC, including Building 33 and the laydown area immediately to the east of the building. Vigor owns property immediately in the CBC (a portion of the hatched area of Figure A.2-1), including Building 48 (approximately 50,000 square feet) and open working area south of the building.

Vigor also has a facility located east of the CBC that has approximately 180,000 square feet of manufacturing space. Vigor also has a lease with the city of Vancouver to use the 7-acre city boat basin at 901 SE Marine Park Way south of the facility (Figure A.2-2). The manufacturing site will be used to produce a new type of landing vessel for the U.S. Army.<sup>7</sup> There are no planned modifications at the site. The city of Vancouver also moors their emergency response vessel at the boat basin.<sup>8</sup>



Figure A.2-2. City Boat Basin 901 SE Marine Park Way

Greenberry Industrial (GI) is a full-service mechanical contractor, providing industrial fabrication and installation for various industries in the Pacific Northwest, as well as oil rigs and modules for the oil industry. GI's facilities<sup>9</sup> include 6 acres in Corvallis, approximately 150,000 square feet at the CBC, and a fabrication facility in Ferndale, Washington (approximately 8 acres). The oil rigs fabricated by GI are

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<sup>6</sup> Oregon Iron Works (OIW) was acquired by Vigor Industrial (Vigor) in 2014., <https://vigor.net/news-press/oregon-iron-works-vigor-merge-to-draw-larger-projects-and-more-jobs-to-the>.

<sup>7</sup> <http://choosewashingtonstate.com/vigor-to-built-new-landing-craft-in-vancouver/>

<sup>8</sup> <https://www.cityofvancouver.us/fire/page/vancouvers-quick-response-boat>.

<sup>9</sup> Greenberry Industrial website <http://www.greenberry.com/>.



height constrained. GI's facilities at the CBC include a deep water, 3,000 ton loading dock and launch access for ocean-going vessels up to 400 feet.<sup>10</sup>

JT Marine operates a diverse array of services, including tug and barge service, shipyard services (providing mobile repair services for the tug and barge industry), and salvage services along the Columbia River. The company also acts as a marine contractor. JT Marine leases a portion of the west end waterfront from the CBC.

There are no known plans for redevelopment of the CBC.

### Tidewater Cover Marina

Tidewater Cover Marina is a private marina located approximately 2 miles east of the I-5 bridge. The marina includes 87 slips, ranging in length from 40 feet to 110 feet.<sup>11</sup> Uplands adjacent to the marina are developed as residential condominiums and office and the city of Vancouver Columbia River Renaissance Trail.

Figure A.2-3. Tidewater Cove Marina



### McCuddy's Steamboat Landing Marina<sup>12</sup>

McCuddy's Steamboat Landing Marina includes approximately 150 slips, ranging in length from 24 to 40 feet, and with some end-ties and side-ties for longer boats. The marina serves the general public and draws customers from across the county and beyond. However, many marina tenants are

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<sup>10</sup> <https://greenberry.com/facilities/vancouver-wa/>.

<sup>11</sup> <https://www.tidewatercovemarina.com/dmyxn64a4yh9qb52trjvvu6lstodjb>.

<sup>12</sup> Clark County Shoreline Management Plan, Appendix D, BST Associates, page 35.



residents of the adjacent development. Sailboats that moor at the marina are typically too small to be height constrained by the proposed I-5 bridge (discussed in greater detail in Section 7.4.2 of the NIR).

Figure A.2-4. McCuddy's Steamboat Landing Marina



#### Western Forest Products

Western Forest Products U.S. LLC owns approximately 13 acres on the Columbia River within the City of Vancouver. Most of the site is used by Columbia Vista Corporation as a sawmill under a long-term contract. The facility has a barge dock for outbound shipment of lumber products and has capability to access log rafts.

The Vancouver Riverview Gateway Subarea Plan applies to the eastern section of Vancouver's riverfront. This plan does not include future changes of uses along the river. Within this plan there is one industrial site that is zoned industrial, corresponding with the sawmill location.

The waterfront site is zoned for heavy industry, and it is expected that heavy industrial use will continue through the long term.



Figure A.2-5. Western Forest Products Construction Property



### 2.1.2 Overview of Land Use Regulations

The Vancouver Comprehensive Plan does not include goals or policies specific to marine uses or land uses that would support further development of marine uses.

Much of the zoning along the Columbia River east of the I-5 bridges is residential interspersed with parks and open space uses that host waterfront trails. Where there isn't a waterfront trail, some of the residences have private boat docks. The industrially zoned tax lots discussed above in the CBC and along other portions of the river appear, from aerials, to be largely developed and provide support to marine uses. However, this does not preclude them from being further developed or redeveloped for additional marine uses. The industrial zoning classification can accommodate a wide range of uses. Additionally, the City Center zoning classification allows marinas, and the residential zoning classification includes marinas as a conditional use.

### 2.1.3 Key Findings

There are four existing water-dependent industrial sites within the jurisdiction of the city of Vancouver, including CBC, Vigor, Marine Park marina, and the Western Forest Products property. It is likely that these areas will continue in industrial use. Only the uses at the CBC are currently height constrained. This is detailed in the main text of the NIR.

In addition, there are two marinas (McCuddy's Steamboat Landing Marina and Tidewater Cover Marina) and several private docks associated with private residences. These marinas typically serve smaller powerboats and sailboats (up to 40 feet) and are not known to be height constrained. However, some recreational boats may experience height constraints depending on the option under consideration (this issue is discussed in greater detail in Section 7.4.2 of the NIR).

Based on existing land use regulations, there are no vacant waterfront parcels that could be placed in industrial use.



## 2.2 Clark County, Washington (Camas)

The following section describes the existing and expected future land uses along the riverfront in the city of Camas in Clark County.

### 2.2.1 Existing Uses

The existing commercial/industrial waterfront uses in Camas include a paper mill, a marine fabricator, a marina, and a boat ramp.

#### Georgia Pacific Camas Mill

Georgia Pacific's Camas mill, which encompasses 660 acres (including Lady Island), produces paper towel products. In 2018, Georgia Pacific reduced its operations at its facility in Camas. Georgia Pacific is demolishing 11 buildings in the Camas Business Center<sup>13</sup>. The sites listed below are reported as no longer supporting site operations and are currently not in use:

- A chip unloading dock that was used to receive hogged fuel and wood chips that are transferred via conveyor to an open storage area. Chips are also received by truck and rail. This dock is listed as 360 feet long with water depth of 12 to 15 feet at MLLW.
- A log lift that was used as a storage area for log rafts. This facility extends along both sides of Camas Slough and along the right bank of Columbia River to a point approximately 2.5 miles below the log lift; rafts being secured to timber and steel piling. This site is listed with water depth of 7 to 10 feet at MLLW.
- A petroleum receiving dock with a pipeline that extends from the wharf to storage tanks.
- The shipping dock has been used in the past to ship products by barge. This dock is recorded as 366 feet long with a water depth of 12 to 15 feet at MLLW. There is a 30,000-square-foot warehouse located near this dock.

The Georgia Pacific site will likely be evaluated for changes in comprehensive plan designations, zoning, and shoreline designations as part of future updates to planning documents for Camas.<sup>14</sup> However, the Georgia Pacific site is height constrained by the bridges on U.S. 14 that provide access to Lady Island at Camas. The upstream span is fixed with a vertical clearance<sup>15</sup> of 37 feet and the downstream span is fixed with a vertical clearance of 69 feet. These clearances are less than the heights of the proposed I-5 bridge.

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<sup>13</sup> Clark County Shoreline Management Plan, Appendix D, BST Associates, page 40.

<sup>14</sup> Personal conversation with Sarah Fox, Senior Planner Camas City Planner, City of Camas, August 2, 2021.

<sup>15</sup> National Oceanic and Atmospheric Administration chart 18531, Edition 24, December 2017.



Figure A.2-6. Georgia Pacific Camas Mill



### City of Camas Ramp

The city of Camas owns a boat ramp located just to the south of their sewage treatment plant that has been leased to Mark Marine Service for more than 25 years. Mark Marine, which is engaged in marine construction, moors several company-owned vessels and barges at the site. The city is renewing the lease of the property for an additional five years.<sup>16</sup> There are no plans to improve the site. The city may consider using this site for another purpose (public access) in the future; however, changing uses would depend on future planning and funding for the proposed project. As a result, this site should be considered industrial use for the long term. Mark Marine was contacted as part of the river user survey and vessels are addressed in the main body of the NIR.

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<sup>16</sup> Personal conversation with Sam Adams, Utility Manager, City of Camas, July 19, 2021.



Figure A.2-7. City of Camas Slip



### 2.2.2 Overview of Land Use Regulations

Much of the zoning along the Columbia within the jurisdiction of Camas is heavy industrial, but this is dominated by the Georgia Pacific paper mill. Other heavy industrial zoned lots appear to be undeveloped. The heavy industrial zoning classification includes boat building, boat repair and sales, metal fabrication, and assembly as uses permitted outright. The Camas Shoreline Master Program provides several economic policies in support of ensuring that land adjacent to the Columbia River is used for water-related uses, as provided below.

Shoreline Master Program Economic Development Element 3.5.2:

- Policy 3: New water-oriented industrial, commercial, and resource-based activities that will not harm the quality of the site's environment, adjacent shorelands, or water quality are encouraged along the shoreline. Limit or discourage uses that are nonwater-oriented and are not accessory to a water-oriented use.
- Policy 4: As an economic asset, the recreation industry should be encouraged along shorelines in a manner that will enhance the public enjoyment of shorelines, consistent with protection of critical areas and cultural resources.

However, according to the Trails and Open Space Plan, much of the area zoned heavy industrial area is identified as part of a proposed open space network, which includes a riverfront trail.<sup>17</sup>

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<sup>17</sup> [https://www.cityofcamas.us/sites/default/files/fileattachments/parks\\_and\\_recreation/page/18859/appendix\\_c\\_-\\_maps.pdf](https://www.cityofcamas.us/sites/default/files/fileattachments/parks_and_recreation/page/18859/appendix_c_-_maps.pdf).



### 2.2.3 Key Findings

There are two existing water-dependent industrial sites within the jurisdiction of the city of Camas, including the Georgia Pacific paper mill and the Camas boat ramp. It is likely that both sites will remain in industrial.

Based on existing data and plans, it is anticipated that there will be no additional industrial uses developed in Camas. The heavy industrial zone does allow for some marine generating uses to be permitted outright.

The Georgia Pacific paper mill cannot be constrained by the proposed bridge because it already has a height constraint imposed by the bridges that connect U.S. 14 to Lady Island. Mark Marine Service vessels are addressed in the main body of the NIR.

## 2.3 Clark County, Washington (Washougal)

This section describes the existing and expected future land uses along the riverfront in the city of Washougal in Clark County.

### 2.3.1 Existing Uses

The existing waterfront sites on the shoreline of the city of Washougal include the Port of Camas-Washougal Marina, the Port of Camas-Washougal Sixth Street property, and the Port of Camas-Washougal Industrial Park (near the waterfront but not water-dependent).

#### Washougal Waterfront

The Washougal Waterfront consists of the Port of Camas-Washougal's Marina and Sixth Street property.

The Port of Camas-Washougal Marina has 356 moorage slips, ranging in length from 20 feet to 55 feet. Most of the moorage is covered and can only be used by powerboats, which do not have a height constraint. There are a few open slips that used by sailboats, which can be height constrained. In addition to the leased slips, the marina has 1,200 linear feet of transient moorage. The port also has a four-lane launch ramp with attendant floating docks.

The site of the former Hambleton Lumber Company, which consists of approximately 25 acres, is located directly east of the port's marina. In 2012, Killian Pacific purchased the 25 acres, of which 13.25 acres is now owned by the port.<sup>18</sup>

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<sup>18</sup> <https://parkerslandingwaterfront.com/>.



The Sixth Street property, which includes around 14-acres, is located just east of the former Hambleton Lumber site.

Figure A.2-8. City of Washougal Waterfront



The Port of Camas-Washougal, in conjunction with a private developer (Killian Pacific), is seeking to redevelop the Washougal Waterfront. The site, Waterfront at Parker's Landing, will remain zoned as highway commercial and would be developed into a mixed-use waterfront project, featuring 13 mixed-use buildings (condos, offices, retail, and restaurants) as shown in Figure A-7.<sup>19</sup> There are currently no marine activities besides the marina at the Washougal Waterfront.

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<sup>19</sup> [http://portcw.com/index.php/projects/waterfront\\_revitalization/](http://portcw.com/index.php/projects/waterfront_revitalization/).



Figure A.2-9. Washougal Waterfront at Parker's Landing Proposed Master Plan



### Port of Camas-Washougal Steigerwald Commerce Center

The Port of Camas-Washougal began development of the 310-acre Washougal Industrial Park in 1970. The industrial park has grown in use and currently averages above 90% occupancy rate<sup>20</sup>. To provide additional land for industrial development, the port is planning an area of undeveloped property east of and adjacent to the industrial park. The Steigerwald Commerce Center includes approximately 122 net acres.

The property is zoned as heavy industrial and entirely within city limits. Adjacent properties are designated as heavy industrial, industrial, and parks/open space.

A levee separates the industrial park from park and public access along the shores of the Columbia River. The levee presents significant engineering, procedural, and land ownership challenges to providing access to the Columbia River. In addition, the navigation channel is distant from the shoreline with shallow water providing a challenge to access for vessels. There are no users within the industrial park that use the Columbia River for navigation purposes, and there are no marine facilities associated with the industrial park.

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<sup>20</sup><https://portcw.com/property/steigerwald-commerce-center/>.



[illegible]

The Washougal Comprehensive Plan Update (2016) does not include goals or policies specific to marine uses or land uses that would support further development of marine uses. It does have goals and policies related to increasing public access to shorelines for recreational purposes (parks and open space, Goal 4).

Selected goals of the Port of Camas-Washougal's to promote industrial development include:<sup>21</sup>

- Goal 2: Improve local economic opportunities by supporting the retention, expansion, and recruitment of preferred employers.

October 2021



## Future Use Analysis

- Goal 3: Promote sustainable community prosperity by ensuring an ample supply of land, infrastructure, and facilities to meet the needs of potential employers.
  - Strategy 3.1 Maintain an ample supply of land and incubator space to meet the needs of preferred employers.
  - Strategy 3.2 Acquire additional property (that meet certain criteria).
  - Strategy 3.3 Consider the sale of property when doing so would better advance Goal 2.

Selected goals of the Port of Camas-Washougal's also promote mixed-use commercial development along the Washougal Waterfront, including:

- Goal 4: Lead a collaborative effort to develop a more vibrant, economically viable, and publicly accessible Columbia River waterfront.
  - Strategy 4.1 Work collaboratively with property owners, the public, and the Port's agency partners to develop a master plan for the future development and redevelopment of the Columbia River waterfront property for the area within the Port District. The master plan should provide sufficient flexibility to attract a range of employers.
  - Strategy 4.2 Prefer land uses and employers on the waterfront, that are water-dependent, -oriented, or - related.
  - Strategy 4.3 Manage marina operations, capital facilities, and lands in a manner that strives to generate sufficient revenues to offset marina operating expenses.
  - Strategy 4.4 Strongly support the provision of continuous public access along the Columbia River shoreline.
  - Strategy 4.5 Maintain Captain William Clark Park, the Parkersville Historic Park, Marina Park, and the boat launch facility as public recreation areas.

### 2.3.3 Key Findings

The Port of Camas-Washougal's Marina will remain an integral part of the Washougal Waterfront. Most of the moorage slips are covered and are not affected by height constraints from the proposed I-5 bridges. There may be use by sailboats at the marina that are height constrained, but most of the sailboat use is limited to boats up to 55 feet long, which would not be height constrained by the options under consideration. The port also has a four-lane launch ramp with attendant floating docks. However, the use of the boat ramp is generally by trailer-carried powerboats, which are not height constrained by the proposed bridge.

Industrial development in Washougal is centered in the Port of Washougal's industrial properties at the eastern edge of the city. The heavy industrial zoning designation allows uses that are permitted outright, such as bulk petroleum product terminals, plants, and storage facilities, which could generate marine traffic. However, the levee and recreation areas and trails that parallel the river create a buffer that inhibits marine uses along the riverfront in Washougal. Based on these conditions future marine facilities or activities are unlikely.



## 2.4 Skamania County, Washington

This section describes the existing and expected future land uses along the riverfront in Skamania County.

### 2.4.1 Existing Uses

Commercial/industrial waterfront properties in Skamania County include two former mill sites and property owned by the Port of Skamania County.

#### Stevenson Co-Ply Property

The Stevenson Co-Ply mill property, owned by Mountain View Property, was formerly owned by Wilkins, Kaiser & Olsen Inc. (WKO) and ceased operations in 1992.<sup>22</sup> The site has approximately 26 acres of uplands and is located inside the urban growth area of the city of Stevenson, but outside the city limits. It is zoned industrial (MG) by Skamania County. After its destruction by a fire in 2007, the site has been idle, and there are no current plans to redevelop this site. There are no marine facilities.

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<sup>22</sup> Skamania County, Washington, MapSifter. <https://skamaniawa-taxesifter.publicaccessnow.com/>.



Figure A.2-11. Stevenson Co-Ply Property



### Stevenson Waterfront

The vision for development on the Stevenson Waterfront, which includes Stevenson Landing, the Tichenor Building, and the Cascade Boat Launch, is based on fostering an active waterfront for recreation, a healthy economy, and a high quality of life.

Stevenson Landing, which is owned by the Port of Skamania County, is a cruise ship pier located on the Columbia River at river mile 150 of the Columbia River. The pier is 200 feet long, 15 feet wide and has a 55-foot-by-6.5-foot adjustable steel gangway. There are three sets of dolphins centered on gangway at various locations to allow for a range of docking possibilities. Cruise lines calling at Stevenson Landing include American Cruise Lines. American Queen Steamboat Company vessels used by these entities are addressed in the main NIR.

The Port of Skamania owns the Tichenor Building, which is located just upriver of Stevenson Landing and offers 29,000 square feet of flex-industrial space. It was built in 1992 and has experienced a successful transition from dependence on the forest products industry to a more diverse offering, serving a mix of light industrial and professional services. The Tichenor Building takes advantage of the views and amenities of the Columbia River, but it does not have facilities for water access for water-dependent businesses.

The Cascade Boat Launch is located in downtown Stevenson on the waterfront just east of the Tichenor Building. Trailer-carried power and sail boats and hand-powered craft use the boat launch. These craft are not height constrained and would likely be used locally and not transit through the IBR program area.



Figure A.2-12. Stevenson Waterfront



### Home Valley

High Cascade Veneer (a subsidiary of WKO) began operating out of the former Stevenson Co-Ply peeler plant in Home Valley in the 1990s. The mill is no longer active, but WKO uses the property for storing lumber.<sup>23</sup> The site includes approximately 94 acres of upland area. The facility includes a barge dock, but the state of repair is unknown and access may be restricted by shoaling associated with the Wind River.

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<sup>23</sup> Personal conversation with WKO Sawmill, July 20, 2021.



Figure A.2-13. Home Valley



### Broughton Landing

The Broughton Lumber Company, which is located just west of Underwood, ceased operations in 1986 and has remained idle since. However, a plan was developed to create a destination resort called Broughton Landing. The property includes approximately 60 acres, and is inside the NSA of the gorge but outside any urban growth area. The plan calls for “a new resort comprised of approximately 250 new vacation homes, recreational amenities and retail areas serving resort guests, locals and visitors alike.”<sup>24</sup> In 2008, petitioners appealed the decision to amend the plan allowing for this development. Ultimately, the court of appeals upheld the decision, but the proposed development has not progressed since this decision. Broughton Landing is divided by the railroad and State Route (SR) 14, creating three distinct sections. Most of the site does not have river frontage except a small portion on the far west side. This area, called Broughton Beach, is approximately 2.3 acres and is zoned for commercial recreation. The Broughton Landing Master Plan has a proposal for a pedestrian bridge spanning SR 14 and the railroad tracks to connect the beach area to other portions of the site. The site does not have any marine facilities and is unlikely to be developed for marine-dependent uses beyond recreational uses.<sup>25</sup>

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<sup>24</sup> <http://www.broughtonlanding.com/Overview/>.

<sup>25</sup> Broughton Landing Master Plan, [http://www.broughtonlanding.com/Documents\\_PDF/](http://www.broughtonlanding.com/Documents_PDF/).



Figure A.2-14. Broughton Landing



## 2.4.2 Overview of Land Use Regulations

The Skamania County 2007 Comprehensive Plan Final does not include goals or policies specific to marine uses or land uses that would support further development of marine uses.

North Bonneville's riverfront is largely reserved for recreational uses or is under federal ownership because of the dam. Therefore, impacts to marine uses are not anticipated in this section of Skamania County.

However, in Stevenson, there are industrially designated lands identified along the southern portion of the riverfront (Stevenson Co-Ply). North of the industrial designations is a strip of commercial recreation, followed by commercially designated lots, one lot designated light industrial and then community commercial lots. Uses along the river include hotels, restaurants, and a kite-boarding school in the commercially zoned areas. The industrially zoned lots are used for timber-related activities. The entirety of Skamania County's southern border (approximately 90,204 acres)<sup>26</sup> is located within the Columbia River Gorge NSA. The NSA categorizes these areas into three categories: (1) urban areas, (2) special management areas, and (3) general management areas. Four urban areas, including North Bonneville, Stevenson, Carson, and Home Valley, are located within Skamania County. Urban areas within the NSA can grow over time and are the primary locations for any industrial or commercial uses that require vessel traffic. The NSA Management Plan limits

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<sup>26</sup> Skamania County 2007 Comprehensive Plan,  
<https://www.skamaniacounty.org/home/showpublisheddocument/1385/637122005286830000>.



development outside of the urban areas while encouraging urban development to locate within these established urban designations.<sup>27</sup>

### 2.4.3 Key Findings

The industrial waterfront properties in Skamania County have been traditionally used by the forest products industry, including the mill sites at Stevenson, Home Valley, and Underwood. As the forest product sector declined, properties have been held by forest product firms for potential future reuse as a mill site or have been planned for redevelopment to resort or mixed-use properties. The proposed I-5 bridges do not impose a height constraint on shipping activities related to the forest products industry because log rafts or barges carrying logs, chips, or other forest products can easily pass under the bridges for destinations downriver of the bridges.

The Port of Skamania developed a business park, cruise terminal, and boat launch at Stevenson. The property at Stevenson Landing is on the waterfront and has a cruise ship dock but does not offer waterfront access for water-dependent firms requiring barge service. Within Stevenson, the movement is toward recreational waterfront with public access.

Potential impacts could occur from navigational height restrictions downstream affecting cruise vessels and sailboats. Impacts to vessels are addressed in the main body of the NIR.

The Port of Skamania County's other land holdings do not have direct access to the Columbia River (e.g., Cascades Business Park, the Lewis and Clark Business Park, and the Wind River Business Park).

## 2.5 Klickitat County, Washington

This section describes the existing and expected future land uses along the riverfront in Klickitat County.

### 2.5.1 Existing Uses

Klickitat County includes the small urban areas of Dallesport, Lyle, and Bingen.

#### Bingen

The SDS Lumber Mill and the Port of Klickitat County's Bingen Point Business Park are located in Bingen.

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<sup>27</sup> Management Plan for the Columbia River Gorge National Scenic Area, August 2016, [http://www.gorgecommission.org/images/uploads/amendments/Management\\_Plan\\_\(as\\_revised\\_through\\_2016\).pdf](http://www.gorgecommission.org/images/uploads/amendments/Management_Plan_(as_revised_through_2016).pdf).



### SDS Lumber Mill

The SDS Lumber Company mill site, located on the riverfront in Bingen, consists of approximately 170 acres (including uplands and in-water parcels). The mill produces lumber and plywood. The site includes a mooring area and approximately 30 acres of upland area for storage/staging of products. SDS can transload products from upland to barge, log yard, and ramp for raft/bundle preparation and load chips on barges.<sup>28</sup> It also has a construction fleet network with cranes up to 150 ton capacity. SDS vessels are addressed in the main NIR.

Figure A.2-15. SDS Lumber Mill



### Bingen Point Business Park

The Port of Klickitat's Bingen Point Business Park, which is located just east of the SDS lumber mill, has 52 acres at Bingen Point available for light industrial and commercial uses. Bingen Point Business Park does not have direct access to the waterfront. Some of the key tenants at the business park are Insitu Group, Inc., which produces miniature unmanned aerial vehicles for military and commercial applications, and Zepher, a manufacturer specializing in defense and autonomous systems. There are no marine facilities or water-dependent tenants.

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<sup>28</sup> SDS Lumber Mill. <http://sdslumber.com/>.



Figure A.2-16. Port of Klickitat Bingen Point Industrial Park



### Bingen Marina

The Port of Klickitat owns the Bingen Marina, which includes a two-ramp boat launch, restrooms, and a parking area for boat trailers. Plans call for the development of additional facilities, including transitory and long-term moorage, a fuel dock, a pump-out facility, and other amenities.<sup>29</sup>

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<sup>29</sup> <http://www.portofklickitat.com/recreation/marina.asp>.



Figure A.2-17. Port of Klickitat Bingen Marina



### Dallesport

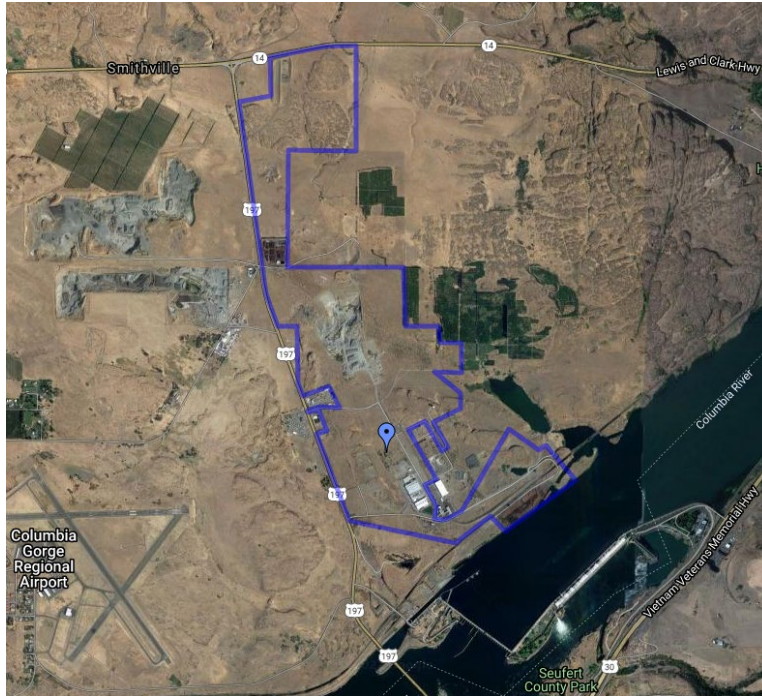
The Dallesport Industrial Park is owned by the Port of Klickitat and covers approximately 660 acres east of U.S. Highway 197 and north of the Columbia River. Zoned for light and heavy industrial use, this site includes a barge terminal used for log exports immediately upstream of The Dalles Dam, which is operated by The Dallesport Log Yard. It was also used by an excursion boat that would tie up while passengers visited the Mary Hill Museum. However, this excursion boat activity has not occurred recently.<sup>30</sup> In addition, there is a privately owned property downstream of the dam that has dolphins and conveyor system for loading.

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<sup>30</sup> PBPorts interview with Port of Klickitat.



Figure A.2-18. Port of Klickitat Dallesport Industrial Park



## 2.5.2 Overview of Land Use Regulations

The western portions of Bingen along Alpine Avenue are targeted for business, high technology, and light industry. The eastern portions along Parallel Avenue are targeted for moderate to heavy industry. Property north of Dow Road has been set aside for aggregate mining operations and future development. The Bingen Point Business Park is located along the Columbia River just outside Bingen, Washington, and across from Hood River, Oregon.

Waterfront zoning outside of White Salmon city limits includes suburban residential to the west and industrial park to the east in Bingen. From aerials, the industrial park area appears to be used for river-related and timber-related industry. Inside White Salmon, the western portion of the riverfront is designated as open space, and the eastern section is designated as the Riverfront Planned District. Not all the industrial lots are used for industrial activities; some are for residential uses, such as an RV park. Also, the railroad tracks constrain many of the industrial lots, making them shallow. Waterfront zoning in Lyle is almost entirely suburban residential.

The riverfront property in Lyle is undeveloped and the majority is owned by the Yakama Nation.

Zoning in Dallesport along the Columbia is almost entirely residential in the western portion with some areas of open space and industrially zoned areas to the east.



### 2.5.3 Key Findings

Most of the occupied industrial lots along the riverfront are used by the timber industry, which generates non-height-constrained cargoes (logs, wood chips, aggregates, etc.). The proposed bridge should not have any impacts to shipping related to the timber industry.

There are some undeveloped industrial lots along the river. Industrial park zoning allows for boat building, assembly, and fabrication of metal products and additional manufacturing uses as uses permitted outright. However, many of the industrially designated lots are limited by the railroad tracks that create shallow lots from the river, potentially limiting the possibility of large industrial structures on the site.

There are also vacant developable industrial lands at the Dallesport Industrial Park. However, the BNSF railroad right of way cuts through the property near the river, leaving a narrow band of land adjacent to the river that is currently used by a barge terminal. It is unlikely that future uses would be height constrained at this location.<sup>31</sup>

The aggregate terminal, approximately 2 miles east of Wishram, Washington, is operated by Pacific Northwest Aggregates, Inc., a produces sand, gravel, and other solid minerals used in road and other construction. The mining operations and marine facility operate on approximately 45 acres of Native American Lands property through a lease agreement. The facility includes a loading terminal used to load barges with material. Vessels transferring aggregates are addressed in the main NIR.

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<sup>31</sup> Personal conversation with Mr. Marc Thornsby, Executive Director, Port of Klickitat, September 11, 2012.



Figure A.2-19. Pacific Northwest Aggregates



## 2.6 Multnomah County, Oregon (Portland)

This section describes the existing and expected future land uses along the riverfront in Multnomah County in the city of Portland, upriver from the BNSF rail bridge.

### 2.6.1 Existing Uses

The portion of Portland east of the BNSF rail bridge has several waterfront uses, including marinas and houseboat communities.

#### Hayden Island to Government Island

There are several marinas and floating home communities in the area from east Hayden Island to Government Island, but there are no industrial uses on the riverfront east of the I-5 bridges up to the city of Fairview (see Section A.2.7).



## 2.6.2 Overview of Land Use Regulations

Zoning along the Columbia River east of the I-5 bridges is primarily open space that accommodates a riverfront multiuse trail. There are additional small pockets of residential zoning and areas of commercial zoning close to the bridges and on Hayden Island. There are two areas designated industrial: one on the south side of Hayden Island and one just north of 33rd Road and Marine Drive. The lots along Marine Drive are shallow in depth because they are between Marine Drive and the River. There are numerous private marinas, especially closer to the I-5 bridges. In addition, there are marine-related uses such as watercraft rentals and sales.

Manufacturing and warehouse and freight movement are permitted outright in the industrial zone.

## 2.6.3 Key Findings

There are many recreational marinas that are used by both powerboats and sailboats. Sailboats that are affected by the existing I-5 bridges generally had an air draft ranging from 50 to 90 feet, with an average of approximately 70 feet and are not height constrained by the replacement bridges. In 2012, there were only 48 sailboats that were 46 feet or longer that could be height constrained at 95 feet. Powerboats have an air draft that ranging from 20 feet to 25 feet and can use Oregon Slough, thus never requiring a bridge opening.

## 2.7 Multnomah County, Oregon (Fairview)

This section describes the existing and expected future land uses along the riverfront in Multnomah County in the city of Fairview.

### 2.7.1 Existing Uses

There are two barge terminal sites in Fairview.

#### CalPortland Blue Lake Aggregate Yard

CalPortland owns and operates the Blue Lake Aggregate Yard, a distribution facility that stocks crushed rock, washed rock, concrete sand, and dredged sand. The Blue Lake Aggregate Yard is barged to the terminal from other sites, unloaded, and then trucked to construction sites in northeast Portland.<sup>32</sup> The facility is served by tugs and barges that are addressed in the main NIR.

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<sup>32</sup> CalPortland. <https://www.calportland.com/locations/oregon/blue-lake-aggregate-yard/>.



Figure A.2-20. CalPortland Blue Lake Aggregate Yard



### Chinook Fairview – Sundial Chip Reload

Chinook Fairview owns the former Georgia Pacific West chip reload terminal in Fairview. The facility ships and receives chips by barge.

Figure A.2-21. Chinook Fairview Terminal



## 2.7.2 Overview of Land Use Regulations

Metro owns a large portion of land on the north side of Fairview, including Blue Lake Park, Chinook Landing Marine Park, and the Columbia River open space. Part of a 40-mile-loop trail is planned to go along the Columbia River in this area. There is also an area designated general industrial, and as noted above, there are two marine-development uses in Fairview.

The Fairview Comprehensive Plan (2004) encourages private landowners along the Columbia River to seek redevelopment options that would replace existing industrial operations with river- oriented



recreational, residential, and commercial development. The plan also recommends working with Metro to expand or develop recreational and commercial services and facilities at Blue Lake Park.

### 2.7.3 Key Findings

None of the existing industrial uses in Fairview would be height constrained by the proposed I-5 bridge. Although Columbia River industrial uses are permitted outright in the industrial zone, the Fairview Comprehensive Plan identifies trail planning and recreational uses for this area.

## 2.8 Multnomah County, Oregon (Troutdale)

This section describes the existing and expected future land uses along the riverfront in Multnomah County in the City of Troutdale.

### 2.8.1 Existing Uses

There is one barge terminal site in Troutdale and one former shipyard.

#### Sundial Marine Tug & Barge Works

The Sundial Marine site was formerly used as a ship and barge building and repair facility. The marine infrastructure is not operational with the exception of a spud barge.<sup>33</sup>

Tidewater operated the Sundial Tug & Barge Works at this site from 1970 until early 2011, when it closed operations. Tidewater decided to close the facility because the repair and construction business is cyclical, and Tidewater elected to focus on its core businesses of barge transportation and terminal operations. The Hickey Family Company currently owns the site, and there are no known plans to redevelop it.

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<sup>33</sup> <https://www.deq.state.or.us/Webdocs/Controls/Output/PdfHandler.ashx?p=9d2d4d6e-f45c-4464-80c7-501c9a3b561c.pdf&s=Staff-report.pdf>.



Figure A.2-22. Sundial Marine Tug & Barge Works



### Knife River Corporation Aggregates Terminal

Knife River Corporation operates an aggregates terminal in Troutdale. The facility consists of a ready-mix concrete plant with a dock and conveyor for sand and gravel delivery by barge and unloading-related facilities.<sup>34</sup>

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<sup>34</sup> Oregon Department of Environmental Quality Permit Evaluation and Fact Sheet, 3/28/2012.  
[https://www.deq.state.or.us/wqpr/3819\\_2012040200772CS01.PDF](https://www.deq.state.or.us/wqpr/3819_2012040200772CS01.PDF).



Figure A.2-23. Knife River Aggregates Terminal



### Troutdale Reynolds Industrial Park

The Port of Portland developed the Troutdale Reynolds Industrial Park, which is located on a 700-acre former brownfield site of the former Troutdale Aluminum Smelter.

Key tenants of the industrial park are FedEx and Amazon.<sup>35</sup> This development will respond to the need for large parcels of industrial land in the region. However, the development is not water-dependent, and significant shoaling from the Sandy River delta would make development of marine infrastructure very difficult. The Columbia and Sandy Rivers are designated open as space by the Port of Portland's master plan.<sup>36</sup>

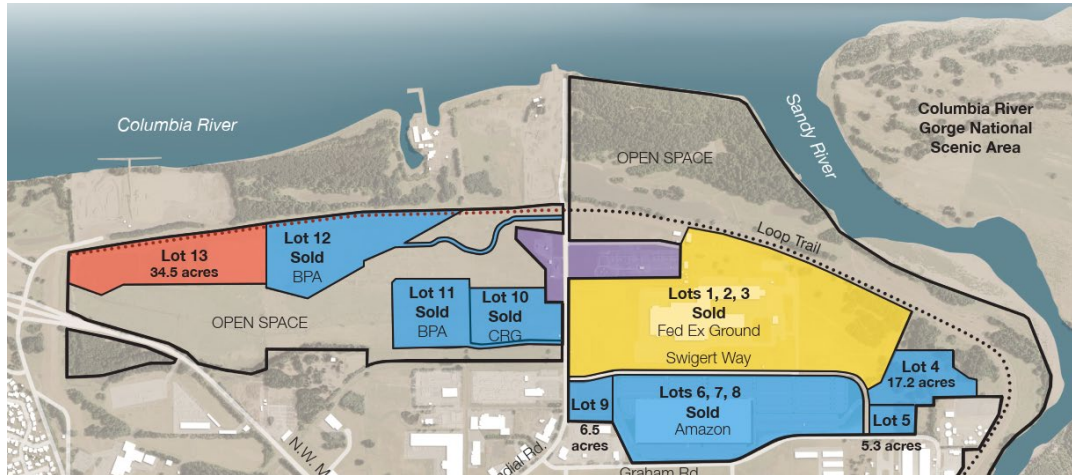
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<sup>35</sup> <https://www.portofportland.com/trip>.

<sup>36</sup> Ibid.



Figure A.2-24. Troutdale Reynolds Industrial Park



## 2.8.2 Overview of Land Use Regulations

Troutdale zoning along the river includes open space and general industrial uses. Some of the industrial lots are known to support uses that generate marine traffic. The general industrial designation allows for manufacturing, marinas, and marine industrial/marine service facilities to be permitted outright.

## 2.8.3 Key Findings

The industrially zoned sites generate marine traffic that primarily consists of tugs and barges, which are not height constrained. The Knife River terminal is not expected to change in the future. Sundial Marine is idle and could be sold or redeveloped. In either case, it is not expected that it will generate height constrained marine traffic.

## 2.9 Hood River County, Oregon (Cascade Locks)

### 2.9.1 Existing Uses

The Port of Cascade Locks operates an industrial park, marina, and a cruise facility.

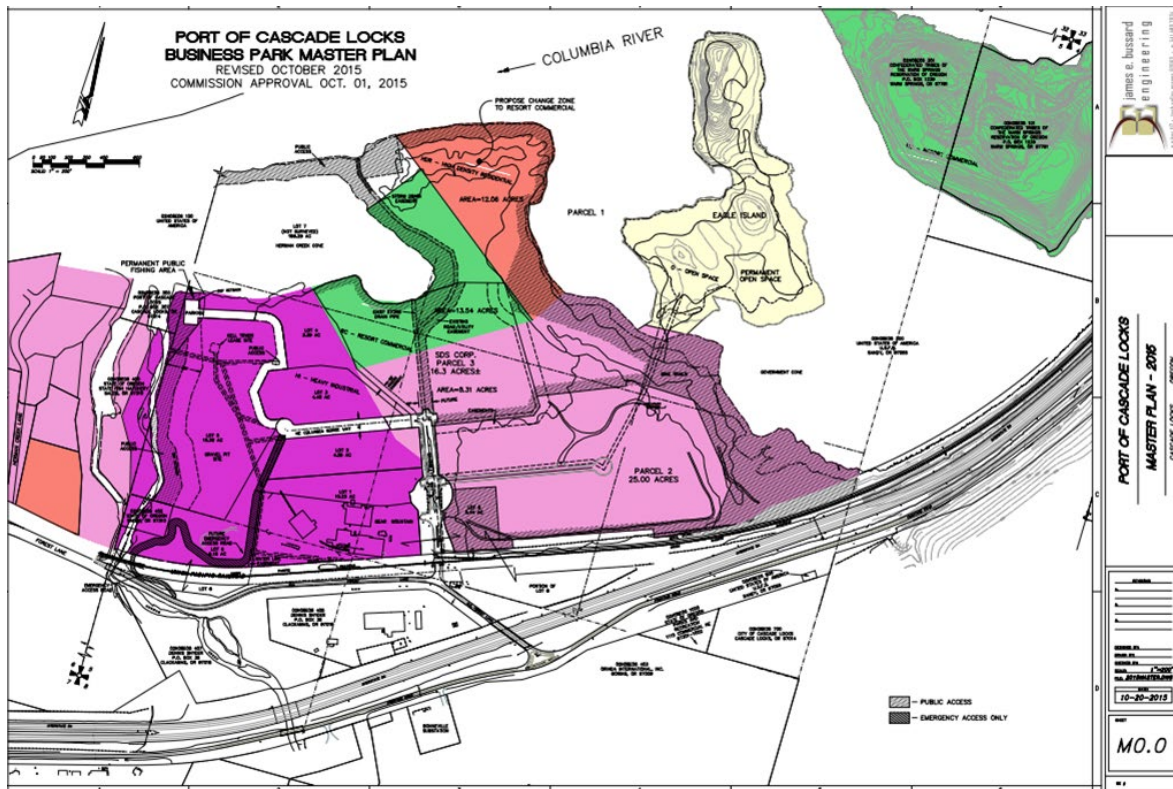
#### Port of Cascade Locks Business Park

As shown in Figure A.2-25, the Port of Cascade Locks Business Park (North Point, Herman Creek Cove, and Lower Bench) is approximately 191 acres. There are currently vacant acres at North Point (17.6



acres), Herman Creek Cove (4.25 acres), and Lower Bench (3.7 acres). The port listed the possibility of the development of an additional marina facility that could be located at the industrial park.<sup>37</sup>

Figure A.2-25. Port of Cascade Locks Business Park



### Port of Cascade Locks: Herman Creek Business Complex

The Herman Creek Business Complex is located directly east of the business park and offers a variety of spaces for light industrial uses. The majority of the spaces advertised on the port's website are not available currently. There is no water access associated with the business complex.

### Port of Cascade Locks Marina

The Port of Cascade Locks Marina has 36 slips. Cascade Locks is a well-established sailboat racing destination and is home to the Columbia Gorge Racing Association. The port identifies new

<sup>37</sup>

<https://portofcascadelocks.org/documents/Final%20Adopted%20Port%20of%20Cascade%20Locks%20Strategic%20Business%20Plan%20December%202013%20sm.pdf>.



recreational opportunities associated with sailing as part of their priorities in the 2016 Strategic Business Plan revisions, which may result in additional smaller, non-height-constrained vessels.<sup>38</sup>

Figure A.2-26. Port of Cascade Locks Marina



#### Port of Cascade Locks Cascade Locks Marine Park

The *Columbia Gorge Sternwheeler*, which is owned by the Port of Cascade Locks and operated by the Portland Spirit, is docked in the Cascade Locks Marine Park from May to October. The vessel provides daily passenger excursions. There is also a visitor center in the Cascade Locks Marine Park.

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<sup>38</sup> Ibid.



Figure A.2-27. Port of Cascade Locks Marine Park



The port is working to further develop the northeast portion of the Marine Park to increase recreational opportunities. The improvements would enlarge the sailboat launching area, which currently hosts world-class sailing regattas.<sup>39</sup>

## 2.9.2 Overview of Land Use Regulations

Zoning along the Cascade Locks shoreline is largely open space to the west and heavy industrial, light industrial, public, resort commercial, and high on either side of Herman Creek. The eastern edge of the jurisdictional line is zoned resort commercial. The industrial designation allows manufacturing and production as a use that is permitted outright.

Within the urban area of Cascade Locks, the parcels zoned light industrial or heavy industrial are located at the northeast side of the city. There are two privately owned undeveloped heavy industrial zoned lots totaling 50 acres west of Herman Creek that are located on the Columbia River and are not constrained from water access by the railroad. Heavy industrial zoning could support land use activities that could utilize river navigation for receipt of raw material by water or shipment of finished goods. There is no marine infrastructure at the site with the exception of a series of dolphins that are of unknown condition and ownership. Steep slopes up to 60 feet in vertical relief are located along the river which would reduce the suitability of providing marine infrastructure to access the uplands.

There are three parcels identified by the Port of Cascade Locks for industrial development along the Columbia River. The three lots are zoned either light industrial, heavy industrial, high density residential, and resort commercial. Information from the Port of Cascade Locks stipulates that there are sections of these properties available for rezoning. The Cascade Locks Resort and Casino is potentially planned for adjacent lots to the south.

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<sup>39</sup> <https://portofcascadelocks.org/recreation-projects/>



Based on the port's website,<sup>40</sup> there is availability to construct an industrial park in this area with water access. Figure A.2-25 shows the lots along the river that area available for industrial development. Existing uses south of these lots include Bear Mountain Forest Products, which has been producing premium quality forest products in Oregon since 1988, and SDS lumber. The Warm Springs Resort and Casino was a planned development south and adjacent to the available industrial lots in this area but the status of this project is unknown.

### 2.9.3 Key Findings

There are undeveloped industrial lots along the river. These lots have been identified for potential development that would likely not generate marine traffic, including business parks and entertainment and recreational uses.

The Cascade Locks community is positioning itself as a sailboat racing destination. In general, there is a desire to attract the international sailing community, but the sailboats using this area are typically small and are not height constrained.

The Port of Cascade Locks also homeports the *Columbia Gorge Sternwheeler* during the tourist season, but this vessel is not height constrained by the proposed I-5 bridge options.

## 2.10 Hood River County, Oregon (Hood River)

### 2.10.1 Existing Uses

The Port of Hood River operates a Business Park, marina, and a cruise facility.

#### Port of Hood River Business Park

The Port of Hood River owns most of the waterfront properties in Hood River. The goal of the port's Waterfront Development Strategy emphasizes preservation of and support for local light industrial businesses. In addition to job retention and business development, other Waterfront Development Strategy goals include quality development in a collaborative process, and ensuring compatibility with existing and future recreational activities. There are no marine facilities and there is no direct access to the riverfront for barge or other terminals within the business park.

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<sup>40</sup>



Figure A.2-28. Port of Hood River Business Park

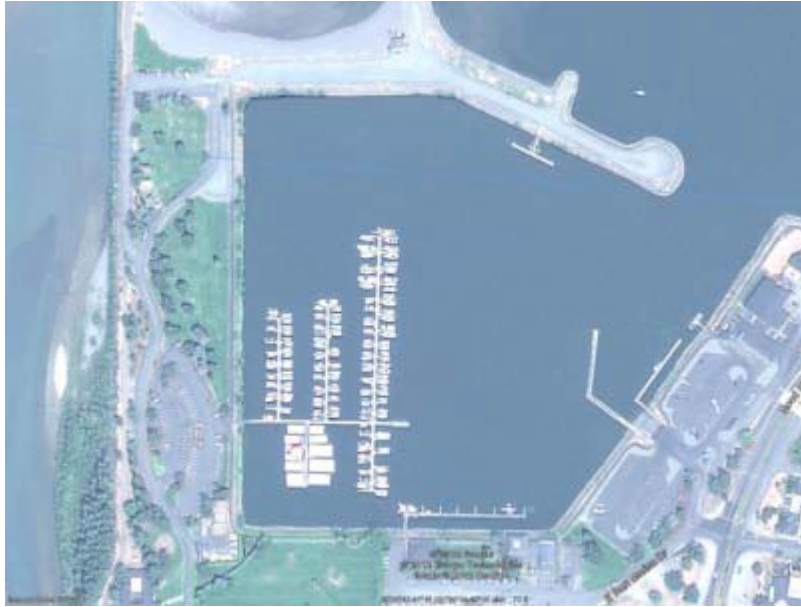


### Port of Hood River Marina Park

The port's marina offers moorage for over 160 vessels, with slip sizes ranging from 20 feet to 40 feet. The marina has a short-term transient dock available for travelers at river mile 169. The boats homeported or calling on a transient basis are typically less than 40 feet long, and as a result are not height constrained by the proposed I-5 bridge. Small cruise ship vessels that call Hood River in the spring and fall seasons, including: InnerSea Discoveries (*The Legacy*), Lindblad Expeditions (*Sea Bird* and *Sea Lion*), and Portland Spirit (*Columbia Gorge Sternwheeler*), among others. The dock on the north side of the marina is reserved for small cruise ship vessels. Vessels moored at the Port of Hood River are addressed in the main NIR. Other uses of the marina include kayaking, small sailing craft, community education sailing classes, and Hood River Yacht Club activities.



Figure A.2-29. Port of Hood River Marina



## 2.10.2 Overview of Land Use Regulations

Zoning along the Hood River shoreline consists of open space, Columbia River recreation/commercial, and light industrial. The eastern edge of the jurisdiction along the shoreline and directly adjacent to the Hood River bridge is general commercial zoning. The city of Hood River defines light industrial as industrial service (e.g. corporate laundry and cleaning, etc.), research and development, manufacturing, processing, fabrication, packaging, assembly of goods, and warehousing. The use of Columbia River recreation/commercial zoning along the shoreline is intended to be consistent with visual and pedestrian access to the area. The Union Pacific railroad tracks run along the river, creating a barrier between the river and uses on the other side of the river. Past the railroad tracks (inland) are various uses, including general commercial, urban low density, open space, industrial, and light industrial. There are several light industrial parcels that abut the river, such as along Portway Avenue.

## 2.10.3 Key Findings

In the Port of Hood River area, the emphasis is on recreational development and business park development rather than marine-based industrial.

The cruise ships that call or could call on Hood River are addressed in the main NIR.

The sailboats homeported in Hood River or calling on a transient basis at Hood River are typically less than 40 feet long, and are not height constrained by the proposed I-5 bridge.

There are no known existing or future activities that would be height constrained in Hood River.



## 2.11 Wasco County, Oregon

Wasco County waterfront facilities are located at The Port of The Dalles.

### 2.11.1 Existing Uses

Waterfront uses include two barge terminals and a marina.

Bernert Barge Lines provides barge towing for the transport of commodities and containers on the Columbia, Snake, and Willamette Rivers. Bernert maintains a maintenance and fabrication facility in The Dalles that has a dock, crane, and shop with capabilities for marine repairs and general metalworking.

Mid Columbia Producers is a farmer-owned cooperative serving the grain producers of the mid-Columbia region. The cooperative owns offices and grain elevators on the riverfront where barges are loaded with wheat for transit downriver, primarily for export.<sup>41</sup>

The port sold all its developable land, with the exception of one 85 acre tract adjacent to the Columbia River. The port developed the site into the Chenoweth Business Park. None of the sites within the business park has water access and a waterfront trail is located between the lots and the river.<sup>42</sup>

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<sup>41</sup> Port of The Dalles Strategic Business Plan,  
<https://www.portofthedalles.com/files/405660130/2013+Port+of+The+Dalles+Strategic+Plan.pdf>

<sup>42</sup> Port of The Dalles Strategic Business Plan,  
<https://www.portofthedalles.com/files/405660130/2013+Port+of+The+Dalles+Strategic+Plan.pdf>



Figure A.2-30. Barge Terminals in The Dalles



### Port of The Dalles Marina

The port's marina has space for 62 boathouses and approximately 30 open moorage slips.<sup>43</sup> A boat launch is located adjacent to the marina to allow for easy haul outs with trailers. The marina provides a variety of services (fuel, power, public restrooms, picnic facilities, boat holding tank pump-out and potty dump station). The Dalles Yacht Club is located at the marina.

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<sup>43</sup> Source: Port of The Dalles <https://www.portofthedalles.com/the-marina>.



Figure A.2-31. Port of The Dalles Marina



#### The Dalles Commercial Dock and Lewis and Clark Festival Park

The floating dock serves transient recreational boats, and the fixed pier serves cruise ships, similar to the vessels calling at Hood River.<sup>44</sup>

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<sup>44</sup> <http://www.ci.the-dalles.or.us/node/99>.



Figure A.2-32. The Dalles Commercial Dock<sup>45</sup>



**Former Northwest Aluminum Site (3313 W 2nd St.)**

The Northwest Aluminum smelter ceased operations in 2000 and cleanup operations were largely completed by 2007. The site, which is approximately 120 acres and undeveloped, is now planned for commercial and industrial development. This site is not located on the river.

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<sup>45</sup> Ibid.



Figure A.2-33. Former Northwest Aluminum Site (3313 West 2nd Street)



### 2.11.2 Overview of Land Use Regulations

The western shoreline of The Dalles has a significant amount of industrially zoned land along the riverfront. This designation includes shipyards and commercial docking facilities as use is permitted outright. In addition, manufacturing and fabricating are uses permitted outright. There are also pockets of commercial recreation and general commercial along the river. Some of the industrial sites support marine traffic generating uses.

The Dalles Comprehensive Land Use Plan, Volume I (May 23, 2011) specifies that riverfront property should be reserved for riverfront use (Goal 8) and that there should be provisions to accommodate future barge traffic (Goal 12).

### 2.11.3 Key Findings

In the western portion of The Dalles, there are numerous industrial lots along the river, some of which support industrial, marine-dependent uses. The lots could be redeveloped for marine-related. Closer to downtown, the tourism and recreation industry is anticipated to generate increased marine traffic.

A 2011 planning study<sup>46</sup> found that there is a shortage of commercial lands in The Dalles: “In order to capitalize on long-range economic and employment shifts, The Dalles will need to add to its existing supply of land for commercial uses within the urban growth boundary. Similar conversions of port

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<sup>46</sup> The Dalles Comprehensive Land Use Plan, prepared by Winterbrook Planning, May 2011, Page 29



## Future Use Analysis

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industrial lands along the riverfront can produce a mixed-use area to accommodate a slightly different market, including freeway commercial and recreational users.”

Although current marine facilities in The Dalles do not have the capacity to support deep-draft vessels it is possible for them to reach the area as shown by past activities. The deep-draft navigation channel authorized by the U.S. Army Engineers terminates in The Dalles, but it is only maintained to a depth of 17 feet. Some deep-draft navigation has occurred in the past. One example being in 1938 when the freighter the *SS Charles L. Wheeler Jr.* became the first deep-sea vessel to travel past the Bonneville Dam up to The Dalles but deep draft navigation has never occurred on frequent basis to the Dalles.<sup>47</sup>

None of the planned development options in The Dalles would serve or require vessels that would be constrained by the bridge height.

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<sup>47</sup> <https://historylink.org/File/9883>.



### 3. ANALYSIS SUMMARY

The project extent from the BNSF rail line in Vancouver to the Celilo Falls BNSF bridge covers a large portion of the Columbia River but overall few properties exist that currently have marine facilities available or have the potential for future facilities. The findings above highlight the political and geographic constraints the Columbia River waterfront has including:

- Columbia River Gorge NSA Designations
- Parallel transportation routes (SR 14, I-84, Union Pacific and BNSF railroads)
- Steep Topography
- Existing recreational and open space uses

Primarily industrial uses that generate or would generate marine vessel traffic are located within urban areas and typically within established industrial parks (e.g., CBC, Port of Cascade Locks Industrial Park). There are no known planned developments within the study area that would create additional navigation activities that would be impacted by the proposed bridge heights studied in the main body of the report.



## APPENDIX B IMPACTED USERS AND VESSEL DATA SUMMARY TABLES



## IMPACTED USERS

### Marine Contractors

- Advanced American Construction *DB 4100*
- Diversified Marine *DB Freedom*
- General Construction Company *DB General*
- JT Marine *DB Taylor*
- Manson Construction Company *Derrick No. 24*
- SDS Lumber Company *future shipment*

### Federal Government

- USACE dredge *Yaquina*

### Marine Industries and Fabricators

- Greenberry
- Thompson Metal Fab
- Vigor



## Marine Contractors

Company: Advanced American Construction

Vessel: *DB 4100*

Company did not respond to request for information. Details provided below were included in the CRC NIR.



## Marine Contractors

**Owner:** Advanced American Construction

**Vessel:** DB 4100

4100 DB

Equip. #3-10

Manitowoc	4100 Series 2 Vicon	225 Ton	1992
Manufacturer	Model	Max Capacity	Year



Item	Description	Unit	Quantity	Type
<b>Crane</b>				
1	Line 1 (Main)	LBS	1000'	1 1/8" wire
	Line 2 (Whip)	LBS	450'	1 1/8" wire
	Line 3 (Whip)	LBS	450'	1 1/8" wire
	Boom Wire		760'	7/8" wire
2	Boom	Feet	180'	
3	Width / Outriggers	Feet	--	--
	Length / Outriggers	Feet	--	--
4	Height w/boom down	Feet	35' 14" 2"	--
5	Shipping Weight	LBS	450,572	--
	Trucks / Ship	EA	7	--
<b>Barge</b>				
1	Width	Feet	60'	--
2	Length	Feet	105'	--
3	Depth	Feet	7'	--
4	Draft	Feet		
5	Rakes		1	--
6	Spuds	Feet	78 90	--
*	Serial Number: 413419			

Notes: Equipment on barge: 4100 (#3-10), Bulldog Gen Set 5 kw mounted on crane (no equip. no.), 25 kw multi-equip. Gen Set (#9-35), Hydra-Pac 4000, hydraulic unit for spuds (#10-01), 2 winches (#14-12 and #14-24). Deutz F3L1011F engine, replaced in 7/03.



## Vessel Height Verification Sheet

By: Jennifer Rabby Date: 23 July 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: Advanced American Construction
- b. Name of contact: Mike Johns
- c. Phone number (Office): 5053.445.9000 (Cell): 503.720.1108
- d. Email: mikej@callaac.com
- e. Address: 8444 NW St Helens Road City: Portland  
State: OR Zip code: 97231

### 2. Vessel

- a. ID: Serial No. 413419 b. Name: 4100 DB
- c. Type: Crane Barge d. USCG Document Number: \_\_\_\_\_

### 3. Vessel Configuration

- a. Identify vessel configuration: Crane Barge
- Is a vessel specification sheet available? Yes
  - Configuration shown on the sheet: No
  - What is the lowest height configuration for transport? 35 feet
- b. What is the gantry configuration? \_\_\_\_\_ Estimated gantry height: 35 Feet
- c. Does the barge have spuds? Yes
- Height above waterline for travel? 92 Feet
  - Can the spuds be removed for travel? Only for long distances upstream for big jobs;  
not for work in the Portland Harbor
  - Work and cost involved in removing spuds? ½-1 day

### 4. Vessel Location

- a. Where is the vessel currently located? Kalama
- b. Is it working on a job? Yes Is it tied up to shore? no



c. What is the best time to make a trip to the vessel? \_\_\_\_\_

**5. Surveyed Measurements (measurements from spec sheet)**

Gantry Height:	35
Water Level:	
Top of Boom:	
Height of Boom Hinge Pin:	
Boom Cradle:	
Top of Spud:	92

**6. Vessel Height**

Self-Reported		Heights from Spec sheet	
Air Draft:	90 feet (top of spuds)	Air Draft:	92
Air Gap:	10 feet	Air Gap:	10 feet
Water Level:	16 feet	Water Level:	16 feet
<b>Total Height:</b>	<b>116 feet</b>	<b>Total Height:</b>	<b>118 feet</b>

**7. History Notes**

Date	Item
2/20/2012	Contacted by Megan Nelson
3/8/2012	Returned River User Data Sheet for the Linde Marie via email
7/23/2012	Interviewed by Karl Krcma and Jennifer Rabby; Vessel specification sheets provided



## Marine Contractors

Company: Diversified Marine

Vessel: *DB Freedom*

Company provided data sheets to the IBR Program. Data sheets are included below, followed by the information included in the CRC NIR.



### EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** Diversified Marine, Inc.

**Vessel Name:**

DB Freedom

**Vessel Type:**

Derrick barge

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): Choose an item.

**Vessel Category:** Commercial

**USCG Document Number:**

507476

**Primary Mooring Location** (*waterway milepoint, if known*):

**Type and quantity of cargo, if applicable:**

**Length (overall; ft):**

152.1

**Beam (width; ft):**

60



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - *depth of hull below waterline, fully laden:*

11

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

119

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

10

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

**Transit speed under Interstate Bridge and Load Configuration:**

5 knts

**Time of Year of Passage:**

10

**Tug Assistance Required:** Choose an item.

YES

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

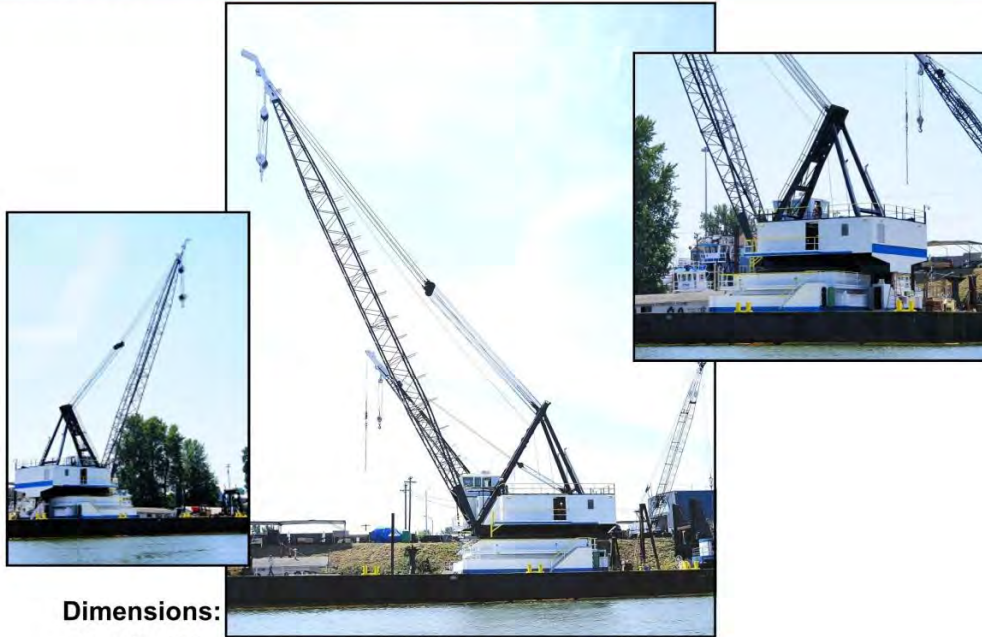
Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



Marine Contractors  
Owner: Diversified Marine  
Vessel: DB Freedom

## CRANE BARGE "DB FREEDOM"

Official No. 507476



### Dimensions:

- Length: 152
- Beam: 60'
- Depth: 12"
- Draft: 4'
- Boom: 160' to main fall
- Boom: 172' to main whip line

### Capacities:

- Fuel: 10,000 gallons
- Lift 123.5 tons off stern
- Lift: 87.4 tons @ 50' radius
- Lift: 81.2 tons @ 60' radius
- Lift: 67 tons @ 80' radius
- Lift: 25 tons @ 160' radius

### Regulatory:

- American Hoist & Derrick Co  
American 305 Revolver
- Gross tonnage: 911 GRT

### Machinery:

- Power: Diesel/Electric
- Generator: 375KW 480V
- Engine: C18

### Auxiliaries:

- 3 drum 20,000#deck winch
- Twp (2) Aux hoist: 2 drum Skagit

### Capabilities:

- Heavy Lifting
- Crane Service
- Salvage
- Pile Driving

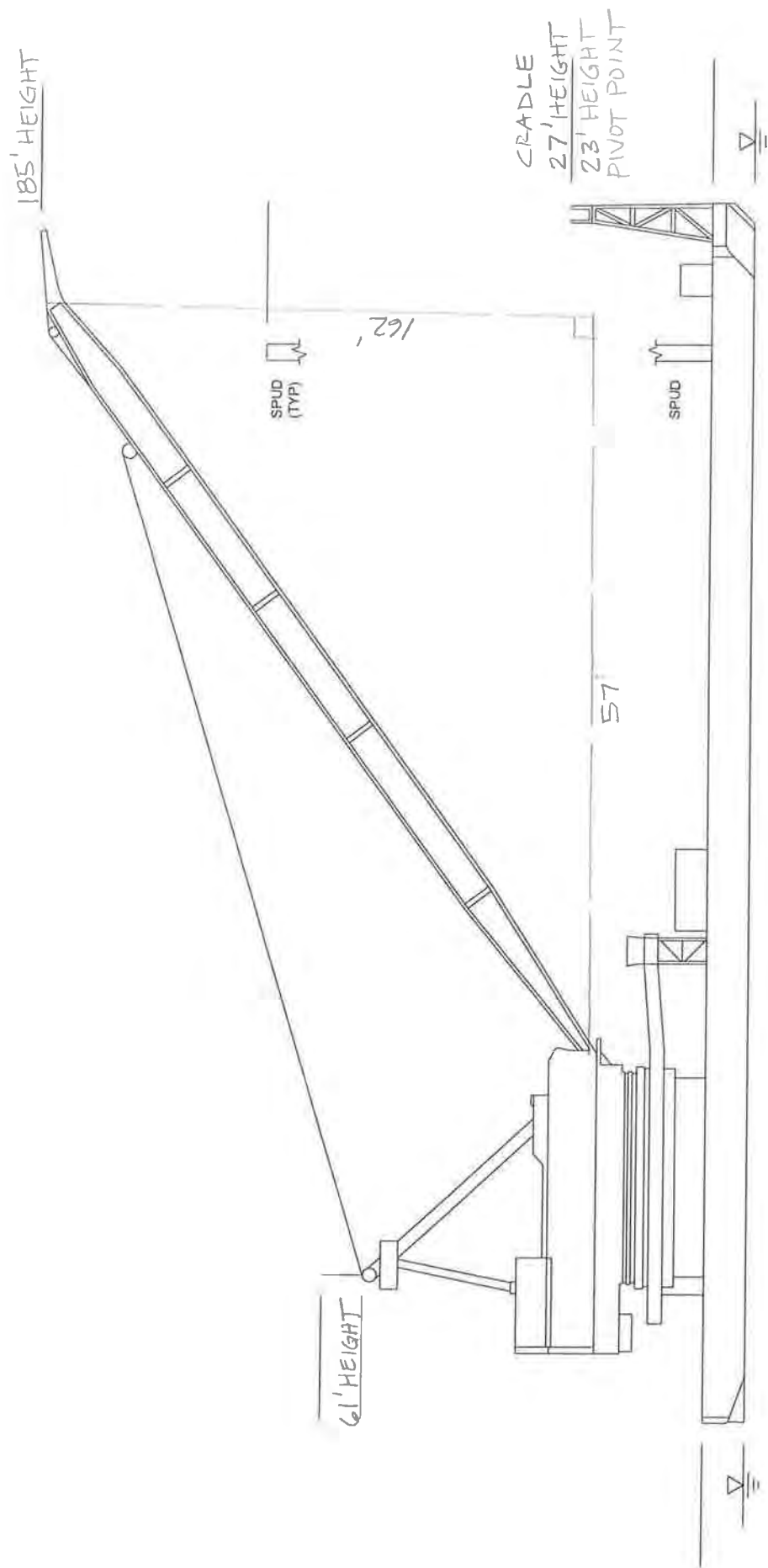
## DIVERSIFIED MARINE, INC.

PO Box 83723  
(1801 N Marine Drive - 97217)  
Portland OR 97283 USA

Phone: 503-289-2669  
Fax: 503-289-2825  
E-mail: kurt@dmipdx.com  
Website: www.dmipdx.com

See more photos and videos of our equipment on our website.





FREEDOM  
NAME

DIVERSIFIED MARINE  
LOCATION

7-02-2012  
DATE



## Vessel Height Verification Sheet

By: Pete Geiger Date: 2 July 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: Diversified Marine
- b. Name of contact: Kurt Redd
- c. Phone number (Office): 503.289.2662 (Cell):
- d. Email: kurt@dmipdx.com
- e. Address: 1801 N Marine Drive City: Portland  
State: OR Zip code: 97217

### 2. Vessel

- a. ID:  b. Name: DB Freedom
- c. Type: Crane Barge d. USCG Document Number:

### 3. Vessel Configuration

- a. Identify vessel configuration: Crane Barge
  - Is a vessel specification sheet available? Yes
  - Configuration shown on the sheet: Crane Up
  - What is the lowest height configuration for transport? Crane down at ~ 34 Degrees  
above horizontal, spuds up and pinned
- b. What is the gantry configuration?  Estimated gantry height: Not given
- c. Does the barge have spuds? Yes at least two forward. Spuds currently down
  - Height above waterline for travel? 85 Feet
  - Can the spuds be removed for travel? Only in very special circumstances when they  
travel far upriver on the Columbia
  - Work and cost involved in removing spuds? 4 hours each spud to re-install; need to tie up to  
a dock near the work area.



4. Vessel Location

- a. Where is the vessel currently located? Columbia River North Portland Harbor
- b. Is it working on a job? Yes while tied up Is it tied up to shore? yes
- c. What is the best time to make a trip to the vessel? Anytime just give him 1 day notice

5. Surveyed Measurements (all measurements NAVD 88)

Gantry Height:	77.3 feet
Water Level:	16.0 feet
Top of Boom:	Measured while working = 201.4 feet (71 degrees off horizontal) Estimated at travel angle (34 degrees off horizontal) = 135 feet
Height of Boom Hinge Pin:	39.1 feet
Boom Cradle:	42.9 feet
Top of Spud:	Not surveyed – spuds in down position

6. Vessel Height

Self-Reported		Surveyed (Top of Boom Estimated)	
Air Draft:	85 feet (Top of Spuds)	Air Draft:	119 Feet (Top of Crane)
Air Gap:	10 feet	Air Gap:	10 feet
Water Level:	16 feet CRD	Water Level:	16 feet CRD
Total Height:	111 feet	Total Height:	145 feet

7. History Notes

Date	Item
2/17/2012	Contacted by Megan Nelson
2/29/2012	Data sheet submitted
6/28/2012	Contacted by Pete Geiger for field measurement
7/2/2012	Field measured



## Marine Contractors

Company: General Construction Company

Vessel: *DB General*

Company confirmed the information provided during the CRC NIR is still accurate (email confirmation included below). Vessel details that follow were included in the CRC NIR.



**From:** [Brian Carrico](#)  
**To:** [Nicole McDermott](#)  
**Subject:** Fw: Interstate Bridge Program  
**Date:** Thursday, September 23, 2021 11:36:04 AM  
**Attachments:** [image002.png](#)  
[image003.png](#)  
[image004.png](#)  
[image005.png](#)

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**From:** Kent.Boden <Kent.Boden@kiewit.com>  
**Sent:** Thursday, September 23, 2021 11:23 AM  
**To:** Brian Carrico <Brian.Carrico@interstatebridge.org>  
**Cc:** Todd.Wille <Todd.Wille@kiewit.com>  
**Subject:** Interstate Bridge Program

Hello Brian, there are three vessels no longer in service; the Beaver, Tacoma, and Anchorage. The remainder of the information is accurate. Please feel free to call me if you have any questions.



**Kent Boden**  
Pursuits Manager, Kiewit Bridge & Marine

**Kiewit Infrastructure West Co.**  
2200 Columbia House Blvd, Vancouver, WA 98661  
360.693.1478 (P) 360.721.9208 (C)  
Kiewit.com An Equal Opportunity Employer

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**From:** Brian Carrico <Brian.Carrico@interstatebridge.org>  
**Sent:** Thursday, September 23, 2021 9:17 AM  
**To:** Kent.Boden <Kent.Boden@kiewit.com>  
**Subject:** [EXTERNAL] Interstate Bridge Program

Kent - Thanks for taking my call today. Attached is the information submitted for the CRC program back in 2012. We would appreciate a review of this information to confirm that it remains accurate. We would especially want to know if any of the specifications have changed, if any of the fleet are no longer in service, if other vessels should be considered and whether you have any planned or potential projects that would result in the need to transit through the I-5 bridge area.



Feel free to contact me with any questions.

Brian

**Brian Carrico**  
**Interstate Bridge Replacement Program**  
**Environmental Program**

**O:** 360-823-6122 | **C:** 360-433-7775

**E:** [brian.carrico@interstatebridge.org](mailto:brian.carrico@interstatebridge.org)

[interstatebridge.org](http://interstatebridge.org)





## Marine Contractors

**Owner:** General Construction

**Vessel:** D.B. General



**GENERAL  
CONSTRUCTION  
COMPANY**

**D.B. GENERAL**  
700 TON FLOATING CRANE



### SPECIFICATIONS

- Main Crane: Clyde 52
- Capacities: 700 tons @ 70' radius over the stern  
500 tons @ 70' radius fully revolving  
40 tons @ 243' radius (auxiliary)  
25 tons @ 257' radius (whip)
- Boom: 200' to main fall (260' available)  
230' to auxiliary line (290' available)  
245' to whip line (305' available)
- Barge Size: 300' x 100' x 18'
- Classification: ABS+A1, USCG
- Draft (std.): 8'-0"
- Spuds: Two 48"Ø x 90' long
- Anchors: 6-point moorage
- Deck Loading: 2,000 psf uniform
- Bunkers: 50,000 gallons diesel fuel  
310,000 gallons fresh water



### CAPABILITIES

- Heavy Lifting
- Piledriving
- Offshore Construction & Service
- Duty Cycle – Dredging
- Pipe Lay

© 2007 General Construction Company, 19472 Powder Hill Place N.E., Poulsbo, WA 98370 ♦ Phone (360) 779-3200 ♦ Fax (360) 779-3132  
Please contact Pat Boyd-Equipment Manager at (206) 938-6758 or pat.boyd@kiewit.com for load charts, deck configuration, and availability.

[www.generalconstructionco.com](http://www.generalconstructionco.com)



# Columbia River CROSSING



## River User Data Sheet

By: RALPH PETEREIT Date: 2/27/2012

### 1. Company Name and/or Owner of Vessel and contact information

Name of company: GENERAL CONSTRUCTION CO.

Name of contact: PAT BOYD - EQUIPMENT MANAGER

Phone number (Office): 206-938-6750 (Cell): 206-498-8815

Email: pat.boyd@kiewit.com

Address: 3838 W. MARGINAL WAY SW

City: SEATTLE State: WA Zip code: 98106

FLOATING CRANE/

3a. Vessel Name: D.B. GENERAL 3b. Vessel Type: DERRICK BARGE

3c. US Coast Guard Document Number: \_\_\_\_\_

4a. Length Overall (LOA), feet: 300 4b. Beam (width), feet: 105.8

5. Draft (depth of hull below waterline, fully laden), feet: 8

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 93

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 5-10

8. Frequency of one-way passage underneath I-5 main channel (typical per month):

Jan \_\_\_\_ Feb \_\_\_\_ Mar \_\_\_\_ Apr \_\_\_\_ May \_\_\_\_ Jun \_\_\_\_ Jul \_\_\_\_ Aug \_\_\_\_ Sep \_\_\_\_ Oct \_\_\_\_ Nov \_\_\_\_ Dec \_\_\_\_

9. Frequency of one-way passage underneath I-5 main channel (other historic events): \_\_\_\_\_

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month): NONE

Jan \_\_\_\_ Feb \_\_\_\_ Mar \_\_\_\_ Apr \_\_\_\_ May \_\_\_\_ Jun \_\_\_\_ Jul \_\_\_\_ Aug \_\_\_\_ Sep \_\_\_\_ Oct \_\_\_\_ Nov \_\_\_\_ Dec \_\_\_\_

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): \_\_\_\_\_

12. Do you have a Business Plan (e.g. 10 or 20 year plan)? NOT AVAILABLE

What does it say regarding vessels transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? NOTHING IN THE WORKS FOR ANYTHING LARGER THAN THIS BARGE.

May we have a copy? \_\_\_\_\_

13. Other miscellaneous THIS IS GENERAL'S / KIEWIT'S LARGEST CRANE BARGE. IT HAS GONE UNDER THE BRIDGE TO TAKE THE CRANE OFF THE DAVY CROCKET MANY YEARS AGO, AS WELL AS SOME PICKS UP AT THOMSEN METAL FAB. - BUT CAN'T REMEMBER WHEN



River User Data Sheet

By: \_\_\_\_\_ Date: \_\_\_\_\_

1. Company Name and/or Owner of Vessel and contact information

- a. Name of company: GENERAL CONSTRUCTION COMPANY
- b. Name of contact: \_\_\_\_\_
- c. Phone number (Office): \_\_\_\_\_ d. (Cell): \_\_\_\_\_
- e. Email: \_\_\_\_\_
- f. Address: 33455 6th AVE S.
- g. City: FEDERAL WAY
- h. State: WA i. Zip code: 98003

3a. Vessel Name: D.B. GENERAL 3b. Vessel Type: CRANE BARGE

3c. US Coast Guard Document Number: 1042279

4a. Length Overall (LOA), feet: 288.0 4b. Beam (width), feet: 100.0

5. Draft (depth of hull below waterline, fully laden), feet: 8'

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 93'

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 10'

8. Frequency of one-way passage underneath I-5 main channel (typical per month): \_\_\_\_\_

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

9. Frequency of one-way passage underneath I-5 main channel (other historic events): \_\_\_\_\_

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month):

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): \_\_\_\_\_



12. Do you have a Business Plan (e.g. 10 or 20 year plan)? What does it say regarding vessels transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? May we have a copy?

13. Other miscellaneous



## Vessel Height Verification Sheet

By: Ralph Petereit Date: July 10, 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: General Construction Co.
- b. Name of contact: Pat Boyd – Equipment Manager
- c. Phone number (Office): (206) 938-6758 (Cell): (206) 498-8815
- d. Email: PAT.BOYD@KIEWIT.COM
- e. Address: 3838 W. Marginal Way City: Seattle
- State: WA Zip code: 98106

### 2. Vessel

- a. ID: \_\_\_\_\_ b. Name: DB General
- c. Type: Crane Barge d. USCG Document Number: 1042279

### 3. Vessel Configuration

- a. Identify vessel configuration: Crane barge
- Is a vessel specification sheet available? Yes
  - Configuration shown on the sheet: Yes
  - What is the lowest height configuration for transport? 93 ft
- b. What is the gantry configuration? Pinned Estimated gantry height: 93 ft
- c. Does the barge have spuds? Yes
- Height above waterline for travel? Gantry height
  - Can the spuds be removed for travel? Yes
  - Work and cost involved in removing spuds? ½ - full day

### 4. Vessel Location

- a. Where is the vessel currently located? Terminal 105 – Doing day jobs in the Puget Sound Region
- b. Is it working on a job? Yes Is it tied up to shore? Depends on the day
- c. What is the best time to make a trip to the vessel? Need to call for daily schedule



## 5. Measurements from Spec Sheet

Gantry Height:	93 ft
Water Level:	
Top of Boom:	
Height of Boom Hinge Pin:	
Boom Cradle:	
Top of Spud:	

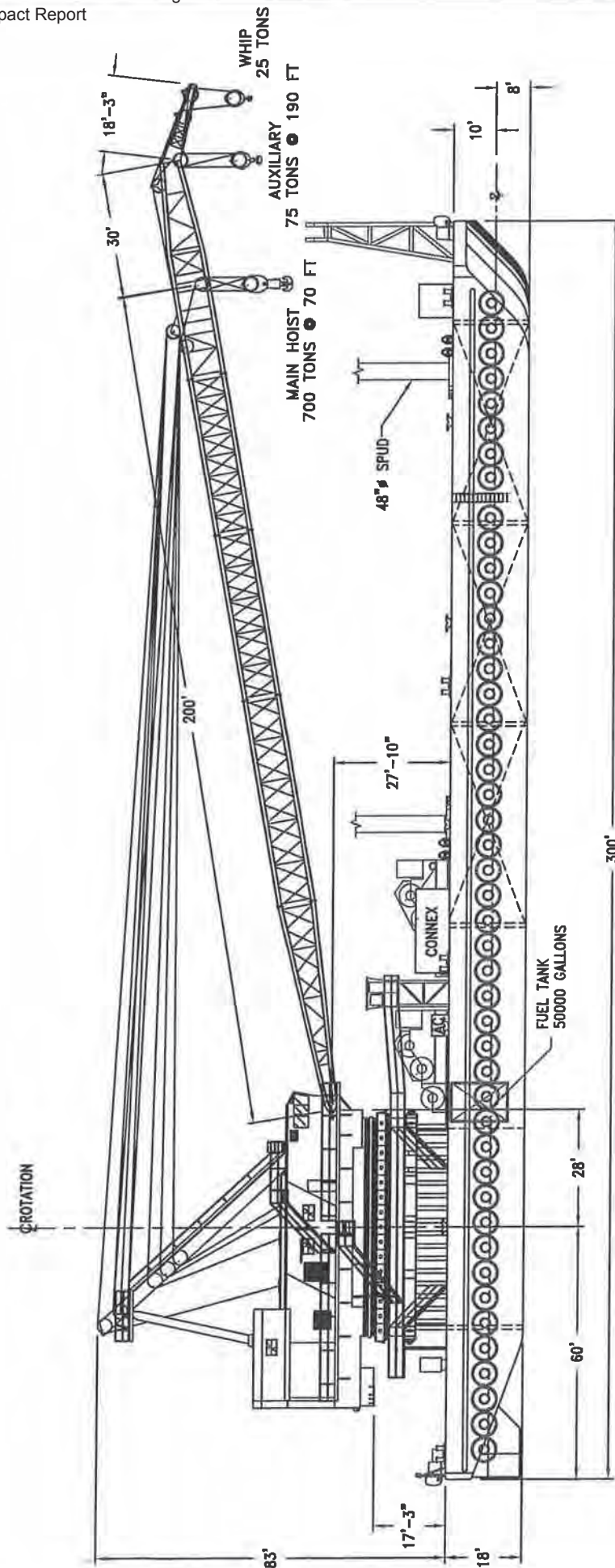
## 6. Vessel Height

Self-Reported		From Spec Sheet	
Air Draft:	93 ft	Air Draft:	93 ft
Air Gap:	5 – 10 ft	Air Gap:	10 ft
Water Level:	16	Water Level:	16
<b>Total Height:</b>	<b>119 ft</b>	<b>Total Height:</b>	<b>119 ft</b>

## 7. History Notes

Date	Item
6/29/2012	Contacted Pat Boyd- Equipment Manager
7/10/2012	Visited Yard to confirm vessel locations and heights





OUTBOARD PROFILE



GENERAL CONSTRUCTION COMPANY  
19472 POWDER HILL PL \* POULSBORO, WA \* 98370-7466  
(360) 779-3200 \* FAX (360) 779-3132

D.B. GENERAL (700 TON) - #53-0736

ISSUED: JAN 2010  
FC-53-0736-2





D.B. GENERAL (700 TON) - #53-0736

**GENERAL CONSTRUCTION COMPANY**  
19472 POWDER HILL PL \* POULSBO, WA \* 98370-7466  
(360) 779-3200 \* FAX (360) 779-3132





## Marine Contractors

Company: JT Marine

Vessel: *DB Taylor*

Company provided data sheets to the IBR Program. Data sheets are included below, followed by the information included in the CRC NIR.



### EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** JT Marine, Inc.

**Vessel Name:**

DB Taylor

**Vessel Type:**

Crane barge

**Specialized Vessel** (e.g. limited maneuverability due to design or mode of operation. If yes, please describe): Choose an item.

**Vessel Category:** Commercial

**USCG Document Number:**

514786

**Primary Mooring Location** (waterway milepoint, if known):

**Type and quantity of cargo, if applicable:**

**Length (overall; ft):**

148

**Beam (width; ft):**

50



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - depth of hull below waterline, fully laden:

5

**Air Draft (ft)** - height of highest fixed point above waterline, unladen:

90' w/ spuds

75' w/ spuds out

**Air Gap (ft)** - desired clearance from highest fixed point to lowest part of bridge:

10

**Safety Margin (ft)** horizontal clearance required by vessel to navigate through the bridge:

60'

**Transit speed under Interstate Bridge and Load Configuration:**

**Time of Year of Passage:**

**Tug Assistance Required:** Choose an item.

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan\_\_10\_\_ Feb\_\_10\_\_ Mar\_\_10\_\_ Apr\_\_10\_\_ May\_\_10\_\_ June\_\_10\_\_

Jul\_\_10\_\_ Aug\_\_10\_\_ Sep\_\_10\_\_ Oct\_\_10\_\_ Nov\_\_10\_\_ Dec\_\_10\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan\_\_1\_\_ Feb\_\_1\_\_ Mar\_\_1\_\_ Apr\_\_1\_\_ May\_\_1\_\_ June\_\_1\_\_

Jul\_\_1\_\_ Aug\_\_1\_\_ Sep\_\_1\_\_ Oct\_\_1\_\_ Nov\_\_1\_\_ Dec\_\_1\_\_



## Marine Contractors

Owner: JT Marine

Vessel: DB Taylor





# Columbia River CROSSING



## River User Data Sheet

By: Irene TDate: 3-22-2012

### 1. Company name and/or owner of vessel and contact information

Name of company: JT Marine IncName of contact: Irene TorstoraPhone number (Office): 360-750-1300

(Cell): \_\_\_\_\_

Email: irene@jtmarineincAddress: 2301 SE Hidden Way, Suite 100City: VancouverState: WAZip code: 986613a. Vessel name: DB Taylor3b. Vessel type: Crane barge3c. U.S. Coast Guard Document Number: 5147864a. Length Overall (LOA), feet: 148'4b. Beam (width), feet: 50'5. Draft (depth of hull below waterline, fully laden), feet: 5'6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 150'

143' as per  
time for 3/27/12

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 10'

8. Frequency of one-way passage underneath I-5 main channel (typical per month):

Jan 10 Feb 10 Mar 10 Apr 10 May 10 Jun 10 Jul 10 Aug 10 Sep 10 Oct 10 Nov 10 Dec 10

9. Frequency of one-way passage underneath I-5 main channel (other historic events): \_\_\_\_\_

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month):

Jan 1 Feb 1 Mar 1 Apr 1 May 1 Jun 1 Jul 1 Aug 1 Sep 1 Oct 1 Nov 1 Dec 1

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): \_\_\_\_\_

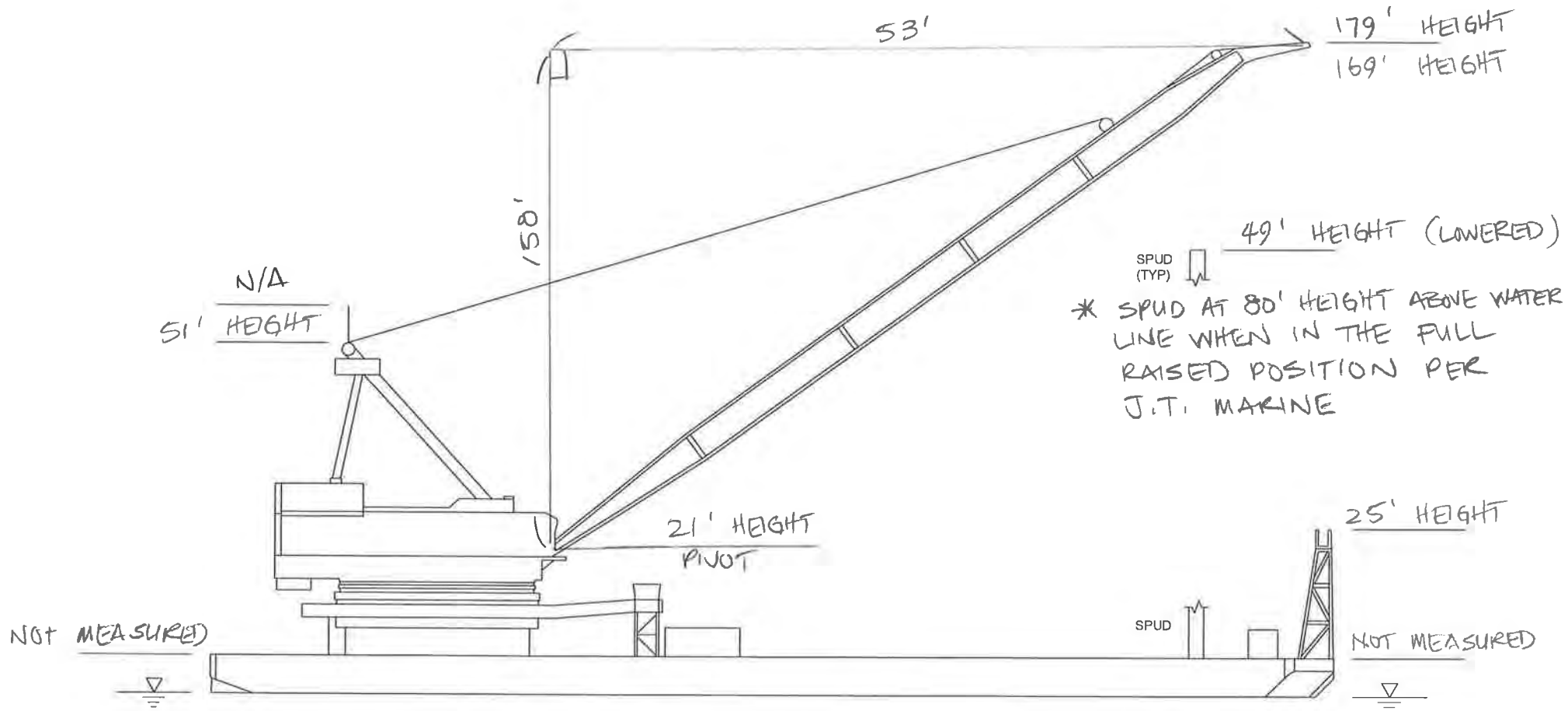
12. Do you have a business plan (e.g. 10 or 20 year plan)? NO

What does it say related to vessels traveling under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? \_\_\_\_\_

May we have a copy? \_\_\_\_\_

13. Other (additional sheets may be attached.) NA





DB TAYLOR  
NAME

J.T. MARINE  
MEASURED AT  
SELLWOOD BRIDGE, PORTLAND, OR  
LOCATION

07-12-12  
DATE



## Vessel Height Verification Sheet

By: Pete Geiger Date: 12 July 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: JT Marine
- b. Name of contact: Waino Toristoja
- c. Phone number (Office): 360.750.1300 (Cell): 360.567.8382
- d. Email: waino@jtmarineinc.com
- e. Address: 2301 SW Hidden Way, #100 City: Vancouver  
State: WA Zip code: 98661

### 2. Vessel

- a. ID: \_\_\_\_\_ b. Name: DB Taylor
- c. Type: Crane Barge d. USCG Document Number: 514786

### 3. Vessel Configuration

- a. Identify vessel configuration: Crane Barge
  - Is a vessel specification sheet available? No
  - Configuration shown on the sheet: N/A
  - What is the lowest height configuration for transport? Crane down in cradle, spuds up and pinned
- b. What is the gantry configuration? Pinned Estimated gantry height: Not given
- c. Does the barge have spuds? Yes two midpoint. Spuds currently down
  - Height above waterline for travel? 80 Feet
  - Can the spuds be removed for travel? Only in very special circumstances when they travel far upriver on the Columbia
  - Work and cost involved in removing spuds? 4 hours each spud to re-install; need to tie up to a dock near the work area. Can lift both spuds with own crane.



4. Vessel Location

- a. Where is the vessel currently located? Willamette River Sellwood Bridge
- b. Is it working on a job? Yes Is it tied up to shore? No
- c. What is the best time to make a trip to the vessel? Anytime just give him 1 day notice

5. Surveyed Measurements (all measurements NAVD 88)

Gantry Height:	65.3 feet
Water Level:	13.8 feet
Top of Boom <sup>1</sup> :	Measured while working = 192.7 feet (71 degrees off horizontal) Estimated height at travel angle: <ul style="list-style-type: none"> <li>• 220 foot long boom: 131 feet</li> <li>• 166.6 foot long boom: 51 feet (limit is the gantry height)</li> </ul>
Height of Boom Hinge Pin:	35.0 feet
Boom Cradle:	38.9 feet
Top of Spud:	62.4 feet – spuds in down position <sup>2</sup>

<sup>1</sup> Note: JT Marine reported that they use two different booms on the DB Taylor; one with a length of 220 feet and one with a length of 166.6 feet.

<sup>2</sup> JT Marine self reported that the height to the top of their spuds are 80 feet.

6. Vessel Height

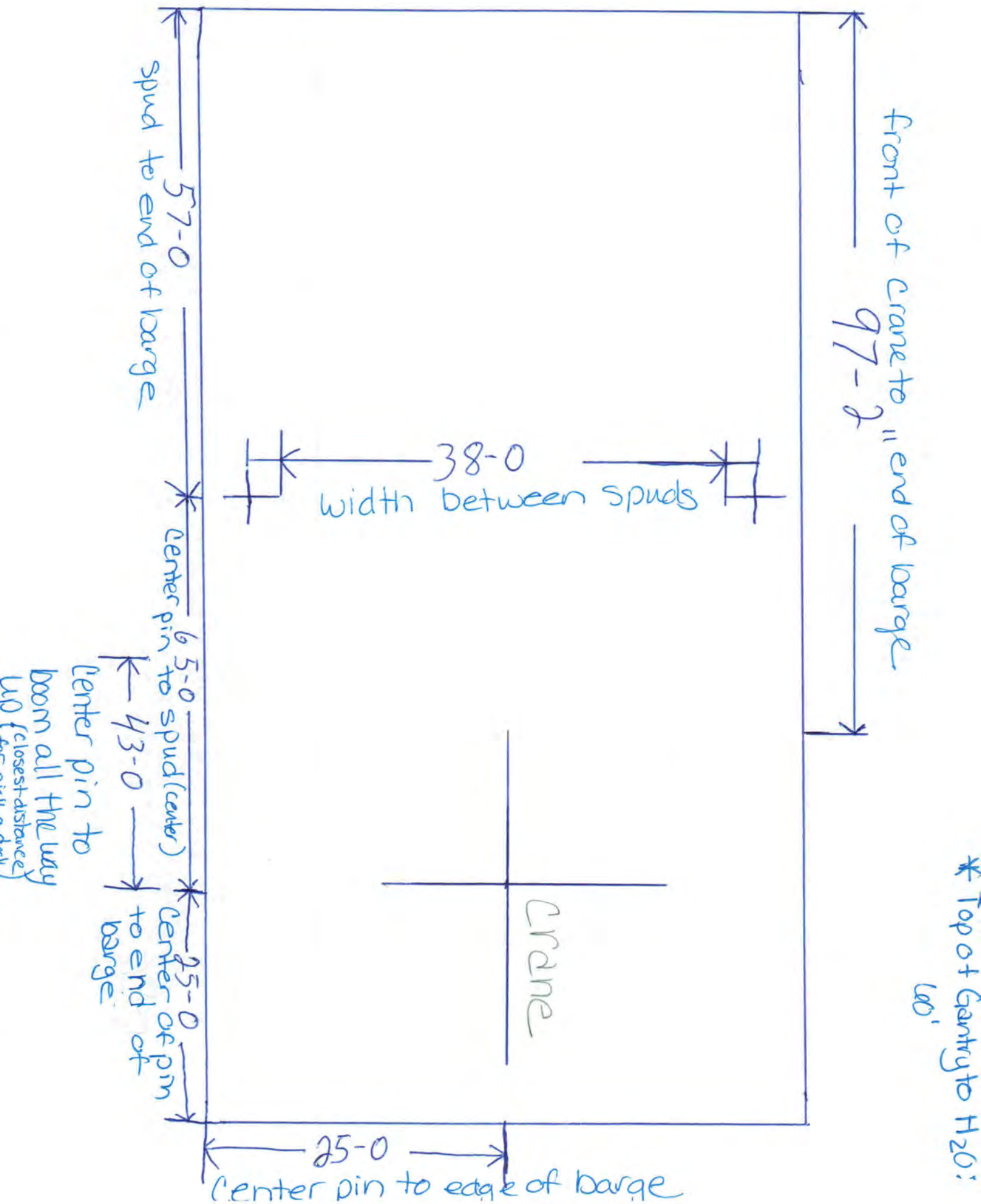
Self-Reported		Surveyed <sup>1</sup>	
166.6 foot boom		220 foot boom	
Air Draft:	80 feet (top of spuds)	Air Draft:	131 feet
Air Gap:	10 feet	Air Gap:	10 feet
Water Level:	16 feet CRD	Water Level:	16 feet CRD
Total Height:	106 feet	Total Height:	157 feet

<sup>1</sup> Note: The surveyed air draft measurement shown is the estimated travel height based on the surveyed boom length.

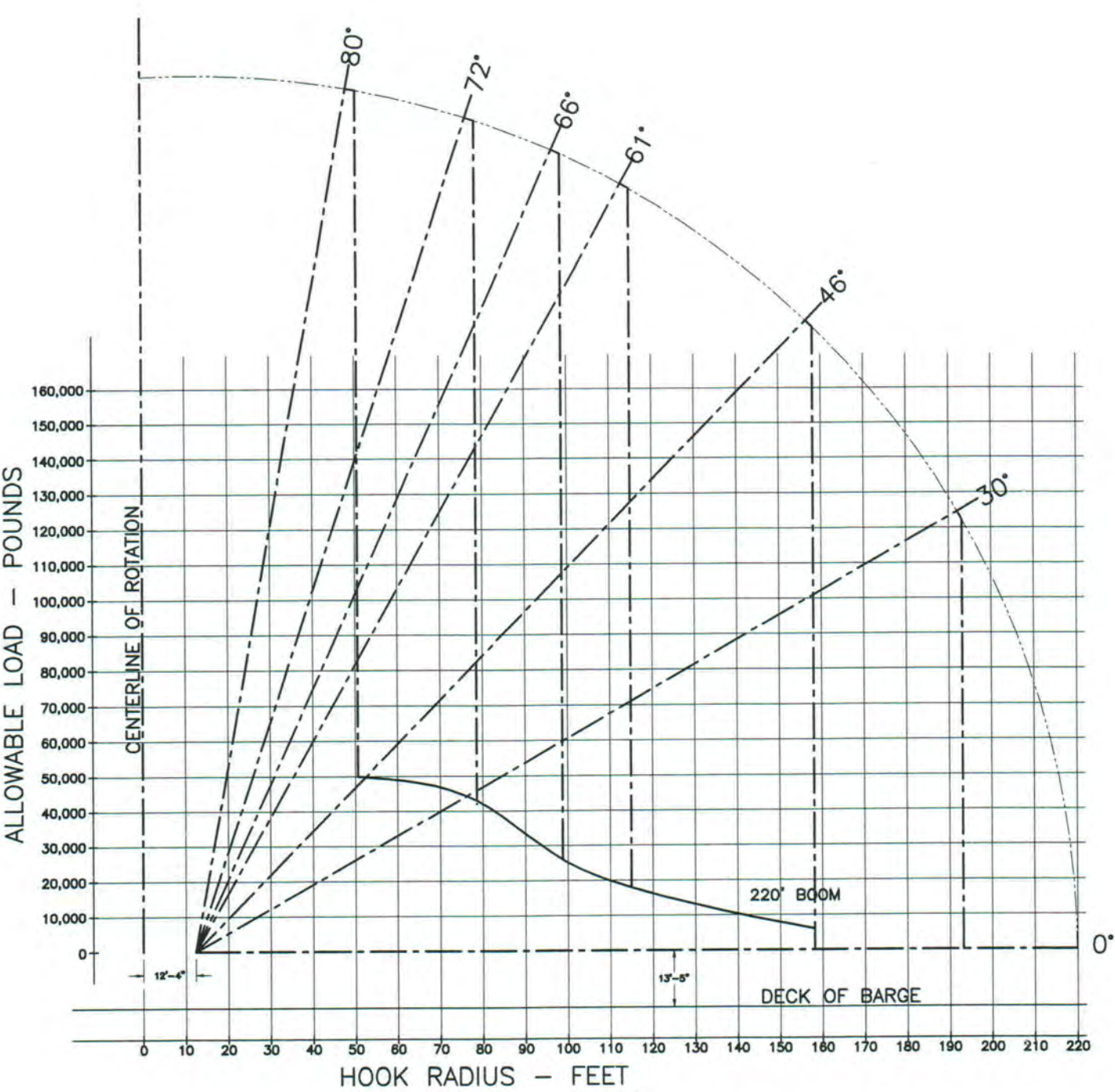
7. History Notes

Date	Item
3/27/2012	Contacted by Ron Del Rosario
3/28/2012	Data sheet submitted
6/28/2012	Contacted by Pete Geiger for field measurement
7/12/2012	Field measured





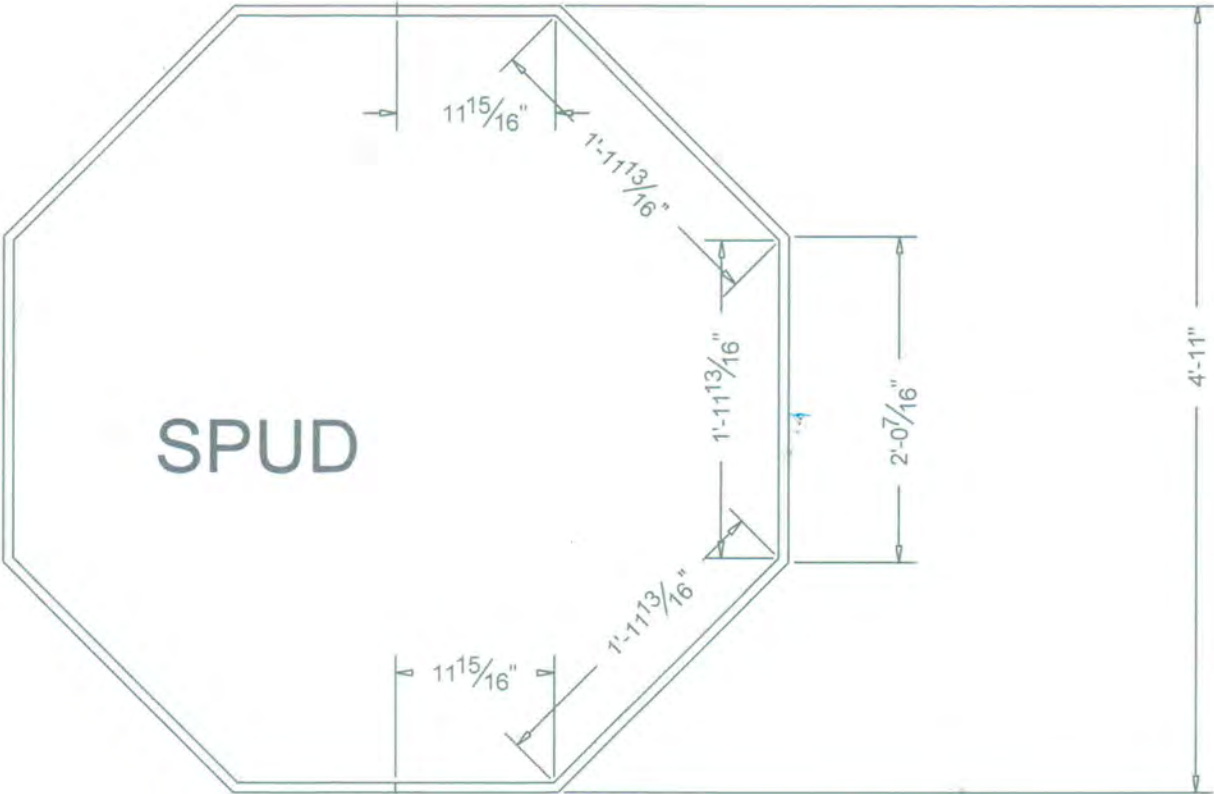




DERRICK BARGE TAYLOR  
MAIN HOOK — ALLOWABLE LOAD  
WITH 220 FOOT BOOM

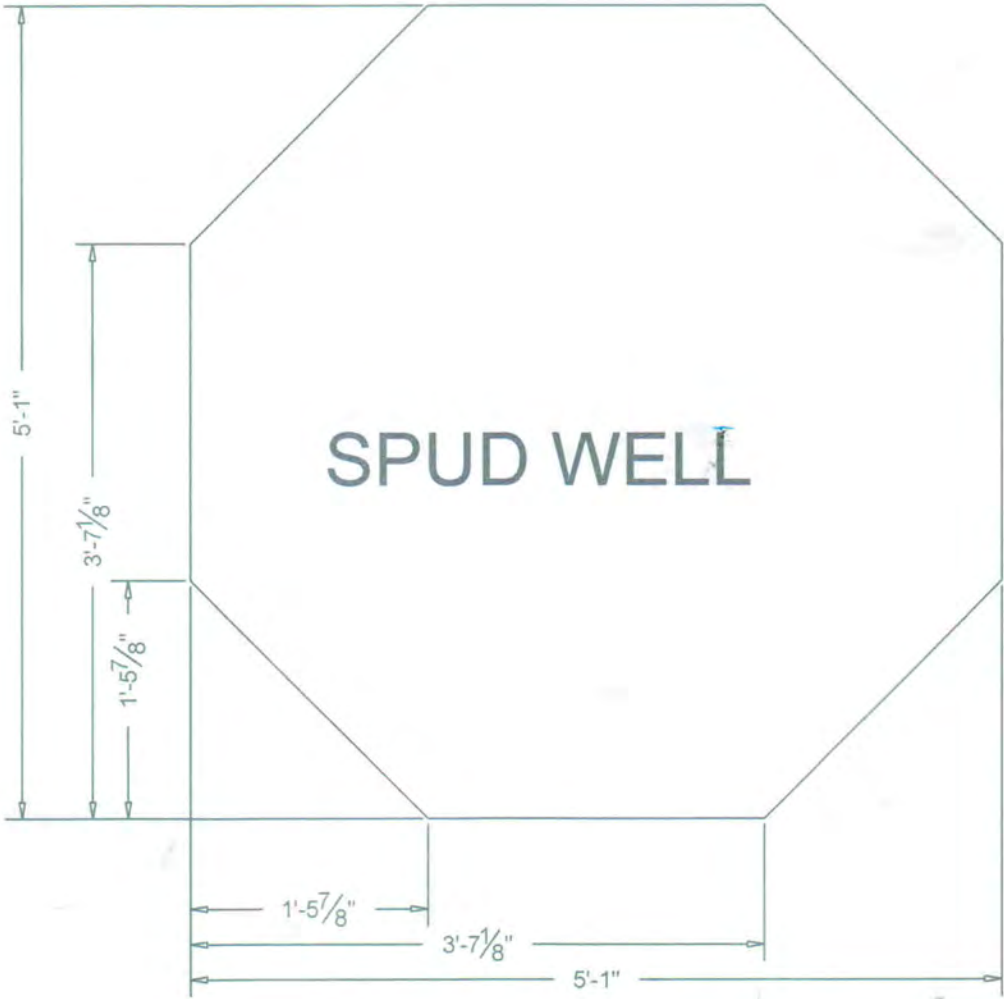
McKERNAN FILE: P10-07  
BY: JCMcK 2-12-11





Hi-Tech Metal Fabrication Inc. 2301 SE Hidden Way, Suite 100 Vancouver, WA 98661	CUSTOMER	SCALE	NA
	ADDRESS	DRAWN BY	WG
	ADDRESS	DATE	2/27/2011
		DRAWING #	
		REV	0
?		JOB #	







## Marine Contractors

Company: Manson Construction Company

Vessel: *Derrick No. 24*

Company did not respond to request for information. Details provided below were included in the CRC NIR.



## Marine Contractors

**Owner:** Manson Construction

**Vessel:** Derrick No. 24



*Serving the Nation's Waterways Since 1905*

**Fleet**

### Derrick Barges/Clamshell Dredges "Derrick #24"



#### "Derrick #24" Specifications

##### Dimensions

Length:  
200 ft / 60.9 m

Beam:  
84 ft / 25.6 m

Depth:  
13 ft / 3.96 m

Draft:  
6 ft / 1.8 m

##### Operating Parameters

Maximum Linepull w/ boom  
extended 65 ft (19.8 m):  
800,000 lb / 3,558 kN

Fuel:  
40,000 gal / 151,400



# Columbia River CROSSING



## River User Data Sheet

By: RALPH PETEREIT Date: 2/27/2012

### 1. Company Name and/or Owner of Vessel and contact information

Name of company: MANSON CONSTRUCTION CO.

Name of contact: RANDY THORSEN

Phone number (Office): 206-762-0850 (Cell): 206-793-2630

Email: rthorsen@mansonconstruction.com

Address: 5209 E. MARGINAL WAY S.

City: SEATTLE State: WA Zip code: 98134

3a. Vessel Name: DERRICK NO. 24 3b. Vessel Type: FLOATING CRANE / DERRICK BARGE

3c. US Coast Guard Document Number: \_\_\_\_\_

4a. Length Overall (LOA), feet: 200 4b. Beam (width), feet: 90

5. Draft (depth of hull below waterline, fully laden), feet: 6

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 99

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 5-10

8. Frequency of one-way passage underneath I-5 main channel (typical per month):

Jan \_\_\_\_ Feb \_\_\_\_ Mar \_\_\_\_ Apr \_\_\_\_ May \_\_\_\_ Jun \_\_\_\_ Jul \_\_\_\_ Aug \_\_\_\_ Sep \_\_\_\_ Oct \_\_\_\_ Nov \_\_\_\_ Dec \_\_\_\_

9. Frequency of one-way passage underneath I-5 main channel (other historic events): \_\_\_\_\_

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month):

Jan \_\_\_\_ Feb \_\_\_\_ Mar \_\_\_\_ Apr \_\_\_\_ May \_\_\_\_ Jun \_\_\_\_ Jul \_\_\_\_ Aug \_\_\_\_ Sep \_\_\_\_ Oct \_\_\_\_ Nov \_\_\_\_ Dec \_\_\_\_

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): \_\_\_\_\_

12. Do you have a Business Plan (e.g. 10 or 20 year plan)? NOT AVAILABLE

What does it say regarding vessels transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? \_\_\_\_\_

May we have a copy? \_\_\_\_\_

13. Other miscellaneous LOCATED IN SEATTLE AND IS THE LARGEST

BARGE IN THE PACIFIC NW, THIS BARGE HAS NOT BEEN UP

THE COLUMBIA RIVER IN OVER 10 YEARS, NO CURRENT PLANS

TO RELOCATE THIS BARGE TO THE COLUMBIA RIVER



## Vessel Height Verification Sheet

By: Ralph Petereit Date: July 21, 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: Manson Construction Co.
- b. Name of contact: Randy Thorsen – Northwest Operations Manager
- c. Phone number (Office): (206) 762-0850 (Cell): (206) 793-2630
- d. Email: RTHORSEN@MANSONCONSTRUCTION.COM
- e. Address: 5209 E. Marginal Way City: Seattle
- State: WA Zip code: 98124

### 2. Vessel

- a. ID: \_\_\_\_\_ b. Name: Derrick 24
- c. Type: Crane Barge d. USCG Document Number: 657491

### 3. Vessel Configuration

- a. Identify vessel configuration: Crane Barge
- Is a vessel specification sheet available? Yes
  - Configuration shown on the sheet: Yes
  - What is the lowest height configuration for transport? Gantry Height
- b. What is the gantry configuration? \_\_\_\_\_ Estimated gantry height: 98 ft 7 in
- c. Does the barge have spuds? Yes
- Height above waterline for travel? 98 ft 7 in
  - Can the spuds be removed for travel? Yes
  - Work and cost involved in removing spuds? \_\_\_\_\_

### 4. Vessel Location

- a. Where is the vessel currently located? Lake Washington, WA.
- b. Is it working on a job? Yes – 520 Bridge Replacement Is it tied up to shore? No
- c. What is the best time to make a trip to the vessel? None currently



## 5. Measurements from Spec Sheet

Gantry Height:	98 ft 7 in
Water Level:	
Top of Boom:	
Height of Boom Hinge Pin:	
Boom Cradle:	
Top of Spud:	

## 6. Vessel Height

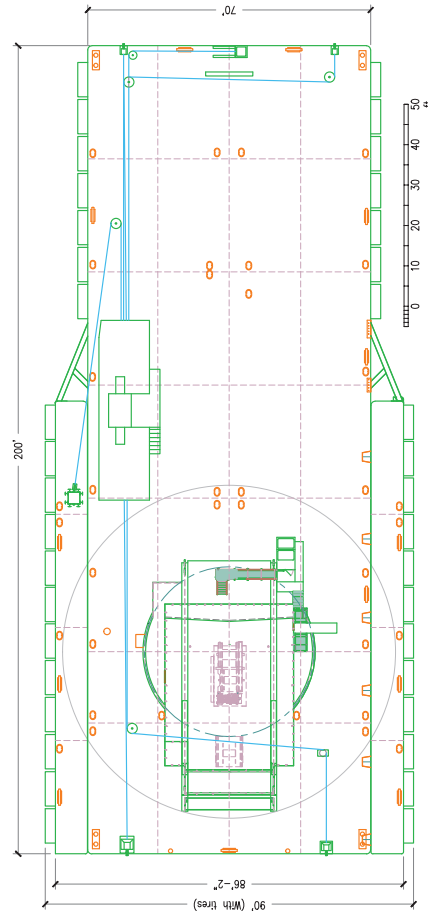
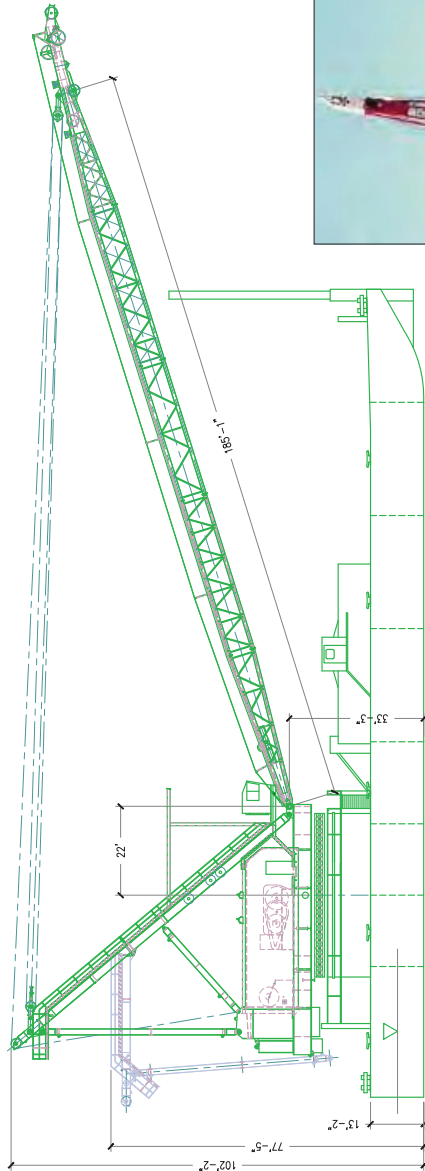
Self-Reported		From Spec Sheet	
Air Draft:	99 ft	Air Draft:	98 ft 7 in
Air Gap:	5 – 10 ft	Air Gap:	10
Water Level:	16	Water Level:	16
<b>Total Height:</b>	<b>125 ft</b>	<b>Total Height:</b>	<b>124 ft 7 in</b>

## 7. History Notes

Date	Item
6/27/2012	Called and left message for Randy Thorsen – NW Ops Manager
7/9/2012	Called Randy, was told to send e-mail
7/9/2012	Sent-mail with information request
7/21/2012	Still no reply



Manson Derrick 24



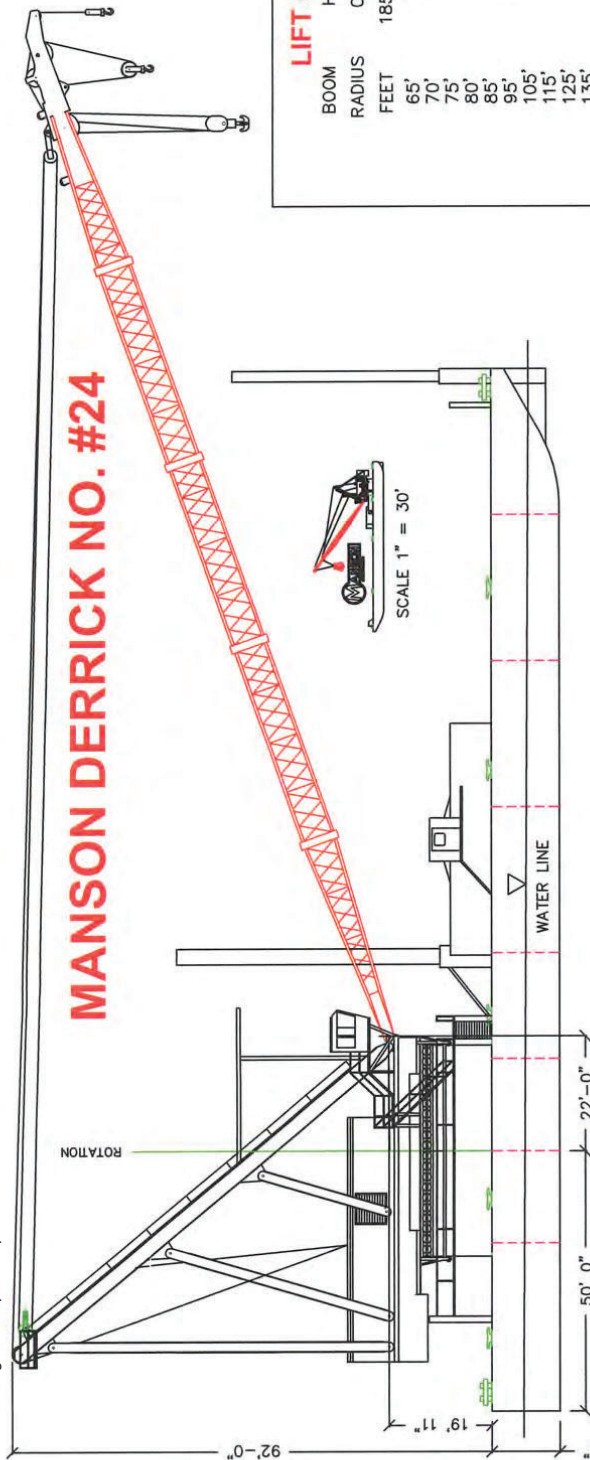
Miscellaneous Characteristics		Miscellaneous Characteristics	
<b>Crane Manufacture</b>	Clyde Iron Works	<b>Spud Wire</b>	
Model Number	42-DE-145	Side Spud	360' 1 1/4"
Serial Number	CW 3931	Stern Spud	360' 1 1/4"
Circle Diameter	42" Diameter	<b>Anchor Wire</b>	
<b>Rigging Wire</b>		Stern Anchors (2)	1,700' 1 1/4" 6x26
Main Hoist	5,150' 1 1/4" 6x26	Bow Anchors (2)	1,700' 1 1/4" 6x26
2-Part Whip	1,150' 1 1/4" 6x26	<b>Normal Fues Capacity</b>	40,000 Gallons (1"=307 Gallons)
Whip Line	550' 1" 6x26	<b>Boom (Topping Gear)</b>	3,000 Gallons
Boom (Topping Gear)	5,250' 1 1/4" 6x26		

Principal Characteristics	
Length Overall	200'-0"
Beam Overall (With Pontoon & Tires)	90'-0"
Beam Overall (With pontoons)	86'-2"
Beam Overall (w/o Pontoon)	78'-0"
Barge Depth	13'-0"
Minimum Draft	7'-0"
Distance Deck to Boom Heel	22'-3"
Boom Length to Main Block	185'-0"
Boom Length to 2-Part Whip	156'-0"
Boom Length to Whip	207'-2"
Boom Length Main to Whip	22'-0"
Spuds - 92' Each, Good to 70' Depth	2 - Each





# MANSON DERRICK NO. #24



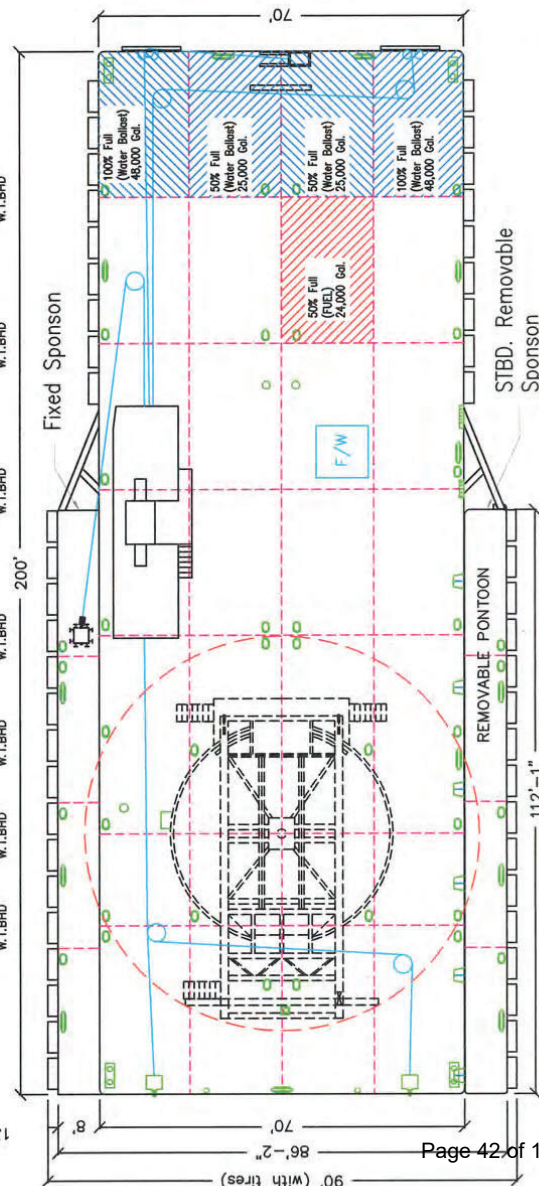
PRINCIPAL CHARACTERISTICS	
LENGTH OVERALL	200'-0"
BEAM OVERALL (WITH PONTONS & TIRES)	90'-0"
BEAM OVERALL (WITH PONTONS)	86'-2"
BEAM OVERALL (W/O PONTON)	78'-0"
DRAFT	13'-0"
DISTANCE DECK TO BOOM HEEL	FWD 6'-0" AFT 7'-0"
BOOM LENGTH TO MAIN BLOCK	22'-3"
BOOM LENGTH TO 2-PART WHIP	185'-0"
BOOM LENGTH TO WHIP	156'-0"
BOOM LENGTH MAIN TO WHIP	207'-0"
SPUDS - 92' EA., GOOD TO 70' DEPTH	22'-0"
	2 EA.

## LIFT CAPACITY CHART IN POUNDS

BOOM	HEAVY LIFT	OVER STERN	FULL REVOLVING	2 PART WHIP LINE
RADIUS	185 FOOT BOOM	185 FOOT BOOM	185 FOOT BOOM	185 FOOT BOOM
FEET	800,000	800,000	800,000	60,000
65'	800,000	800,000	800,000	60,000
70'	800,000	800,000	800,000	60,000
75'	800,000	800,000	800,000	60,000
80'	739,000	739,000	739,000	60,000
85'	671,700	671,700	671,700	60,000
90'	603,300	603,300	603,300	60,000
95'	534,900	534,900	534,900	60,000
100'	466,500	466,500	466,500	60,000
105'	398,100	398,100	398,100	60,000
110'	329,700	329,700	329,700	60,000
115'	261,300	261,300	261,300	60,000
120'	192,900	192,900	192,900	60,000
125'	124,500	124,500	124,500	60,000
130'	56,100	56,100	56,100	60,000
135'		268,100	268,100	60,000
140'		231,600	231,600	60,000
145'		198,400	198,400	60,000
150'		167,300	167,300	60,000
155'		137,100	137,100	60,000
160'		105,500	105,500	60,000
165'				60,000
170'				60,000
175'				60,000
180'				60,000
185'				60,000
190'				60,000
195'				60,000

## MISCELLANEOUS CHARACTERISTICS

CRANE MANUFACTURE	CLYDE IRON
MODEL NUMBER	42-DE-145
SERIAL NUMBER	CW 3931
CIRCLE DIAMETER	42' DIAMETER
RIGGING WIRE	5,350' 1 1/4" 6 X 26
MAIN HOIST	700' 1 1/4" 6 X 26
2-PART WHIP	600' 1 1/8" 18 X 19 DY18
WHIP LINE	5,240' 1 1/4" 6 X 26
BOOM (TOPPING GEAR)	360' 1 1/4" 6 X 26
SPUD WIRE	360' 1 1/4" 6 X 26
SIDE SPUD	1,700' 1 1/4" 6 X 26
STERN SPUD	1,700' 1 1/4" 6 X 26
ANCHOR WIRE	40,000 GALS.
STERN ANCHOR'S (2)	3,000 GALS.
BOW ANCHOR'S (2)	(1" = 307 GALS.)
NORMAL FUEL CAPACITY	
NORMAL WATER CAPACITY	





## Marine Contractors

Company: SDS Lumber Company

Vessel: *Future Shipment*

Company did not respond to request for information. Details provided below were included in the CRC NIR for a potential future shipment including a barge and equipment loaded.



## **Commercial Tugs and Tows**

**Owner:** SDS Lumber

**Vessel:** SDS Lumber Barge with Equipment

---





River User Data Sheet

By: Gary Collins Date: 3-13-12

1. Company Name and/or Owner of Vessel and contact information

- a. Name of company: SDS Lumber Co.  
b. Name of contact: Gary Collins  
c. Phone number (Office): 509-493-2155 d. (Cell): 541-490-1370  
e. Email: Gary C @ SDS Lumber . com  
f. Address: PO Box 266  
g. City: Bingen WA  
h. State: WA i. Zip code: 98605

3a. Vessel Name: Darby 3b. Vessel Type: Tug

3c. US Coast Guard Document Number: \_\_\_\_\_

4a. Length Overall (LOA), feet: 86 4b. Beam (width), feet: 28

5. Draft (depth of hull below waterline, fully laden), feet: 8'

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 55'

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 10'

8. Frequency of one-way passage underneath I-5 main channel (typical per month): 10

Jan ☒ Feb ☐ Mar ☐ Apr ☒ May ☒ Jun ☒ Jul ☐ Aug ☒ Sep ☒ Oct ☒ Nov ☒ Dec ☒

9. Frequency of one-way passage underneath I-5 main channel (other historic events): \_\_\_\_\_

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month):

Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): 6



12. Do you have a Business Plan (e.g. 10 or 20 year plan)? What does it say regarding vessels

transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? May we have a copy?

13. Other miscellaneous

Barges That might Be higher  
Then Tug That has Equipment  
Loaded on Them could Be as high  
As 100' ?





## Telephone Conversation Memorandum

project: Columbia River Cross job no. AH. 08.15 date: 15 Aug 2012  
(use complete number)

from: Peter M. Geiger talked to: Gary Collins  
SDSLumber

indicate department, field office, etc., "for in-house" calls.  
indicate agency or firm for other than "in-house" calls.

509-493-2155  
541-490-1370 (cell)

item discussed:

Status of Large Package Barges  
Ability/Permission to Survey Air Draft

LW 8/15/12 1538 PDT

8/16/2012

0915 PDT

Via  
cell phone

information obtained:

9 Barges No Spuds on their Barges

Metal Fab Spud Barge Pushes

Most of their work is pushing other peoples  
barges including Metal Fab (eg Thompson) or Construction  
barges/Crane barges with Spuds. These services  
are on an as-needed basis with nothing scheduled  
in the near term.

action required:

distribution:

--	--	--	--	--	--

by:



## Federal Government

Agency: USACE

Vessel: *Yaquina*

USACE confirmed the information provided during the CRC NIR is still accurate (email confirmation included below). Vessel details that follow were included in the CRC NIR.



**From:** [Hicks, Jeffrey T CIV USARMY CENWP \(USA\)](#)  
**To:** [Brian Carrico](#)  
**Cc:** [Nicole McDermott](#); [Darlene Siegel](#)  
**Subject:** RE: Interstate Bridge Replacement Project - USACE vessels/Navigation needs  
**Date:** Tuesday, June 8, 2021 8:43:19 AM  
**Attachments:** [image001.png](#)  
[image002.png](#)  
[image003.png](#)  
[image004.png](#)

---

Brian,

I did just get a response on the upcoming planned activities from our Operating Project Managers.

The Yaquina looks to be the tallest USACE vessel that we expect to transit through the area. Annual O&M dredging's in water work window is 1 August to 30 September but we need to have the ability to address shoals at any time of year. I believe that's how we landed on the river level + Yaq height clearance in our formal letter to the CRC.

As far as future work goes, our contractors often move equipment and materials via barge to construction projects. For example recent gate replacements, JD AWS electrical building, etc along with the large cranes mobilized to handle these. The largest crane I've heard coming up river was "The General" which I think Kiewit now owns.

I am trying to verify the dimensions of "the General" as well as the largest items we've moved under contract (likely The Dalles or John Day Gates). Otherwise there is nothing planned that would be impacted by the bridge height.

Thanks, Jeff

Jeff Hicks | Portland District Project Manager  
☎: 503.710.8256 | [Jeffrey.T.Hicks@usace.army.mil](mailto:Jeffrey.T.Hicks@usace.army.mil)

---

**From:** Brian Carrico <Brian.Carrico@interstatebridge.org>  
**Sent:** Tuesday, June 8, 2021 8:14 AM  
**To:** Hicks, Jeffrey T CIV USARMY CENWP (USA) <Jeffrey.T.Hicks@usace.army.mil>  
**Cc:** Nicole McDermott <Nicole.McDermott@interstatebridge.org>; Darlene Siegel <Darlene.Siegel@interstatebridge.org>  
**Subject:** [Non-DoD Source] Re: Interstate Bridge Replacement Project - USACE vessels/Navigation needs

Jeff, it has been a few weeks since sending this. I wanted to check in with you to see if you need further information from the team in order to complete this request and/or if you have



an estimate for when we may get the information. Thanks in advance.

Brian

---

**From:** Brian Carrico <[Brian.Carrico@interstatebridge.org](mailto:Brian.Carrico@interstatebridge.org)>  
**Sent:** Thursday, May 13, 2021 10:22 AM  
**To:** Hicks, Jeffrey T CIV USARMY CENWP (USA) <[Jeffrey.T.Hicks@usace.army.mil](mailto:Jeffrey.T.Hicks@usace.army.mil)>  
**Cc:** Nicole McDermott <[Nicole.McDermott@interstatebridge.org](mailto:Nicole.McDermott@interstatebridge.org)>; Darlene Siegel <[Darlene.Siegel@interstatebridge.org](mailto:Darlene.Siegel@interstatebridge.org)>  
**Subject:** Re: Interstate Bridge Replacement Project - USACE vessels/Navigation needs

Jeff - attached is the information provided for CRC.

Brian

---

**From:** Hicks, Jeffrey T CIV USARMY CENWP (USA) <[Jeffrey.T.Hicks@usace.army.mil](mailto:Jeffrey.T.Hicks@usace.army.mil)>  
**Sent:** Thursday, May 13, 2021 10:16 AM  
**To:** Brian Carrico <[Brian.Carrico@interstatebridge.org](mailto:Brian.Carrico@interstatebridge.org)>  
**Cc:** Nicole McDermott <[Nicole.McDermott@interstatebridge.org](mailto:Nicole.McDermott@interstatebridge.org)>; Darlene Siegel <[Darlene.Siegel@interstatebridge.org](mailto:Darlene.Siegel@interstatebridge.org)>  
**Subject:** RE: Interstate Bridge Replacement Project - USACE vessels/Navigation needs

Hey Brian,

Sorry for the slow response. I would be the correct contact to validate this information. I am working with our Navigation team to answer this question but as far as I'm tracking it was just the Yaquina. Hoping I can get you a formal response by tomorrow.

Thanks, Jeff

---

**From:** Brian Carrico <[Brian.Carrico@interstatebridge.org](mailto:Brian.Carrico@interstatebridge.org)>  
**Sent:** Wednesday, May 12, 2021 8:01 AM  
**To:** Hicks, Jeffrey T CIV USARMY CENWP (USA) <[Jeffrey.T.Hicks@usace.army.mil](mailto:Jeffrey.T.Hicks@usace.army.mil)>  
**Cc:** Nicole McDermott <[Nicole.McDermott@interstatebridge.org](mailto:Nicole.McDermott@interstatebridge.org)>; Darlene Siegel <[Darlene.Siegel@interstatebridge.org](mailto:Darlene.Siegel@interstatebridge.org)>  
**Subject:** [Non-DoD Source] Interstate Bridge Replacement Project - USACE vessels/Navigation needs

Jeff,

I am part of the team working on the Interstate Bridge (IBR) Program addressing the USCG permit. We are collecting information on vessel use of the Columbia River and are validating and updating the data provided by the USACE for the prior Columbia River Crossing Project.



The information at that time was provided by Marci Johnson. Would you be the best contact for validating the information? Specifically, I am looking to confirm information on the Yaquina, whether any other USACE vessels would be expected to transit through the area (either North Portland Harbor or the main channel) and whether there are any planned activities at upstream dams would require specific shipments under the bridge in the future.

Thanks in advance. Feel free to call or email if you have questions or need additional information.

Brian

**Brian Carrico**

**Interstate Bridge Replacement Program  
Environmental Program**

**O:** 360-823-6122 | **C:** 360-433-7775

**E:** [brian.carrico@interstatebridge.org](mailto:brian.carrico@interstatebridge.org)

[interstatebridge.org](http://interstatebridge.org)





## **Federal Government**

**Owner:** US Army Corps of Engineers

**Vessel:** Yaquina

---







## River User Data Sheet

By: NWP Dredge OPS

Date: Feb 27, 2012

### 1. Company Name and/or Owner of Vessel and contact information

Name of company: US Army Corps of Engineers, Portland District

Name of contact: Marci Johnson

Phone number (Office): (503) 808-4765

(Cell): \_\_\_\_\_

Email: Marci.E.Johnson@usace.army.mil

Address: 333 SW 1st Avenue, P.O. Box 2946

City: Portland

State: OR

Zip code: 97204

3a. Vessel Name: Yaquina

3b. Vessel Type: Hopper Dredge

3c. US Coast Guard Document Number: CG000073

4a. Length Overall (LOA), feet: 200

4b. Beam (width), feet: 58

5. Draft (depth of hull below waterline, fully laden), feet: 16

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 92

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 8

8. Frequency of one-way passage underneath I-5 main channel (typical per month): based on historical

Jan 2 Feb 2 Mar 2 Apr 2 May 2 Jun 2 Jul 2 Aug 4 Sep 4 Oct 2 Nov 2 Dec 2

9. Frequency of one-way passage underneath I-5 main channel (other historic events): included in 8.

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month):

Jan 0 Feb 0 Mar 0 Apr 0 May 0 Jun 0 Jul 0 Aug 0 Sep 0 Oct 0 Nov 0 Dec 0

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): none

12. Do you have a Business Plan (e.g. 10 or 20 year plan)? provided by letter dated Feb 23, 2012

What does it say regarding vessels transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? \_\_\_\_\_

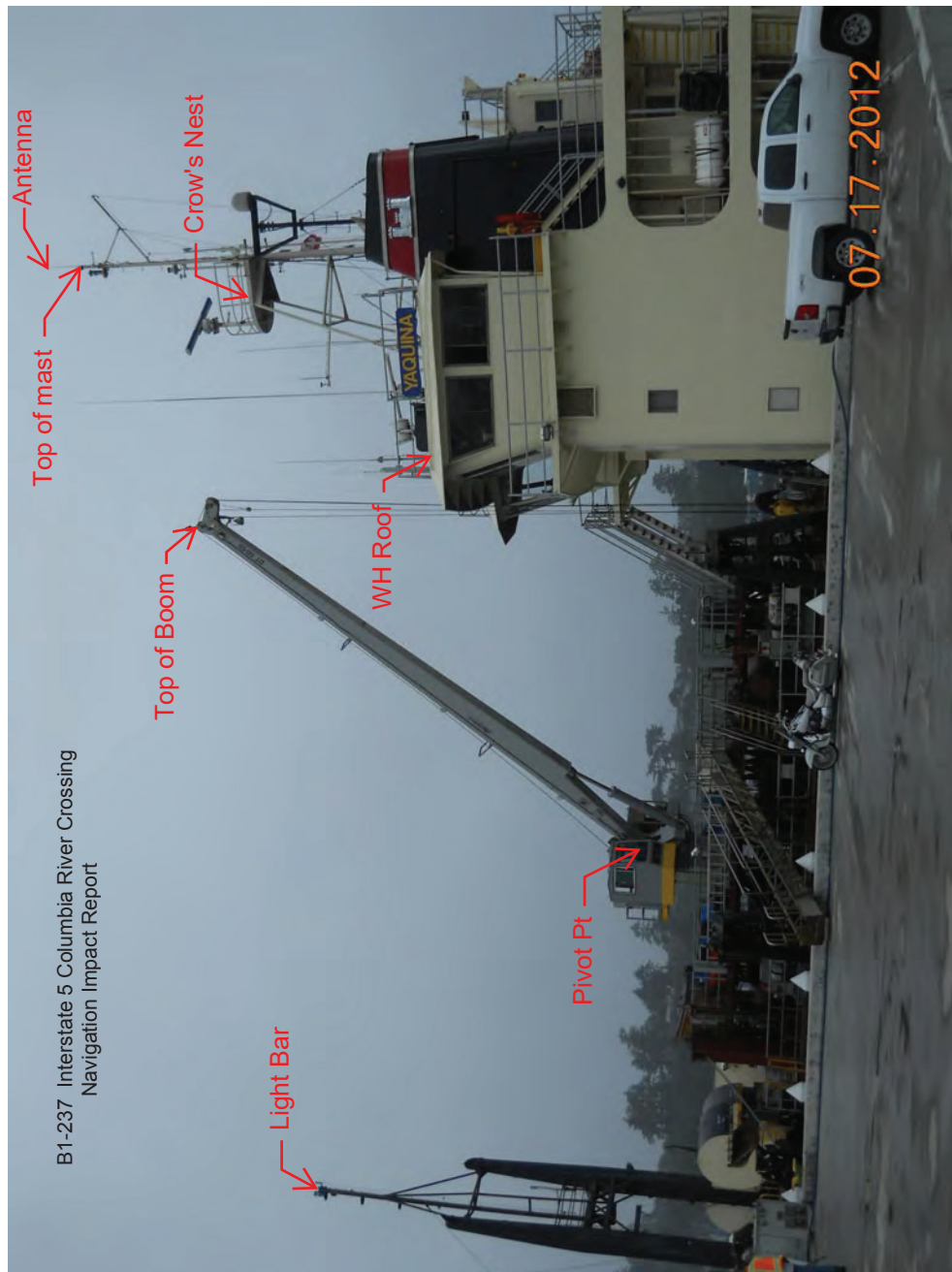
May we have a copy? \_\_\_\_\_

13. Other miscellaneous Historical information provided above does not represent future needs. Future needs were provided to CRC by letter dated Feb, 23

2012. As stated in Feb 23, 2012 letter, to ensure safe passage of the

dredge Yaquina, the minimum bridge height required for current and future operational needs is 116 feet CRD.







Task AH802DE\_CRC Vessel Verification\_071712.xlsx



## Vessel Height Verification Sheet

By: Karl Krcma Date: July 26, 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: US Army Corps of Engineers
- b. Name of contact: Marci Johnson
- c. Phone number (Office): (503) 808-4765 (Cell):
- d. Email: Marci.E.Johnson@usace.army.mil
- e. Address: 333 SW 1<sup>st</sup> Ave, PO Box 2946 City: Portland
- State: OR Zip code: 97204

### 2. Vessel

- a. ID:  b. Name: Yaquina
- c. Type: Hopper Dredge d. USCG Document Number: CG000073

### 3. Vessel Configuration

- a. Identify vessel configuration: Self propelled hopper dredge
- Is a vessel specification sheet available? No
  - Configuration shown on the sheet: N/A
  - What is the lowest height configuration for transport? 92 feet
- b. What is the gantry configuration? N/A Estimated gantry height: N/A
- c. Does the barge have spuds? N/A
- Height above waterline for travel? N/A
  - Can the spuds be removed for travel? N/A
  - Work and cost involved in removing spuds? N/A

### 4. Vessel Location

- a. Where is the vessel currently located? N/A
- b. Is it working on a job? N/A Is it tied up to shore? N/A
- c. What is the best time to make a trip to the vessel? N/A



## 5. Measurements from Spec Sheet

Gantry Height:	N/A
Water Level:	N/A
Top of Boom:	N/A
Height of Boom Hinge Pin:	N/A
Boom Cradle:	N/A
Top of Spud:	N/A

## 6. Vessel Height

Self-Reported		Surveyed	
Air Draft:	92	Air Draft:	90 (draft at bow 12-12.5 and draft stern 11-11.5)
Air Gap:	10	Air Gap:	10
Water Level:	16	Water Level:	16
<b>Total Height:</b>	<b>118 feet</b>	<b>Total Height:</b>	<b>116 feet</b>

## 7. History Notes

Date	Item
2/14/2012	Contacted by Karl Krcma
2/27/2012	River user data sheet submitted
7/17/2012	Surveyed









REPLY TO  
ATTENTION OF

Planning, Programs and Project  
Management Division

**DEPARTMENT OF THE ARMY**  
CORPS OF ENGINEERS, PORTLAND DISTRICT  
PO BOX 2946  
PORTLAND OR 97208-2946

**FEB 23 2012**

Ms. Heather Wills  
Columbia River Crossing  
700 Washington Street, Suite 300  
Vancouver, Washington 98660

Dear Ms. Wills,

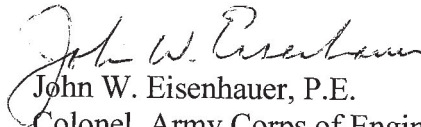
This letter is in response to the Columbia River Crossing (CRC), Interstate 5 (I-5) Project boat survey request for information regarding the Corps Dredges Yaquina and Essayons and our navigational needs upstream of the proposed new I-5 bridge project.

We determined that the proposed bridge height outlined in the Record of Decision would have serious impacts on our federal missions to maintain the navigation channel and provide emergency dredging upstream of the new bridge. After considering dredging requirements and potential future water release impacts to the Columbia River, we determined that the minimum prism needed for the new bridge is a height of 116 feet Columbia River Datum (121.4 NAVD88) for a width of 400 feet. A more detailed explanation of our requirements is enclosed.

We will forward a copy of this letter to Rear Admiral Keith Taylor, Commander 13<sup>th</sup> District United States Coast Guard, Jackson Federal Building, 915 Second Avenue, Seattle, WA 98174-1067, John McAvoy, FHWA, 610 East 10<sup>th</sup> Street, Vancouver, WA 98661; and Dave Hendricks, Multnomah County Drainage District No. 1, 1880 NE Elrod Dr., Portland, Oregon 97211.

We look forward to resolving these navigation concerns to ensure the CRC project does not have any unacceptable impacts to our federal projects. Please feel free to contact me at (503) 808-4500 or Ms. Marci Johnson of my staff at (503) 808-4765 or via e-mail at [marci.e.johnson@usace.army.mil](mailto:marci.e.johnson@usace.army.mil).

Sincerely,

  
John W. Eisenhower, P.E.  
Colonel, Army Corps of Engineers  
District Commander

Enclosure





**US Army Corps  
of Engineers®**  
Portland District

**U. S. Army Corps of Engineers Federal Navigation Channel Maintenance Needs  
Columbia River Crossing (I-5 Interstate Bridge at Vancouver, WA)  
February 2012**

**Summary:**

**Minimum prism needed for new bridge is height 116 feet Columbia River Datum (CRD) (equal to 121.4 feet NAVD88) for width 400 feet (channel width of 300 feet plus 50 feet on each side of the channel).**

Authorized project:

- The federal Navigation Channel immediately upstream of the Columbia River Crossing is authorized to 27 feet deep and 300 feet wide from Vancouver, WA, to The Dalles, OR. This channel supports the Columbia-Snake river system and transportation of 10 million tons of cargo annually. It is the largest wheat/barley export gateway in the U.S. and the third largest grain export gateway in the world.

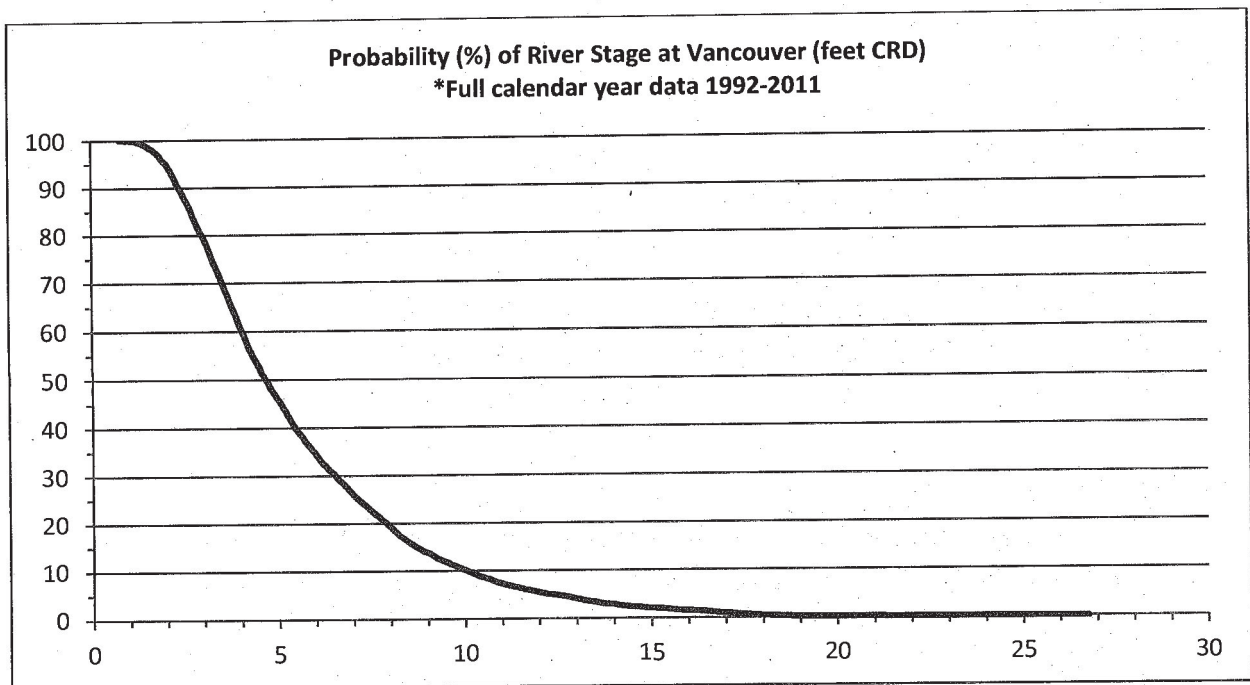
Minimum bridge prism reasoning:

- The Corps' Dredge *Yaquina* performs annual channel maintenance dredging. The minimum prism needed for the new bridge is the vertical clearance required for this dredge to pass safely under the bridge at a specified river water level above CRD, and the horizontal clearance required for maintenance of the channel under the bridge.
- 

**Vertical clearance discussion:**

- According to the USCG-licensed captains of the Dredge *Yaquina*, a 100-foot minimum vertical clearance from top of water to bottom of bridge is required (draft of 9 feet below the waterline gives a height of 92 feet above the waterline, plus an 8-foot minimum safety gap).
- The environmentally protective in-water work period as established by Federal and State agencies has changed in the past, and could continue to change as new species are listed, requiring work to be done during periods of higher river flow and stage.
- Year-round river flow levels must be considered as emergency operations could be required at any time. The probability of a river stage is shown below, using available data from the past 20 years.





- The uncertainty of future water levels must be considered. As part of the Columbia River Treaty Review, the Corps is collecting new data and performing studies to evaluate maintaining or potentially changing current levels of regulation for flood risk protection in this region of the Columbia River basin. The National Marine Fisheries Biological Opinion for the Federal Columbia River Power System also requires the Corps to spill water at its Columbia River dams to support salmon survival. These factors may lead to future operations resulting in elevated river levels (closer to ordinary high water) for longer durations compared with the past 20 years. Current Regulatory ordinary high water level at the Columbia River Crossing is 16 feet CRD (equivalent to 21.4 feet NAVD88).
- Bridge lift records show the lift height in feet above zero at the bridge pier elevation (39 feet CRD). Recent records show that the median lift for the Dredge *Yaquina* is 100 feet (equal to 139 feet CRD). The maximum lift shown was 136 feet (175 feet CRD). The minimum lift shown was 90 feet (129 feet CRD). Water levels shown on bridge records corresponding to these lifts ranged from 1 to 12 feet CRD.

Vertical clearance conclusion: A minimum vertical height of 116 feet CRD (121.4 feet NAVD88) is required. Year-round river level data from the past 20 years indicate that river levels were at or below 16 feet CRD approximately 98 percent of the time. Future river operations will likely increase river levels up to ordinary high water (16 feet CRD) for longer periods. Adding the 100-foot vertical clearance from waterline to bridge required for the Dredge *Yaquina* to 16 feet CRD yields a minimum vertical bridge height requirement of 116 feet CRD (121.4 NAVD88).



Horizontal clearance discussion:

- The Corps practices advanced width maintenance dredging (dredging up to 50-100 feet outside the channel width) to provide an area outside the channel for unstable side slope sloughing so that the full channel width remains clean.

Horizontal clearance conclusion: A horizontal width of 400 feet CRD is required at the vertical height specified above. This width includes the channel width (300 feet) plus 50 feet additional width on each side of the channel for advanced width maintenance dredging.



## Marine Industries and Fabricators

Company: Greenberry

Company provided the following information to the IBR Program.



## EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** Greenberry Industrial LLC

**Vessel Name:**

Third-party

**Vessel Type:**

Barge and Tug

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): Yes

Tugboat towing barge

**Vessel Category:** Commercial

**USCG Document Number:**

Third-party

**Primary Mooring Location** (*waterway milepoint, if known*):

N/A

**Type and quantity of cargo, if applicable:**

Modules, Process modules, piperacks, MCC buildings, Alaska Sealift Modules, Drill Rigs, Pressure Vessels, Shiploaders, Piling Templates, Vessels, Bridge Girders, Bridge Components, Railroad Bridges, DOT Bridge Sections, Autoclaves, Slugcatcher Vessels, Port Assemblies, Material Handling Systems, Conveyor Systems, Dock Sections, Bridge Maintenance Travelers, and various other over-dimensional fabricated items.

**Length (overall; ft):**

650 Feet

**Beam (width; ft):**



**VESSEL DATA SHEET, CONT.**

**120 Feet**

---

---

**Draft (ft)** - *depth of hull below waterline, fully laden:*

**18ft**

---

---

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

**136 Feet**

---

---

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

**1 Foot**

---

---

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

**10 Feet?**

---

---

**Transit speed under Interstate Bridge and Load Configuration:**

**10-12kts MAX**

---

---

**Time of Year of Passage:**

**Year round**

---

---

**Tug Assistance Required:Yes**

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**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_1\_\_\_ Feb \_\_\_1\_\_\_ Mar \_\_\_1\_\_\_ Apr \_\_\_1\_\_\_ May \_\_\_1\_\_\_ June \_\_\_1\_\_\_

Jul \_\_\_1\_\_\_ Aug \_\_\_1\_\_\_ Sep \_\_\_1\_\_\_ Oct \_\_\_1\_\_\_ Nov \_\_\_1\_\_\_ Dec \_\_\_1\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_0\_\_\_ Feb \_\_\_0\_\_\_ Mar \_\_\_0\_\_\_ Apr \_\_\_0\_\_\_ May \_\_\_0\_\_\_ June \_\_\_0\_\_\_

Jul \_\_\_0\_\_\_ Aug \_\_\_0\_\_\_ Sep \_\_\_0\_\_\_ Oct \_\_\_0\_\_\_ Nov \_\_\_0\_\_\_ Dec \_\_\_0\_\_\_



## Marine Industries and Fabricators

Company: Thompson Metal Fab

Company provided the following information to the IBR Program.



# **Interstate Bridge Replacement Project**























Thompson Metal Fab – Impact Statement

May 26, 2021

**Presented by John Rudi**

Owner, President – Thompson Metal Fab



	<b>INTRODUCTION .....</b>	<b>1</b>
	<b>COLUMBIA BUSINESS CENTER .....</b>	<b>2</b>
	<b>THOMPSON METAL FAB .....</b>	<b>4</b>
	<i>Marine/Hydro .....</i>	<i>5</i>
	<i>Tanks/Vessels.....</i>	<i>8</i>
	<i>Bridge.....</i>	<i>9</i>
	<i>Modular/Structural.....</i>	<i>11</i>
	<i>Oil &amp; Gas .....</i>	<i>14</i>
	<b>LOCAL BENEFIT &amp; LOOKING AHEAD .....</b>	<b>24</b>
	<i>Willow Expansion/Pikka Expansion/Horseshoe Unit .....</i>	<i>26</i>
	<i>Aerospace.....</i>	<i>28</i>
	<i>Offshore Wind and Wave.....</i>	<i>30</i>
	<i>Burnside Bridge .....</i>	<i>32</i>
	<i>Golden Gate Bridge Seismic Retrofit.....</i>	<i>33</i>
	<i>West Coast Moveable Bridges .....</i>	<i>33</i>
	<i>Hydroelectric Maintenance Projects.....</i>	<i>33</i>
	<i>Desalination in California.....</i>	<i>35</i>
	<i>Wartime Efforts.....</i>	<i>35</i>
	<b>IN CLOSING .....</b>	<b>35</b>
	<b>ATTACHMENTS</b>	
	<b>APPENDIX A – Bridge Clearance Visual Aid</b>	
	<b>APPENDIX B – River Usage Data</b>	
	<b>APPENDIX C – Photo Gallery</b>	



## **INTRODUCTION**

The history of Thompson Metal Fab includes two major influences, the opening of the Interstate Bridge in 1917, and the opening of the Columbia Business Center (*originally Henry Kaiser's Vancouver Shipyard*) in 1942. Over the years, Thompson Metal Fab (TMF), the Columbia Business Center (CBC) and the Interstate Bridge will see their history evolve due to the changing needs of the region, rapid population growth, and dynamic industrial development. For these same reasons, their history also begins to connect, and their futures are tied together.



*The original Thompson Metal Fab facility, shown in 2018. Thompson moved from this location and to Vancouver in the early 1970's. The old facility has since been demolished, making way for the brand new Meyer Memorial Trust building.*



*Original span of the Interstate Bridge opened 1917 – shown here in 1931.*

The original Interstate Bridge (current day northbound span) was completed and opened in February of 1917. Upon completion of this span, travelers could go from Canada to Mexico on one complete roadway. This was not only a big accomplishment for the country, but it was also an opportunity for growth, specifically in southwestern Washington. At the time the bridge was opened, there were approximately 250,000 people in Portland, compared to the 12,000 in Vancouver. The new bridge would provide opportunity for dynamic population movement, economic growth, and forever connect not only two states, but two communities. To satisfy the needs of this expanding community, a second 'twin' span was eventually completed and opened in 1958.

With a clearance of 72 feet, most river barges can pass under the bridge without impact when the drawbridge is closed. This is not the case with large industrial projects, like those manufactured currently by Thompson Metal Fab, or for large vessels, like the Liberty and Victory ships from the early 1940's. At full height, the current lift span can accommodate 178' from the water to the underside of the bridge. This "air gap" allows very large loads to pass upriver and downriver and has driven the development of upstream industrial areas such as the Columbia Business Center, originally known as Henry Kaiser's Vancouver Shipyard.



**COLUMBIA BUSINESS CENTER (former Kaiser Vancouver Shipyard)**



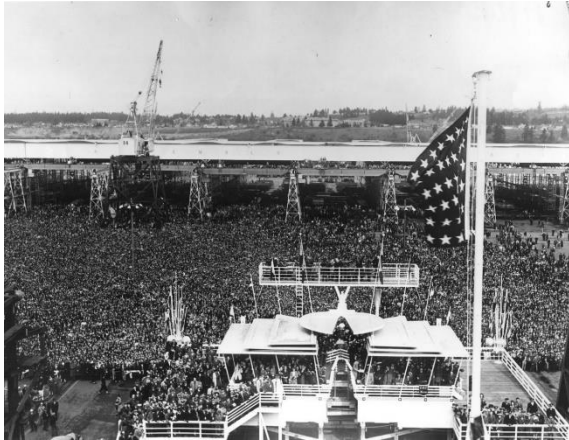
*Building 40 and 41 of current day Thompson Metal Fab is shown prominently in the middle of this picture. At the time this picture was taken (circa early 1940's) the building and entire industrial area would have been known as Kaiser's Vancouver Shipyards.*

At nearly 200-acres, Kaiser's Vancouver Shipyard began production in early 1942 with an initial payroll of 38,000 workers. This facility, along with two in Portland, produced 752 ships during WWII and peaked at 97,000 workers in total. Many of these workers migrated from other parts of the country and is part of the reason why the Portland/Vancouver area saw such a big jump in population at this time. The development of these shipyards certainly contributed to the need for a new span (eventually built and completed in 1958) and the need to modify the original span, completed in 1960. For perspective on what these facilities were able to produce, the construction on the first Liberty ship took 131 days in 1941. By 1943, Kaiser workers were averaging a completed Liberty ship in 42-days and three ships were being completed each day. Record production for a completed ship was 10-days, although that production was bested by one of the Kaiser facilities in Richmond, CA (4-days, 15-hours, 29-minutes).



*[1943] Escort carriers at the Vancouver Shipyards (current day Thompson Metal Fab)*





*75,000 people (largest crowd in Clark County's history) assembled on April 5, 1943 to witness first lady Eleanor Roosevelt christen the 'Alazon Bay' escort aircraft. Current day Thompson Metal Fab is seen prominently in the background.*

drive opportunity to the Columbia Business Center as oil companies looked for fabricators to build "jacket liners" for new offshore wells. The facility could support the work on the massive infrastructure and the bridge was high enough to allow the jacket liners to be shipped downstream.

The 1960's and 1970's saw the construction of new dams on the Columbia River and Snake River in addition to the development of major oil fields in Alaska (i.e. Prudhoe Bay). Ongoing work on the US Interstate Highway System also provided opportunity for new bridges, including four highly visible bridges in Portland: Morrison Bridge (1958), Marquam Bridge (1966), Freemont Bridge (1973), and the Glenn L. Jackson Memorial Bridge (1982). These would be opened to accommodate a shifting population and to relieve pressure on traffic crossing the Interstate Bridge.

After the war ended and the need for shipbuilding diminished, learning how to leverage these 'abandoned' facilities for future industrial growth was important. The size of the facility at the Vancouver Shipyard was simply greater than most fabrication shops of the day. Even now, it remains one of the largest fabrication facilities on the West Coast. The sheer size of the building, access to a large yard, and location to a major waterway made the facility at the future Columbia Business Center an extremely attractive option for the large infrastructure needs that were coming.

The Portland/Vancouver Metro area became highly industrialized by the 1960's, driven by the ability of the Columbia Business Center and companies such as Thompson Metal Fab. This strong local economy centered around logging, pulp & paper products, and maritime transport on the Columbia River; and stimulated additional growth in the region. The California oil boom would also



*Infrastructure for the California offshore oil fields being manufactured at the Columbia Business Center in 1967. Thompson Metal Fab would begin operations here a few years later in 1973.*



## **THOMPSON METAL FAB**

In 1937, “Pudge” Thompson opens ‘Thompson Metal Fab’ at 2405 Vancouver Avenue in Portland, OR. The opening of his facility comes 20-years after the opening of the Interstate Bridge while also pre-dating the second span by 20-years.



*Original marketing display of the Thompson Ice Tongs*

The origin story of Thompson Metal Fab is a humble one, especially compared to the work they do today. Pudge and his craftsmen manufactured lightweight metal products for the dairy and timber industries. One product, the Thompson Ice Tongs, held US patent #D206,091 and a quick Google search shows that the Thompson Ice Tongs are still selling online to this day. Thanks in part to the WWII war effort, expansion of TMF continued during the 1940's and 1950's; mirroring the growth of the community it served and the new industrial opportunities.

In 1973, after 36 years, Pudge Thompson sold his company to Harder Mechanical, whose story is like TMF's. Harder began as a small local plumbing contractor who was founded in 1934. A few years later they reinvented themselves so they could build housing for the workers at the Portland area shipyards during WWII. As the region continued to see growth, so did Harder who saw the acquisition of Thompson Metal Fab as a way to expand their capabilities and stake a claim on some of these emerging industries (i.e. hydroelectric dams). Shortly after the acquisition, the original Thompson Metal Fab facility (Portland, OR) was closed for good, and all operations were moved to the old Kaiser Shipyard in Vancouver, WA – a facility well suited to support the large projects Harder Mechanical would earn as they grew and expanded.

Thompson Metal Fab would transfer ownership again in the early 2000's with even more emphasis on how to maximize the capacity. The size of the facility requires TMF to be a diversified business and one with experience in multiple disciplines, including:

**Marine/Hydro**



**Tanks/Vessels**



**Bridges**



**Modular/Structural**



**Oil & Gas**





Since the early 1970's, TMF has completed countless projects while working over 10-Million man-hours (*estimated*). The following list showcases some of the completed projects over the last 40+ years. In each case, transportation by barge was required (either by design or necessity), and in many cases the load passed under the Interstate Bridge.

*Projects noted with (\*) were not completed by Thompson Metal Fab but are on this list to showcase examples of other mega projects where a facility like Thompson's was required (Big shop, assembly yard, barge loading capabilities)*



## MARINE/HYDRO

### The Dalles Dam, Downstream Navigation Lock Miter Gates, Columbia River, WA/OR, USA [2011]

*Two Miter Gates were manufactured, where each gate measured 52' W x 106' L and weighed 1-Million pounds each. Due to navigational lock closures on the Columbia River, an aggressive fabrication and delivery schedule was required which required a fabricator with ample space and ability to load a barge. Picture to the right shows one gate getting ready to be loaded on the barge. Seen in the background is Parker Drilling Rig 272 & 273. Those rigs would ship just a few months after this load.*



### Lower Monumental Dam, Downstream Navigation Lock Lift Gate, Snake River, WA, USA [2010]

*The finished weight of this structure was 1.5-Million pounds and would ship to the jobsite by barge in three segments. The final gate is 88' W x 84' H*

### Ice Harbor Dam, Removable Spillway Weir, Snake River, WA, USA [2005]

*This removable spillway weir is designed to move juvenile fish more efficiently through the dam spillways. The unit measured 70' in width x 68' in height x 105' in length. It weighed 950-tons and is taller than Thompson's facility! The weir was completely fabricated at TMF and then transported by barge to Cascade General for repositioning before shipping to the jobsite on the Snake River.*





Lower Granite Dam, Removable Spillway Weir, Snake River, WA, USA [2001]

*The removable spillway weir is designed to move juvenile fish more efficiently downstream through the dam spillways. The weir was 83' wide x 61' deep x 115' long and weighed approximately 1,000-tons. The weir was completely fabricated at TMF and then transported by barge to Cascade General for repositioning before shipping to the jobsite on the Snake River.*



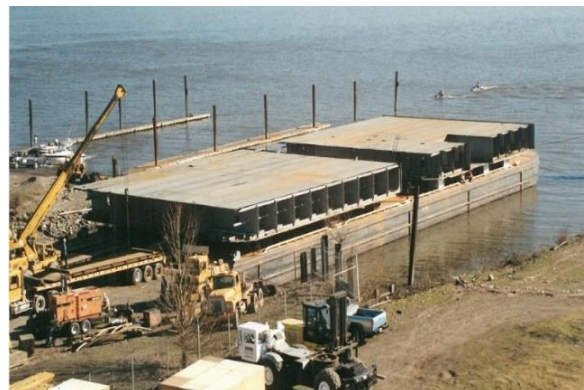
Esperanza 124 MW Power Barge [1999]

*Recently retrofitted in 2017 in Panama, it was originally fabricated in 1999 by Thompson Metal Fab, and transported to Cascade General in Portland, OR for final assembly and functional testing. The barge measured 105' wide x 30' deep x 284' long with a weight of 1,800-tons. The completed barge was loaded on a 400' L x 100' W barge for delivery to Cascade General.*



Golmar Explorer Ship Conversion [1997]

*In 1997, Thompson fabricated multiple items for the infamous Golmar Explorer ship which was developed for the CIA and at the direction of Howard Hughes. By the mid-1990's the ship had changed hands a few times over and was in the process of being converted into an oil drilling vessel. TMF fabricated two double-bottom sections, four thruster tubs, vessel exhaust stacks, and manifold systems for this project. Completed components were transported by barge from TMF to Cascade General Shipyard.*





John Day Dam, Upstream Navigation Lock Gate, Columbia River, WA/OR, USA [1991]

*This gate was fabricated at the Columbia Business Center. The gate measured 28' deep x 80' high x 120' wide and weighed 105-tons. It was transported standing (80' high) for installation purposes.*

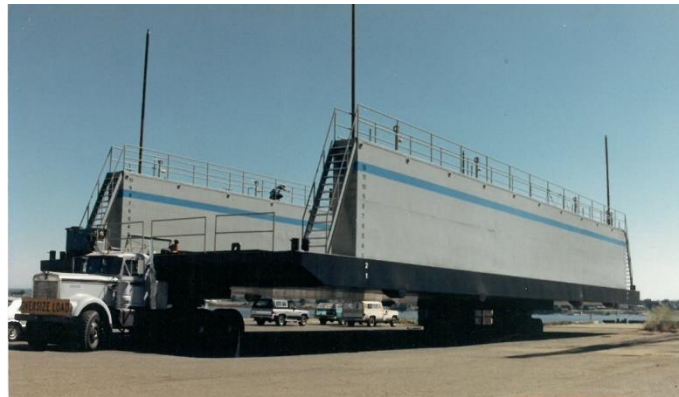
Pacific Marine Hull Fabrication, Honolulu, HI, USA [1989]

*TMF fabricated a 365-ton "SWATH" (Small Waterplane Area Twin Hull) excursion vessel. The fabrication consisted of twin cigar-shaped hulls that were 9' in diameter and 132' in length with vessel beams measuring 53'. Thompson's location adjacent to the Columbia River proved valuable for launching the vessel. After sea trials, the "Navatek" vessel headed to Hawaii. The vessel is still operating today.*



Christensen Shipbuilders, Dry Dock, Vancouver, WA, USA [1987]

*210' long dry dock was fabricated by TMF, including all walls, deck, ballast tanks and piping*



Columbia River Barge Conversions [1979-1971]

*Thompson converted barges to carry wood chips in support of the pulp and paper mills. The converted barges were fabricated to ABS and USCG standards. Projects were installed at our adjacent dock and barge facilities.*

Alaska Ferry Conversion [1973]

*Thompson Metal Fab supplied an exhaust funnel, solarium structure and modular subcomponents for the passenger ferry that travels the Inland Passage to Alaska. The existing ferry was cut in half and lengthened, with TMF fabricating all components for this major renovation. All items delivered by barge to the shipyard.*

Other Examples Include:

- WSDOT Coleman Dock Improvements [2023] \*
- Ballard Lock & Dam, Navigation Lock Center Miter Gates, Lake Washington, WA, USA [2022] \*



- John Day Dam, 150-Ton Gantry Crane, Columbia River, OR/WA, USA [2022] \*
- McNary Dam, Intake Bulkhead Gates, Columbia River, OR/WA, USA [2022] \*
- Port of Alaska Petroleum & Cement Terminal Expansion, Anchorage, Alaska, USA [2021]
- Ward Cove Ferry Dock Expansion, Ward Cove, Alaska, USA [2020]
- WSDOT Mukilteo Dock Improvements, Mukilteo, WA, USA [2020] \*
- The Dalles Dam, Upstream Navigation Lock Radial Gate, Columbia River, OR/WA, USA [2016] \*
- Lower Granite Dam Expansion, Snake River, Washington, USA [1987]
- Revelstoke Dam, Columbia River, British Columbia, Canada [1984] \*
- Bonneville Dam Expansion, Columbia River, Oregon, USA [1981] \*
- Brownlee Dam Expansion, Snake River, ID/OR, USA [1980] \*
- American Falls Dam Replacement, Snake River, ID, USA [1978] \*
- Ice Harbor Dam Expansion, Snake River, Washington, USA [1976] \*
- Grand Coulee Dam Expansion, Columbia River, Washington, USA [1974] \*
- Mica Dam, Columbia River, British Columbia, Canada [1973] \*
- John Day Dam, Columbia River, WA/OR, USA [1971] \*
- Little Goose Dam, Snake River, Washington, USA [1970] \*
- Lower Monumental Dam, Snake River, Washington, USA [1969] \*



## TANKS/VESSELS

### Phillips 66 Prefractioner Tower, Rodeo, CA, USA [2015]

*The 200-ton tower stretched 126' Long and transitions from 10'-6" diameter at the smallest to 17'-0" at the largest. The vessel was manufactured in three separate sections before being married together at Thompson's shop. The vessel shell and heads are made from clad plate which provides the necessary strength while also providing the required corrosion protection on the interior. For final acceptance, nearly 120,000 gallons of water was pumped into the vessel for a leak test. The vessel was pressurized over a period to ensure that all welds were water-tight.*





REC Solar Grade Silicon Project, Moses Lake, WA, USA [2007]

*Thompson Metal Fab manufactured a total of 10 process vessels for the solar grade silicon industry. The project included four vessels which required barge transportation due to their size. Those vessels were 150" ID x nearly 120'-0" L and weighed over 200,000 LBS/ea. Vessels were barged to Pasco, WA and then shipped over the road to Moses Lake.*



**BRIDGE**

Sellwood Bridge, Portland, OR, USA [2016]

*Thompson's scope of supply included fabrication of all major bridge components: Arches, Arch Cross-frames, Vertical Spandrels, and the Bridge Deck Steel. Over 5,000-tons in total. The distinctive feature of the bridge are the three arches which cover 1,275' of the total 1,976' crossing. Each arch was fabricated in segments, with each segment 100' long. Because of the project's location on the Willamette River, steel was delivered to the jobsite with seven barge loads. Multiple barges can be seen here with incoming steel deliveries.*





Bay Bridge Connector, Bay Area, CA, USA [2006]

*TMF painted two orthotropic tub girders that were fabricated at the Columbia Business Center. Each weighed more than 1,600-tons and measured over 200' L x 80' W. Girders were transported by barge to the Bay Area for erection.*

Richmond San Rafael Bridge, Bay Area, CA, USA [2004]

*10,000 tons of structural bridge steel for the substructure was supplied for a seismic retrofit. Total fabrication took three years to complete. Larger components were transported by barge and direct to the jobsite.*

Tri-Met Terry Moore Pedestrian Bridge, Portland, OR, USA [1996]

*Fabricated at the Columbia Business Center, TMF painted the pedestrian bridge spanning HWY 26 near the HWY 217 junction. Completed sections were shipped by barge to a nearby location before being trucked to the jobsite.*

1<sup>st</sup> Ave & Duwamish Bascule Bridge, Seattle, WA, USA [1996]

*Completed truss sections for this project were fabricated at the Columbia Business Center, painted by Thompson, and assembled at the facility. Transportation to the jobsite in Seattle was done over the water, by barge.*

Nimitz Freeway, Bay Area, CA, USA [1995]

*This project consisted of (13) curved tub girders for the reconstruction of the Nimitz Freeway in the Bay Area. Girders were fabricated at the Columbia Business Center and painted by TMF. The total project weighed 6,000-tons with the largest girders weighing 450-tons; 50' W x 250' L. This project required four barges for delivery to jobsite..*

I-90 East Channel Bridge, Seattle, WA, USA [1986]

*Trapezoidal tub girders that varied from 98' to 198' in length and weighed between 60 and 200-tons each were fabricated at the Columbia Business Center and painted by Thompson Metal Fab. Girders were pre-assembled and completed sections loaded on a barge for transport to Lake Washington.*



Other Examples Include:

- BNSF Bridge 66.4 Replacement, Cook, WA, USA [2020] \*
- BNSF Bridge 58.8 Replacement, Home Valley, WA, USA [2019] \*
- Wittpenn Bridge, Jersey City, NJ, USA [2017] \*
- Sauvie Island Bridge, Portland, OR, USA [2004] \*
- Glenn L. Jackson Bridge, WA/OR, USA [1982] \*
- Freemont Bridge, Portland, OR, USA [1973] \*





## MODULAR/STRUCTURAL

### Intel Expansion, Hillsboro, OR, USA [2010's - Present]

*Expansion at the Intel facility in Hillsboro has been going on for some time and Thompson has supplied numerous modular structures in support of their effort. In 2020, TMF shipped the largest modules to date, buildings that were 44' W x 97' L x 16' H. Due to their size, the buildings could break apart in half, but still required a barge to get from TMF's facility to the jobsite as shipping over the road was not an option.*



### Caltrans, East Tie-In Project, Bay Area, CA, USA [2008-2009]

*Thompson was selected by Caltrans (owner) to work with TY-Lin (designer), CC Myers (contractor) and DCCI (erector) to fabricate 3,100-tons of temporary steel to provide detour for the Oakland Bay Bridge at Yerba Vista Island. Thanks to the size of their facility TMF could meet the 'expedited' schedule requirement for this project. Major components required four barge loads from TMF's facility to the job-site in California. Project was completed in 2009.*

### OHSU Tram, Portland, OR, USA [2006]

*TMF fabricated the center support tower, the lower station, and the upper station for the tram project. The major components were transported by barge from TMF to the jobsite in Portland, OR where they were offloaded and erected.*







*The team at Thompson Metal Fab standing in front of base of the iconic Portland Aerial Tram mid-tower. The tram is located at the OHSU hospital in Portland and spans across I-405. The tower base is over 40' high as shown in this picture.*

Alaska Gold Mining Project, Nome, Alaska, USA [2005]

*Thompson fabricated hoppers, grizzly grates, ball mill chutes, structural supports, modification of the ball mill, and other mining equipment for this project. TMF's facility was used for the marshaling yard and the load out point for all equipment and structures. Delivery was made via barge to Nome, AK.*

Boeing Delta IV Launch Table,  
Vandenberg AFB, CA, USA [2003]

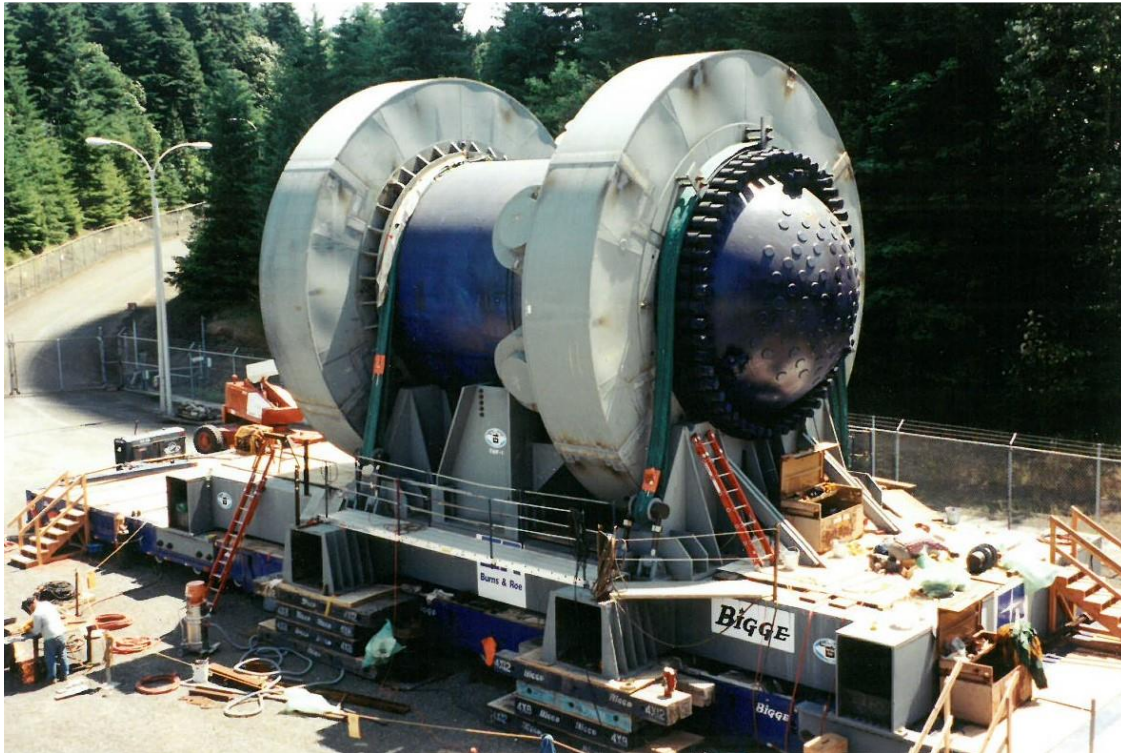
*The 98' long x 33' high x 46' wide launch table weighed 580-tons. The project also included large flame deflector components which weighed up to 120-tons. The launch table and flame deflectors were fully assembled at the TMF facility and transported by barge to Vandenberg Air Force Base in California. It was then off-loaded and installed at the launch site.*





PGE Decommissioning Trojan Nuclear Reactor Project, Rainier, OR, USA [1998]

*TMF fabricated a 120-ton transport structure and 5" THK shielding enclosures. The completed structures were shipped by barge to the jobsite where the decommissioned reactor was loaded. The entire load was then shipped by barge to the final storage location at Hanford – Richland, WA.*



Powell River Paper Company, British Columbia, CANADA [1991]

*Thompson supplied the fabricated steel for a Chlorine Dioxide Module that measured 35' wide x 76' high x 35' long. This module weighed 350-tons and was transported by barge in the vertical position from TMF's facility in Vancouver, WA to the Power River Paper Company in British Columbia, Canada.*

Georgia Pacific Wood Chip Material Handling System, Toledo, OR, USA [1973]

*TMF fabricated six 280' tube conveyor sections and all support towers for this project. The completed structures were transported by barge to Toledo, OR and installed.*





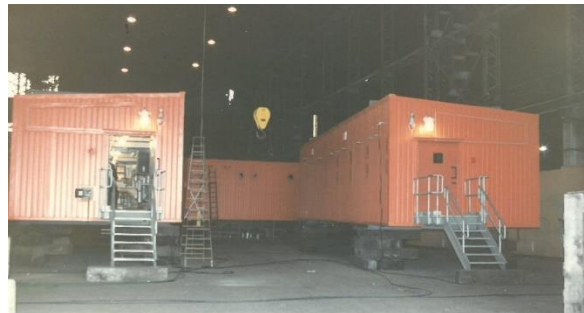
Other Examples Include:

- Data Centers, The Dalles, OR, USA [2010's – Present] \*
- Data Centers, Hermiston, OR, USA [2010's – Present] \*
- Pre-Heater Tower, Richmond, British Columbia, CANADA [1997]
- Portland Expo Center, Portland, OR, USA [1995]
- Bulk Material Handling System, Sacramento, CA, USA [1993]
- Newport Bay Floating Restaurant, Portland, OR, USA [1986]



**OIL & GAS**

The turnkey modular service TMF offers today reflects what kicked off in the 1980's. By that point work at Prudhoe Bay was ongoing, but the infrastructure needed to support the development was still in process. In 1984, Thompson supported ARCO by manufacturing two 96-room housing modules. Each module was 40' wide x 46' high x 80' long. In addition, two Utilidor Modules were manufactured (*each 10' W x 22' H x 24' L*). In 1985, more infrastructure was sent to ARCO; these 'bases' were 33' wide x 100' long x 10' high. Thompson also supported Conoco's Milne Point unit in 1985 with the supply of (10) module bases and (11) skids. These structures weighed anywhere from 20 to 270 tons each, with a max dimension of 64' W x 123' L x 12' H. Manufacturing structures of this size and delivering complete to the jobsite seems strange in the lower-48, but given the expanse of the North Slope, it's well suited to receive large infrastructure without other physical limitations to navigate. Additionally, with as fast as the development was happening, there was a value placed on 'set it and leave it' projects; things that could be installed and immediately put-to-use.







*Massive platforms for the Alaska oilfields being fabricated at Thompson Metal Fab in the mid-1980's. The platforms nearly took up the entire width of a bay (80')*



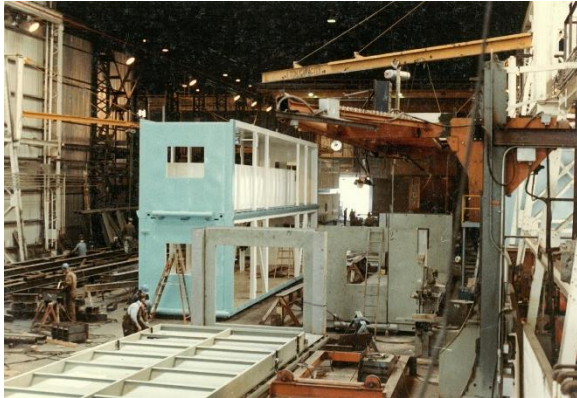
*The platforms (seen left) were delivered by barge to Alaska where high capacity trucks and dollies (shown above) off loaded the structures for delivery to the jobsite.*

Thompson's experience in supplying the oil fields eventually led to connections with the drilling contractors. The drilling contractors work on behalf of the owners to drill production wells and test holes as part of the exploration process. Drillers operate large equipment (known as rigs) to drill the holes. Thompson's first experience with rigs started in the late 1980's with Pool Arctic (*now Nabors Drilling*) who was a drilling contractor working on Alaska's North Slope. At one point, Pool Arctic operated the largest fleet of drill rigs on the North Slope. When TMF began working for Pool, they were looking to expand their fleet to meet market demand. This required retrofitting current rigs due to advances in equipment technology and drilling conditions that surpassed the capability of their rigs. Retrofitting works the same way as a new-build, only backwards. In a retrofit, the rig is placed on the barge and then shipped to a location large enough to receive it over the water and with enough yard space to accommodate the work. There are very few facilities on the West Coast who can accommodate this. Retrofits are just as attractive to TMF as new-builds. During a retrofit it is not unusual for some level of "rigging down" to happen and for structures to be placed in the shop. In that circumstance, it is very attractive to contractors to work with a facility large enough to handle these structures and keep them under the roof and out of the elements.



*AADCO merged with Pool Arctic in 1983 and provided the rig shown above as part of the merger. This rig would be retrofitted by TMF.*





*Modular fabrication at Thompson Metal Fab for a Pool Arctic retrofit. The modules shown here represent the scale of a 'truckable' module, typically 12' H x 10' W x 40' L*

Traditionally, drill rigs are built by manufacturing a series of truckable modules. These modules are fully assembled at the manufacturer's yard for verification, testing, and commissioning. Upon approval, the rig is completely disassembled for transportation to the jobsite. "Rigging up" is the process by which all these truckable modules are then reconnected together and recommissioned. Depending on the size of the rig, it is not unusual for 200 truckloads to be needed to move from the manufacturing location to jobsite. The process of putting a rig back together in remote locations can take months and cuts into production time. The ability to offer a turnkey service and integrate work in Thompson's shop and in their yard ultimately saves money in the long run – and contractors and owners have come to expect the capacity TMF can

offer. During the early development of Prudhoe Bay in the Arctic, machinery and field services were limited and getting the required equipment to the jobsite required creative solutions. Field work is expensive and risky; and often there is limitations to what can be performed. Thompson can build larger modules for delivery, which provides a distinct advantage by minimizing costs in the field and minimizing risk.

Parker Drilling was one of the first contractors who recognized that one solution to the problems on the North Slope was to simply to deliver a *bigger* rig. A bigger rig would be capable of holding more robust equipment which would allow for drilling longer, bigger holes for greater production. The benefit of drilling longer holes is that you do not need to move the rig from pad to pad as frequently; you can cover a lot more ground from just one spot. They understood the importance of downtime and the full capacity of what TMF could offer with regards to turnkey modular fabrication. The design for Parker Drilling's Rig 245 swapped out the multiple, smaller, truckable



*A large module for Parker Drilling Rig 245 moving from TMF's shop to their yard for assembly. Seen in the background is the mast and substructure of this massive drilling rig.*



*Rig 245 shown here at the assembly yard. When fully raised, the mast hangs high in the Vancouver, WA skyline.*



modules and consolidated them into fewer 'mega modules.' Less modules simply take less time to put back together in the field. What could be 4-6 months in field work could now be up and running in weeks. Also, by eliminating trucks, the risk of loads being damaged during transport is reduced dramatically. Parkers' vision of 'mega modules' required a facility that offered a few things: a big shop, big yard, skilled workforce, access to water for shipping, and a logistically friendly location.



*Parker Drilling Rig 245 being 'rigged up' at Thompson Metal Fab's yard. This yard space is immediately adjacent to the manufacturing facility and to the roll-on/roll-off barge slip. The ability to offer turnkey projects and delivery via water has given Thompson Metal Fab an advantage in the marketplace.*

Drilling equipment has long been manufactured in Houston, Louisiana, and other Gulf state locations. These facilities manufacture the truckable modules and often the large offshore platforms. They certainly have the shop, yard, workforce, and access to water – but they do not have a strategic location to Alaska when it comes to logistics. To get a barge from the Gulf to the North Slope requires passage through the Panama Canal just to get from one side of the continent to the other. The added time for shipping and the added cost of voyage does not justify the mega module concept. What is needed is a manufacturer in the Pacific Northwest. TMF's location at the old Kaiser shipyard in Vancouver, WA provides the space and direct access to a deep-water barge slip with roll-on/roll-off access. The combination of a heavy-industrial construction facility and a support yard with marine transportation capability is an important asset to the region's industrial job base and has potential to attract large job producing projects. This capability has enabled TMF to stay competitive in a business that has largely moved overseas.



Becoming a proven West Coast manufacturer of drilling equipment gave drilling contractors an option that was not there previously. By entering the market, engineers could now extend the limits of their design and present solutions that were attractive to both contractors and owners who were seeking to replicate what Parker did with Rig 245, the first mega-rig on the North Slope. Among the design variables that has always been taken into consideration are the shipping clearances between our facility and the North Slope of Alaska. In that distance, there are three bridges which loads must pass under: The Interstate Bridge, the Lewis & Clark Bridge, and the Astoria-Megler Bridge. Of those three, the Interstate has the lowest total clearance, but is currently sufficient to meet the requirements of transporting mega modules.



*Doyon Drilling Rig 25 shown on the barge in the foreground. Due to the size of the rig and its six mega-modules, two barges were required for delivery to Alaska's North Slope. The background shows the remaining modules for Rig 25, in addition to Parker Drilling's AADU Rigs (Rig 272 and Rig 273)*

Thompson's greatest competitive advantage in earning business with the drilling contractors is their ability to ship completed, commissioned, turn-key 'mega modules' to the jobsite. If that advantage is eliminated, they will be priced out of the market. In addition to competing against the Gulf states, they actively compete with Canadian shops in Alberta. Because of the exchange rate, those facilities have a 30% pricing advantage, all other things being equal. That is the magnitude of the shipping advantage they have at Thompson. Contractors are willing to pay a





*Picture of the Interstate Bridge in 2011 showing both the original Northbound span (background) and the second span (foreground) which opened in 1958 to traffic in both directions. In 1960, the second span was dedicated to Southbound traffic only. (Photo shows TMF manufactured drill rigs, AADU Rig 272 & 273 for Parker Drilling)*

premium to avoid truckable modules manufactured in interior Canada or in the Gulf. It is the Contractor's advantage in the long term to have mega modules as their risk is lower, their down time is lower, field erection and trucking costs diminish, etc. Please note, these mega modules can only have their loads diminished so much (because of shipping clearance issues, etc.) before the concept no longer makes sense and the design is forced back to a more traditional build plan.



## **PROJECT EXAMPLES:**

### Hilcorp Innovation Rig, North Slope, Alaska, USA [2016]

*The Innovation Rig is the next generation of drilling equipment. At nearly 1.5-Million LBS of steel, this rig consists of multiple modules and was built up to 50' H in TMF's shop before moving to their yard for final fit-up. At 9-months, this was the fastest rig build in Thompson's history, a true testament to their size and capability.*



### Parker Drilling AADU Rig 272 & 273, North Slope, Alaska, USA [2011]

*Each drilling rig was comprised of three main modules. The Mud Modules weigh 600-tons, the Drill Modules weigh 700-tons, and the Utility Modules weigh 460-tons. The Mud and Utility Modules are 48' wide x 55' high x 99' long. The Drill Module is 76' high with the mast in the lay-down position.*



### Doyon Drilling Rig 25, North Slope, Alaska, USA [2010]

*4-million LBS of steel and aluminum fabricated for Rig 25, a project where TMF also acted as the General Contractor. TMF managed all rig-up activities including mechanical, electrical, and functional checkout. This rig consisted of six primary modules: Power Complex (550-tons, 56' L x 40' W x 42' H); Drill Complex (560-tons, 96' L x 37' W x 40' H); Pipe Complex (560-tons, 68' L x 47' W x 25' H); Mud Complex (550-tons, 68' L x 40' W x 49' H); Pump Complex (560-tons, 64' L x 40' W x 52' H); Casing Complex (500-tons, 60' L x 56' W x 40' H). The 26' x 25' Mast extends to 148' L.*





Parker Drilling/British Petroleum Liberty Rig, North Slope, Alaska, USA [2009]



*This drilling rig shipped from our facility to the North Slope of Alaska in July 2009. TMF furnished approximately 5.5-million pounds of fabricated steel. The rig was the world's largest land-based rig at the time of manufacturing and consisted of three large modules. The Drill Module was 58' W x 98' H x 68' L, weighing 900-tons. The Pipe Barn module was 158' W x 45' H x 170' L, weighing 2,560-tons. The Drill Service Module was 50' W x 48' H x 177' L, weighing 2,600-tons.*





Pool Arctic Rig 6, North Slope, Alaska, USA [1998]

*The Rig 6 project was a retrofit of the existing rig and included all new structural framing in addition to new mechanical components for the moving system. At the time of manufacturing, it was reported by the tire manufacturer to be the largest rubber tire vehicle in the world. Nicknamed 'Radio Flyer', this backbone of this rig is twin 6' x 10' box girders which support the drill floor and mast, and transfers load to the substructure.*



Nordic Calista Rig 3, North Slope, Alaska, USA [1998]

*In 1998, TMF completed and delivered Modular Mobile Oil Drilling Rig 3 to Nordic Calista. The rig includes 850-tons of fabricated steel, it measures 45' wide x 78' high x 110' long. The rig was transported by barge to the North Slope of Alaska.*



Parker Drilling Rig 245, North Slope, Alaska, USA [1990]

*In 1990, TMF fabricated a self-propelled mobile oil drilling rig. The drilling module was 43' wide x 78' high x 150' long and weighed 3,000-tons. The utility module was 40' wide x 58' high and 130' long, weighing 1,500-tons. The cutting module is 30' wide x 30' high x 40' L, weighing 350-tons. The completed drilling rig was transported by ocean-going barge from TMF's facility to the North Slope.*

ConocoPhillips Milne Point, North Slope, Alaska, USA [1987]

*3,400-tons of fabricated modular steel structures were supplied to ConocoPhillips. This took three ocean-going barge loads to deliver to Alaska.*

ARCO Operation Center Housing Expansion, North Slope, Alaska, USA [1985]

*Modular superstructures (40' W x 65' H x 80' L) were fabricated along with bases and decking housing modules. Completed modules were loaded onto a barge and transported direct to the North Slope.*





Other Examples Include:

- Crowley, Monopod Pile, Cook Inlet, Alaska, USA [2014]
- Saxon Rig 147 Retrofit, Cook Inlet, Alaska, USA [2013]
- Saxon Rig 169 Retrofit, Cook Inlet, Alaska, USA [2013]
- Kuukpik Rig 5 Retrofit, North Slope, Alaska, USA [2005]
- Pool Arctic Rig 9, North Slope, Alaska, USA [1999]
- Nordic-Calista Rig 1 Retrofit, North Slope, Alaska, USA [1997]
- Pool Arctic Rig 4, North Slope, Alaska, USA [1994]
- Petro Star Refinery (Valdez), Alaska, USA [1993] \*
- Pool Arctic Rig 3, North Slope, Alaska, USA [1990]
- Petro Star Refinery (North Star), Alaska, USA [1985] \*
- Trans Alaska Pipeline System (TAPS), Alaska, USA [1977]
- Prudhoe Bay, Alaska, USA
  - *Discovered (1968), Start of Production (1977), Peak Production (1988)*
- Cherry Point Refinery, Washington, USA [1971] \*
- Cook Inlet Monopod, Cook Inlet, Alaska, USA [1970's] \*
- Kenai Refinery, Alaska, USA [1969] \*
- Maintenance on California refining facilities
- Maintenance on Washington refining facilities



*With a structural height of 126', this pile template for a monopod in the Cook Inlet (Alaska) is one of the largest structures to ship from the Columbia Business Center in the last 40-years. Thompson Metal Fab manufactured piling for this project, delivered in 2014.*





*Taken in the early 1970's, the photo above shows Thompson Metal Fab shortly after closing the original facility in Portland and moving to Vancouver. Thompson added fiberglass roofing and walls to bays 5 through 9 to create an enclosed space. The land has been developed quite a bit in the last 40-years (including improvements to the roll-on/roll-off barge slip), but the building remains virtually the same.*

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### **LOCAL BENEFIT & LOOKING AHEAD**

Because of Thompson's 40-year reputation, logistical advantage and modern quality programs required, they have a distinct benefit. Loss of that logistical advantage due to a diminished shipping clearance (or other) is not something they could replace. Earning this business is a tremendous benefit to Thompson, their employees, and their local community. For example, any one rig project is equivalent to one year of revenues, in addition to hundreds of direct high wage jobs, as well as work for hundreds of local small businesses.

Due to the magnitude of work, contractors often mobilize to Vancouver to manage the construction. This includes management, engineers, and other personnel to ensure that projects are delivered on time. This staff of people stay long-term in local hotels, rent from local citizens, spend entertainment dollars with local small businesses, and are an economic benefit. They not only employ the staff at TMF, but they also employ local electricians, machinists, painters, millwrights, pipe fitters, hydraulic operators, boilermakers, sheet metal workers, and other trades. This work also supports various apprentice programs which train the next generation of trade workers. Loss of this total benefit cannot be replaced.





*Local businesses see boosts in revenues when major job producing projects are brought to the Columbia Business Center. Due to the nature of these large projects, stakeholders often move management teams to Vancouver to oversee manufacturing.*

History has shown us that building a new link between Vancouver and Portland will bond our communities together and provide opportunity for economic growth and expansion. We also see that there is a correlation between the bridge, the growth of our community, and Thompson Metal Fab. The need for large-scale fabrication remains and markets that require TMF's services show no sign of slowing. There is potential for an industrial rebirth, one that mimics the industrial expansion of the 1950's through 1970's. While it is yet to be seen at the time of this writing, the federal government will at some point pass an infrastructure spending bill, which intends to replace our aging and deteriorating bridges, dams, and other critical works. Just as building these original structures kept generations of people working, so will the effort to replace these structures.

Thompson is encouraged by the commitment made to develop renewable energy sources. TMF has directly supported this effort for decades by manufacturing equipment that grows polysilicon crystals used in the development of solar panels. They have even been successful exporting domestically manufactured polysilicon equipment to countries such as China. Being a part of clean and renewable projects is something TMF does every day, thanks to the nature of their business. Steel is the most recycled material on Earth and steel products are 100% recyclable at the end of their useful life. Once produced, steel can be continually recycled into a new steel product without deterioration in product quality. Even the byproducts of steel work can be reused. Weld slag is used in cement, road construction, fertilizers, and hydraulic engineering. Process gasses are used to produce heat and electricity. Metal oxides can be recovered from steel making dust. Steel's inherent durability and recyclability make it an ideal fit for a circular economy. Allowing Thompson Metal Fab to continue producing steel products in the manner they do currently is a critical component in the continued development of clean energy and in effort to reduce America's carbon footprint.

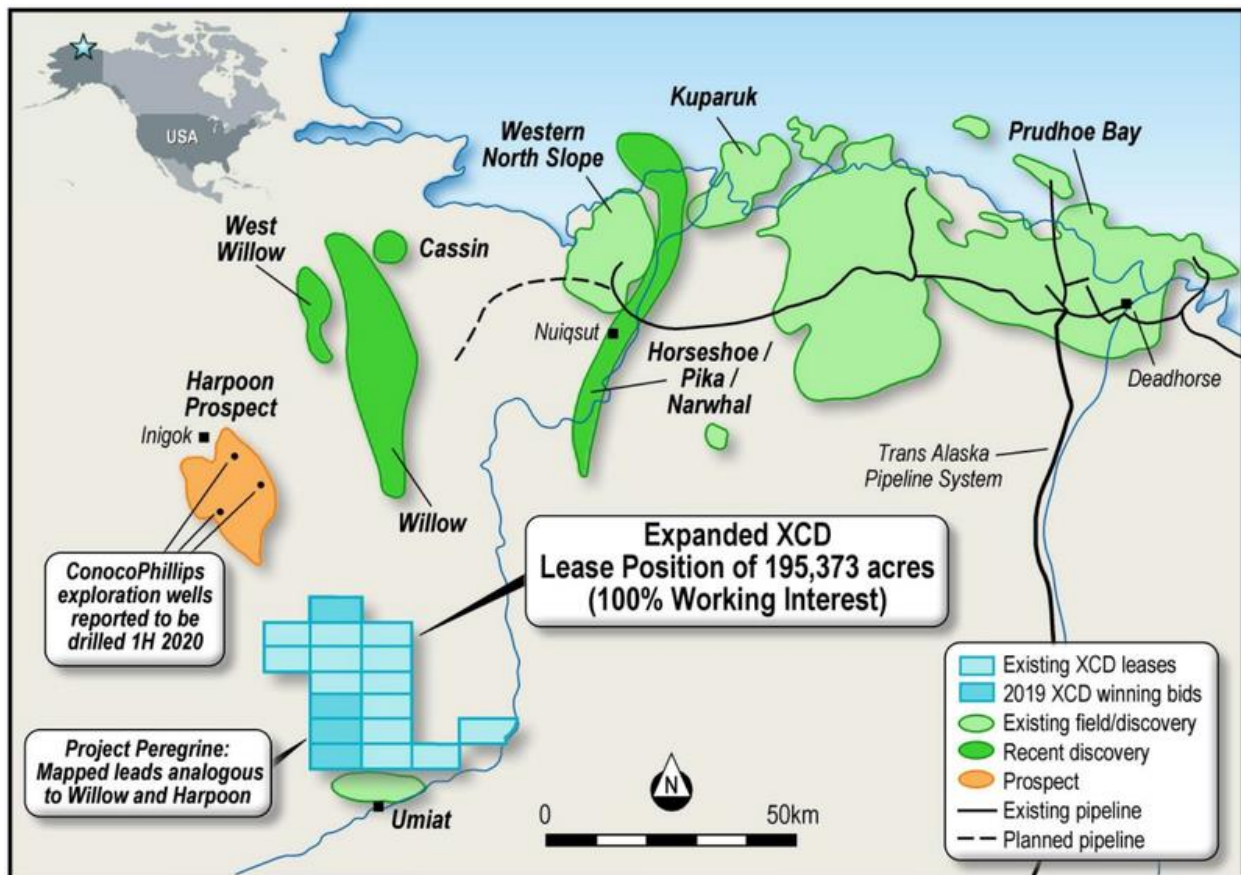
As Thompson looks ahead to the future, they are currently tracking several projects and emerging markets which will certainly require a shop of their size and skill set. These projects will likely require delivery by barge and be of scale greater than or equal to what has been demonstrated. As noted, TMF has a competitive advantage with projects that require delivery by water and there is no other comparable, active facility with a roll-on/roll-off barge slip on the West Coast. Future opportunities include:

- ConocoPhillips – Willow expansion (*drill rigs, modules*)
- Oil Search – Pikka expansion (*drill rigs, modules*)



- Horseshoe Unit – Future North Slope Expansion (*drill rigs, modules*)
- Aerospace
- Offshore Wind and Wave power generators
- Burnside Bridge
- Golden Gate Bridge Seismic Retrofit
- West Coast Movable Bridges
- Hydroelectric Maintenance Projects
- Desalination in California
- Port of Nome - Expansion

#### Willow Expansion/Pikka Expansion/Horseshoe Unit





In many regards, the original Prudhoe Bay development has reached the end of its useful life. In 2020 original Owner, BP, sold their Prudhoe rights to ConocoPhillips and Hilcorp. Hilcorp is renowned for their ability to acquire 'legacy wells' and get a high level of production thanks to their ability to match modern technology with lean processes. What bigger companies might steer away from or flat out abandon due to high overheads, Hilcorp (a smaller independent company) can come in and still make profits for many years. The sale of Prudhoe and acquisition by Hilcorp signals the end of an era at Prudhoe, but it also marks the beginning of Alaska's next chapter in oil production.

In 2016, discovery wells were drilled in the Willow unit, owned by ConocoPhillips. The Willow unit is immediately west of Prudhoe and other large operating units but is on land that is largely under-developed. During the expansion of Prudhoe Bay facilities were tied into one another (Alpine, Kuparuk, Oooguruk, Milne Point, North Star, Endicott), man camps often shared, and roads and bridges integrated into one logistical network. Willow is far enough outside of this integrated network that relying on the existing infrastructure to support further expansion is not feasible. New piping systems would be needed, new roads would be required, new processing modules installed, and essentially a 'mini Prudhoe' would need to be built from scratch. After a successful exploration and appraisal season in 2018 it is estimated that Willow could contain up to 750-million barrels of oil and the infrastructure that would support Willow could produce approximately 100,000 barrels per day. Assuming full production each day of the year, Willow would be 'on-line' for 20-years.



*This massive process module is being loaded out for delivery to the North Slope of Alaska in July 1990. This industrial equipment rivals the size of most downtown buildings and is representative of the equipment currently being requested for North Slope expansion projects. Due to scale and complex nature of work, this sort of equipment cannot be manufactured at the remote jobsite or accomplished at all in Alaska.*





*This massive process module is being loaded out for delivery to the North Slope of Alaska in July 1990. This industrial equipment rivals the size of most downtown buildings and is representative of the equipment currently being requested for North Slope expansion projects.*

Flanked by existing units, Alpine and Kuparuk, sits Pikka. The Pikka unit is part of the Nanushuk Field which is estimated to hold as much as 1.5-billion barrels of oil. This is considered to be the biggest conventional onshore oil discovery in the US in the last 30-years. Upon full development, it is anticipated that Pikka will produce 120,000 barrels per day, and on some accounts up to 160,000 barrels per day. Conservatively, there is enough oil here to keep Pikka online for nearly 35-years.

Like Willow, there's just no infrastructure in Pikka despite being sandwiched by two existing fields. Early planning on Pikka included budgetary Requests for Proposal which were submitted by Pikka's Owner, Oil Search. One RFP requested multiple modules nearly 80' H x 200' L x 80' W, a fairly typical example of the infrastructure which is required.

Finally, early testing has been going on in the Horseshoe unit of the North Slope (south of the Willow and Pikka unit) and early indication is that Horseshoe will also be a high volume area, with volume of over 1-billion barrels. Combined with Willow and Pikka, the makings of a modern day Prudhoe Bay is in the works and could be a generational project.

## **Aerospace**

Vandenberg Air Force Base is home to the US Air Force, United Launch Alliance, Space X, and now home of the Space Force, a branch of the US Air Force. Blue Origin is looking at Vandenberg as well and this will produce new opportunities for launch facilities. The western range is advantageous and continues to serve the needs of the industry. All these groups are getting a boost from "REACH" (Regional Economic Action Coalition). Currently, Vandenberg has the only Space Launch Complex (SLC) to launch for polar orbit. The Cape is working on a program for this, but currently the capability does not exist.



(Report from 'REACH' available for online viewing at <https://reachcentralcoast.org/wp-content/uploads/Phase-0-Report.pdf>)

Excerpt from the referenced report:

*"Driven in large part by commercial enterprises, space is now a \$425-billion industry that's expected to grow to \$3-trillion over the next three decades...It's a huge opportunity and why REACH adopted building a thriving space enterprise as a core initiative in our 2030 plan."*

This bold plan by the State in collaboration with all the stake holders will result in the construction of new facilities to support launch efforts at Vandenberg. Launch towers and/or mobile assemble buildings will be major projects that will require work on very large structures within this decade. The work on these facilities in the past been done by NW Oregon/SW Washington fabricators – including Thompson Metal Fab. This work requires facilities with large yard areas and heavy fabrication capabilities as well as a barge loading facility that is capable of supporting ocean going barges. There are very few of these types of facilities on the West Coast. The Columbia Business Center is one of those few spaces and represents a location that has both barge loading capabilities and the manufacturing capacity through groups like Thompson Metal Fab.

Past work in California dating back to the 1960's has been done at the Columbia Business Center. Jacket Liners for the Santa Barbara oil field were built at this location. Work for both Space Launch Complex 3 (SLC 3) and SLC 6 were done at Columbia Business Center. Much of this work required a full bridge raise to facilitate passage of the cargo on board a barge.

In addition to this planning at Vandenberg, Space X is now under contract for two more launches from there.

([https://www.noozhawk.com/article/defense\\_department\\_awards\\_contract\\_to\\_spacex\\_for\\_2\\_vandenberg\\_afb\\_launches](https://www.noozhawk.com/article/defense_department_awards_contract_to_spacex_for_2_vandenberg_afb_launches))



*Pictures from Space Launch Complex-6 on April 26, 2021 show before and during launch of United Launch Alliance Delta IV Heavy rocket carrying a classified spy satellite. The launch table was manufactured by Thompson Metal Fab and delivered to the jobsite in 2003.*





Excerpt from NOOZHAWK Santa Barbara:

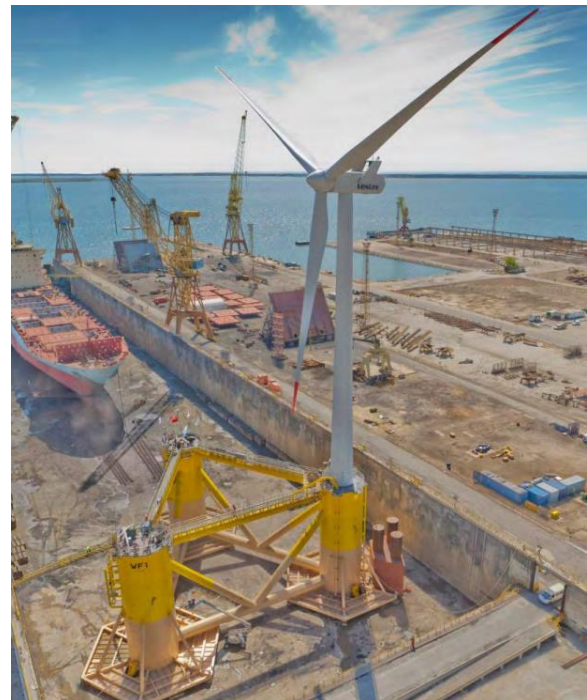
*“The Department of Defense awarded Space Exploration Technologies a pair of missions that will involve two rocket launches from Vandenberg Air Force Base for the military’s next-generation of space-based tools for warfighters....The announcement in the final hours of 2020 put the firm-fixed-price contract cost for SpaceX at \$150,450,000...The first launch will occur in September 2022, and the second mission will take place no later than March 31, 2023, to complete putting the constellation in space, according to the award by the Space Development Agency in Washington, D.C.”*

SpaceX and United Launch Alliance have been awarded a 40%/60% split for launching DOD payloads. This award was made in August of 2020. For work at Vandenberg, SpaceX will have to add the capability of vertical integration of DOD payloads. This will require Space X to build a Mobile Service Tower (MST) or a similar structure to facilitate vertical integration of their vehicles. Currently SpaceX does all integration horizontally, installing satellites and rockets onto Falcon 9 and Falcon Heavy inside hangars near the company’s launch pads. But some of the of the US Government’s most sensitive and expensive intelligence-gathering satellites are designed to be mounted on their launch vehicles vertically. SpaceX officials have indicated that vertical integration capability is required of participants in the National Security Space Launch Phase 2 Launch Service Procurement.

### **Offshore Wind and Wave**

Currently there are no independent organizations/companies willing to make the upfront investment into this emerging market. The land based wind industry grew because of federal tax credits that made it profitable, and without federal assistance it is unlikely that offshore systems will get the boost needed.

Recently, the administration under President Biden cited their plan to expand the use of off-shore wind farms in effort to develop renewable energy sources. The goal of the Biden Administration is to increase capacity of the current off-shore systems to power 10-Million homes by the year 2030. To meet that target, the administration intends to accelerate the permitting of projects along the coastlines and to open waters for development. \$3-Billion in federal loan guarantees are available for offshore wind projects and for investing in the nation’s port properties to support wind construction.



Mirroring this goal to develop offshore wind energy, the states of California and Oregon have introduced bills to develop wind energy along their coastlines. California bill AB525 sets a goal of 10GW of offshore wind by 2040,



3GW of which to be established by 2030. Oregon's HB3375 also sets a goal of 3GW by 2030. Oregon's effort is sponsored by a Republican (Rep. David Brock Smith) who has positioned the states bill as an opportunity to stimulate economic development and resiliency.

Currently there is not a facility on the West Coast that is set up to assemble these massive offshore wind systems. Thompson Metal Fab certainly has the capacity to manufacture the floating bases, and the facility/space to receive the wind towers and turbines. We also have the space to perform all assembly required. All opportunity to participate with this emerging market is gone however if the new bridge is not at a suitable height. Our current plan to participate with this emerging market is to manufacture the bases at TMF and float them downstream to a satellite yard where the towers and turbines can be assembled and installed on our bases. With that plan in place, we can utilize our current facility for all the heavy manufacturing, and provided that we are not impacted by the height of the I-5 bridge, we can ship these structures to wherever the assembly yard is located. The Biden administration keys in on one important factor, most coastal port properties are not currently set up to handle this massive manufacturing and investment in the properties must be made.

Most of the current facilities manufacturing offshore structures are on the American East Coast, or in the Gulf. Even though these facilities have the capacity, they are not well positioned to support the manufacturing of offshore systems for the West Coast. To reach the West Coast, all cargo must travel through the Panama Canal and the distance associated with voyage makes the transportation very expensive and further defines the reason why developing a manufacturer on the West Coast is so important.



**Figure A-20 Vancouver**

*Image above comes from BOEM report in 2016 which evaluates various sites on the West Coast that would be suitable for the development of offshore wind power manufacturing. The far right shows the Columbia Business Center, and predominantly in middle is Thompson Metal Fab.*

Thompson Metal Fab is one of possibly two manufacturers on the West Coast who has the size of facility, yard space and direct access to water to make our company a very attractive option for full-scale manufacturing of offshore systems. When you look at the total capacity of the Columbia Business Park, there is more than enough space and infrastructure to use our location in a dynamic way. If the new bridge does not at least accommodate this emerging market, it will be very difficult to develop the required infrastructure at all on the West Coast. Let us not lose what we currently have.



On March 3<sup>rd</sup>, 2016, the Bureau of Ocean Energy Management published a 256-page report that names the Columbia Business Park as a viable option for manufacturing offshore wind systems, but also notes that if the new height of the I-5 bridge is lowered below its current air gap it will severely restrict this type of manufacturing for any facility that is upstream of the bridge (i.e. Thompson Metal Fab).

*To download a PDF file of the Environmental Studies Program report, go to the US Department of the Interior, Bureau of Ocean Energy Management, Environmental Studies Program Information System website and search for OCS Study BOEM 2016-011.*



*Images above comes from the 2016 BOEM report which shows the manufacturing and shipping capabilities of the Columbia Business Center for the wave power industry.*

### **Burnside Bridge**

The Burnside Bridge is scheduled for start of construction in 2024. There are two alternatives to the movable portion of the bridge: Replace the existing double-leaf bascule bridge with a vertical lift bridge – or – replace the bridge with a modern double-leaf bascule. The replacement of the approaches is difficult and would be best with a long span alternative. The option of a Tied-Arch, Cable-Stayed or Truss Span is attractive.



*Image above shows the Sauvie Island Bridge being shipped to the jobsite via barge on the Willamette River and passing under the Burlington Northern RR Bridge in Portland, OR. Delivery of steel for the new Burnside Bridge would take a similar approach, due to the limited area for construction at the jobsite in downtown Portland, OR. Bridge steel coming from the Columbia Business Center would pass under the Interstate Bridge to reach the jobsite.*



Due to congestion at the job site, moving the major spans into place will be done by water. Similar work has been done in the past on the Freemont Bridge, Sauvie Island Bridge and Sellwood Bridge.

### **Golden Gate Bridge Seismic Retrofit**

The Golden Gate Bridge has an upcoming project that is one of the largest projects on a single bridge that is not new construction. The iconic towers on the Golden Gate Bridge will be retrofitted in addition to the deck steel between the two towers. This project was due to be completed by 2024 but has been delayed by other projects *(currently scheduled to be complete in 2023)*.

### **West Coast Movable Bridges**

California has 36 movable (non-railroad) bridges. Of that group, four are in poor condition and 25 are in fair. Replacement will be recommended for some of these bridges and most will be shipped to the job-site by barge.

Oregon has the previously mentioned Burnside Bridge coming up. Additionally, the Rose Quarter Improvement project which will include the manufacturing of major steel spans.

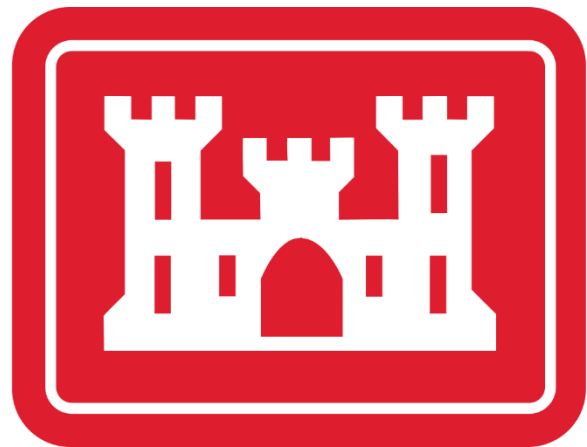
Washington has 51 movable bridges (non-railroad). 10 are in poor condition and 34 are in fair condition. These bridges will be slow to replace due to budget issues but most of the poor condition bridges will be replace.

### **Hydroelectric Maintenance Projects**

The current 2021 (fiscal year) budget work plan for the US Army Corps of Engineers is \$2.7-Billion. Much of this work will be on the Columbia River system. Applicable work for TMF is as follows:

#### Portland District

- Bonneville Dam
  - Powerhouse 2, 65-Ton Tailrace Gantry Crane Replacement
  - Headgate Repair Pit Rehab
  - Powerhouse 1 Trash Racks
  - Fish Guidance Efficiency
- John Day Dam
  - Navigation Lock Downstream Gate Bearing Shoe Replacement
  - Trash Racks Replacement
- Cougar Dam:
  - Spillway Gate Rehab
  - Butterfly Valves





- Foster Dam:
  - Oil Spill Prevention
  - Oil Water Separator
  - Fish Weir Follow-on
- Detroit Dam:
  - Spillway Gate Rehab
- Dexter Dam:
  - Trash racks
  - Intake Gates
  - 25-Ton Intake Gantry Crane Replacement
- Green Peter Dam:
  - 180-Ton Bridge Crane Rehab
- Big Cliff Dam:
  - 40-Ton Intake Gantry Crane
  - Trash Racks and Gates Rehab

#### Seattle District

- Libby Dam
  - 75-Ton Intake Gantry Crane Rehab
- Albeni Falls Dam
  - Turbine Maintenance Platform
- Chief Joseph Dam
  - Intake Gates Rehab or Replacement
  - Turbine Maintenance Platform
  - 50-Ton Intake Gantry Crane Rehab
  - 18-Ton Tailrace Gantry Crane Rehab

#### Walla Walla District

- Ice Harbor Dam
  - Intake Gate Hydraulic System Upgrades
- Lower Monumental Dam
  - Turbine Maintenance Platform
- Lower Granite Dam
  - Turbine Maintenance Platforms



## Desalination in California

California is always in a water crisis. They have new reservoirs planned that will require outlet works, gates, etc. Most of this work will ship by truck/train, but shipping over the water (by barge) will be the modular structures for new equipment in the planned Desalination facilities that California needs to sustain the population growth.

30-miles north of San Diego is the Claude “Bud” Lewis Carlsbad Desalination Plant, the largest effort in North America to turn salt water into fresh water. Each day 100-million gallons of seawater are pushed through semi permeable membranes to create 50-million gallons of fresh water that is piped to municipal users. Carlsbad, which became fully operational in 2015, creates about 10% of the fresh water the 3.1-million people in the region use, at about twice the cost of the other main source of water. This is a real issue for California and will require the state to build more of these desalination plants.

## Wartime Efforts

It is important to plan for the unforeseen as well. Contingency comes in many forms; but let us not lose sight of the reason why the facility exists to begin with. Kaiser built the facility as part of the war effort in WWII.

Because of the shipping clearances allowed when the drawbridge was at full height, the Vancouver Shipyards could produce Liberty and Victory war ships despite being upstream from the bridge. If that height is impacted by a fixed structure at a *lower* clearance, the ability for Thompson to support major wartime efforts is certainly

diminished especially when compared to the capacity we could offer today. As noted previously, we are one of only a handful of facilities on the West Coast who has facility large enough to manufacture the structures we do and ship over the water. Reducing shipping clearances will certainly limit Thompson’s ability to be a strategic West Coast manufacturer if a major wartime event occurs.



*Henry Kaiser's Vancouver Shipyard, shown in development in 1942. Eventually becoming the Columbia Business Center, this facility would become a strategic West Coast manufacturing facility.*

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## IN CLOSING

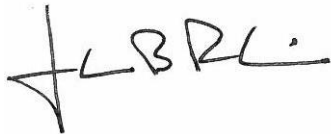
Thompson Metal Fab supports the new Interstate Bridge Replacement project. The region has outgrown the capacity of the current span and a new bridge is needed to reflect current and future needs. Innovations in transportation have changed the way people travel and move goods since 1917; and modern engineering, materials, manufacturing, and construction should allow for a beautiful, robust structure that will serve the needs for future generations. Currently the lift span on the Interstate Bridge is 178’ at maximum clearance, any reduction



on a new span will have significant impact on TMF's industrial competitiveness. Less clearance will inhibit Thompson's ability to attract job-producing industrial projects to the region. Lower bridge clearance will also cause constraints for current and future energy infrastructure needs where TMF is counted on to be a major supplier to energy producers. Impacts to clearance could also affect the development of renewable energy sources, such as offshore wind. A facility, like that at Thompson Metal Fab in the current configuration, will be critical in the success of offshore wind programs on the West Coast. Additionally, users such as the US Army Corps of Engineers, will be impacted as they depend on TMF to deliver structures by barge to support our region's dams and ports East of I-5.

We recognize a new Interstate Bridge replacement needs to meet the requirements of all modern and future modes of transportation, and that requirement will most likely impact our historical, current, and future usage of river transit. However, Thompson also recognizes the importance of a new, safe, and modern bridge to the region, and is willing to work with the Interstate Bridge Replacement project team to preserve Thompson Metal Fab and hundreds of family wage jobs, while at the same time advancing a much needed new bridge to the future.

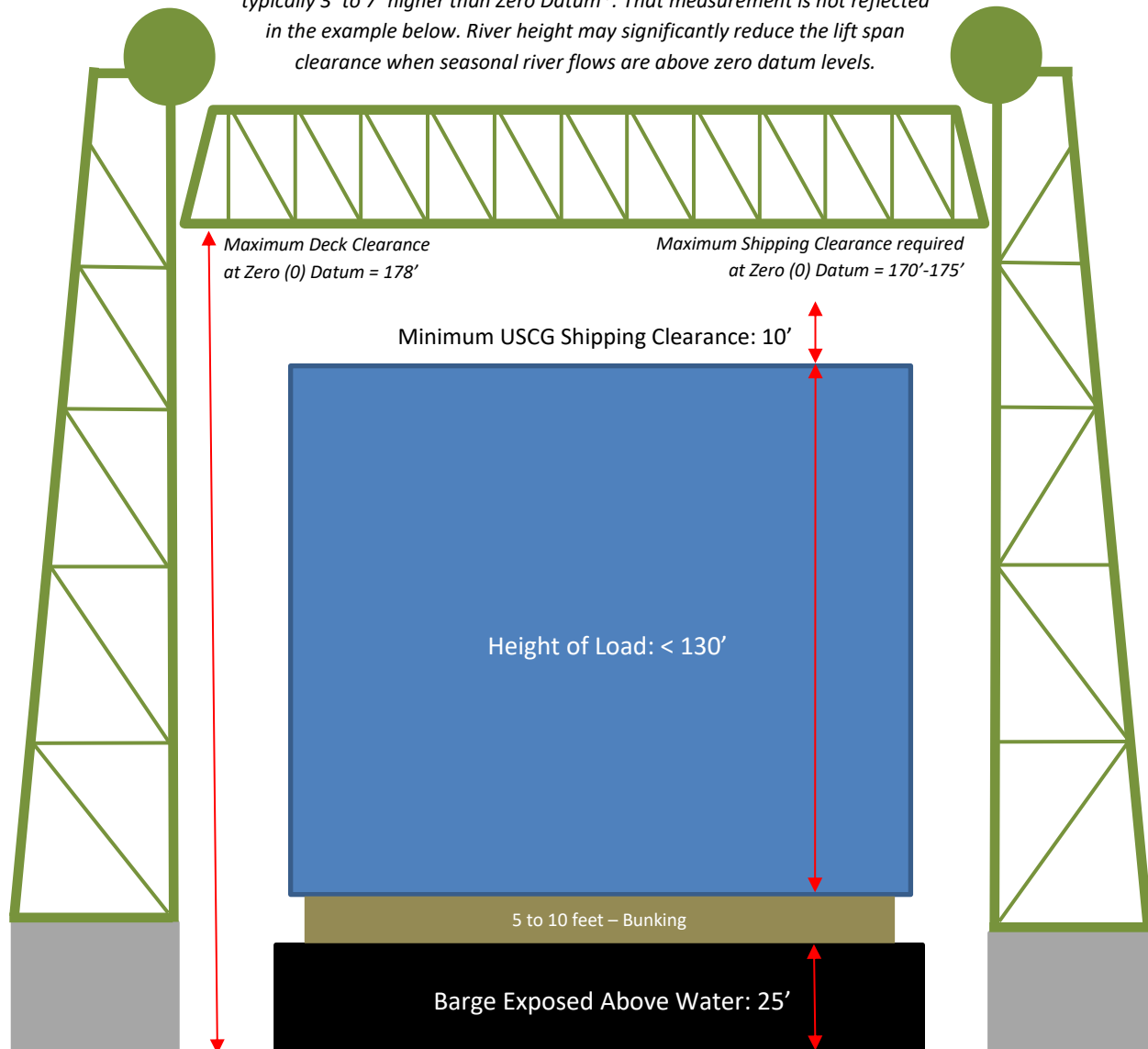
Sincerely,

A handwritten signature in black ink, appearing to read "JLR", with a stylized flourish at the end.

**John B. Rudi**  
Owner/President  
Thompson Metal Fab



Clearance information assumes Zero (0) Datum. The Columbia River is typically 3' to 7' higher than Zero Datum\*. That measurement is not reflected in the example below. River height may significantly reduce the lift span clearance when seasonal river flows are above zero datum levels.



\* <https://water.weather.gov/ahps2/hydrograph.php?wfo=pqr&gage=vapw1>



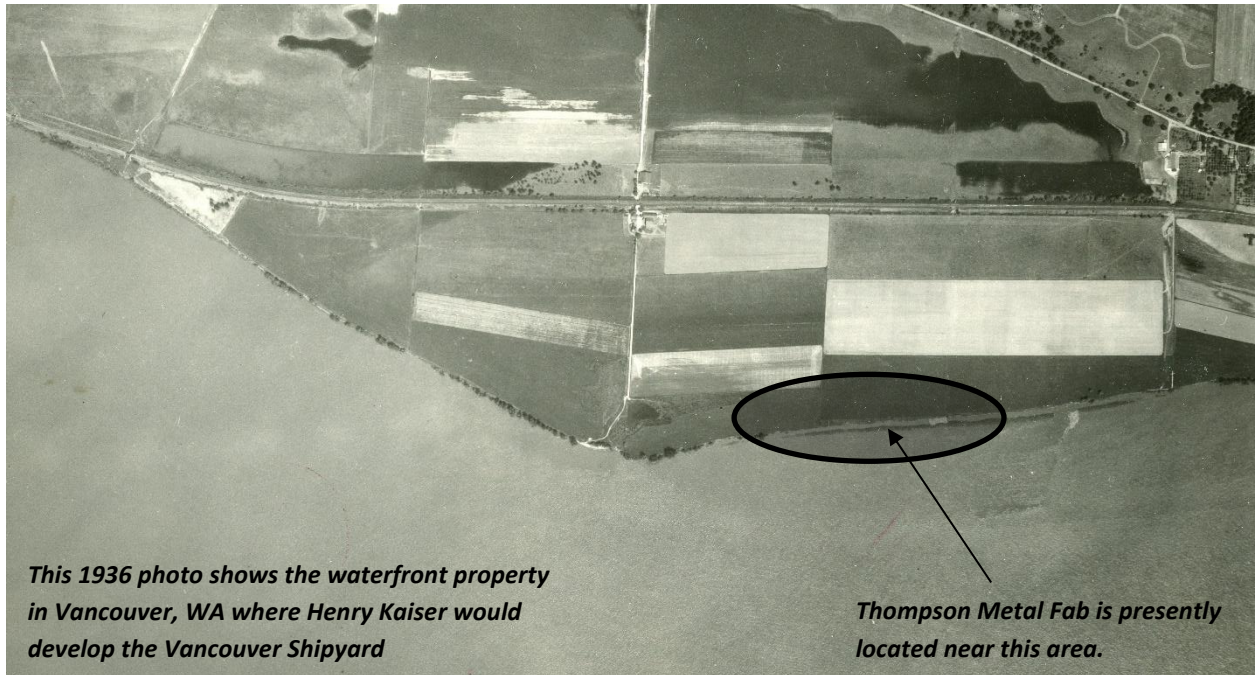


Thompson Metal Fab	Revision 0
Interstate Bridge Replacement Project	May 26, 2021
Appendix B - River Usage Data	Page 1 of 1

EXAMPLES OF THOMPSON METAL FAB PROJECTS WHICH REQUIRED BRIDGE LIFT									
Owner	Project Name	Shipping Date	Shipping Destination	Number of Barges	Barge List, FT (height exposed above waterline)	Dunnage/Blocking Height (ft)	Height of tallest structure (ft)	USGC Minimum Gap (ft)	Total Required Clearance, FT (Assumes Zero Datum)
AKDOT	Ward Cove Ferry Dock Expansion	2020	Ketchikan, AK	1	25	5	14	10	54
Intel	LARK E-Houses	2020	Hillsboro, OR	1	25	5	16	10	56
ASE	Wind Tunnel Retrofit	2019	Tongue Point, OR	1	25	5	18	10	58
Hillcorp	Innovation Rig	July 2016	North Slope, AK	1	25	10	50	10	95
Multnomah County	Sellwood Bridge	2015-2016	Portland, OR	7	25	5	20	10	60
Furie	Monopod Pile	July 2014	Cook Inlet, AK	1	25	0	126	10	161
Saxon Drilling	Rig 147	July 2013	Kenai, AK	1	25	10	40	10	85
Saxon Drilling	Rig 169	July 2013	Kenai, AK	1	25	10	40	10	85
Parker Drilling	Rig 272	July 2011	North Slope, Alaska	1	25	10	113	10	158
Parker Drilling	Rig 273	July 2011	North Slope, Alaska	1	25	10	113	10	158
Doyon Drilling	Rig 25	July 2010	North Slope, Alaska	2	25	10	70	10	115
British Petroleum (BP)	Liberty Rig	July 2009	North Slope, Alaska	2	25	10	100	10	145
CalTrans	East Tie-In	2008-09	Bay Area, CA	2	25	5	40	10	80
OHSU	Portland Aerial Tram	2006	Portland, OR	1	25	10	33	10	78
CalTrans	Bay Bridge Retrofit	2006	Portland, OR	3	25	5	60	10	100
US Army Corps of Engineers	Ice Harbor RSW	March 2005	Portland, OR (Swan Island) and then to Ice Harbor Dam	1	25	5	68	10	108
Samuel Engineering	Alaska Gold Mining	2005	Nome, AK	1	25	5	50	10	90
CalTrans	Richmond San Rafael Retrofit	2004	Bay Area, CA	1	25	5	40	10	80
Boeing	Delta IV Launch Table	2003	Vandenberg AFB, CA	1	25	10	33	10	78
US Army Corps of Engineers	Lower Granite RSW	March 2001	Portland, OR (Swan Island) and then to Lower Granite Dam	1	25	5	61	10	101
Pool Arctic	Rig 9	1999	North Slope Alaska	1	25	10	60	10	105
Cascade General	Esperanza Power Barge	1999	Portland, OR	1	25	10	30	10	75
Pool Arctic	Rig 6	1998	North Slope, AK	1	25	10	60	10	105
PGE	Trojan Decommissioning	1998	Hanford, WA	1	25	5	40	10	80
Nordic-Calista	Rig 3	July 1997	North Slope, Alaska	1	25	10	78	10	123
LaFarge Cement	Pre-Heater Tower	1997	Richmond, BC, Canada	1	25	5	60	10	100
Cascade General	Golmar Explorer Ship Conversion	1997	Portland, OR	1	25	5	30	10	70
TriMet	Terry Moore Pedestrian Bridge	1996	Portland, OR	1	25	5	30	10	70
WSDOT	Duwamish Bascule Bridge	1996	Seattle, WA	1	25	5	30	10	70
CalTrans	Nimitz Freeway	1995	Bay Area, CA	4	25	5	70	10	110
Port of Sacramento	Bulk Material Handling System	1993	Sacramento, CA	1	25	5	50	10	90
Powell River Paper Company	Chlorine Dioxide Module	November 1991	British Columbia, Canada	1	25	5	76	10	116
Parker Drilling	Rig 245	July 1990	North Slope, Alaska	1	25	10	78	10	123
Pacific Marine	SWATH Hull	1989	Honolulu, HI	1	25	10	60	10	105
Christensen Marine	Dry Dock	1987	Vancouver, WA	1	25	10	40	10	85
ConocoPhillips	Milne Point Modules	1987	North Slope, AK	3	25	10	30	10	75
	Newport Bay Floating Foundation	1986	Portland, OR	1	25	5	20	10	60
WSDOT	I-90 East Channel Bridge	1986	Seattle, WA	1	25	5	30	10	70
ARCO	Housing Expansion	July 1985	North Slope, Alaska	1	25	5	65	10	105
Georgia Pacific	Wood Chip Material Handling System	1973	Toledo, OR	1	25	5	60	10	100

Bridge to be opened at Captain's discretion for loads under 72' high.







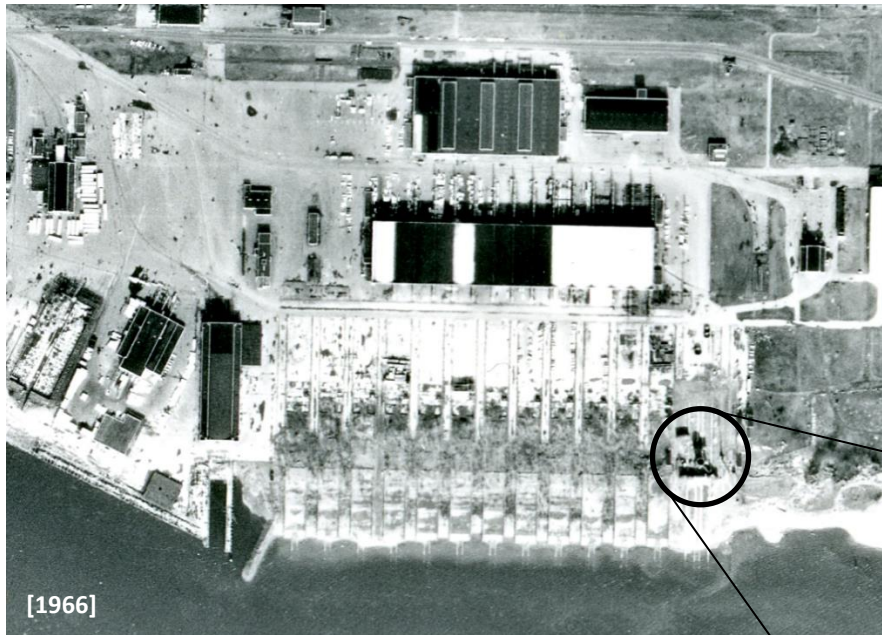


*In 1948, three years after WWII ended, the Vanport flood not only wiped out Oregon's second largest city, but it left the Kaiser Shipyard completely barren.*



*By 1956, the facilities at the current Columbia Business Center are in full operation once more, leveraging the capacity to support the industrial needs of the time.*

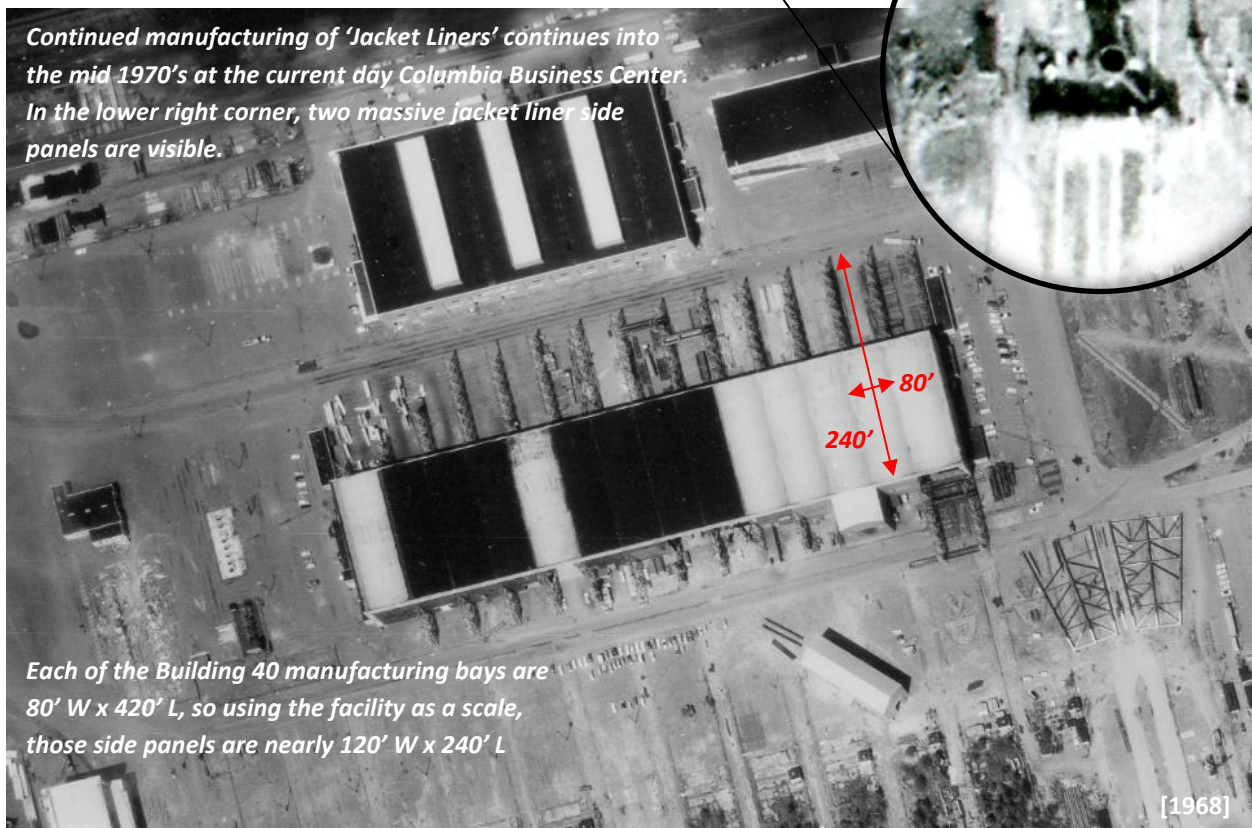




*The development of offshore oil in California required the fabrication of massive infrastructure. Typically, offshore oil fabrication is done in the Gulf states, but with major oil production now on the West Coast those Gulf state areas could not lend support and a West Coast facility was required.*

[1966]

*Continued manufacturing of 'Jacket Liners' continues into the mid 1970's at the current day Columbia Business Center. In the lower right corner, two massive jacket liner side panels are visible.*

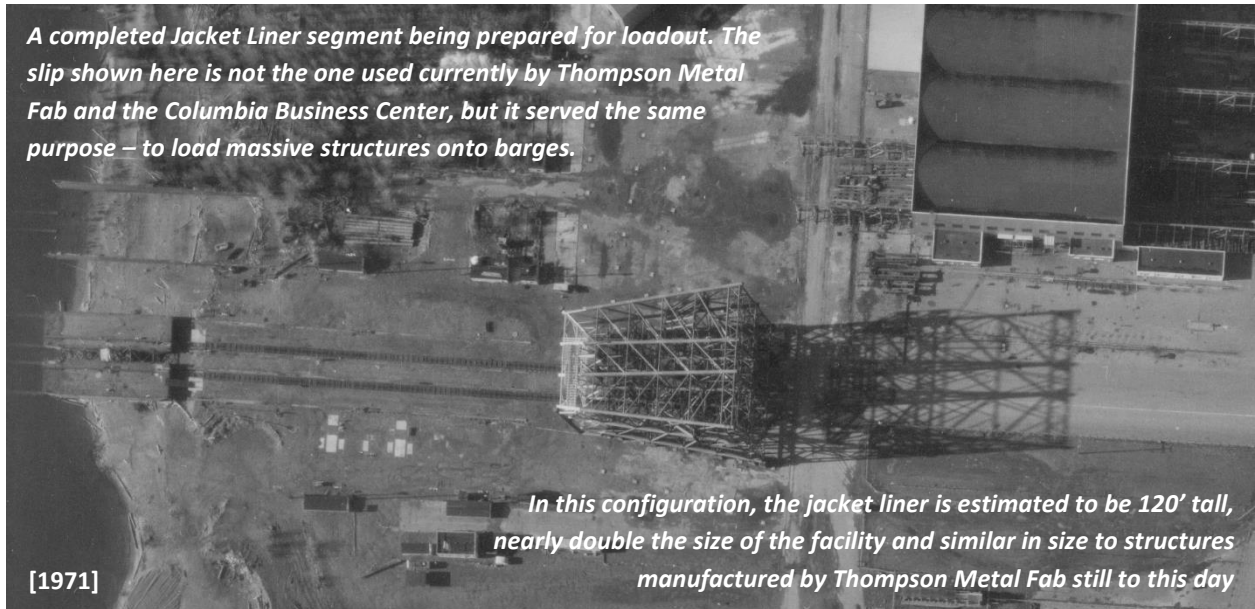


*Each of the Building 40 manufacturing bays are 80' W x 420' L, so using the facility as a scale, those side panels are nearly 120' W x 240' L*

[1968]



*A completed Jacket Liner segment being prepared for loadout. The slip shown here is not the one used currently by Thompson Metal Fab and the Columbia Business Center, but it served the same purpose – to load massive structures onto barges.*



*In this configuration, the jacket liner is estimated to be 120' tall, nearly double the size of the facility and similar in size to structures manufactured by Thompson Metal Fab still to this day*

**Roofing being extended to Building 40, Bay 10-12 (current Thompson Metal Fab).**

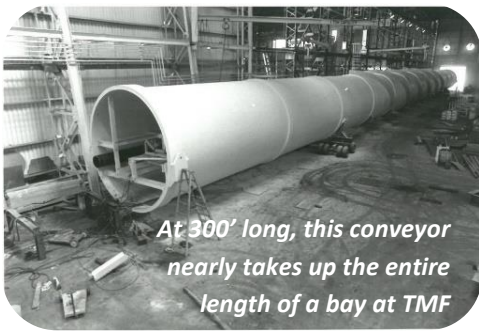


*TMF Project Managers, early 1970's*

**Shortly after moving to Vancouver, TMF would enclose bay 5-9 with a roof and walls. A sign marked the location.**







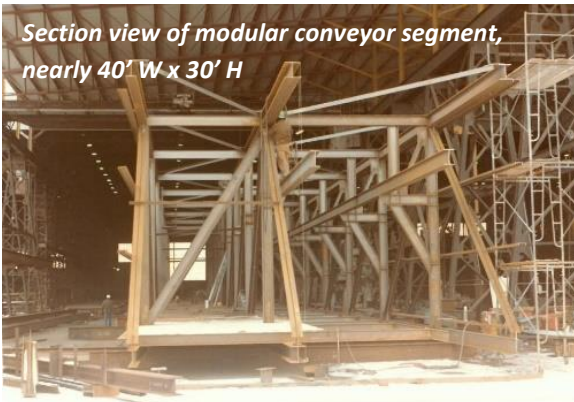
*Conveyor systems and support towers were a major part of Thompson's first few decades at the Columbia Business Center. TMF's barge slip allowed for massive, modular deliveries to Ports, pulp & paper factories, and other industrial areas.*



*Completed conveyor project at the Port of Longview.  
Thompson fabricated the conveyors and support towers.*



*Section view of modular conveyor segment,  
nearly 40' W x 30' H*



*There are numerous Ports on the Columbia River with large, developed properties and robust industrial activity. These Ports are critical to our region and are the hub for most incoming goods.*

*Conveyor systems are often used at Ports to quickly handle and transfer bulk materials. Thompson Metal Fab manufactured and delivered the massive conveyor system and support towers shown here and delivered to the Port of Longview.*

*Modular structures were loaded on a barge and erected in the field. Delivering modular units allows for quicker assembly in the field and easier integration of all mechanical components.*

*Conveyor being loaded on barge at  
Thompson Metal Fab.*



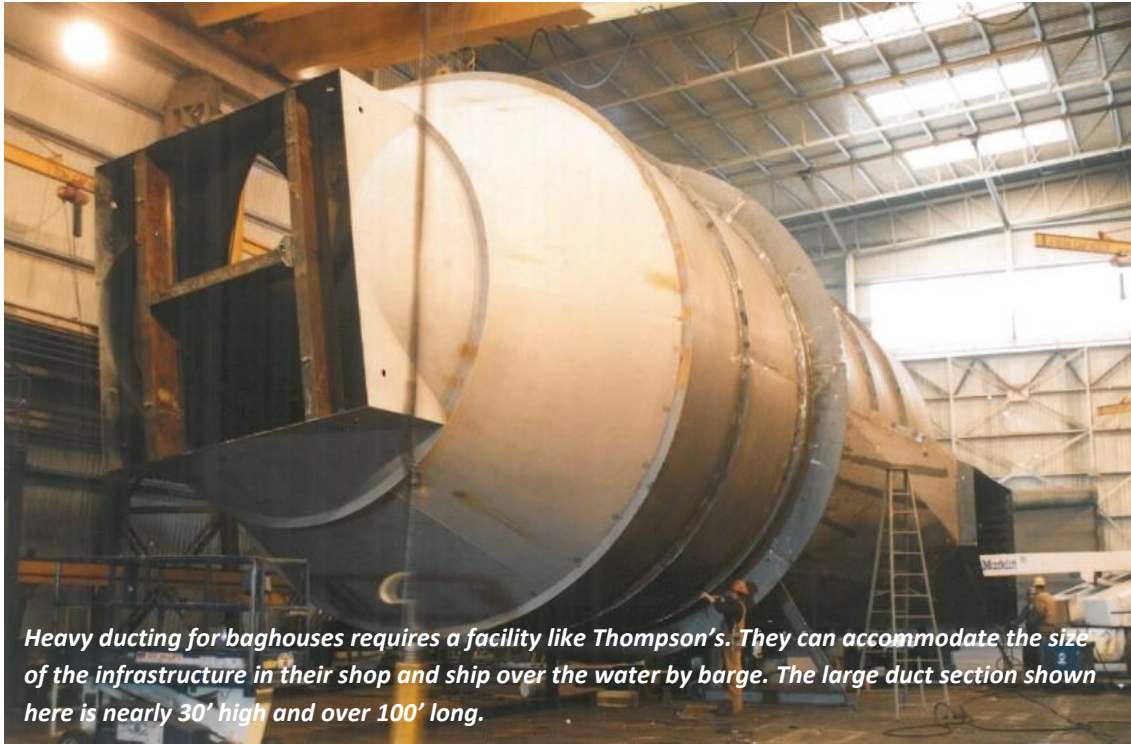




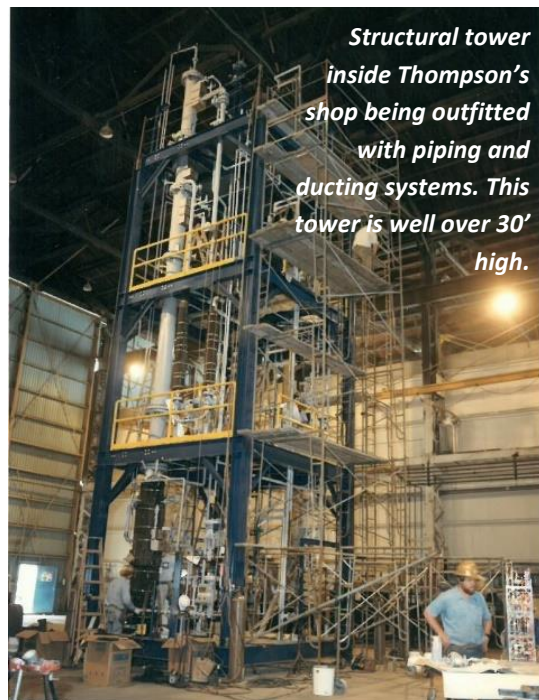
***Conveyors come in many shapes and sizes, depending on the intended use. Shipping the structures pre-assembled saves on time and money in the long-run and is a value-add for Owners and other stakeholders. Shown here are additional examples of projects that were manufactured by Thompson and delivered all over the West Coast, from Toledo, OR to Sacramento, CA.***







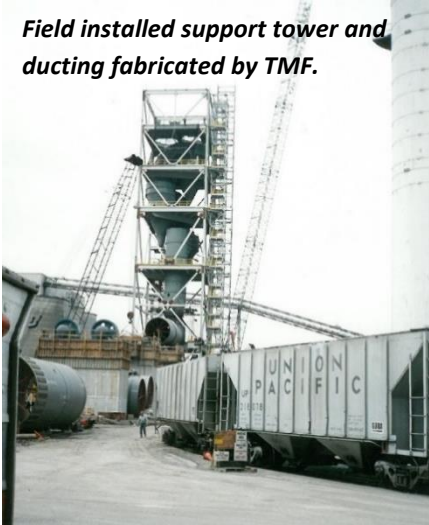
*Heavy ducting for baghouses requires a facility like Thompson's. They can accommodate the size of the infrastructure in their shop and ship over the water by barge. The large duct section shown here is nearly 30' high and over 100' long.*



*Structural tower inside Thompson's shop being outfitted with piping and ducting systems. This tower is well over 30' high.*



*Field installed support tower and ducting fabricated by TMF.*



*Baghouse components being loaded on a barge from Thompson Metal Fab's facility*



*Nearly touching the rafters, this giant structural building will soon be outfitted with mechanical items prior to load out on the barge. The size of Thompson's facility provides value to project owners who seek out modular, turn-key solutions for their infrastructure needs.*





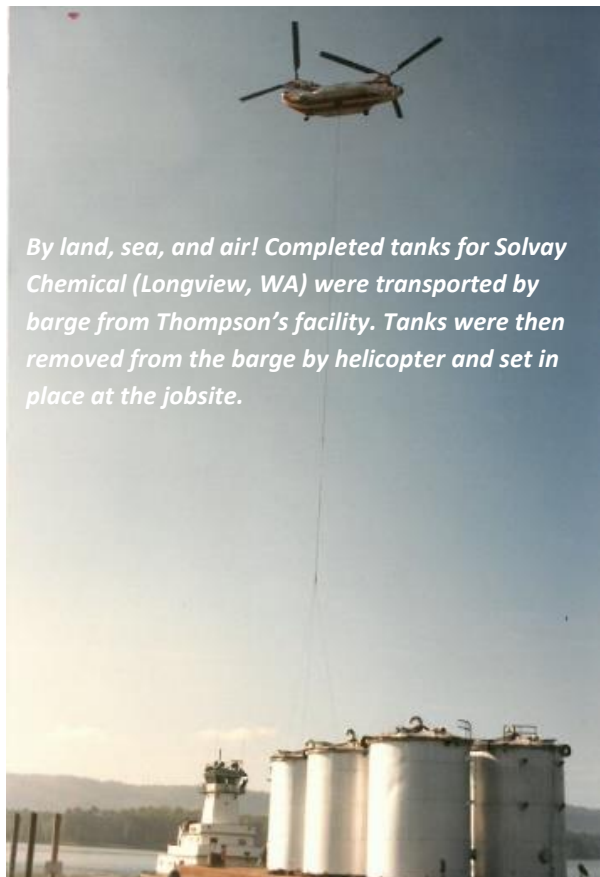


*Refineries on the West Coast are typically located on coastal properties or are otherwise accessible by deep water ports. In addition to capacity expansion and improvements, these facilities have processing vessels and other equipment that wear out over time and need to be replaced.*

*Shown here at the Phillips 66 facility in Rodeo, CA, Thompson Metal Fab fabricated a "prefractioner" tower which was 17' diameter x 126' L. Too large and heavy to ship over the road, this vessel was delivered by barge and direct to the jobsite.*



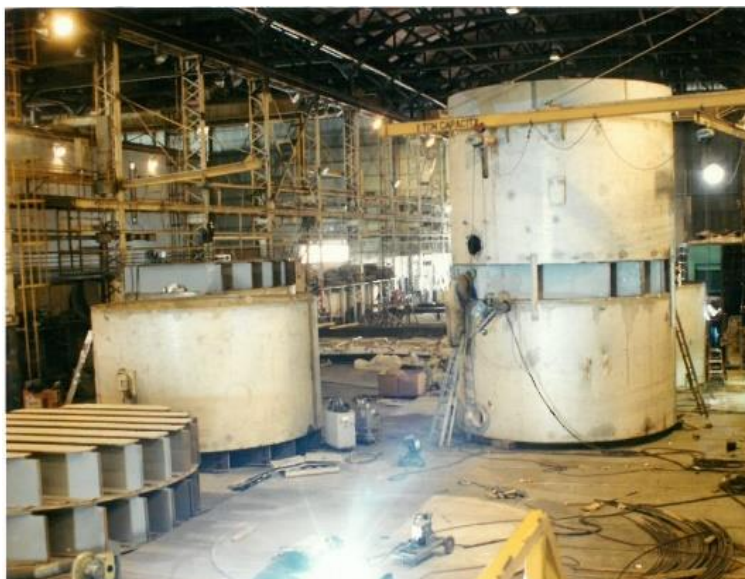




*By land, sea, and air! Completed tanks for Solvay Chemical (Longview, WA) were transported by barge from Thompson's facility. Tanks were then removed from the barge by helicopter and set in place at the jobsite.*



*Process vessels and skids are being loaded on a barge from Thompson Metal Fab's facility. This load will be delivered to Alaska and used on the North Slope. These units are well over 20' and 40' long.*



*Large tanks for Amalgamated Sugar in Portland, OR. The tanks are used as part of their manufacturing process. Due to the size of the tanks, they were shipped by barge and then transloaded to a truck for final delivery.*





*Trunnions for the Interstate Bridge shown above in Thompson's shop. Their proximity to the bridge made TMF an ideal location when repairs were needed. Shown below are two Seattle area bridge projects that were completed at the Columbia Business Center, painted by TMF, and delivered to the jobsite by barge.*











*Shown above and below is a modular segment of the Power Barge fabricated by TMF. Segments were pre-fabricated in the shop before being assembled in Thompson's yard. The final assembly was 105' W x 30' H x 284' L*



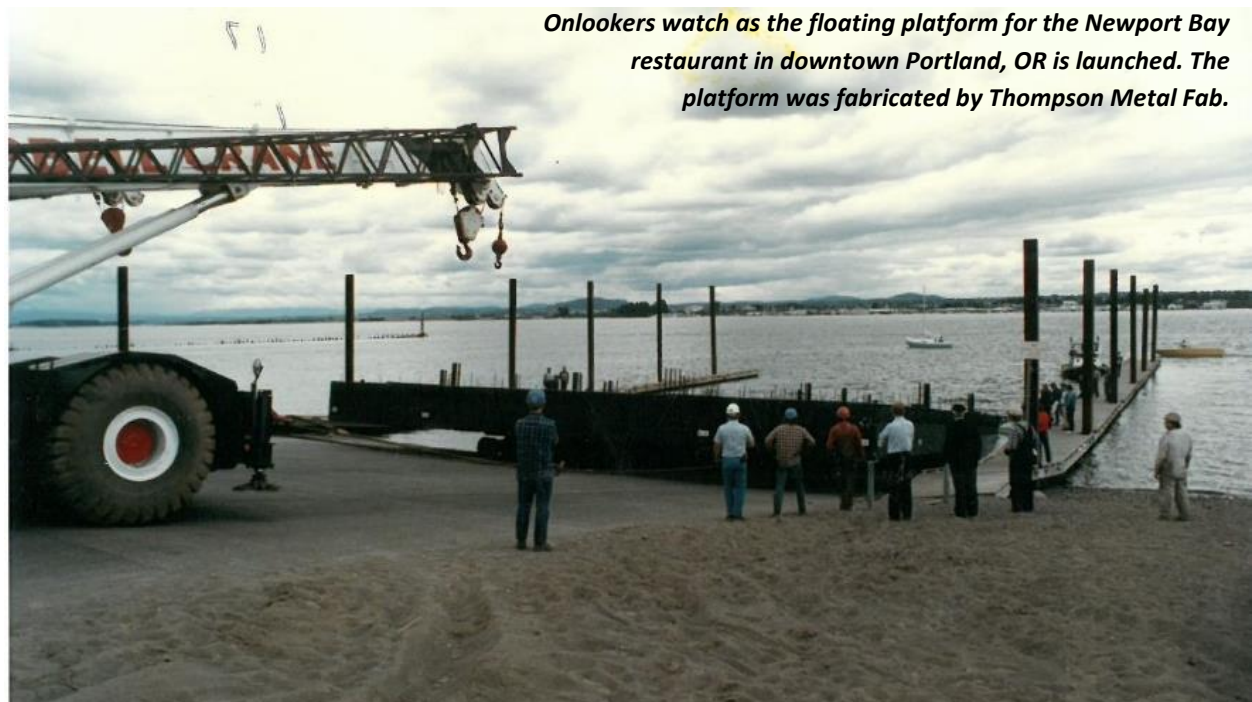




*At left, large platform is being flipped inside Thompson Metal Fab's shop.*

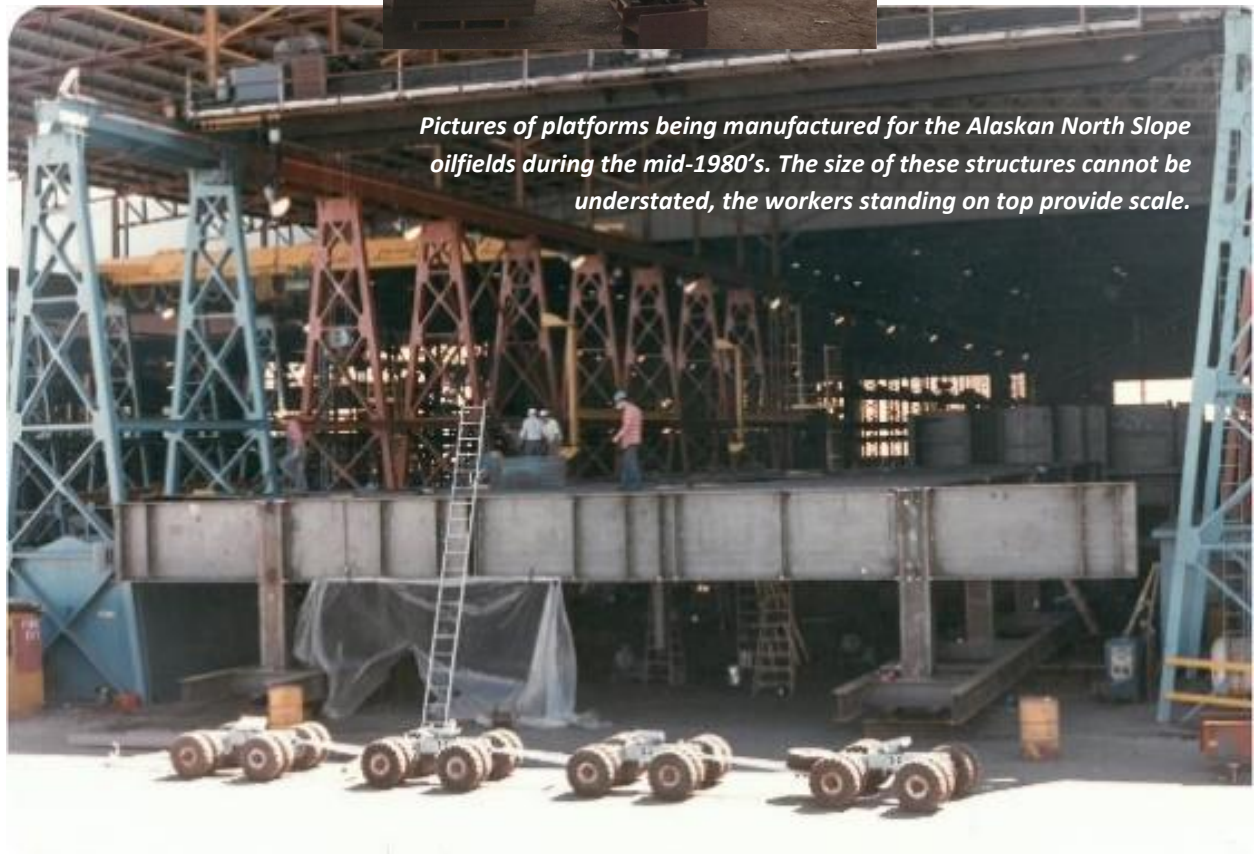


*Thompson Metal Fab has a legacy of fabricating unique, complex, and often massive structures which require delivery by water.*



*Onlookers watch as the floating platform for the Newport Bay restaurant in downtown Portland, OR is launched. The platform was fabricated by Thompson Metal Fab.*

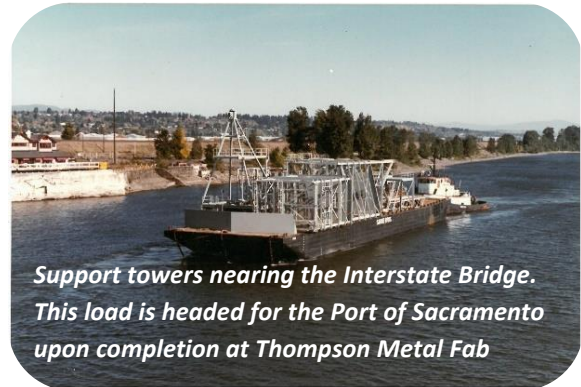




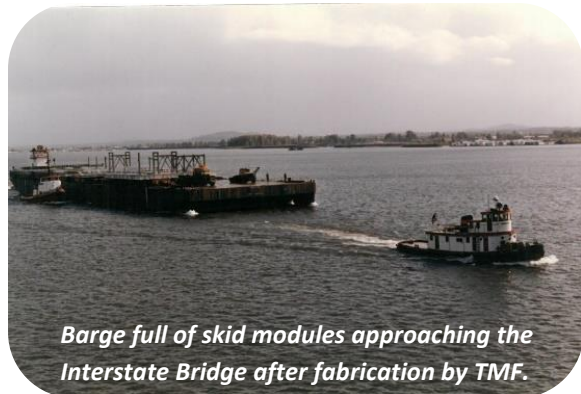
*Pictures of platforms being manufactured for the Alaskan North Slope oilfields during the mid-1980's. The size of these structures cannot be understated, the workers standing on top provide scale.*



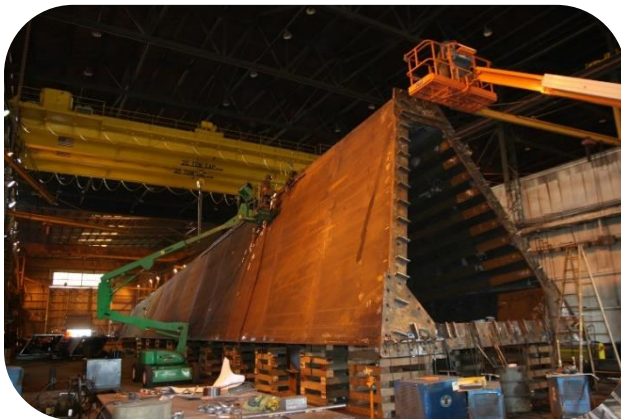
*Shown below, load out of the cradle base that would carry PGE's Trojan nuclear reactor. TMF fabricated the base and the shielding enclosures.*



*Support towers nearing the Interstate Bridge. This load is headed for the Port of Sacramento upon completion at Thompson Metal Fab*



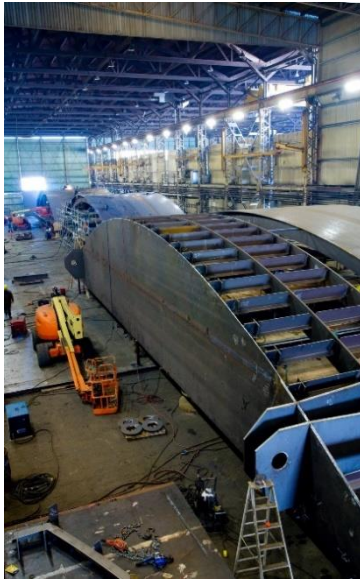
*Barge full of skid modules approaching the Interstate Bridge after fabrication by TMF.*



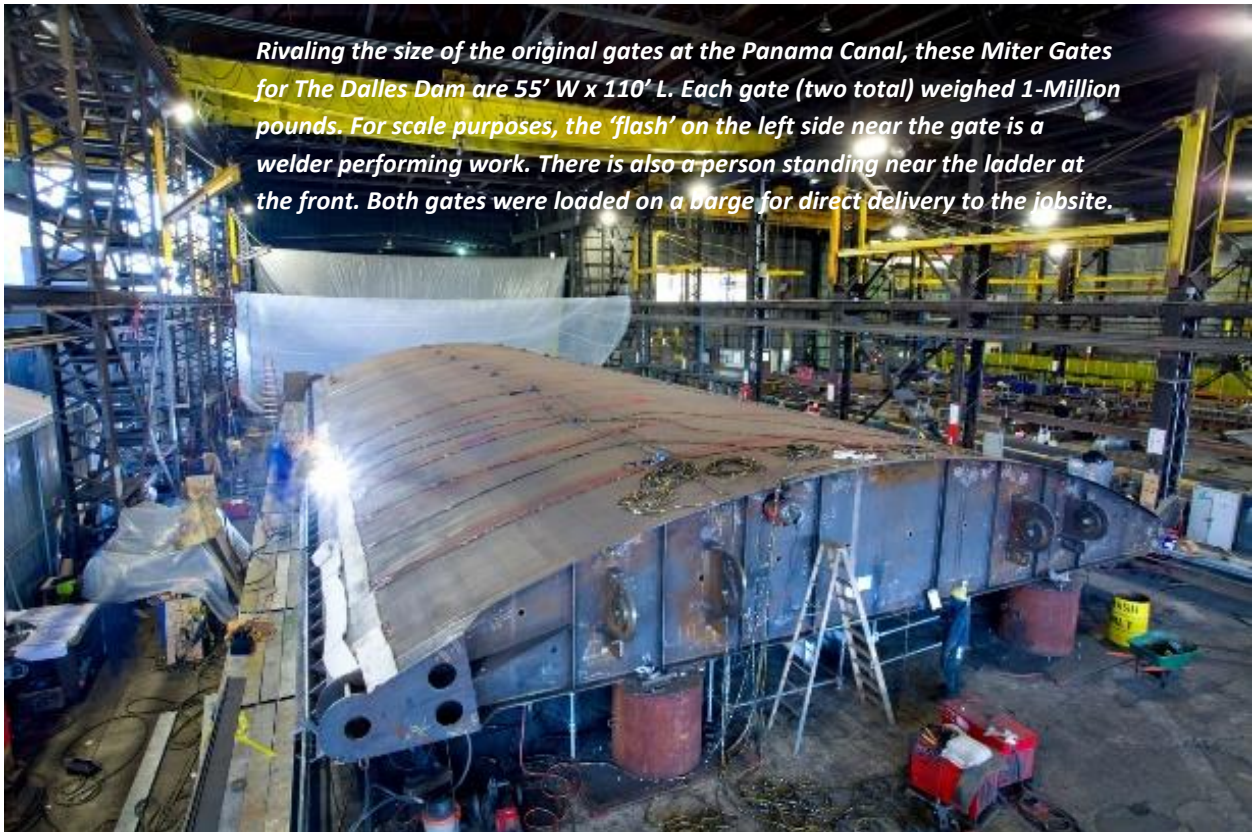
*The lower segment of the iconic Portland Aerial Tram's tower is shown inside Thompson Metal Fab's shop. Including the bunking underneath, the tower is nearly 40' high and 30' wide. The completed tower can be seen at OHSU, spanning over I-405.*







*Fabrication of the Lower Monumental Dam Lift Gate is shown at left inside Thompson's shop. Due to its size (nearly 1.5-Million pounds) the gate was fabricated in three segments, loaded on a barge, and finished in the field by the General Contractor. The picture here shows the three segments be aligned for fit verification at TMF's yard. Final dimensions are 88' W x 84' H*

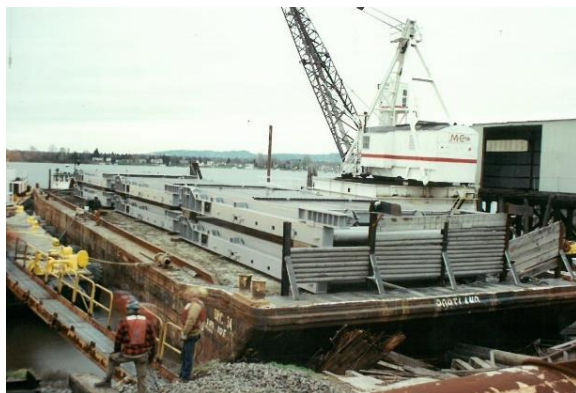


*Rivalling the size of the original gates at the Panama Canal, these Miter Gates for The Dalles Dam are 55' W x 110' L. Each gate (two total) weighed 1-Million pounds. For scale purposes, the 'flash' on the left side near the gate is a welder performing work. There is also a person standing near the ladder at the front. Both gates were loaded on a barge for direct delivery to the jobsite.*







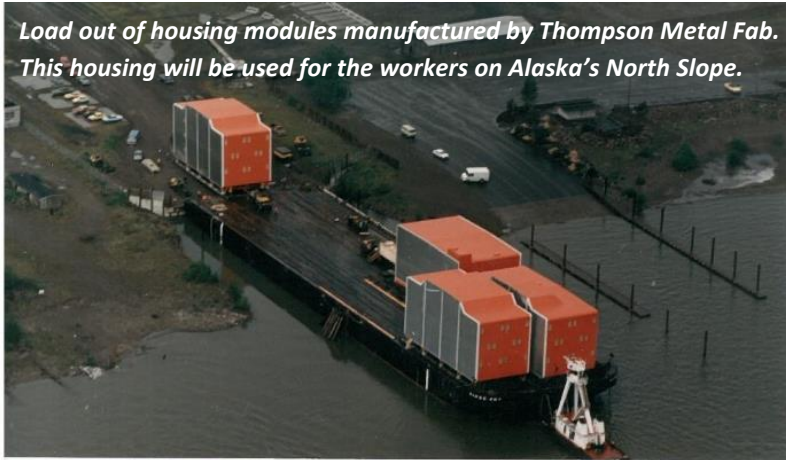


*Shown above and below are multiple barge loadings for a massive project at Lower Granite Dam in the mid-1990's. All structures were fabricated by Thompson Metal Fab and loaded out at the Columbia Business Center.*

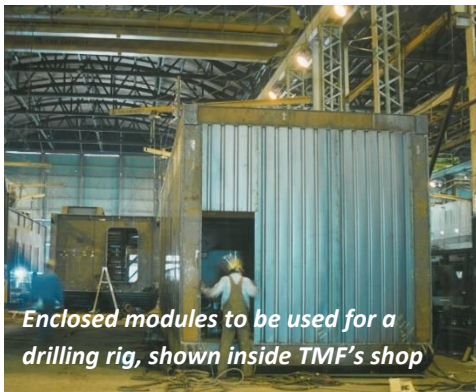




*Load out of housing modules manufactured by Thompson Metal Fab. This housing will be used for the workers on Alaska's North Slope.*



*Enclosed modules to be used for a drilling rig, shown inside TMF's shop*



*Modular fabrication has long been a part of Thompson's history and success. The size of their facility at the Columbia Business Center allows TMF to offer large, turn-key, fully-operational modular systems which get used for housing, data centers, oil production/drilling, crude oil processing, technology, electrification, water treatment, chemical processing, fuel storage, pipe handling, and conveyor systems – among other uses. Remote jobsite locations and size of many of these structure require use of the barge slip, adjacent to Thompson's facility.*



*Example of processing modules being manufactured inside Thompson Metal Fab*





*Walls, roof, and equipment being installed on 44' x 97' skid shown below*

*Thompson's extensive experience with turn-key modular systems made it a valuable partner as a new market emerged for these products. Increase demand for technology pushed groups, like Intel, to expand their facilities. 'Cloud based' data storage requires facilities on the ground that can house servers. Increased online shopping (i.e. Amazon) requires warehouses and data centers. As the world becomes dependent on technology the demand for these custom, modular buildings has significantly increased.*



*Shown below in late 2019, this skid represents the largest non-oil related module manufactured by TMF. At 44' W x 97' L, this module is too large to ship over the road, and too big to be handled in the field.*

*To accommodate field conditions, a shipping 'split' was engineered in the middle of the floor (shown) and in the roof trusses. The 44-ft mega module would ship via barge, and completely outfitted in two segments.*



*Two 44' x 97' modules were manufactured by TMF, each with a shipping split described above. Shown in the middle of this picture are two of the four total segments prior to barge loading.*

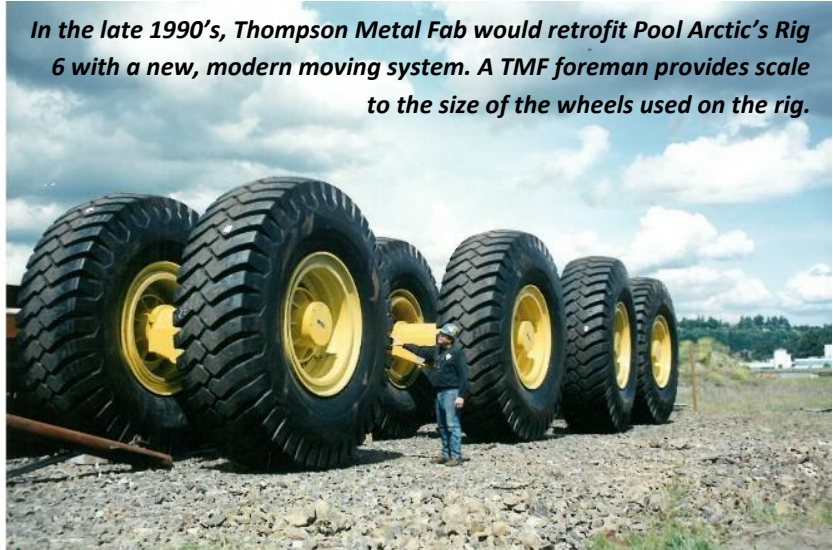
*Also shown is the BNSF Wind River Bridge. This was manufactured at the Columbia Business Center and would ship via barge completely assembled and installed in one-piece.*



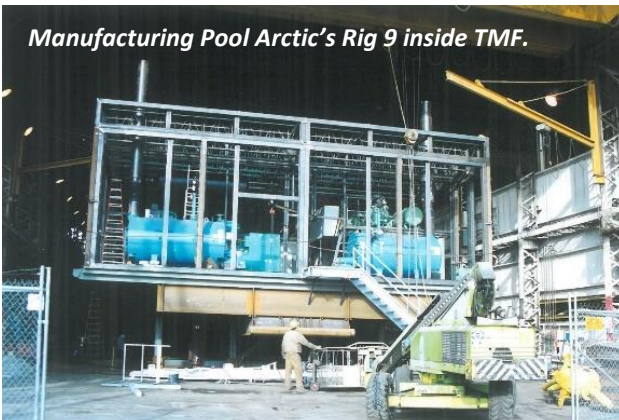
*Pool Arctic Rig 3 Retrofit,  
performed by TMF*



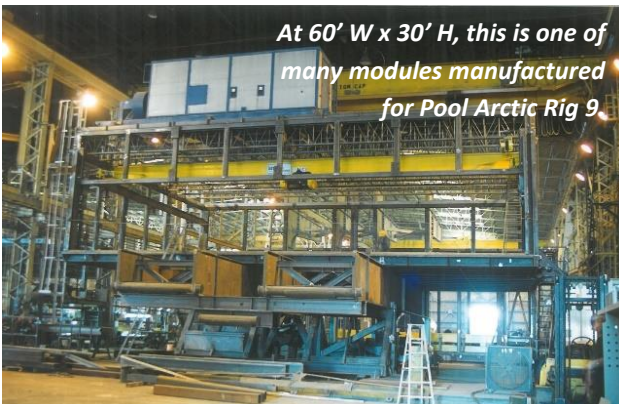
*In the late 1990's, Thompson Metal Fab would retrofit Pool Arctic's Rig 6 with a new, modern moving system. A TMF foreman provides scale to the size of the wheels used on the rig.*



*Manufacturing Pool Arctic's Rig 9 inside TMF.*



*At 60' W x 30' H, this is one of  
many modules manufactured  
for Pool Arctic Rig 9*

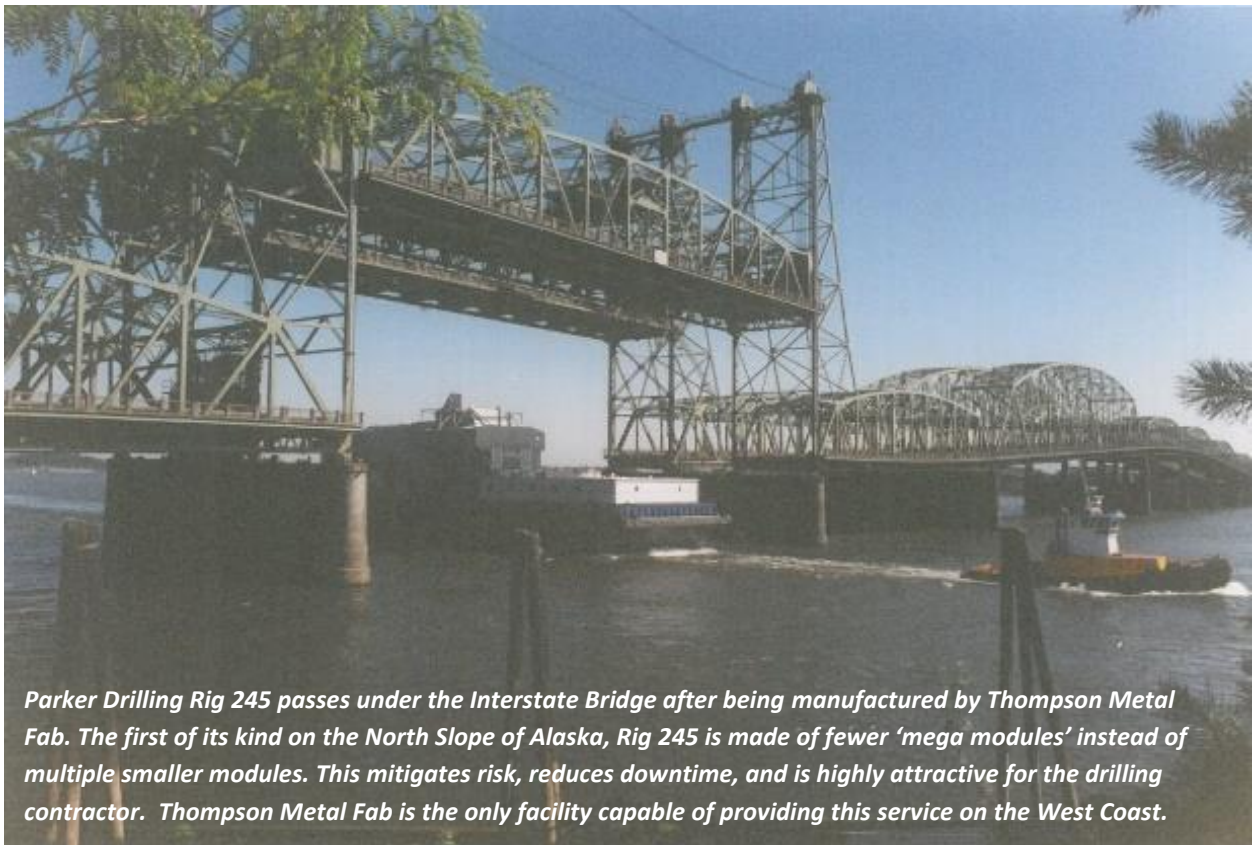


*Following some of its recent predecessors (i.e.  
Rig 245), Rig 9 would use the 'mega module'  
concept to reduce downtime on the North Slope*



*Over the last 30-years, 15 rig projects have been awarded to Thompson Metal Fab. Nearly 1/3<sup>rd</sup> of the rigs in Alaska have some connection to TMF.*

*Shown at right, Nordic-Calista's Rig 3 being 'rigged up' in Thompson's yard in 1997. This workover rig is used to restore production on exiting wells.*



*Parker Drilling Rig 245 passes under the Interstate Bridge after being manufactured by Thompson Metal Fab. The first of its kind on the North Slope of Alaska, Rig 245 is made of fewer 'mega modules' instead of multiple smaller modules. This mitigates risk, reduces downtime, and is highly attractive for the drilling contractor. Thompson Metal Fab is the only facility capable of providing this service on the West Coast.*





*No, the picture to the right is not the inside of a 'big box' store, but it is the size of one! This is the inside of the Liberty Rig's Pipe Module (see above) and is where all production drill pipe is stored.*



*At the time it was manufactured, the Liberty Rig was the world's largest land-based drilling rig. Everything about this rig was supersized, including the mast shown here inside Thompson Metal Fab. Drill structures, like the one shown here, require special certification for manufacturing, and TMF is the only facility on the West Coast who holds that certification while also boasting a facility/yard of its size, in addition to roll-on/roll-off barge capabilities.*





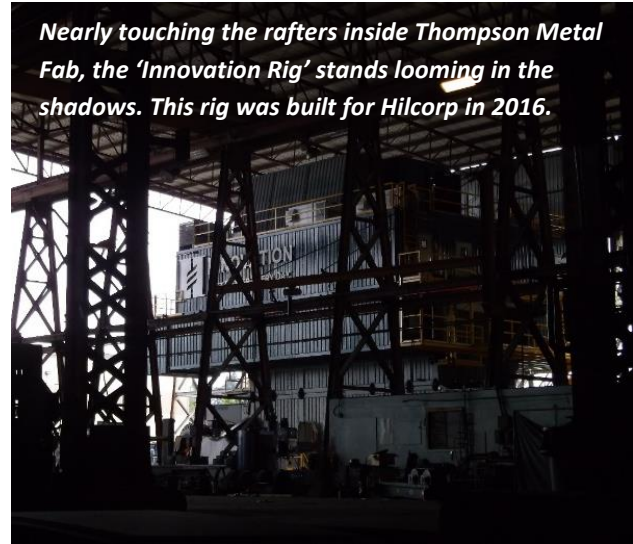
*For new rig builds, drilling contractors traditionally manage the design and hire their own sub-contractors (structural, electrical, mechanical, etc.) For Doyon Drilling's Rig 25, TME was hired as the General Contractor and managed all rig-build efforts on behalf of Doyon. As a result, Rig 25 becomes the rig built by Thompson as General Contractor.*

*Rig 25 is a sought after work-horse on Alaska's North Slope and is a dependable rig in Doyon's fleet. This picture shows a very proud Thompson team at the end of the project.*





*Shown above is the part of the substructure base for Rig 272. Its twin (Rig 273) was manufactured at the same time at TMF. Picture below shows the yard assembly of Rig 272, Rig 273, and Rig 25.*





## Marine Industries and Fabricators

Company: Vigor

Company provided the following information to the IBR Program.



Vigor Works, LLC. is a Heavy Industrial Fabrication Company that serves the Marine, Hydro-Electric, Nuclear, Oil & Gas and Steel Bridge Industries. The wide variety of products produced by Vigor Works support private industry as well as Government Agencies (local, state, federal). Past and present projects completed from the Columbia Industrial Park include fully assembled final products: Bridges, Oil Field Modules/Platforms, Marine Vessels and other extremely large infrastructure type goods which have limited areas for fabrication due to water loadout/shipping and air draft restrictions.

Vigor Works (in and adjacent to the Columbia Industrial Park) are uniquely qualified and situated to support strategic and industrial needs, particularly our national infrastructure of dams, locks and bridges and marine vessels. The living wage trade jobs created by this work are critical to the health of the Vancouver/Portland area. Vigor currently supports ~1500 trade related jobs in the Portland Metro area which includes three separate locations in and around the Columbia Industrial Park.

Heavy investment in capital and people has occurred in all three Vancouver locations upriver of the I-5 bridge. By maintaining flexibility to pursue and provide ultra large product for customers, we can continue to pursue this type of work to support the jobs and economy of Vancouver. Our sites are unique due to their access to a large metro area with truck, rail and marine access.

The current bridge height has been important for commerce and shipments along the Columbia River for nearly a century and even more critically important since the war effort in the 1940s. In the late sixties and early seventies, offshore drilling rigs were constructed at this location and had to transit under the bridge. These offshore platforms required the bridge to be raised to its full height of 174 feet to allow them to pass under the raised span. More recently we have watched drilling equipment destined for Alaska being assembled in the Columbia Industrial Park that required 150 feet of clearance to be shipped down the river. Vigor consistently evaluates opportunities for product up to 110 feet in height. The additional height of blocking, transport barge freeboard and clearance margin, easily results in an air draft requirement of 130' for these projects. Ideally, we recommend a height of 150 feet air draft.

Our other Portland facility located on Swan Island (Portland Shipyard) also engages in large fabrications and we have in the past, barged components to/from the Vancouver facilities. Our Marine Fabrication work has also resulted in portions of vessels being shipped via barge to Ketchikan and we are currently evaluating shipping product components to our Seattle Shipyard- the exact size of those products have not yet been determined. In the future, we would expect to ship product both upriver and down river.

The lower height of the bridge will limit Vigor Works' ability to compete on some projects. The ability and direct access to shipping on the Pacific Ocean and subsequent trade routes to Alaska or the gulf coast and Mississippi River system (via the Panama Canal) is critical for our full and sustained operation. One recent project was delivered to New Jersey.

In summary:

The Bridge Height is now is 174 feet; this height has been needed as follows:

- 1960 to 1975 Drilling Platforms for the California Offshore Field.
- 1980 to 1995 Various loads from the Industrial Park to locations in Alaska and elsewhere.



- 2000 to 2012 Drilling Equipment for Parker Drilling assembled in the Park and shipped to Alaska.

Current:

- We are evaluating Vancouver for long term production related to partial or all construction for upcoming work. The final bridge height could impact the amount of work completed in Vancouver.
- We anticipate there will be some opportunity for future module or drill platform work associated with Alaska as equipment requires replacement.
- We expect, although do not know what the development of offshore wind will need for industrial shore side support.

Conclusion:

This Marine Highway is used by a multitude of users with traffic going both upstream and down. We ship goods from the industrial park upstream of the bridge to Swan Island Ship Yard and from the Swan Island Ship Yard to the industrial park. The I-205 Bridge upstream of the bridge has a clearance of 144 feet and downstream of the bridge we have clearance limited only at Astoria and that is 196 feet with the Lewis and Clark (Longview) bridge over 200 feet. We believe it is critical to our business and the viability of the river system used for commerce to keep the height of this bridge at least 150 feet.



## APPENDIX C OTHER USERS INVENTORIED



Appendix C includes information collected and/or referenced for all users inventoried in the IBR NIR. Information was collected through direct outreach to river users and through an online survey. Notification of the request for information and a link to the online survey was provided in the following publications:

- The IBR website and social media platforms (digital)
- USCG Local Notice to Mariners (digital)
- Sea Magazine (digital and print)
- NW Yachting (digital and print)
- 48 North (digital)
- Oregonian (digital)
- Columbian (digital)
- DJC Oregon (digital)
- DJC Seattle (digital and print)
- Daily Astorian (digital and print)
- St Helens Chronicle (digital)
- Camas-Washougal Post Record (digital)
- Pacific Northwest Waterways Association (digital)
- Merchants Exchange Newsletter (digital)
- Lewiston Morning Tribune (print)
- Columbia River Steamship Operators' Association (email listserv)

## USERS INVENTORIED

The following sections identify the river users inventoried for the IBR NIR, followed by all data received as part of the IBR outreach to river users, as well as data previously included in the CRC NIR. Where a user contacted did not provide information, only the data previously included in the CRC NIR is included.

### Commercial Tugs/Tows/Barges

- Bernert Barge Lines
- Mark Bernert Tugboat Co.
- Cadman
- SDS Tug & Barge
- Shaver
- Tidewater

### Marine Contractors

- Advanced American Construction
- Bergerson
- Cal Portland
- Diversified Marine
- The Dutra Group



- General Construction Company
- Hickey Marine
- JE McAmis
- JT Marine
- Knife River
- Manson Construction Company
- Mark Marine Service
- NorthBank Civil and Marine
- Ross Island

## Marine Industries and Fabricators

- Greenberry
- Thompson Metal Fab
- Vigor
- Schnitzer Steel

## Federal/Government

- Port of Portland
- Puget Sound Naval Shipyard
- Tongue Point Job Corps (Maritime Training Program)
- USACE
- USCG, Marine Safety Unit

## Passenger Cruise

- American Cruise Lines
- American Queen Steamboat Company
- American Waterways, Inc.
- Grays Harbor Historical Seaport
- Lindblad/National Geographic Expeditions

## Recreational Sailboats and Powerboats

Submitted through the online survey

- Keith Thomson
- Terence L Thatcher
- Loren Beach
- Sam Shogren
- Thomas Keffer
- Roger Rosenquist



- Richard Sandefur
- Mike Jensen
- Paul Floreck
- Sean Kearns
- Elizabeth Harris
- Greg Kelly
- Rick Zimmer
- Jim Sinclair
- Sewall Dana
- Fred Hazzard
- Gary Brown
- Motor vessel with no owner identified
- Alan Boguslawski
- Richard Samuels
- Gary Whitney
- Jerry E Barnes
- James B Shaw
- Kenneth Stephens
- Alan (no last name provided)
- Janet McCormick
- Gilbert Colistro
- Julie Schumann
- Roger Jorgensen
- Pam Corey
- Liv D Ormond
- Kevin Flanigan/Schooner Creek Boat Works
- Steve Tidwell

Information submitted via email or included in the CRC NIR.

- Legendary Yachts
- Portland Yacht Club
- Rose City Yacht Club



## Commercial Tugs/Tows/Barges

Owner: Bernert Barge Lines

Vessels:

- Kathryn B.
- Lori B.
- Diane B.
- Mary B.

Company provided an email confirmation of IBR data sheets. The CRC NIR did not include additional vessel survey information or images.



**From:** [Jerry Grossnickle](#)  
**To:** [River Navigation](#)  
**Subject:** Bridge Replacement Program  
**Date:** Monday, May 17, 2021 9:07:09 AM

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Greetings, Nicole & Team

On behalf of Bernert Barge Lines. Inc., I apologize for our tardy response to your request for vessel information. I reviewed the data sheets that you sent, and confirm their accuracy and that there are no additions that need to be made.

Thank you.

Jerry

Jerry Grossnickle, CFO  
Bernert Barge Lines, inc.  
503-289-3046



## EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** Bernert Barge Lines, Inc.

**Vessel Name:** Mary B

**Vessel Type:** Towing

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): Choose an item.

**Vessel Category:** Commercial

**USCG Document Number:** 516063516063

**Primary Mooring Location** (*waterway milepoint, if known*):

BBL Dock at The Dalles

Shaver Dock at Rainier

**Type and quantity of cargo, if applicable:**

Barge loads of wood chips, logs, other commodities

**Length (overall; ft):** 61.4

**Beam (width; ft):** 21.3



## EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Draft (ft)** - depth of hull below waterline, fully laden: 8

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**Air Draft (ft)** - height of highest fixed point above waterline, unladen: 42 (approx.)

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**Air Gap (ft)** - desired clearance from highest fixed point to lowest part of bridge: 5

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**Safety Margin (ft)** horizontal clearance required by vessel to navigate through the bridge: 200

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**Transit speed under Interstate Bridge and Load Configuration:**

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**Time of Year of Passage:**

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**Tug Assistance Required:**No

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**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan	2	Feb	3	Mar	2	Apr	2	May	1	June	1
Jul	4	Aug	3	Sep	2	Oct	2	Nov	2	Dec	2

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan		Feb		Mar		Apr		May		June	
Jul		Aug		Sep		Oct		Nov		Dec	



## EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



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**Company/Owner Name:** Bernert Barge Lines, Inc.

**Vessel Name:** Diane B

**Vessel Type:** Towing

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*):

**USCG Document Number:** 614861

**Primary Mooring Location** (*waterway milepoint, if known*):

Shaver Dock at Rainier

**Type and quantity of cargo, if applicable:**

Rock, wood chips, logs, steel, etc. by barge; maximum tow width 84 feet, typical tow length 350 feet

**Length (overall; ft):** 67.5

**Beam (width; ft):** 28

**Draft (ft) - depth of hull below waterline, fully laden:** 7.6



## EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Air Draft (ft)** - height of highest fixed point above waterline, unladen: 52

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**Air Gap (ft)** - desired clearance from highest fixed point to lowest part of bridge: 5

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**Safety Margin (ft)** horizontal clearance required by vessel to navigate through the bridge: 200

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**Transit speed under Interstate Bridge and Load Configuration:**

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**Time of Year of Passage:**

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**Tug Assistance Required:** No

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**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



## EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** Bernert Barge Lines, Inc.

**Vessel Name:** Kathryn B

**Vessel Type:** Towing

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*):

**USCG Document Number:** 568536

**Primary Mooring Location** (*waterway milepoint, if known*):

Shaver Dock at Rainier

**Type and quantity of cargo, if applicable:**

Rock, wood chips, logs, steel, etc. by barge, maximum tow width 84 ft, typical tow length 350 ft

**Length (overall; ft):** 99.2

**Beam (width; ft):** 22.1

**Draft (ft)** - *depth of hull below waterline, fully laden*: 7.9



## EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Air Draft (ft)** - height of highest fixed point above waterline, unladen: 54

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---

**Air Gap (ft)** - desired clearance from highest fixed point to lowest part of bridge: 5

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**Safety Margin (ft)** horizontal clearance required by vessel to navigate through the bridge: 200

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**Transit speed under Interstate Bridge and Load Configuration:**

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**Time of Year of Passage:**

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**Tug Assistance Required:** No

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**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan 6 Feb 6 Mar 4 Apr 5 May 6 Jun 8  
Jul 5 Aug 6 Sep 5 Oct 5 Nov 4 Dec 6

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):** None

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ Jun \_\_\_\_\_  
Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



## EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** Bernert Barge Lines, Inc.

**Vessel Name:** Lori B

**Vessel Type:** Towing

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*):

**USCG Document Number:** 273466

**Primary Mooring Location** (*waterway milepoint, if known*):

Shaver Dock at Rainier

**Type and quantity of cargo, if applicable:**

Barge loads of wood chips, logs, rock, other commodities

**Length (overall; ft):** 57.3

**Beam (width; ft):** 31.2

**Draft (ft) - depth of hull below waterline, fully laden:** 10.7



## EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Air Draft (ft)** - height of highest fixed point above waterline, unladen: 38

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**Air Gap (ft)** - desired clearance from highest fixed point to lowest part of bridge: 5

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---

**Safety Margin (ft)** horizontal clearance required by vessel to navigate through the bridge: 200

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---

**Transit speed under Interstate Bridge and Load Configuration:**

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**Time of Year of Passage:**

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**Tug Assistance Required:** No

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**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan 6 Feb 5 Mar 4 Apr 7 May 7 June 5  
Jul 6 Aug 4 Sep 5 Oct 4 Nov 4 Dec 5

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_  
Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



## Commercial Tugs/Tows/Barges

Owner: Mark Bernert Tugboat Co. (different from Bernert Barge Lines)

Vessel:

- Claire B

Information was submitted through the online survey. Survey response follows.



#10

COMPLETE

**Collector:** Web Link 1 (Web Link)  
**Started:** Tuesday, May 18, 2021 8:08:05 AM  
**Last Modified:** Tuesday, May 18, 2021 8:14:27 AM  
**Time Spent:** 00:06:21  
**IP Address:** 97.115.109.189

---

Page 1: Introduction

Q1

Company Name

Mark Bernert Tugboat Co

Q2

Contact Information

Name	Mark Bernert
Email	markbernert@gmail.com
Phone number	5033961102

---

Q3

Vessel Name (please complete one survey per vessel)

Claire B

Q4

Tug

Vessel Type

Q5

No

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

---

Q6

Commercial

Vessel Category



**Q7**

USCG Document Number

1067508

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**Q8**

Primary Mooring Location (waterway milepoint, if known)

Scappoose

---

**Q9**

Type and quantity of cargo, if applicable

Sand and Gravel, 3,000 tons

---

**Q10**

Length (total feet)

260

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**Q11**

Beam (width in feet)

60

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

12

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

48

---

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

4

---



**Q15**

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

4

---

**Q16**

Frequency of passage under Interstate Bridge (main channel)

March	4
April	4
May	4
June	4
July	4
August	4
September	4
October	4

---

**Q17**

Respondent skipped this question

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

---

**Q18**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

Oregon

---

**Q19**

No

Tug Assistance Required

---

**Q20**

Respondent skipped this question

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

---

**Q21**

Respondent skipped this question

Is there anything else you would like to add about your vessel or business plans?

---



**Q22**

**No**

Do you have another vessel?



## Commercial Tugs/Tows/Barges

Owner: Cadman

Vessel:

- Inland Conveyor Barge

Company provide information through the online survey. Survey response is included below.



#15

**COMPLETE**

**Collector:** Web Link 1 (Web Link)  
**Started:** Monday, May 24, 2021 7:42:35 AM  
**Last Modified:** Monday, May 24, 2021 8:04:17 AM  
**Time Spent:** 00:21:41  
**IP Address:** 165.225.35.5

---

Page 1: Introduction

**Q1**

Company Name

Cadman Materials, Inc

**Q2**

Contact Information

Name	<b>Chuck Rose</b>
Email	<b>charles.rose@lehighhanson.com</b>
Phone number	<b>2067350574</b>

---

**Q3**

Vessel Name (please complete one survey per vessel)

Inland Conveyor Barge

**Q4****Barge**

Vessel Type

**Q5**

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

**Yes,**  
If yes, please describe:  
No mechanical propulsion

**Q6****Commercial**

Vessel Category



**Q7**

USCG Document Number

1140865

---

**Q8**

Primary Mooring Location (waterway milepoint, if known)

Portland, OR

---

**Q9**

Type and quantity of cargo, if applicable

Aggregates and 8,000 tons

---

**Q10**

Length (total feet)

300 ft

---

**Q11**

Beam (width in feet)

84 ft

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

13.5 draft fully loaded and 16.5 ft total depth

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

Offloading equipment is approx 49 ft above the waterline and a typical tug is 52 ft above the waterline

---

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

At least 1 ft

---



**Q15**

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

100 ft on each side of the barge

---

**Q16**

Frequency of passage under Interstate Bridge (main channel)

January	3
February	4
March	4
April	4
May	4
June	4
July	5
August	5
September	5
October	4
November	3
December	3

---

**Q17**

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

January	0
February	0
March	0
April	0
May	0
June	0
July	0
August	0
September	0
October	0
November	0
December	0

---



Q18

Transit speed under Interstate Bridge and Load Configuration (if applicable)

3 to 8 knots

Q19

Yes

Tug Assistance Required

Q20

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

None at this time

Q21

Is there anything else you would like to add about your vessel or business plans?

No, other than it is critical to allow passage under the I-5 bridge to supply our construction material business

Q22

No

Do you have another vessel?



## Commercial Tugs/Tows/Barges

Owner: SDS Tug & Barge

Vessels:

- Dauby
- Wallace E
- Bruce M

Company did not respond to IBR request. Information below was included in the CRC NIR.



## Commercial Tugs and Tows

---

Owner: SDS Lumber

Vessel: Dauby



River User Data Sheet

By: Gary Collins Date: 3-13-12

1. Company Name and/or Owner of Vessel and contact information

- a. Name of company: SDS Lumber Co.  
b. Name of contact: Gary Collins  
c. Phone number (Office): 509-493-2155 d. (Cell): 541-490-1370  
e. Email: Gary C @ SDS Lumber, com  
f. Address: PO Box 266  
g. City: Bingen WA  
h. State: WA i. Zip code: 98605

3a. Vessel Name: Darby 3b. Vessel Type: Tug

3c. US Coast Guard Document Number: \_\_\_\_\_

4a. Length Overall (LOA), feet: 86 4b. Beam (width), feet: 28

5. Draft (depth of hull below waterline, fully laden), feet: 8'

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 55'

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 10'

8. Frequency of one-way passage underneath I-5 main channel (typical per month): 10

Jan ☒ Feb ☐ Mar ☐ Apr ☒ May ☒ Jun ☒ Jul ☐ Aug ☒ Sep ☒ Oct ☒ Nov ☒ Dec ☒

9. Frequency of one-way passage underneath I-5 main channel (other historic events): \_\_\_\_\_

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month):

Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec ☐

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): 6



12. Do you have a Business Plan (e.g. 10 or 20 year plan)? What does it say regarding vessels

transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? May we have a copy?

13. Other miscellaneous

Barges That might Be higher  
Then Tug That has Equipment  
Loaded on Them could Be as high  
As 100' ?  
1



## **Commercial Tugs and Tows**

**Owner:** SDS Lumber

**Vessel:** SDS Lumber Barge with Equipment

---







## Telephone Conversation Memorandum

project: Columbia River Cross job no. AH. 08.15 date: 15 Aug 2012  
(use complete number)

from: Peter M. Geiger talked to: Gary Collins  
SDSL Lumber

indicate department, field office, etc., "for in-house" calls.  
indicate agency or firm for other than "in-house" calls.

509-493-2155  
541-490-1370 (cell)

item discussed: Status of Large Package Barges  
Ability/Permission to Survey Air Draft

LW 8/15/12 1538 PDT 8/16/2012 0915 PDT via cell phone  
information obtained:

9 Barges No Spuds on their Barges

Metal Fab Spud Barge Pushes

Most of their work is pushing other peoples  
barges including Metal Fab (eg Thompson) or Construction  
barges/Crane barges with Spuds. These services  
are on an as-needed basis with nothing scheduled  
in the near term.

action required:

distribution:

--	--	--	--	--	--

by:



## Commercial Tugs/Tows/Barges

Owner: Shaver

Vessels:

- Cascades
- Clearwater
- Deschutes
- Lassen
- Lincoln
- Umatilla
- Willamette
- Randy S

Company completed IBR data sheets and submitted characteristics for two vessels (Randy S. and the Tug Cascades) through the online survey. A data sheet for the Tug Cascades was also provided. Data sheets and survey response are included below. No additional imagery or drawings were included in the CRC NIR.



## EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



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**Company/Owner Name:** Shaver Transportation Company

**Vessel Name:**

Cascades

**Vessel Type:**

Push knee style tug boat

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): Yes

Twin Screw Conventional Tug Multiple Main & Flank Rudders, pushing up to 4 grain barges while transiting under the bridge.

**Vessel Category:** Commercial

**USCG Document Number:**

555059

**Primary Mooring Location** (*waterway milepoint, if known*):

Willamette River mile 8.3

**Type and quantity of cargo, if applicable:**

Grain in barges, approximately 15000 tons per 4 barge tow

**Length (overall; ft):**

102 ft

**Beam (width; ft):**

30 ft



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - *depth of hull below waterline, fully laden:*

9.5 ft

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

56 ft

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

24 ft

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

450 ft

**Transit speed under Interstate Bridge and Load Configuration:**

8 knots

Pushing ahead on 4 barges – 2 x 2 – total barge width – 84 feet total length – 650 feet

**Time of Year of Passage:**

Year Round

**Tug Assistance Required:** No

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan\_\_12\_\_ Feb\_\_12\_\_ Mar\_\_4\_\_ Apr\_\_12\_\_ May\_\_12\_\_ June\_\_12\_\_

Jul\_\_12\_\_ Aug\_\_12\_\_ Sep\_\_12\_\_ Oct\_\_12\_\_ Nov\_\_12\_\_ Dec\_\_12\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan\_\_0\_\_ Feb\_\_2\_\_ Mar\_\_2\_\_ Apr\_\_0\_\_ May\_\_0\_\_ June\_\_0\_\_

Jul\_\_0\_\_ Aug\_\_0\_\_ Sep\_\_2\_\_ Oct\_\_0\_\_ Nov\_\_0\_\_ Dec\_\_0\_\_



### EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** Shaver Transportation Company

**Vessel Name:**

Clearwater

**Vessel Type:**

Push knee style tug boat

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): Yes

Twin Screw Conventional Tug Multiple Main & Flank Rudders, pushing up to 4 grain barges while transiting under the bridge.

**Vessel Category:** Commercial

**USCG Document Number:**

268312

**Primary Mooring Location** (*waterway milepoint, if known*):

Willamette River mile 8.3

**Type and quantity of cargo, if applicable:**

Grain in barges, approximately 15000 tons per 4 barge tow

**Length (overall; ft):**

98

**Beam (width; ft):**

30



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - depth of hull below waterline, fully laden:

11

**Air Draft (ft)** - height of highest fixed point above waterline, unladen:

56

**Air Gap (ft)** - desired clearance from highest fixed point to lowest part of bridge:

24

**Safety Margin (ft)** horizontal clearance required by vessel to navigate through the bridge:

450

**Transit speed under Interstate Bridge and Load Configuration:**

8 knots

Pushing ahead on 4 barges – 2 x 2 – total barge width – 84 feet total length – 650 feet

**Time of Year of Passage:**

Year Round

**Tug Assistance Required:**No

May need tug assist during bridge construction until old bridge is removed.

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan\_\_12\_\_ Feb\_\_12\_\_ Mar\_\_6\_\_ Apr\_\_12\_\_ May\_\_12\_\_ June\_\_12\_\_

Jul\_\_12\_\_ Aug\_\_12\_\_ Sep\_\_12\_\_ Oct\_\_12\_\_ Nov\_\_12\_\_ Dec\_\_12\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan\_\_2\_\_ Feb\_\_0\_\_ Mar\_\_2\_\_ Apr\_\_0\_\_ May\_\_0\_\_ June\_\_0\_\_

Jul\_\_0\_\_ Aug\_\_0\_\_ Sep\_\_0\_\_ Oct\_\_0\_\_ Nov\_\_0\_\_ Dec\_\_0\_\_



### EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** Shaver Transportation Company

**Vessel Name:**

Deschutes

**Vessel Type:**

Tractor Tug

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): Yes

highly maneuverable upriver tug with 2 "Z" drives, limited maneuverability when pushing grain barges

**Vessel Category:** Commercial

**USCG Document Number:**

1052828

**Primary Mooring Location** (*waterway milepoint, if known*):

Willamette River mile 8.3

**Type and quantity of cargo, if applicable:**

Grain in barges, approximately 15000 tons per 4 barge tow

**Length (overall; ft):**

91

**Beam (width; ft):**

36



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - depth of hull below waterline, fully laden:

14

**Air Daft (ft)** - height of highest fixed point above waterline, unladen:

58

**Air Gap (ft)** - desired clearance from highest fixed point to lowest part of bridge:

22

**Safety Margin (ft)** horizontal clearance required by vessel to navigate through the bridge:

450

**Transit speed under Interstate Bridge and Load Configuration:**

8 knots

Pushing ahead on 4 barges – 2 x 2 – total barge width – 84 feet total length – 650 feet

**Time of Year of Passage:**

Year round

**Tug Assistance Required:**No

May need tug assist during bridge construction until old bridge is removed.

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan\_\_12\_\_ Feb\_\_12\_\_ Mar\_\_6\_\_ Apr\_\_12\_\_ May\_\_12\_\_ June\_\_12\_\_

Jul\_\_12\_\_ Aug\_\_12\_\_ Sep\_\_12\_\_ Oct\_\_12\_\_ Nov\_\_12\_\_ Dec\_\_12\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan\_\_0\_\_ Feb\_\_0\_\_ Mar\_\_0\_\_ Apr\_\_0\_\_ May\_\_0\_\_ June\_\_0\_\_

Jul\_\_2\_\_ Aug\_\_0\_\_ Sep\_\_0\_\_ Oct\_\_0\_\_ Nov\_\_0\_\_ Dec\_\_0\_\_



### EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** Shaver Transportation Company

**Vessel Name:**

Lassen

**Vessel Type:**

Push ahead style tug

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): Yes

Twin Screw, Main & Flank Rudders

**Vessel Category:** Commercial

**USCG Document Number:**

562754

**Primary Mooring Location** (*waterway milepoint, if known*):

Willamette Oregon Mile 8.3

**Type and quantity of cargo, if applicable:**

Grain in barges, approximately 800 tons per 2 barge tow

**Length (overall; ft):**

70

**Beam (width; ft):**

24



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - depth of hull below waterline, fully laden:

7.5

**Air Draft (ft)** - height of highest fixed point above waterline, unladen:

44

**Air Gap (ft)** - desired clearance from highest fixed point to lowest part of bridge:

24

**Safety Margin (ft)** horizontal clearance required by vessel to navigate through the bridge:

450

**Transit speed under Interstate Bridge and Load Configuration:**

8 knots

Pushing ahead on 2 barges– total barge width – 84 feet, total length – 650 feet

**Time of Year of Passage:**

Year round

**Tug Assistance Required:**No

May need tug assist during bridge construction until old bridge is removed.

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan\_\_0\_\_ Feb\_\_0\_\_ Mar\_\_0\_\_ Apr\_\_4\_\_ May\_\_4\_\_ June\_\_4\_\_

Jul\_\_4\_\_ Aug\_\_4\_\_ Sep\_\_0\_\_ Oct\_\_0\_\_ Nov\_\_0\_\_ Dec\_\_0\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan\_\_0\_\_ Feb\_\_0\_\_ Mar\_\_0\_\_ Apr\_\_0\_\_ May\_\_0\_\_ June\_\_0\_\_

Jul\_\_0\_\_ Aug\_\_2\_\_ Sep\_\_0\_\_ Oct\_\_0\_\_ Nov\_\_0\_\_ Dec\_\_0\_\_



### EXISTING VESSEL DATA SHEET

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<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** Shaver Transportation Company

**Vessel Name:**

Lincoln

**Vessel Type:**

Push ahead tug

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): Yes

Twin Screw, Main & Flanking Rudders

**Vessel Category:** Commercial

**USCG Document Number:**

1249989

**Primary Mooring Location** (*waterway milepoint, if known*):

Willamette River mile 8.3

**Type and quantity of cargo, if applicable:**

Grain in barges, approximately 15000 tons per 4 barge tow

**Length (overall; ft):**

93

**Beam (width; ft):**

32



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - depth of hull below waterline, fully laden:

9.5

**Air Draft (ft)** - height of highest fixed point above waterline, unladen:

57

**Air Gap (ft)** - desired clearance from highest fixed point to lowest part of bridge:

24

**Safety Margin (ft)** horizontal clearance required by vessel to navigate through the bridge:

450

**Transit speed under Interstate Bridge and Load Configuration:**

8 knots

Pushing ahead on 4 barges – 2 x 2 – total barge width – 84 feet total length – 650 feet

**Time of Year of Passage:**

Year round

**Tug Assistance Required:**No

May need tug assist during bridge construction until old bridge is removed.

**Frequency of passage under Interstate Bridge main channel (typical per month):** Average for all 6

Jan\_\_12\_\_ Feb\_\_12\_\_ Mar\_\_12\_\_ Apr\_\_12\_\_ May\_\_12\_\_ June\_\_12\_\_

Jul\_\_12\_\_ Aug\_\_12\_\_ Sep\_\_12\_\_ Oct\_\_12\_\_ Nov\_\_12\_\_ Dec\_\_12\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):** Average for all 6

Jan\_\_0\_\_ Feb\_\_0\_\_ Mar\_\_2\_\_ Apr\_\_0\_\_ May\_\_0\_\_ June\_\_0\_\_

Jul\_\_0\_\_ Aug\_\_0\_\_ Sep\_\_0\_\_ Oct\_\_0\_\_ Nov\_\_0\_\_ Dec\_\_0\_\_



### EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** Shaver Transportation Company

**Vessel Name:**

Umatilla

**Vessel Type:**

Push knee tug

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): Yes

Twin Screw, Main & Flanking Rudders

**Vessel Category:** Commercial

**USCG Document Number:**

613398

**Primary Mooring Location** (*waterway milepoint, if known*):

Willamette River mile 8.3

**Type and quantity of cargo, if applicable:**

Grain in barges, approximately 8000 tons per 2 barge tow

**Length (overall; ft):**

65

**Beam (width; ft):**

24



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - *depth of hull below waterline, fully laden:*

9

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

57

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

24

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

450

**Transit speed under Interstate Bridge and Load Configuration:**

8 knots

Pushing ahead on 3 barges – total barge width – 84 feet total length – 600 feet

**Time of Year of Passage:**

Year round

**Tug Assistance Required: No**

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan\_\_0\_\_ Feb\_\_4\_\_ Mar\_\_8\_\_ Apr\_\_12\_\_ May\_\_12\_\_ June\_\_12\_\_

Jul\_\_12\_\_ Aug\_\_8\_\_ Sep\_\_8\_\_ Oct\_\_8\_\_ Nov\_\_4\_\_ Dec\_\_0\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan\_\_0\_\_ Feb\_\_0\_\_ Mar\_\_0\_\_ Apr\_\_0\_\_ May\_\_0\_\_ June\_\_0\_\_

Jul\_\_0\_\_ Aug\_\_0\_\_ Sep\_\_0\_\_ Oct\_\_0\_\_ Nov\_\_2\_\_ Dec\_\_0\_\_



### EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



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**Company Name:** Shaver Transportation Company

**Vessel Name:**

Willamette

**Vessel Type:**

Tractor Tug

**Specialized Vessel** (e.g. limited maneuverability due to design or mode of operation. If yes, please describe): Yes

highly maneuverable upriver tug with 2 "Z" drives

Limited maneuverability when pushing barges

**Vessel Category:** Commercial

**USCG Document Number:**

1085937

**Primary Mooring Location** (waterway milepoint, if known):

Willamette River Mile 8.3

**Type and quantity of cargo, if applicable:**

Grain in barges, approximately 15000 tons per 4 barge tow

**Length (overall; ft):**

93

**Beam (width; ft):**

36



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - *depth of hull below waterline, fully laden:*

14

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

58

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

24

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

450

**Transit speed under Interstate Bridge and Load Configuration:**

8 knots

Pushing ahead on 4 barges – 2 x 2 – total barge width – 84 feet total length – 650 feet

**Time of Year of Passage:**

Year round

**Tug Assistance Required:**No

May need tug assist during bridge construction until old bridge is removed.

**Frequency of passage under Interstate Bridge main channel (typical per month):** Average for all 6

Jan\_\_6\_\_ Feb\_\_6\_\_ Mar\_\_4\_\_ Apr\_\_12\_\_ May\_\_12\_\_ June\_\_12\_\_

Jul\_\_12\_\_ Aug\_\_12\_\_ Sep\_\_12\_\_ Oct\_\_12\_\_ Nov\_\_12\_\_ Dec\_\_12\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):** Average for all 6

Jan\_\_0\_\_ Feb\_\_2\_\_ Mar\_\_0\_\_ Apr\_\_0\_\_ May\_\_0\_\_ June\_\_0\_\_

Jul\_\_0\_\_ Aug\_\_0\_\_ Sep\_\_2\_\_ Oct\_\_0\_\_ Nov\_\_0\_\_ Dec\_\_0\_\_



## #4

**COMPLETE**

**Collector:** Web Link 1 (Web Link)  
**Started:** Tuesday, May 11, 2021 2:58:32 PM  
**Last Modified:** Tuesday, May 11, 2021 3:02:08 PM  
**Time Spent:** 00:03:35  
**IP Address:** 96.89.108.201

---

## Page 1: Introduction

**Q1**

Company Name

Shaver Transportation Company

**Q2**

Contact Information

Name	Mary Morgan
Email	mmorgan@shavertransportation.con
Phone number	5032288847

---

**Q3**

Vessel Name (please complete one survey per vessel)

Randy S

**Q4****Tug**

Vessel Type

**Q5**

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

**Yes,**  
If yes, please describe:  
Limited maneuverability while pushing barges

---

**Q6****Commercial**

Vessel Category



**Q7**

USCG Document Number

538759

---

**Q8**

Primary Mooring Location (waterway milepoint, if known)

Willamette River Mile 8.3

---

**Q9**

Type and quantity of cargo, if applicable

Grain in barges, 15000 tons in 4 barge tow

---

**Q10**

Length (total feet)

87

---

**Q11**

Beam (width in feet)

26

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

10

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

56

---

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

24

---



**Q15**

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

450

---

**Q16**

Frequency of passage under Interstate Bridge (main channel)

January	12
February	12
March	12
April	12
May	12
June	12
July	12
August	12
September	12
October	12
November	12
December	12

---

**Q17**

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

January	0
February	0
March	0
April	0
May	0
June	0
July	0
August	0
September	0
October	0
November	2
December	0

---



Q18

Transit speed under Interstate Bridge and Load Configuration (if applicable)

8 knots, pushing ahead on 4 barges (2 x 2) total length 650' and width 84 feet

Q19

No

Tug Assistance Required

Q20

Respondent skipped this question

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

Q21

Respondent skipped this question

Is there anything else you would like to add about your vessel or business plans?

Q22

No

Do you have another vessel?



#37

INCOMPLETE

**Collector:** Web Link 1 (Web Link)  
**Started:** Monday, July 05, 2021 2:16:32 AM  
**Last Modified:** Monday, July 05, 2021 2:32:03 AM  
**Time Spent:** 00:15:30  
**IP Address:** 174.204.210.137

---

Page 1: Introduction

Q1

Company Name

Shaver Transportation

Q2

Contact Information

Name	Jeremy Brock
Email	jeremybrock67@yahoo.com
Phone number	843-901-9238

---

Q3

Vessel Name (please complete one survey per vessel)

Tug Cascades

Q4

Tug

Vessel Type

Q5

No

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

---

Q6

Commercial

Vessel Category



**Q7**

USCG Document Number

2764312

---

**Q8**

Primary Mooring Location (waterway milepoint, if known)

Columbia River Mile 101.5 Terminal 6

---

**Q9**

Type and quantity of cargo, if applicable

Wheat

---

**Q10**

Length (total feet)

650-700

---

**Q11**

Beam (width in feet)

84

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

13-14'

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

57'

---

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

5-10'

---



**Q15**

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

200-300'

---

**Q16**

Frequency of passage under Interstate Bridge (main channel)

January	4-8
February	4-8
March	4-8
April	4-8
May	4-8
June	4-8
July	4-8
August	4-8
September	4-8
October	4-8
November	4-8
December	4-8

---

**Q17**

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

January	rare for all months
February	0
March	0

---

**Q18**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

7-10mph

---

**Q19**

No

Tug Assistance Required

---



Q20

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

n/a

Q21

Is there anything else you would like to add about your vessel or business plans?

Its very rare that we use the lift span. Only special circumstances or during high water when we're unable to fit under green light widespan. If there was a bridge replacement it would be nice to make the transit a straight shot from KBM Interstate to KQ9049 Vancouver and eliminate the current S turn from I5 to KQ9049. Personally I think this project is a waste of time and would like to see a third bridge either on the east side or west side of town. This would actually alleviate some of the congestion we currently deal with. The proposed bridge will do nothing to solve the bottleneck issue in Portland.

Q22

No

Do you have another vessel?



## Commercial Tugs/Tows/Barges

Owner: Tidewater

Vessels:

- Betty Lou
- Captain Bob
- Chief
- Clarkston
- Crown Point
- Defiance
- Granite Point
- Hurricane
- Liberty
- Maverick
- Outlaw
- Rebel
- Ryan Point
- Sundial

Company completed IBR data sheets and submitted characteristics for one vessel (Ryan Point) through the online survey. Data sheets also included characteristics for Ryan Point. Data sheets and survey response are included below. Vessel drawings provided for the CRC NIR are also included below.



## EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



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**Company/Owner Name:** Tidewater

**Vessel Name:**

Betty Lou

**Vessel Type:**

Harbor

**Specialized Vessel** (e.g. limited maneuverability due to design or mode of operation. If yes, please describe): No

**Vessel Category:** Commercial

Push Tug

**USCG Document Number:**

259542

**Primary Mooring Location** (waterway milepoint, if known):

Tidewater has mooring facilities along the Columbia and Snake Rivers located at Vancouver, WA, Pasco, WA, Boardman, OR and Umatilla, OR, and Wilma, WA (near Lewiston, ID).

Primary Mooring Location, Columbia River Mile 102. Vancouver

**Type and quantity of cargo, if applicable:**

Types are agricultural, liquid products, wood and paper, solid waste and special products cargo.

Quantity is up to 10,500 tons of cargo on an annual basis.

**Length (overall; ft):**

70

**Beam (width; ft):**

39.7



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - depth of hull below waterline, fully laden:

9

**Air Draft (ft)** - height of highest fixed point above waterline, unladen:

58.1'

**Air Gap (ft)** - desired clearance from highest fixed point to lowest part of bridge:

3

**Safety Margin (ft)** horizontal clearance required by vessel to navigate through the bridge:

450

**Transit speed under Interstate Bridge and Load Configuration:**

5-6 mph down bound with loads

6-7 mph up bounds with empty tow

**Time of Year of Passage:**

Could transit any day of the year, 24 hours of the day

**Tug Assistance Required: No**

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



## EXISTING VESSEL DATA SHEET

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**Company/Owner Name:** Tidewater

**Vessel Name:**

Captain Bob

**Vessel Type:**

Push tug, line haul

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): No

**Vessel Category:** Commercial

Push Tug

**USCG Document Number:**

553843

**Primary Mooring Location** (*waterway milepoint, if known*):

Tidewater has mooring facilities along the Columbia and Snake Rivers located at Vancouver, WA, Pasco, WA, Boardman, OR and Umatilla, OR, and Wilma, WA (near Lewiston, ID).

Primary Mooring Location, Columbia River Mile 102. Vancouver

**Type and quantity of cargo, if applicable:**

Types are agricultural, liquid products, wood and paper, solid waste and special products cargo.

Quantity is up to 14,500 tons of cargo on an annual basis.

**Length (overall; ft):**

110

**Beam (width; ft):**

34.1



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - depth of hull below waterline, fully laden:

11.6

**Air Draft (ft)** - height of highest fixed point above waterline, unladen:

56

**Air Gap (ft)** - desired clearance from highest fixed point to lowest part of bridge:

3

**Safety Margin (ft)** horizontal clearance required by vessel to navigate through the bridge:

450

**Transit speed under Interstate Bridge and Load Configuration:**

8-10 mph down bound with loads, 4 loads

7-9 mph up bound with full tow- 3empty and one loaded barge

**Time of Year of Passage:**

Could transit any day of the year, 24 hours of the day

**Tug Assistance Required: No**

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



## EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** Tidewater

**Vessel Name:**

The Chief

**Vessel Type:**

Push Tug-Line haul

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): No

**Vessel Category:** Commercial

Push tug

**USCG Document Number:**

514987

**Primary Mooring Location** (*waterway milepoint, if known*):

Tidewater has mooring facilities along the Columbia and Snake Rivers located at Vancouver, WA, Pasco, WA, Boardman, OR and Umatilla, OR, and Wilma, WA (near Lewiston, ID).

Primary Mooring Location, Columbia River Mile 102. Vancouver

**Type and quantity of cargo, if applicable:**

Types are agricultural, liquid products, wood and paper, solid waste and special products cargo.

Quantity is up to 14,500 tons of cargo on an annual basis.

**Length (overall; ft):**

121.6

**Beam (width; ft):**

40.0



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - depth of hull below waterline, fully laden:

11.8

**Air Draft (ft)** - height of highest fixed point above waterline, unladen:

49.9

**Air Gap (ft)** - desired clearance from highest fixed point to lowest part of bridge:

3

**Safety Margin (ft)** horizontal clearance required by vessel to navigate through the bridge:

450

**Transit speed under Interstate Bridge and Load Configuration:**

8-10 mph down bound with loads, 4 loads

7-9 mph up bound with full tow- 3 empty and one loaded barge

**Time of Year of Passage:**

Could transit any day of the year, 24 hours of the day

**Tug Assistance Required:**No

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



## EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** Tidewater

**Vessel Name:**

Clarkston

**Vessel Type:**

Push Tug-Harbor/Line Haul

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): No

**Vessel Category:** Commercial

Push Tug

**USCG Document Number:**

514250

**Primary Mooring Location** (*waterway milepoint, if known*):

Tidewater has mooring facilities along the Columbia and Snake Rivers located at Vancouver, WA, Pasco, WA, Boardman, OR and Umatilla, OR, and Wilma, WA (near Lewiston, ID).

Primary Mooring Location, Columbia River Mile 102. Vancouver

**Type and quantity of cargo, if applicable:**

Types are agricultural, liquid products, wood and paper, solid waste and special products cargo.

Quantity is up to 14,500 tons of cargo on an annual basis.

**Length (overall; ft):**

80

**Beam (width; ft):**

28.5



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - depth of hull below waterline, fully laden:

10.8

**Air Draft (ft)** - height of highest fixed point above waterline, unladen:

48.2

**Air Gap (ft)** - desired clearance from highest fixed point to lowest part of bridge:

3

**Safety Margin (ft)** horizontal clearance required by vessel to navigate through the bridge:

450

**Transit speed under Interstate Bridge and Load Configuration:**

6-7 mph down bound with loads, 4 loads

6-7 mph up bound with full tow- 3 empty and one loaded barge

**Time of Year of Passage:**

Could transit any day of the year, 24 hours of the day

**Tug Assistance Required: No**

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



## EXISTING VESSEL DATA SHEET

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<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** Tidewater

**Vessel Name:**

Crown Point

**Vessel Type:**

Push Tug-Line haul

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): No

**Vessel Category:** Commercial

Push Tug

**USCG Document Number:**

1254584

**Primary Mooring Location** (*waterway milepoint, if known*):

Tidewater has mooring facilities along the Columbia and Snake Rivers located at Vancouver, WA, Pasco, WA, Boardman, OR and Umatilla, OR, and Wilma, WA (near Lewiston, ID).

Primary Mooring Location, Columbia River Mile 102. Vancouver

**Type and quantity of cargo, if applicable:**

Types are agricultural, liquid products, wood and paper, solid waste and special products cargo.

Quantity is up to 14,500 tons of cargo on an annual basis.

**Length (overall; ft):**

104.0

**Beam (width; ft):**

38.0



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - *depth of hull below waterline, fully laden:*

13.0

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

50.9

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

3

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

450

**Transit speed under Interstate Bridge and Load Configuration:**

8-10 mph down bound with loads, 4 loads

7-9 mph up bound with full tow- 3 empty and one loaded barge

**Time of Year of Passage:**

Could transit any day of the year, 24 hours of the day

**Tug Assistance Required: No**

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



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<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** Tidewater

**Vessel Name:**

Defiance

**Vessel Type:**

Push Tug-Line Haul

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): No

**Vessel Category:** Commercial

Push Tug

**USCG Document Number:**

587247

**Primary Mooring Location** (*waterway milepoint, if known*):

Tidewater has mooring facilities along the Columbia and Snake Rivers located at Vancouver, WA, Pasco, WA, Boardman, OR and Umatilla, OR, and Wilma, WA (near Lewiston, ID).

Primary Mooring Location, Columbia River Mile 102. Vancouver

**Type and quantity of cargo, if applicable:**

Types are agricultural, liquid products, wood and paper, solid waste and special products cargo.

Quantity is up to 14,500 tons of cargo on an annual basis.

**Length (overall; ft):**

95.0

**Beam (width; ft):**

31



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - *depth of hull below waterline, fully laden:*

11.6

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

48.6

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

3

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

450

**Transit speed under Interstate Bridge and Load Configuration:**

7-9 mph down bound with loads, 4 loads

6-8 mph up bound with full tow- 3 empty and one loaded barge

**Time of Year of Passage:**

Could transit any day of the year, 24 hours of the day

**Tug Assistance Required:**No

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



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**Company Name:** Tidewater

**Vessel Name:**

Granite Point

**Vessel Type:**

Push Tug-Line Haul

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): No

**Vessel Category:** Commercial

Push Tug

**USCG Document Number:**

1259541

**Primary Mooring Location** (*waterway milepoint, if known*):

Tidewater has mooring facilities along the Columbia and Snake Rivers located at Vancouver, WA, Pasco, WA, Boardman, OR and Umatilla, OR, and Wilma, WA (near Lewiston, ID).

Primary Mooring Location, Columbia River Mile 102. Vancouver

**Type and quantity of cargo, if applicable:**

Types are agricultural, liquid products, wood and paper, solid waste and special products cargo.

Quantity is up to 14,500 tons of cargo on an annual basis.

**Length (overall; ft):**

104

**Beam (width; ft):**

38



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - *depth of hull below waterline, fully laden:*

13

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

48.0

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

3

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

450

**Transit speed under Interstate Bridge and Load Configuration:**

8-10 mph down bound with loads, 4 loads

7-9 mph up bound with full tow- 3 empty and one loaded barge

**Time of Year of Passage:**

Could transit any day of the year, 24 hours of the day

**Tug Assistance Required:**No

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



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**Company Name:** Tidewater

**Vessel Name:**

Hurricane

**Vessel Type:**

Push Tug-Line Haul

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): No

**Vessel Category:** Commercial

Push Tug

**USCG Document Number:**

505319

**Primary Mooring Location** (*waterway milepoint, if known*):

Tidewater has mooring facilities along the Columbia and Snake Rivers located at Vancouver, WA, Pasco, WA, Boardman, OR and Umatilla, OR, and Wilma, WA (near Lewiston, ID).

Primary Mooring Location, Columbia River Mile 102. Vancouver, WA

**Type and quantity of cargo, if applicable:**

Types are agricultural, liquid products, wood and paper, solid waste and special products cargo.

Quantity is up to 14,500 tons of cargo on an annual basis.

**Length (overall; ft):**

108.11

**Beam (width; ft):**

32



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - depth of hull below waterline, fully laden:

10.6

**Air Draft (ft)** - height of highest fixed point above waterline, unladen:

48.9

**Air Gap (ft)** - desired clearance from highest fixed point to lowest part of bridge:

3

**Safety Margin (ft)** horizontal clearance required by vessel to navigate through the bridge:

450

**Transit speed under Interstate Bridge and Load Configuration:**

7-8 mph down bound with loads, 4 loads

7-8 mph up bound with full tow- 3 empty and one loaded barge

**Time of Year of Passage:**

Could transit any day of the year, 24 hours of the day

**Tug Assistance Required: No**

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



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**Company Name:** Tidewater

**Vessel Name:**

Liberty

**Vessel Type:**

Push Tug-Lower River, Astoria to Portland harbor

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): No

**Vessel Category:** Commercial

Push tug

**USCG Document Number:**

526140

**Primary Mooring Location** (*waterway milepoint, if known*):

Tidewater has mooring facilities along the Columbia and Snake Rivers located at Vancouver, WA, Pasco, WA, Boardman, OR and Umatilla, OR, and Wilma, WA (near Lewiston, ID).

Primary Mooring Location, Columbia River Mile 102. Vancouver

**Type and quantity of cargo, if applicable:**

Types are agricultural, liquid products, wood and paper, solid waste and special products cargo.

Quantity is up to 14,500 tons of cargo on an annual basis.

**Length (overall; ft):**

108.0

**Beam (width; ft):**

34



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - *depth of hull below waterline, fully laden:*

9.5

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

44

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

3

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

450

**Transit speed under Interstate Bridge and Load Configuration:**

N/A

**Time of Year of Passage:**

Could transit any day of the year, 24 hours of the day

**Tug Assistance Required:**No

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



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**Company Name:** Tidewater

**Vessel Name:**

Maverick

**Vessel Type:**

Push Tug-Harbor/Line Haul

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): No

**Vessel Category:** Commercial

Push Tug

**USCG Document Number:**

618125

**Primary Mooring Location** (*waterway milepoint, if known*):

Tidewater has mooring facilities along the Columbia and Snake Rivers located at Vancouver, WA, Pasco, WA, Boardman, OR and Umatilla, OR, and Wilma, WA (near Lewiston, ID).

Primary Mooring Location, Columbia River Mile 102. Vancouver

**Type and quantity of cargo, if applicable:**

Types are agricultural, liquid products, wood and paper, solid waste and special products cargo.

Quantity is up to 12,500 tons of cargo on an annual basis.

**Length (overall; ft):**

82.0

**Beam (width; ft):**

26.8



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - depth of hull below waterline, fully laden:

10.6

**Air Draft (ft)** - height of highest fixed point above waterline, unladen:

47.0

**Air Gap (ft)** - desired clearance from highest fixed point to lowest part of bridge:

3

**Safety Margin (ft)** horizontal clearance required by vessel to navigate through the bridge:

450

**Transit speed under Interstate Bridge and Load Configuration:**

6-8 mph down bound with loads, 4 loads

6-9 mph up bound with full tow- 3 empty and one loaded barge

**Time of Year of Passage:**

Could transit any day of the year, 24 hours of the day

**Tug Assistance Required:**No

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



**EXISTING VESSEL DATA SHEET**

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**Company Name:** Tidewater

**Vessel Name:**

Outlaw

**Vessel Type:**

PushTug-Line Haul

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): No

**Vessel Category:** Commercial

Push Tug

**USCG Document Number:**

561814

**Primary Mooring Location** (*waterway milepoint, if known*):

Tidewater has mooring facilities along the Columbia and Snake Rivers located at Vancouver, WA, Pasco, WA, Boardman, OR and Umatilla, OR, and Wilma, WA (near Lewiston, ID).

Primary Mooring Location, Columbia River Mile 102. Vancouver

**Type and quantity of cargo, if applicable:**

Types are agricultural, liquid products, wood and paper, solid waste and special products cargo.

Quantity is up to 14,500 tons of cargo on an annual basis.

**Length (overall; ft):**

104

**Beam (width; ft):**

31.6



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - depth of hull below waterline, fully laden:

10

**Air Draft (ft)** - height of highest fixed point above waterline, unladen:

48

**Air Gap (ft)** - desired clearance from highest fixed point to lowest part of bridge:

3

**Safety Margin (ft)** horizontal clearance required by vessel to navigate through the bridge:

450

**Transit speed under Interstate Bridge and Load Configuration:**

7-9 mph down bound with loads, 4 loads

6-9 mph up bound with full tow- 3 empty and one loaded barge

**Time of Year of Passage:**

Could transit any day of the year, 24 hours of the day

**Tug Assistance Required:**No

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



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**Company Name:** Tidewater

**Vessel Name:**

Rebel

**Vessel Type:**

Push Tug-Harbor/Line Haul

**Specialized Vessel** (e.g. limited maneuverability due to design or mode of operation. If yes, please describe): No

**Vessel Category:** Commercial

Push Tug

**USCG Document Number:**

586751

**Primary Mooring Location** (waterway milepoint, if known):

Tidewater has mooring facilities along the Columbia and Snake Rivers located at Vancouver, WA, Pasco, WA, Boardman, OR and Umatilla, OR, and Wilma, WA (near Lewiston, ID).

Primary Mooring Location, Columbia River Mile 102. Vancouver

**Type and quantity of cargo, if applicable:**

Types are agricultural, liquid products, wood and paper, solid waste and special products cargo.

Quantity is up to 14,500 tons of cargo on an annual basis.

**Length (overall; ft):**

88.0

**Beam (width; ft):**

30



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - depth of hull below waterline, fully laden:

11.6

**Air Draft (ft)** - height of highest fixed point above waterline, unladen:

50.6

**Air Gap (ft)** - desired clearance from highest fixed point to lowest part of bridge:

3

**Safety Margin (ft)** horizontal clearance required by vessel to navigate through the bridge:

450

**Transit speed under Interstate Bridge and Load Configuration:**

6-8 mph down bound with loads, 4 loads

6-9 mph up bound with full tow- 3 empty and one loaded barge

**Time of Year of Passage:**

Could transit any day of the year, 24 hours of the day

**Tug Assistance Required: No**

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



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**Company Name:** Tidewater

**Vessel Name:**

Ryan Point

**Vessel Type:**

Push Tug-Line Haul

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): No

**Vessel Category:** Commercial

Push Tug

**USCG Document Number:**

1259618

**Primary Mooring Location** (*waterway milepoint, if known*):

Tidewater has mooring facilities along the Columbia and Snake Rivers located at Vancouver, WA, Pasco, WA, Boardman, OR and Umatilla, OR, and Wilma, WA (near Lewiston, ID).

Primary Mooring Location, Columbia River Mile 102. Vancouver

**Type and quantity of cargo, if applicable:**

Types are agricultural, liquid products, wood and paper, solid waste and special products cargo.

Quantity is up to 14,500 tons of cargo on an annual basis.

**Length (overall; ft):**

104

**Beam (width; ft):**

38



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - *depth of hull below waterline, fully laden:*

13.0

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

51.0

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

3

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

450

**Transit speed under Interstate Bridge and Load Configuration:**

8-10 mph down bound with loads, 4 loads

7-9 mph up bound with full tow- 3 empty and one loaded barge

**Time of Year of Passage:**

Could transit any day of the year, 24 hours of the day

**Tug Assistance Required:**No

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



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**Company Name:** Tidewater

**Vessel Name:**

Sundial

**Vessel Type:**

Push Tug-Line haul

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): No

**Vessel Category:** Commercial

Push tug

**USCG Document Number:**

652357

**Primary Mooring Location** (*waterway milepoint, if known*):

Tidewater has mooring facilities along the Columbia and Snake Rivers located at Vancouver, WA, Pasco, WA, Boardman, OR and Umatilla, OR, and Wilma, WA (near Lewiston, ID).

Primary Mooring Location, Columbia River Mile 102. Vancouver

**Type and quantity of cargo, if applicable:**

Types are agricultural, liquid products, wood and paper, solid waste and special products cargo.

Quantity is up to 14,500 tons of cargo on an annual basis.

**Length (overall; ft):**

94.0

**Beam (width; ft):**

31.9



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - depth of hull below waterline, fully laden:

10.6

**Air Draft (ft)** - height of highest fixed point above waterline, unladen:

48

**Air Gap (ft)** - desired clearance from highest fixed point to lowest part of bridge:

3

**Safety Margin (ft)** horizontal clearance required by vessel to navigate through the bridge:

450

**Transit speed under Interstate Bridge and Load Configuration:**

7-9 mph down bound with loads, 4 loads

6-9 mph up bound with full tow- 3 empty and one loaded barge

**Time of Year of Passage:**

Could transit any day of the year, 24 hours of the day

**Tug Assistance Required:**No

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



## EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company Name:** Tidewater

**Vessel Name:**

Tidewater Tug/Barge Maximum configuration

**Vessel Type:**

Tug and up to four barge configurations

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): No

**Vessel Category:** Commercial

**USCG Document Number:**

**Primary Mooring Location** (*waterway milepoint, if known*):

Tidewater has mooring facilities along the Columbia and Snake Rivers located at Vancouver, WA, Pasco, WA, Boardman, OR and Umatilla, OR, and Wilma, WA (near Lewiston, ID).

**Type and quantity of cargo, if applicable:**

Types are agricultural, liquid products, wood and paper, solid waste and special products cargo.  
Quantity is up to 14,500 tons of cargo on an annual basis.

**Length (overall; ft):**

650

**Beam (width; ft):**

84



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - *depth of hull below waterline, fully laden:*

13.5

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

52

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

3

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

450

**Transit speed under Interstate Bridge and Load Configuration:**

**Time of Year of Passage:**

Could transit any day of the year, 24 hours of the day

**Tug Assistance Required:**No

**Frequency of passage under Interstate Bridge main channel (typical per month):** On the average (some months are higher, and others are lower), Tidewater vessels pass under the Interstate Bridge **70 times** per month. If you need this number broken down by vessel, please contact Jennifer Riddle for that information. [Jennifer.Riddle@tidewater.com](mailto:Jennifer.Riddle@tidewater.com).

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



#5

COMPLETE

**Collector:** Web Link 1 (Web Link)  
**Started:** Wednesday, May 12, 2021 3:24:45 PM  
**Last Modified:** Wednesday, May 12, 2021 3:29:01 PM  
**Time Spent:** 00:04:16  
**IP Address:** 69.168.123.67

---

Page 1: Introduction

Q1

Company Name

Tidewater

Q2

Contact Information

Name	RANDY REINHOFER
Email	rv8aer@gmail.com
Phone number	12085820157

---

Q3

Vessel Name (please complete one survey per vessel)

Ryan Point

Q4

Tug

Vessel Type

Q5

No

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

---

Q6

Commercial

Vessel Category

Q7

Respondent skipped this question

USCG Document Number



**Q8**

Primary Mooring Location (waterway milepoint, if known)

Vancouver, WA

---

**Q9**

Type and quantity of cargo, if applicable

Barging wheat, petroleum, waste, pulp, etc.

---

**Q10**

Length (total feet)

104

---

**Q11**

Beam (width in feet)

38

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

10'9"

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

52'

---

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

30'

---

**Q15**

Respondent skipped this question

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

---



**Q16**

Frequency of passage under Interstate Bridge (main channel)

January	6
February	6
March	6
April	6
May	6
June	6
July	6
August	6
September	6
October	6
November	6
December	6

**Q17**

Respondent skipped this question

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

**Q18**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

8-10 mph, various loading condition

**Q19**

No

Tug Assistance Required

**Q20**

Respondent skipped this question

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

**Q21**

Respondent skipped this question

Is there anything else you would like to add about your vessel or business plans?



**Q22**

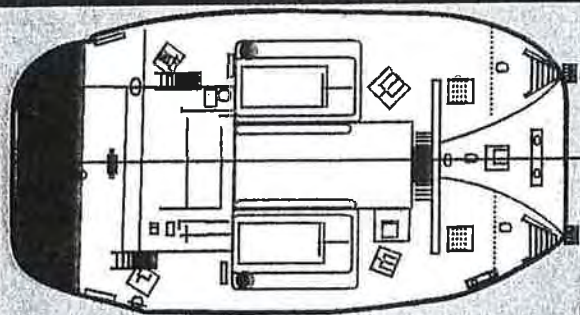
**No**

Do you have another vessel?

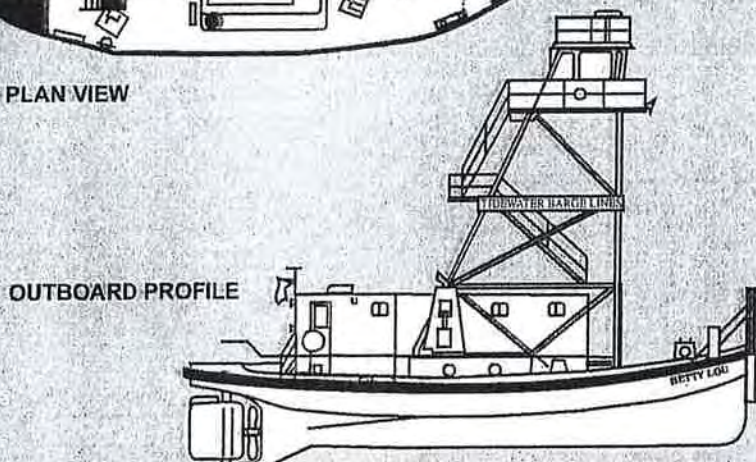


# TIDEWATER

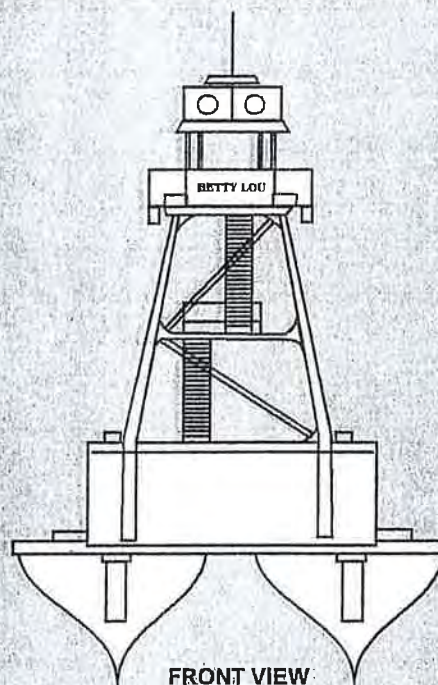
# BETTY LOU



PLAN VIEW



OUTBOARD PROFILE



FRONT VIEW

Not to Scale

**OWNER:** Tidewater Barge Lines, Inc.  
6305 NW Old Lower River Rd  
Vancouver, WA 98660

**PHONE:** (360)693-1491 **FAX:** (360)694-8981

**OPERATOR:** Tidewater Barge Lines, Inc.  
6305 NW Old Lower River Rd  
Vancouver, WA 98660

**PHONE:** (360)693-1491 **FAX:** (360)694-8981

**OFFICIAL NUMBER:** 259542

**COFR NUMBER:** 104834-10

**TIDEWATER DISPATCH**  
(800)562-1607

**NATIONAL RESPONSE CENTER**  
(800)424-8802

<b>LENGTH:</b>	70'
<b>BEAM:</b>	39' 7"
<b>DEPTH:</b>	9'
<b>HORSEPOWER:</b>	2,120
<b>PROPELLERS:</b>	Two 76" dia
<b>FUEL CAPACITY:</b>	10,500 gal
<b>LUBE OIL CAPACITY:</b>	580 gal
<b>FRESH WATER CAPACITY:</b>	1,000 gal
<b>EYE LEVEL:</b>	42' 6"
<b>FIXED HEIGHT:</b>	50'
<b>GROSS TONS:</b>	105
<b>NET TONS:</b>	71
<b>BARREL-O-BOOM:</b>	2
<b>SPILL KIT:</b>	1 set

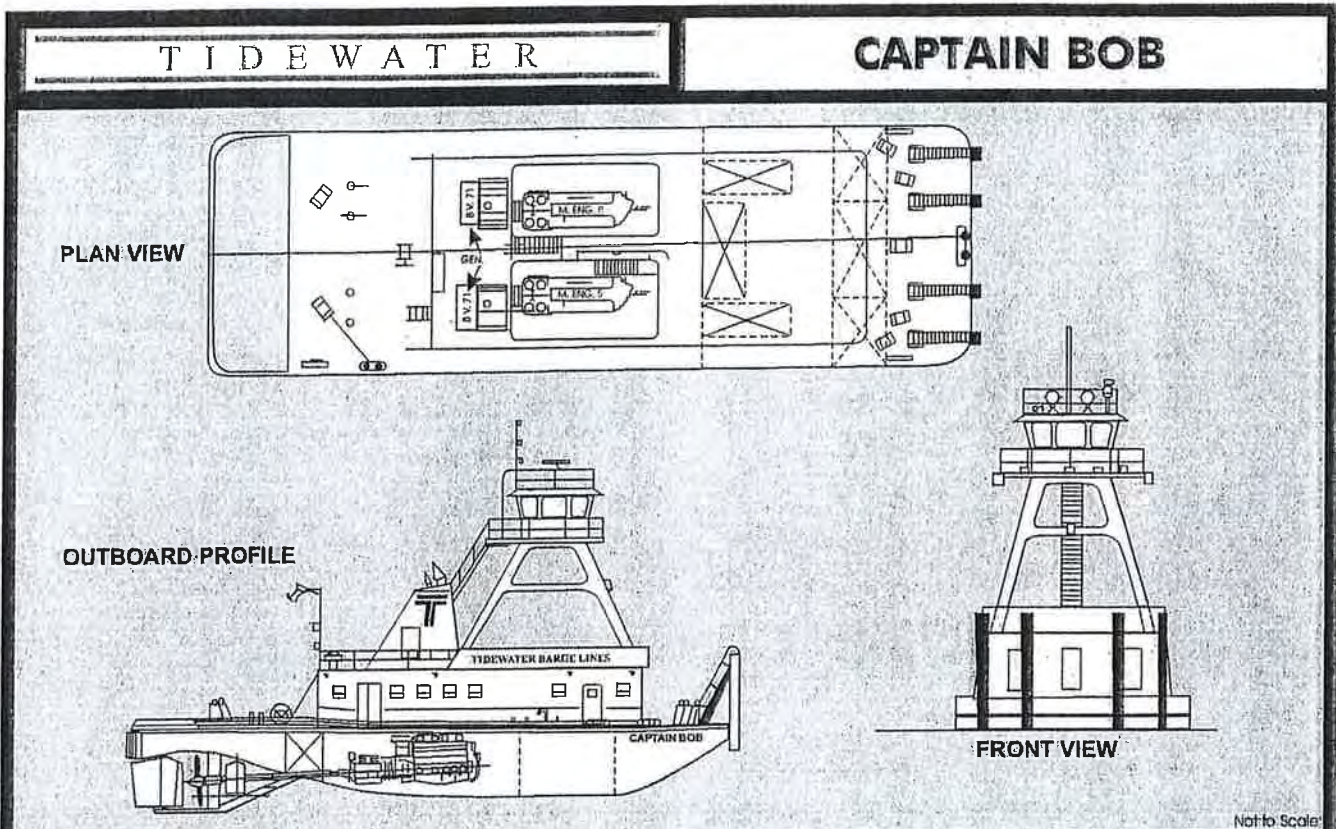


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**Tug**





**OWNER:** Tidewater Barge Lines, Inc.  
6305 NW Old Lower River Rd  
Vancouver, WA 98660

**PHONE:** (360)693-1491 **FAX:** (360)694-8981

**OPERATOR:** Tidewater Barge Lines, Inc.  
6305 NW Old Lower River Rd  
Vancouver, WA 98660

**PHONE:** (360)693-1491 **FAX:** (360)694-8981

**OFFICIAL NUMBER:** 553843

**COFR NUMBER:** 104834-10

**TIDEWATER DISPATCH**  
(800)562-1607

**NATIONAL RESPONSE CENTER**  
(800)424-8802

<b>LENGTH:</b>	110'
<b>BEAM:</b>	34'
<b>DEPTH:</b>	11' 6"
<b>HORSEPOWER:</b>	3,000
<b>PROPELLERS:</b>	Two 106" dia
<b>FUEL CAPACITY:</b>	36,265 gal
<b>LUBE OIL CAPACITY:</b>	700 gal
<b>FRESH WATER CAPACITY:</b>	3,300 gal
<b>EYE LEVEL:</b>	43' 9"
<b>FIXED HEIGHT:</b>	50' 9"
<b>GROSS TONS:</b>	304
<b>NET TONS:</b>	206
<b>BARREL-O-BOOM:</b>	1
<b>SPILL KIT:</b>	1 set

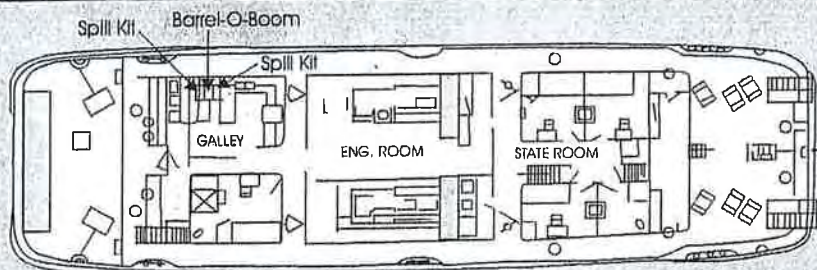
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**Tug**



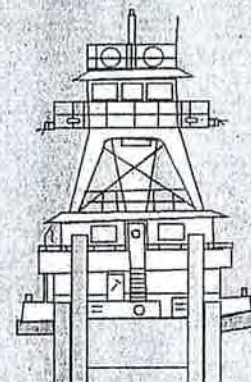
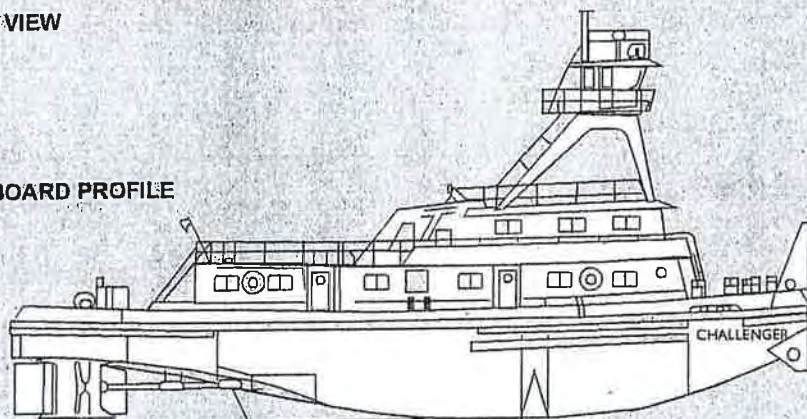
# TIDEWATER

# CHALLENGER



PLAN VIEW

OUTBOARD PROFILE



FRONT VIEW

Not to Scale

**OWNER:** Tidewater Barge Lines, Inc.  
6305 NW Old Lower River Rd  
Vancouver, WA 98660

**PHONE:** (360)693-1491 **FAX:** (360)694-8981

**OPERATOR:** Tidewater Barge Lines, Inc.  
6305 NW Old Lower River Rd  
Vancouver, WA 98660

**PHONE:** (360)693-1491 **FAX:** (360)694-8981

**OFFICIAL NUMBER:** 516611

**COFR NUMBER:** 104834-10

**TIDEWATER DISPATCH**  
(800)562-1607

**NATIONAL RESPONSE CENTER**  
(800)424-8802

<b>LENGTH:</b>	111' 4"
<b>BEAM:</b>	33' 4"
<b>DEPTH:</b>	13' 8"
<b>HORSEPOWER:</b>	3,000
<b>PROPELLERS:</b>	Two 92" dia Two 93" dia Kort nozzle
<b>FUEL CAPACITY:</b>	29,000 gal
<b>LUBE OIL CAPACITY:</b>	800 gal
<b>FRESH WATER CAPACITY:</b>	3,000 gal
<b>EYE LEVEL:</b>	39'
<b>FIXED HEIGHT:</b>	48' 3"
<b>GROSS TONS:</b>	383
<b>NET TONS:</b>	260
<b>BARREL-O-BOOM:</b>	1
<b>SPILL KIT:</b>	1 set

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**Tug**



T I D E W A T E R

CLARKSTON

No Drawings Available

**OWNER:** Tidewater Barge Lines, Inc.  
6305 NW Old Lower River Rd  
Vancouver, WA 98660

**PHONE:** (360)693-1491 **FAX:** (360)694-8981

**OPERATOR:** Tidewater Barge Lines, Inc.  
6305 NW Old Lower River Rd  
Vancouver, WA 98660

**PHONE:** (360)693-1491 **FAX:** (360)694-8981

**OFFICIAL NUMBER:** 514250

**COFR NUMBER:** 104834-14

**TIDEWATER DISPATCH**  
(800)562-1607

**NATIONAL RESPONSE CENTER**  
(800)424-8802

**LENGTH:** 74.7'

**BEAM:** 28.5'

**DEPTH:** 10.8'

**HORSEPOWER:** 3,000

**PROPELLERS:** Three 72" dia.

**FUEL CAPACITY:** 20,000 gal

**LUBE OIL CAPACITY:** 500 gal

**FRESH WATER CAPACITY:** 2,233 gal

**EYE LEVEL:** 42' 6"

**FIXED HEIGHT:** 48.2'

**GROSS TONS:** 149

**NET TONS:** 101

**BARREL-O-BOOM:** 1

**SPILL KIT:** 1 set

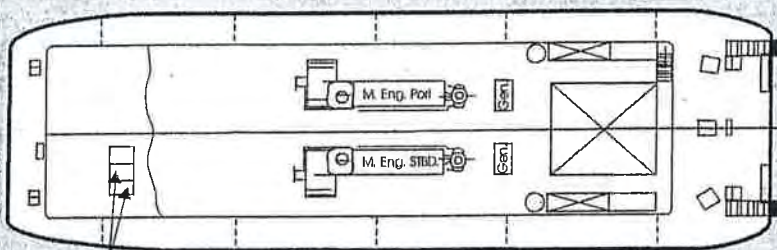
**Tug**

10 upriver trips/year throughout the year Harbor boat



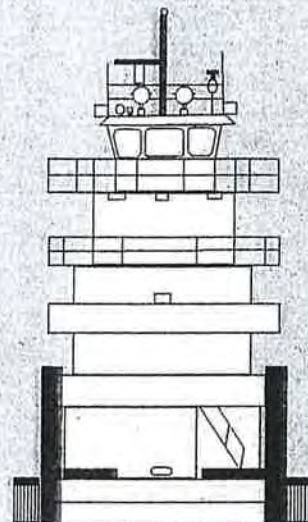
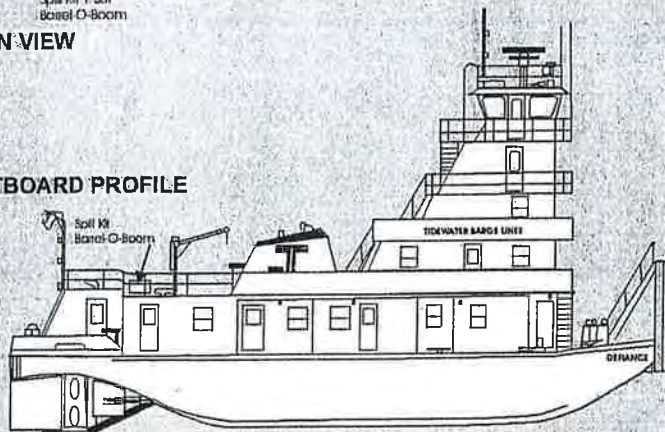
# TIDEWATER

# DEFIANCE



PLAN VIEW

OUTBOARD PROFILE



FRONT VIEW

Not to Scale

**OWNER:** Tidewater Barge Lines, Inc.  
6305 NW Old Lower River Rd  
Vancouver, WA 98660

**PHONE:** (360)693-1491 **FAX:** (360)694-8981

**OPERATOR:** Tidewater Barge Lines, Inc.  
6305 NW Old Lower River Rd  
Vancouver, WA 98660

**PHONE:** (360)693-1491 **FAX:** (360)694-8981

**OFFICIAL NUMBER:** 587247

**COFR NUMBER:** 104834-10

**TIDEWATER DISPATCH**  
(800)562-1607

**NATIONAL RESPONSE CENTER**  
(800)424-8802

**LENGTH:** 95'

**BEAM:** 31'

**DEPTH:** 11' 6"

**HORSEPOWER:** 2,800

**PROPELLERS:** Two 87" dia  
Two 88" dia Kort nozzles

**FUEL CAPACITY:** 38,360 gal

**LUBE OIL CAPACITY:** 1,000 gal

**FRESH WATER CAPACITY:** 5,175 gal

**EYE LEVEL:** 39' 6"

**FIXED HEIGHT:** 48' 6"

**GROSS TONS:** 295

**NET TONS:** 220

**BARREL-O-BOOM:** 1

**SPILL KIT:** 1 set



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**Tug**

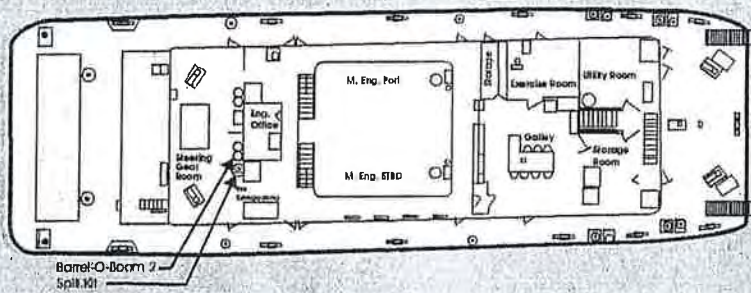
22 upriver trips / year throughout year  
More during Aug-Oct (harvest season)

22 TRPS

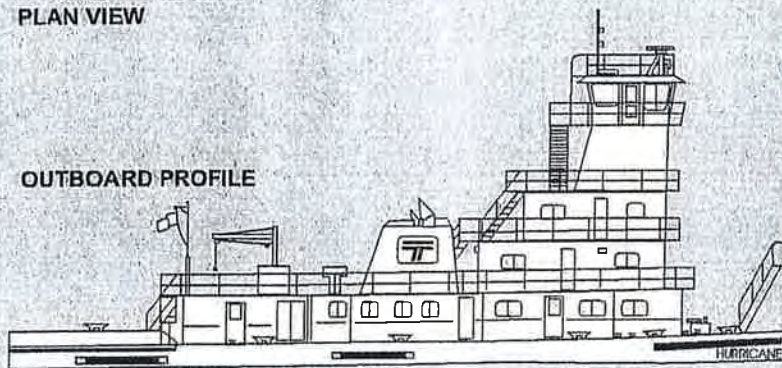


# TIDEWATER

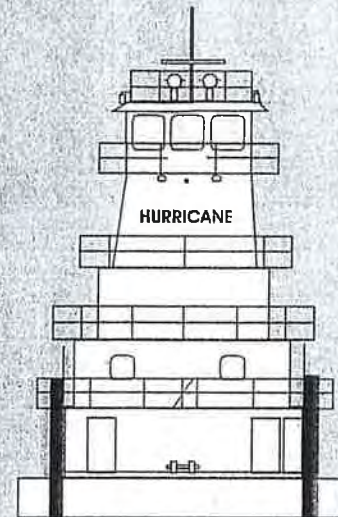
# HURRICANE



PLAN VIEW



OUTBOARD PROFILE



FRONT VIEW

Not to Scale

**OWNER:** Hickey Family Company  
1499 SE Tech Center Place, Suite 140  
Vancouver, WA 98683 -9575

**PHONE:** (360)604-4333 **FAX:** (360)604-4343

**OPERATOR:** Tidewater Barge Lines, Inc.  
6305 NW Old Lower River Rd  
Vancouver, WA 98660

**PHONE:** (360)693-1491 **FAX:** (360)694-89811

**OFFICIAL NUMBER:** 505319

**COFR NUMBER:** 104834-10

**TIDEWATER DISPATCH**  
(800)562-1607

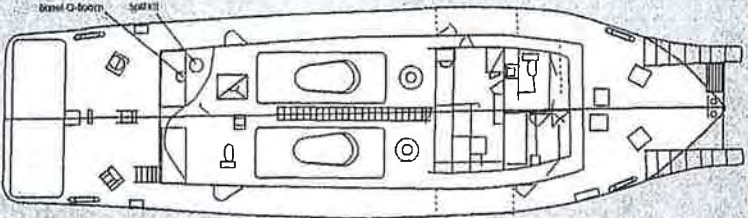
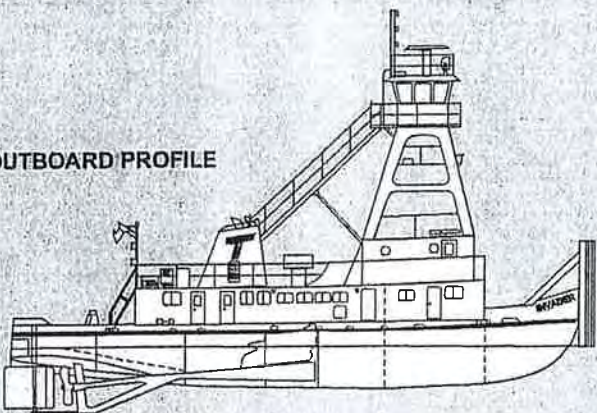
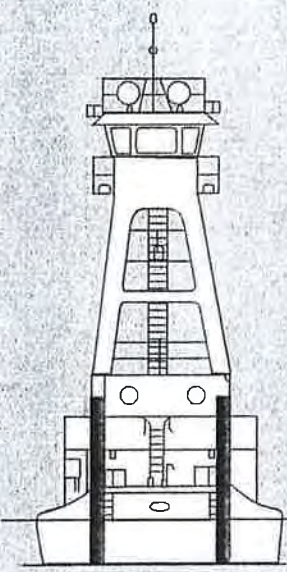
**NATIONAL RESPONSE CENTER**  
(800)424-8802

<b>LENGTH:</b>	108' 11"
<b>BEAM:</b>	32'
<b>DEPTH:</b>	10' 6"
<b>HORSEPOWER:</b>	3,000
<b>PROPELLERS:</b>	Two 83" dia five blade Two 84" dia Kort nozzle
<b>FUEL CAPACITY:</b>	40,458 gal
<b>LUBE OIL CAPACITY:</b>	2,141 gal
<b>FRESH WATER CAPACITY:</b>	6,264 gal
<b>EYE LEVEL:</b>	41' 9.5"
<b>FIXED HEIGHT:</b>	48' 9"
<b>GROSS TONS:</b>	383
<b>NET TONS:</b>	261
<b>BARREL-O-BOOM:</b>	2
<b>SPILL KIT:</b>	1 set

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**Tug**



<b>TIDEWATER</b>	<b>INVADER</b>																												
 <p><b>PLAN VIEW</b></p>  <p><b>OUTBOARD PROFILE</b></p>	 <p><b>FRONT VIEW</b></p> <p style="text-align: right; font-size: small;">Not to Scale</p>																												
<p><b>OWNER:</b> Tidewater Barge Lines, Inc. 6305 NW Old Lower River Rd Vancouver, WA 98660</p> <p><b>PHONE:</b> (360)693-1491 <b>FAX:</b> (360)694-8981</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="padding: 2px 5px;"><b>LENGTH:</b></td><td style="padding: 2px 5px;">95'</td></tr> <tr><td style="padding: 2px 5px;"><b>BEAM:</b></td><td style="padding: 2px 5px;">26'</td></tr> <tr><td style="padding: 2px 5px;"><b>DEPTH:</b></td><td style="padding: 2px 5px;">10'</td></tr> <tr><td style="padding: 2px 5px;"><b>HORSEPOWER:</b></td><td style="padding: 2px 5px;">1,700</td></tr> <tr><td style="padding: 2px 5px;"><b>PROPELLERS:</b></td><td style="padding: 2px 5px;">Two 70" dia</td></tr> <tr><td style="padding: 2px 5px;"><b>FUEL CAPACITY:</b></td><td style="padding: 2px 5px;">10,107 gal</td></tr> <tr><td style="padding: 2px 5px;"><b>LUBE OIL CAPACITY:</b></td><td style="padding: 2px 5px;">300 gal</td></tr> <tr><td style="padding: 2px 5px;"><b>FRESH WATER CAPACITY:</b></td><td style="padding: 2px 5px;">1,400 gal</td></tr> <tr><td style="padding: 2px 5px;"><b>EYE LEVEL:</b></td><td style="padding: 2px 5px;">40'</td></tr> <tr><td style="padding: 2px 5px;"><b>FIXED HEIGHT:</b></td><td style="padding: 2px 5px;">48'</td></tr> <tr><td style="padding: 2px 5px;"><b>GROSS TONS:</b></td><td style="padding: 2px 5px;">160</td></tr> <tr><td style="padding: 2px 5px;"><b>NET TONS:</b></td><td style="padding: 2px 5px;">108</td></tr> <tr><td style="padding: 2px 5px;"><b>BARREL-O-BOOM:</b></td><td style="padding: 2px 5px;">1</td></tr> <tr><td style="padding: 2px 5px;"><b>SPILL KIT:</b></td><td style="padding: 2px 5px;">1 set</td></tr> </table>	<b>LENGTH:</b>	95'	<b>BEAM:</b>	26'	<b>DEPTH:</b>	10'	<b>HORSEPOWER:</b>	1,700	<b>PROPELLERS:</b>	Two 70" dia	<b>FUEL CAPACITY:</b>	10,107 gal	<b>LUBE OIL CAPACITY:</b>	300 gal	<b>FRESH WATER CAPACITY:</b>	1,400 gal	<b>EYE LEVEL:</b>	40'	<b>FIXED HEIGHT:</b>	48'	<b>GROSS TONS:</b>	160	<b>NET TONS:</b>	108	<b>BARREL-O-BOOM:</b>	1	<b>SPILL KIT:</b>	1 set
<b>LENGTH:</b>	95'																												
<b>BEAM:</b>	26'																												
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<b>NET TONS:</b>	108																												
<b>BARREL-O-BOOM:</b>	1																												
<b>SPILL KIT:</b>	1 set																												
<p><b>OPERATOR:</b> Tidewater Barge Lines, Inc. 6305 NW Old Lower River Rd Vancouver, WA 98660</p> <p><b>PHONE:</b> (360)693-1491 <b>FAX:</b> (360)694-8981</p>																													
<p><b>OFFICIAL NUMBER:</b> 239108</p>																													
<p><b>COFR NUMBER:</b> 104834-10</p>																													
<p><b>TIDEWATER DISPATCH</b> (800)562-1607</p> <p><b>NATIONAL RESPONSE CENTER</b> (800)424-8802</p>																													
<p><b>TRP</b> Developed By: <b>TECHNICAL RESPONSE PLANNING CORPORATION</b> www.trpcorp.com   (281) 955-9600 © Technical Response Planning Corporation 2001</p>	<p><b>Tug</b></p>																												

*4 upriver trips/year April-July*



# TIDEWATER

## LEGEND

**OWNER:** Tidewater Barge Lines, Inc.  
6305 NW Lower River Rd  
Vancouver, WA 98660  
**PHONE:** (360) 683-1491 **FAX:** (360) 694-8981

**OPERATOR:** Tidewater Barge Lines, Inc.  
6305 NW Lower River Rd  
Vancouver, WA 98660  
**PHONE:** (360) 683-1491 **FAX:** (360) 694-8981

**OFFICIAL NUMBER:** 262975

**COFR NUMBER:** 104864-10

**HULL MATERIAL:** Steel

**ENGINE ROOM FIRE SYSTEM:** Halon/CO2

**LENGTH:** 127'

**BEAM:** 34'

**DEPTH:** 11' 8"

**HORSEPOWER:** 4,400

**PROPELLERS:** Two 110" dia

**FUEL CAPACITY:** 37,950 gal

**LUBE OIL CAPACITY:** 1,980 gal

**FRESH WATER CAPACITY:** 3,500 gal

**EYE LEVEL:** 43' 6"

**FIXED HEIGHT:** 50' 6"

**GROSS TONS:** 412

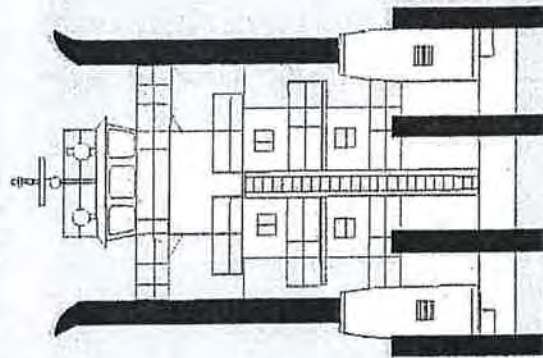
**NET TONS:** 280

**BARREL-O-BOOM:** 2

**SPILL KIT:** 1 set

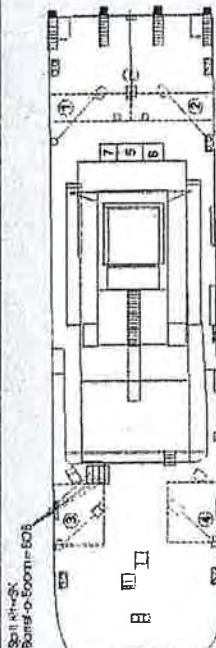
**140' x 42' x 11' 8" x 11' 8" x 11' 8" x 11' 8"**  
(600) 683-1491  
**NATIONAL RESPONSE CENTER:**  
(800) 424-8842

Tug

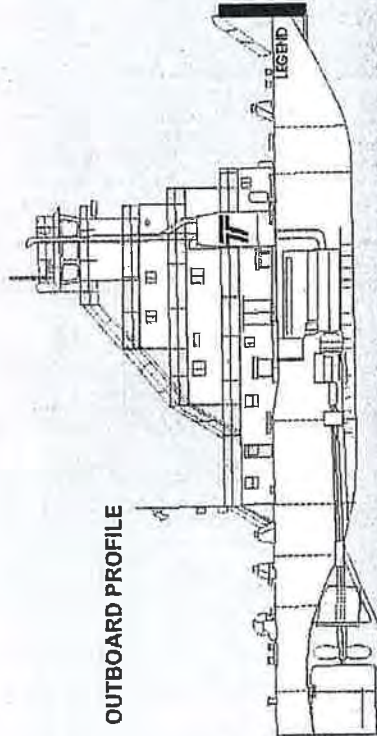


FRONT VIEW

Not to Scale



PLAN VIEW



OUTBOARD PROFILE

### FUEL

The Legend has four (4) diesel storage tanks. Two (2) are located in the bow - port and starboard and two are located in the stern - port and starboard. A main engine day tank supplies diesel to the main engines. A generator day tank supplies diesel to the generators. The ecology box is located on the starboard bow.

### LUBE

The Legend has a lube oil storage tank located forward of the engine room, to the port side of the main engine day tank. The lube oil storage tank fill is a 2" deck hole in the lube oil tank cover (located aft and to port of center winch).

### TANK CAPACITY TABLE: (CAPACITY GALS)

TANK	MAX	WORKING (95%)
Port bow	6112	5806
Starboard bow	6112	5806
Port stern	10488	9964
Starboard stern	10488	9964
Main Engine day tank	3960	3762
Generator day tank	789	750
Lube	2200	1980
Worst Case Discharge (BBLs)		
	958	
Maximum Most Probable Discharge (BBLs)		
	96	

Detail transfer procedures are available in the Tidewater Operational Procedures notebook

June 2005

Printed: 06/06/05

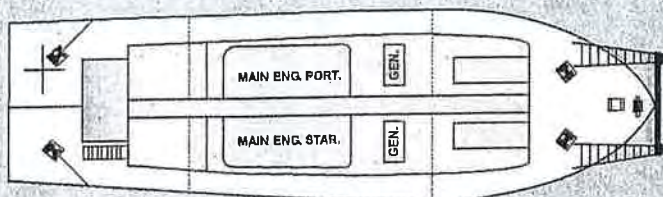
Tidewater Barge Lines, Inc.

Same frequency as the distance

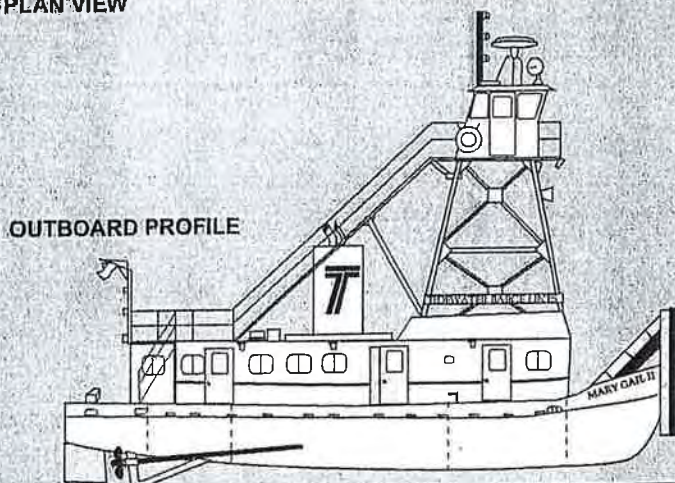


# TIDEWATER

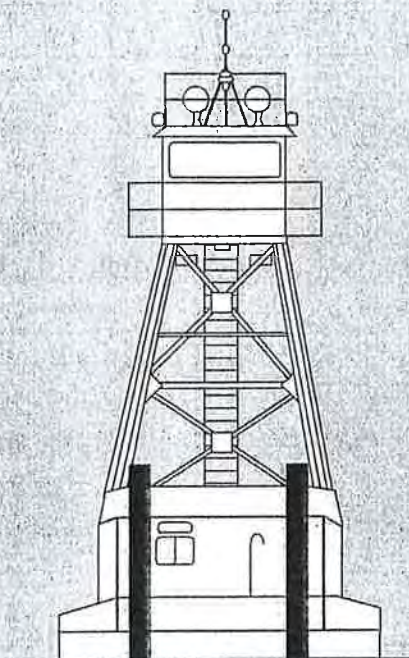
# MARY GAIL



PLAN VIEW



OUTBOARD PROFILE



FRONT VIEW

Not to Scale

**OWNER:** Tidewater Barge Lines, Inc.  
6305 NW Old Lower River Rd  
Vancouver, WA 98660

**PHONE:** (360)693-1491 **FAX:** (360)694-8981

**OPERATOR:** Tidewater Barge Lines, Inc.  
6305 NW Old Lower River Rd  
Vancouver, WA 98660

**PHONE:** (360)693-1491 **FAX:** (360)694-8981

**OFFICIAL NUMBER:** 247125

**COFR NUMBER:** 104834-10

**TIDEWATER DISPATCH**  
(800)562-1607

**NATIONAL RESPONSE CENTER**  
(800)424-8802

<b>LENGTH:</b>	76'
<b>BEAM:</b>	24'
<b>DEPTH:</b>	9' 6"
<b>HORSEPOWER:</b>	1,150
<b>PROPELLERS:</b>	Two 76" dia
<b>FUEL CAPACITY:</b>	7,038 gal
<b>LUBE OIL CAPACITY:</b>	517 gal
<b>FRESH WATER CAPACITY:</b>	1,150 gal
<b>EYE LEVEL:</b>	36'
<b>FIXED HEIGHT:</b>	42'
<b>GROSS TONS:</b>	97
<b>NET TONS:</b>	66
<b>BARREL-O-BOOM:</b>	1
<b>SPILL KIT:</b>	1 set



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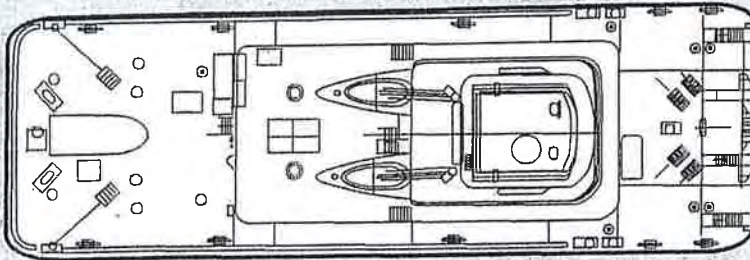
**Tug**

Same frequency as the Invader

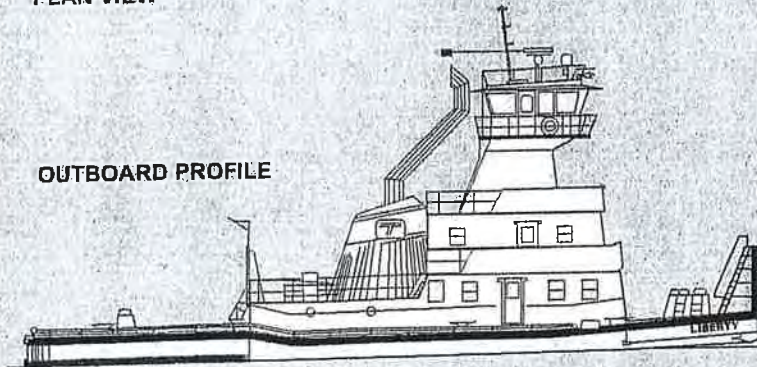


# TIDEWATER

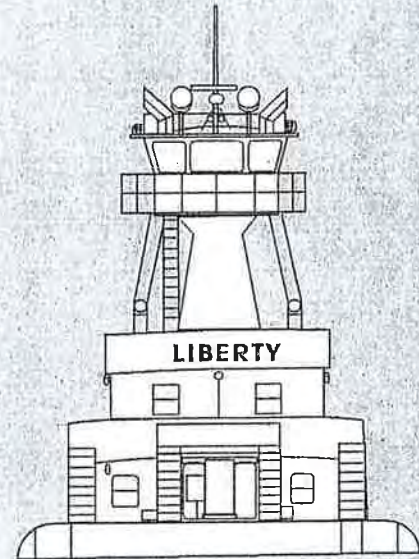
# LIBERTY



PLAN VIEW



OUTBOARD PROFILE



FRONT VIEW

Not to Scale

**OWNER:** Tidewater Barge Lines, Inc.  
6305 NW Old Lower River Rd  
Vancouver, WA 98660

**PHONE:** (360)693-1491 **FAX:** (360)694-8981

**OPERATOR:** Tidewater Barge Lines, Inc.  
6305 NW Old Lower River Rd  
Vancouver, WA 98660

**PHONE:** (360)693-1491 **FAX:** (360)694-8981

**OFFICIAL NUMBER:** 526140

**COFR NUMBER:** 104834-10

**TIDEWATER DISPATCH**  
(800)562-1607

**NATIONAL RESPONSE CENTER**  
(800)424-8802

**LENGTH:** 108'

**BEAM:** 34'

**DEPTH:** 9' 6"

**HORSEPOWER:** 3,000

**PROPELLORS:** Two 84" dia

**FUEL CAPACITY:** 21,800

**LUBE OIL CAPACITY:** 300

**FRESH WATER CAPACITY:** 10,000

**EYE LEVEL:** 37'

**FIXED HEIGHT:** 44'

**GROSS TONS:** 272

**NET TONS:** 129

**BARREL-O-BOOM:** 2

**SPILL KIT:** 1 set

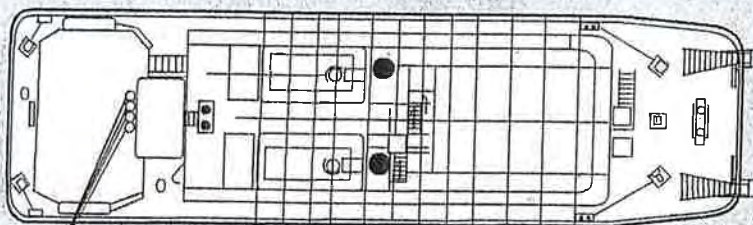
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**Tug**

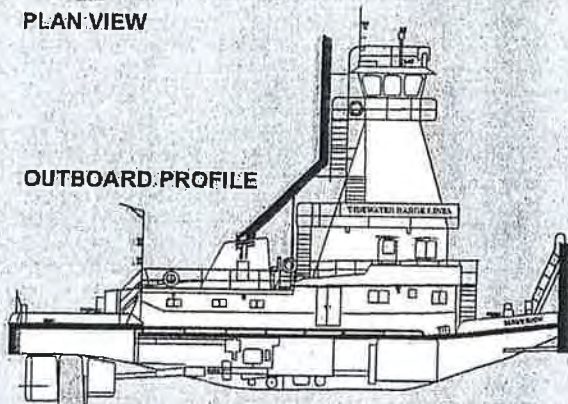


# TIDEWATER

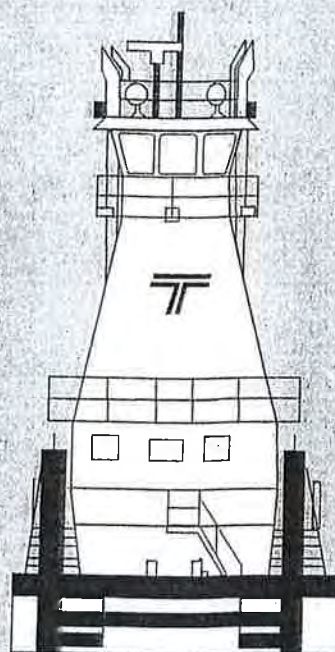
# MAVERICK



PLAN VIEW



OUTBOARD PROFILE



FRONT VIEW

Not to Scale

**OWNER:** Tidewater Barge Lines, Inc.  
6305 NW Old Lower River Rd  
Vancouver, WA 98660

**PHONE:** (360)693-1491 **FAX:** (360)694-8981

**OPERATOR:** Tidewater Barge Lines, Inc.  
6305 NW Old Lower River Rd  
Vancouver, WA 98660

**PHONE:** (360)693-1491 **FAX:** (360)694-8981

**OFFICIAL NUMBER:** 618125

**COFR NUMBER:** 104834-10

**TIDEWATER DISPATCH**  
(800)562-1607

**NATIONAL RESPONSE CENTER**  
(800)424-8802

<b>LENGTH:</b>	82'
<b>BEAM:</b>	26' 6"
<b>DEPTH:</b>	7' 6"
<b>HORSEPOWER:</b>	2,350
<b>PROPELLERS:</b>	Two 75" dia Two 76" dia Kort nozzles
<b>FUEL CAPACITY:</b>	17,664 gal
<b>LUBE OIL CAPACITY:</b>	517 gal
<b>FRESH WATER CAPACITY:</b>	1,000 gal
<b>EYE LEVEL:</b>	42'
<b>FIXED HEIGHT:</b>	52'
<b>GROSS TONS:</b>	150
<b>NET TONS:</b>	102
<b>BARREL-O-BOOM:</b>	2
<b>SPILL KIT:</b>	1 set



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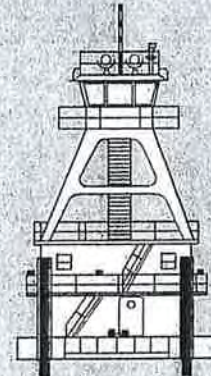
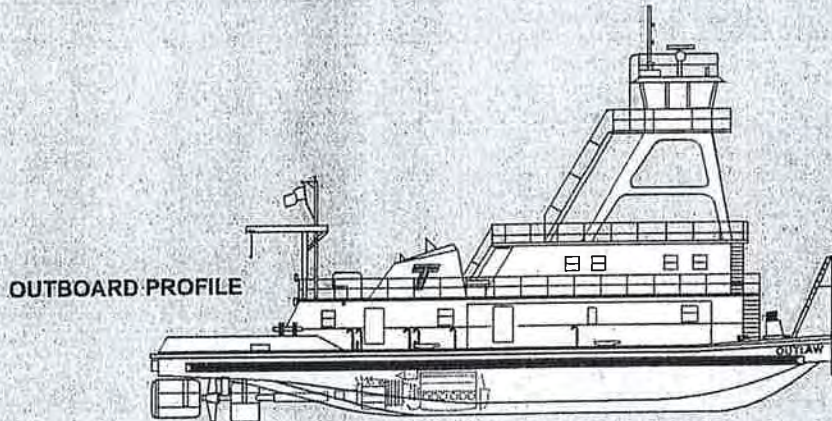
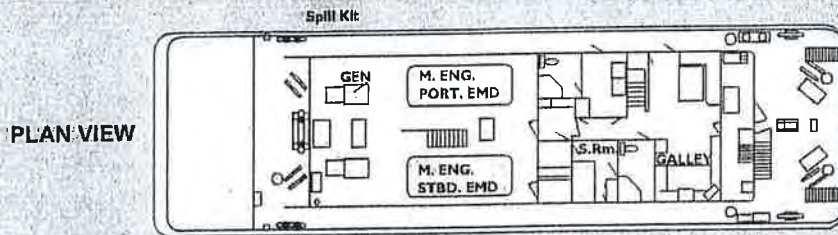
**Tug**

10 upriver trips/year throughout the year



# TIDEWATER

# OUTLAW



Not to Scale

**OWNER:** Hickey Family Company  
1499 SE Tech Center Place, Suite 140  
Vancouver, WA 98683 -9575

**PHONE:** (360)604-4333 **FAX:** (360)604-4343

**OPERATOR:** Tidewater Barge Lines, Inc.  
6305 NW Old Lower River Rd  
Vancouver, WA 98660

**PHONE:** (360)693-1491 **FAX:** (360)694-89811

**OFFICIAL NUMBER:** 561814

**COFR NUMBER:** 104834-10

**TIDEWATER DISPATCH**  
(800)562-1607

**NATIONAL RESPONSE CENTER**  
(800)424-8802

<b>LENGTH:</b>	104'
<b>BEAM:</b>	31' 6"
<b>DEPTH:</b>	10'
<b>HORSEPOWER:</b>	3,000
<b>PROPELLERS:</b>	Two 87" dia Two 88" dia Kort nozzles
<b>FUEL CAPACITY:</b>	43,000 gal
<b>LUBE OIL CAPACITY:</b>	2,600 gal
<b>FRESH WATER CAPACITY:</b>	8,000 gal
<b>EYE LEVEL:</b>	40'0"
<b>FIXED HEIGHT:</b>	53'
<b>GROSS TONS:</b>	286
<b>NET TONS:</b>	194
<b>BARREL-O-BOOM:</b>	1
<b>SPILL KIT:</b>	1 set

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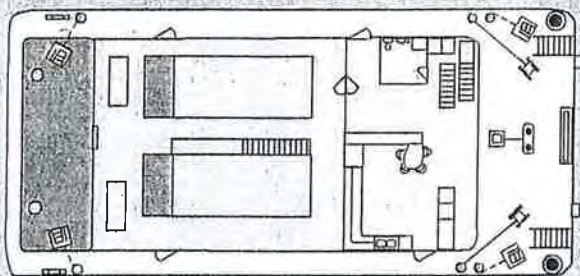
**Tug**

20 upriver trips / year throughout year (~10 Aug-Oct)

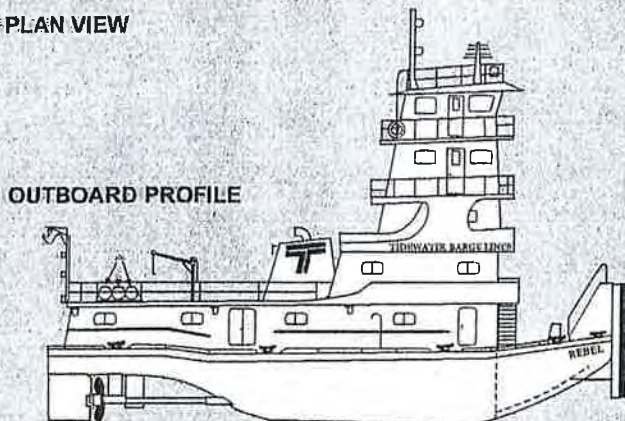


# TIDEWATER

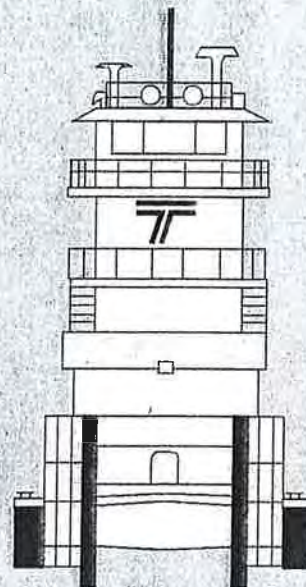
# REBEL



PLAN VIEW



OUTBOARD PROFILE



FRONT VIEW

Not to Scale

**OPERATOR:** Tidewater Barge Lines, Inc.  
6305 NW Old Lower River Rd  
Vancouver, WA 98660

**PHONE:** (360)693-1491 **FAX:** (360)694-8981

**OPERATOR:** Tidewater Barge Lines, Inc.  
6305 NW Old Lower River Rd  
Vancouver, WA 98660

**PHONE:** (360)693-1491 **FAX:** (360)694-8981

**OFFICIAL NUMBER:** 586751

**COFR NUMBER:** 104834-10

**TIDEWATER DISPATCH**  
(800)562-1607

**NATIONAL RESPONSE CENTER**  
(800)424-8802

<b>LENGTH:</b>	87'
<b>BEAM:</b>	30'
<b>DEPTH:</b>	11' 6"
<b>HORSEPOWER:</b>	1,900
<b>PROPELLERS:</b>	Two 88" dia
<b>FUEL CAPACITY:</b>	37, 208 gal
<b>LUBE OIL CAPACITY:</b>	1,100 gal
<b>FRESH WATER CAPACITY:</b>	3,076 gal
<b>EYE LEVEL:</b>	43' 4"
<b>FIXED HEIGHT:</b>	48'
<b>GROSS TONS:</b>	261
<b>NET TONS:</b>	177
<b>BARREL-O-BOOM:</b>	1
<b>SPILL KIT:</b>	1 set



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CORPORATION [www.trpcorp.com](http://www.trpcorp.com) (251) 935-9600  
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**Tug**

same frequency as the defiance

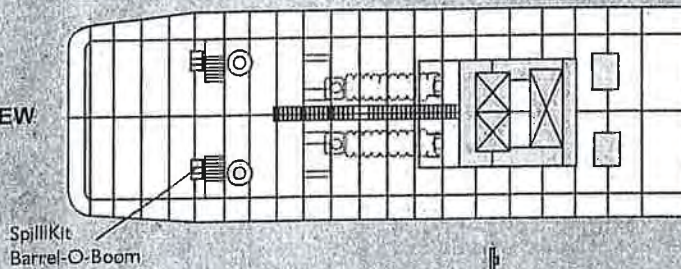


Same frequency as the  
Defiance

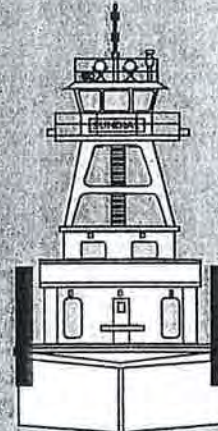
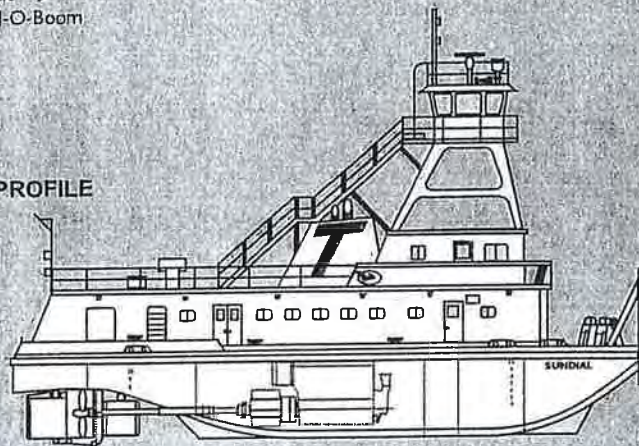
## TIDEWATER

## SUNDIAL

PLAN VIEW



OUTBOARD PROFILE



FRONT VIEW

Not to Scale

**OWNER:** Hickey Family Company  
1499 SE Tech Center Place, Suite 140  
Vancouver, WA 98683 -9575

**PHONE:** (360)604-4333 **FAX:** (360)604-4343

**OPERATOR:** Tidewater Barge Lines, Inc.  
6305 NW Old Lower River Rd  
Vancouver, WA 98660

**PHONE:** (360)693-1491 **FAX:** (360)694-89811

**OFFICIAL NUMBER:** 652357

**COFR NUMBER:** 104834-10

**TIDEWATER DISPATCH**  
(800)562-1607

**NATIONAL RESPONSE CENTER**  
(800)424-8802

**LENGTH:** 94' 6"

**BEAM:** 31' 9"

**DEPTH:** 12' 6"

**HORSEPOWER:** 3,400

**PROPELLERS:** Two 87" dia  
Two 88" dia Kort nozzle

**FUEL CAPACITY:** 38,000 gal

**LUBE OIL CAPACITY:** 1,496 gal

**FRESH WATER CAPACITY:** 3,500 gal

**EYE LEVEL:** 39' 6"

**FIXED HEIGHT:** 48'

**GROSS TONS:** 334'

**NET TONS:** 227

**BARREL-O-BOOM:** 1

**SPILL KIT:** 1 set



Developed By:

**TECHNICAL RESPONSE PLANNING  
CORPORATION** www.trpcorp.com | (281) 955-9600

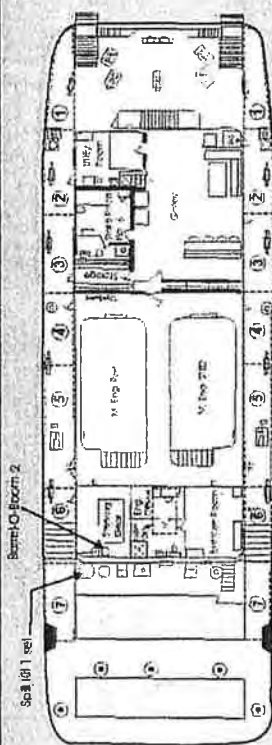
**Tug**



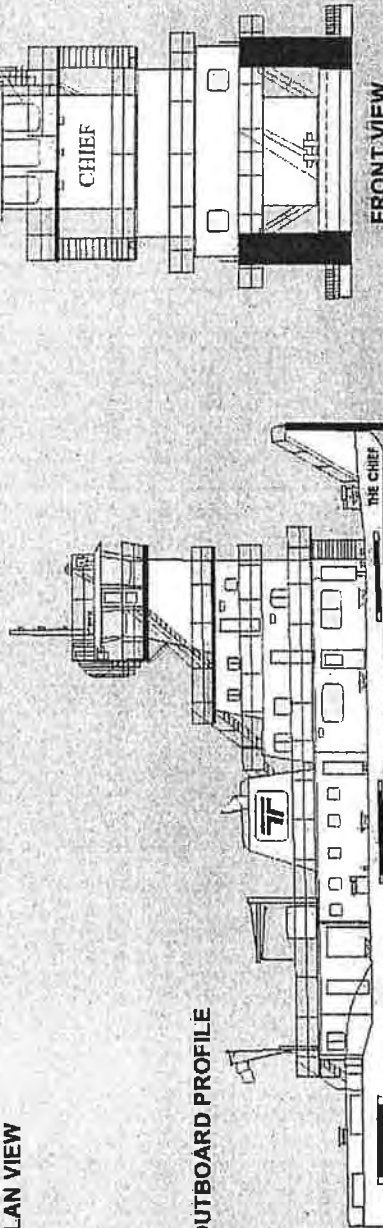
# TIDEWATER

## THE CHIEF

Not to Scale



PLAN VIEW



OUTBOARD PROFILE

FRONT VIEW

**FUEL**  
The Chief has seven (7) tanks on each side of the hull. The #1 and #7 tanks are not used. The #4 tanks are used as day tanks for both the main and generator engines. The port and starboard systems are independent of each other. The fuel transfer pump is located in the port Generator Room.

**LUBE**  
The Chief has a lube oil storage tank located on the aft bulkhead, center of the boat. The lube oil tank is a free drop tank. The tank fills from the header inside the ecology box at the stern of the main deck, center of house.

Detail transfer procedures are available in the Tidewater Operational Procedures notebook

June 2005

ANK CAPACITY TABLE: (CAPACITY GALS)		
ANK	MAX	WORKING (95%)
2 port & starboard (ea)	5860	5567
3 port & starboard (ea)	7340	6973
4 port & starboard (ea)	7480	7105
5 port & starboard (ea)	7175	6816
6 port & starboard (ea)	3976	3777
lube	2400	2280

Worst Case Discharge (BBLs) Maximum Most Probable Discharge (BBLs)

1573 157

**OWNER:** Tidewater Barge Lines, Inc.  
6305 NW Lower River Rd  
Vancouver, WA 98660

**PHONE:** (360)693-1491 **FAX:** (360)694-8981

**OPERATOR:** Tidewater Barge Lines, Inc.  
6305 NW Lower River Rd  
Vancouver, WA 98660

**PHONE:** (360)693-1491 **FAX:** (360)694-8981

**OFFICIAL NUMBER:** 5149817

**COFR NUMBER:** 104864-10

**HULL MATERIAL:** Steel

**ENGINE ROOM FIRE SYSTEM:** CO2

**LENGTH:** 121' 6"

**BEAM:** 40'

**DEPTH:** 11'

**HORSEPOWER:** 4,300

**PROPELLERS:** Two 95" dia  
Two 96" dia Kort nozzels

**FUEL CAPACITY:** 63,682 gal

**LUBE OIL CAPACITY:** 2,280 gal

**FRESH WATER CAPACITY:** 8,785 gal

**EYE LEVEL:** 43'

**FIXED HEIGHT:** 49' 9"

**GROSS TONS:** 575

**NET TONS:** 365

**BARREL-O-BOOM:** 1

**SPILL KIT:** 1 set

**TIDEWATER DISPATCH**  
(360)552-1137  
**NATIONAL RESPONSE CENTER:**  
(800)424-8802

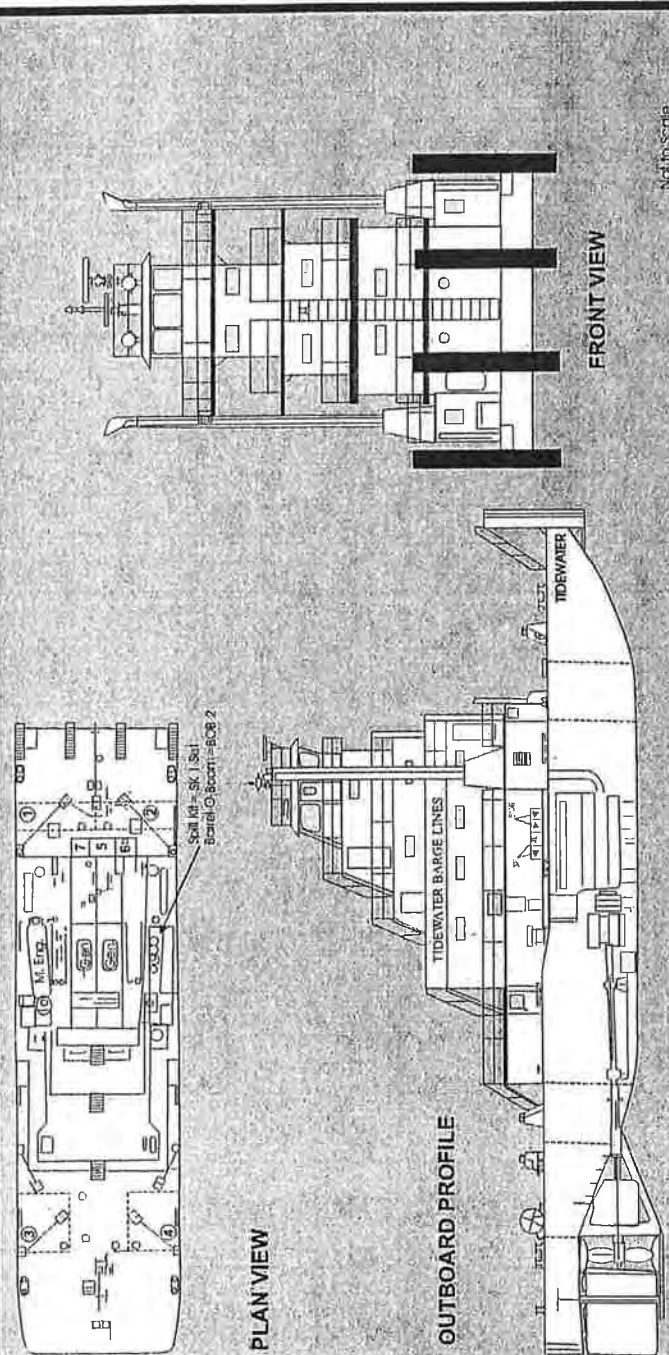
Tug

Same frequency as the Bafiance



# TIDEWATER

# TIDEWATER



OWNER: Tidewater Barge Lines, Inc.  
6305 NW Lower River Rd  
Vancouver, WA 98660

PHONE: (360)683-1491 FAX: (360)694-8981

OPERATOR: Tidewater Barge Lines, Inc.  
6305 NW Lower River Rd  
Vancouver, WA 98660

PHONE: (360)683-1491 FAX: (360)694-8981

OFFICIAL NUMBER: 277141

COFR NUMBER: 104864-10

HULL MATERIAL: Steel

ENGINE ROOM FIRE SYSTEM: Halon/CO2

LENGTH: 127'

BEAM: 34'

DEPTH: 11' 6"

HORSEPOWER: 3,600

PROPELLERS: Two 107" dia  
Two 108" dia Kort nozzels

FUEL CAPACITY: 40,260 gal

LUBE OIL CAPACITY: 2,200 gal

FRESH WATER CAPACITY: 3,730 gal

EYE LEVEL: 42' 6"

FIXED HEIGHT: 49' 6"

GROSS TONS: 468

NET TONS: 318

BARREL-O-BOOM: 1

SPILL KIT: 1 set

TIDEWATER DISPATCH  
(800)562-1607  
NATIONAL RESPONSE CENTER:  
(800)424-8602

Tug

**FUEL**  
The Tidewater has four (4) diesel storage tanks. Two (2) are located in the bow - port and starboard and two are located in the stern - port and starboard. A main engine day tank supplies diesel to the main engines. A generator day tank supplies diesel to the generators. The diesel fuel header is in the starboard bow ecology box.

**LUBE**  
The Tidewater has a lube oil storage tank located forward of the engine room, to the port side of the main engine day tank. The lube oil storage tank has a capacity of 2,200 gallons. The lube oil storage tank fill is on the bow - through a plug hole in the lube oil storage tank hatch (the hatch is painted black).

Detail transfer procedures are available in the Tidewater Operational Procedures notebook

June 2005

ANK CAPACITY TABLE: (CAPACITY GALS)		
ANK	MAX	WORKING (95%)
Port bow	7447	7075
Starboard bow	7447	7075
Port stern	10311	9795
Starboard stern	10311	9795
Main Engine day tank	3958	3760
Generator day tank	799	750
Lube	2200	1980
Worst Case Discharge (BBLs)		Maximum Most Probable Discharge (BBLs)
1011		101

Same frequency as the barge



## Marine Contractors

Company: Advanced American Construction

Vessels:

- DB 125
- DB 4000
- DB 4041
- DB 4100
- Paul Bunyan
- Lindy Marie

Company did not respond to IBR request. Information below was included in the CRC NIR.



## Marine Contractors

Owner: Advanced American Construction

Vessel: DB 125

### DB 125

### Equip. #3-18

American	R-30	125	1966
Manufacturer	Model	Max Capacity	Year



Item	Description	Unit	Quantity	Type
	<b>Crane</b>			
1	Line 1 (Main)	LBS	2250	1 1/8" wire
	Line 2 (Whip)	LBS	1000	1 1/8" wire
	Line 3 (Whip)	LBS		
2	Boom	Feet	130'	--
			1850'	1 1/8" wire
3	Width / Outriggers	Feet	--	--
	Length / Outriggers	Feet	--	--
4	Height w/boom down	Feet	51'	--
5	Shipping Weight	LBS	--	--
	Trucks / Ship	EA	--	--
	<b>Barge</b>			
	Width	Feet	53'	--
	Length	Feet	117'	--
	Depth	Feet	10'	--
	Draft	Feet		--
	Rakes			--
	Spuds	Feet	<del>78</del> 78'	--
*	Serial Number: 24626			

Notes: \_\_\_\_\_



## Vessel Height Verification Sheet

By: Jennifer Rabby Date: 23 July 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: Advanced American Construction
- b. Name of contact: Mike Johns
- c. Phone number (Office): 5053.445.9000 (Cell): 503.720.1108
- d. Email: mikej@callaac.com
- e. Address: 8444 NW St Helens Road City: Portland  
State: OR Zip code: 97231

### 2. Vessel

- a. ID: Serial No. 24626 b. Name: DB 125
- c. Type: Crane Barge d. USCG Document Number:

### 3. Vessel Configuration

- a. Identify vessel configuration: Crane Barge
  - Is a vessel specification sheet available? Yes
  - Configuration shown on the sheet: No
  - What is the lowest height configuration for transport? 51ft (spuds removed)
- b. What is the gantry configuration?  Estimated gantry height: 51 feet
- c. Does the barge have spuds? Yes
  - Height above waterline for travel? 78 Feet
  - Can the spuds be removed for travel? Only for long distances upstream for big jobs;  
not for work in the Portland Harbor
  - Work and cost involved in removing spuds? ½-1 day

### 4. Vessel Location

- a. Where is the vessel currently located? AAC Dock in Portland
- b. Is it working on a job? No, but headed out soon Is it tied up to shore? Yes



c. What is the best time to make a trip to the vessel? \_\_\_\_\_

5. Surveyed Measurements ( measurements from Spec sheets)

Gantry Height:	51
Water Level:	
Top of Boom:	
Height of Boom Hinge Pin:	
Boom Cradle:	
Top of Spud:	78

6. Vessel Height

Self-Reported		From Spec Sheet	
Air Draft:	90 feet (top of spuds)	Air Draft:	78 feet (top of spuds)
Air Gap:	10 feet	Air Gap:	10 feet
Water Level:	16 feet	Water Level:	16 feet
Total Height:	116 feet	Total Height:	104 feet

7. History Notes

Date	Item
2/20/2012	Contacted by Megan Nelson
3/8/2012	Returned River User Data Sheet for the Linde Marie via email
7/23/2012	Interviewed by Karl Krcma and Jennifer Rabby; Vessel specification sheets provided



Marine Contractors

Owner: Advanced American Construction

Vessel: DB 4000

---

No image available



## Vessel Height Verification Sheet

By: Jennifer Rabby Date: 23 July 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: Advanced American Construction
- b. Name of contact: Mike Johns
- c. Phone number (Office): 5053.445.9000 (Cell): 503.720.1108
- d. Email: mikej@callaac.com
- e. Address: 8444 NW St Helens Road City: Portland  
State: OR Zip code: 97231

### 2. Vessel

- a. ID: Serial No. 4000 b. Name: DB 4000
- c. Type: Crane Barge d. USCG Document Number: \_\_\_\_\_

### 3. Vessel Configuration

- a. Identify vessel configuration: Crane Barge (portable crane on spud barge)
  - Is a vessel specification sheet available? No, however, identical to DB 4041, with different spud lengths
  - Configuration shown on the sheet: No
  - What is the lowest height configuration for transport? Estimated 35 feet
- b. What is the gantry configuration? \_\_\_\_\_ Estimated gantry height: 35 feet
- c. Does the barge have spuds? Yes
  - Height above waterline for travel? 79.5 Feet
  - Can the spuds be removed for travel? Only for long distances upstream for big jobs; not for work in the Portland Harbor
  - Work and cost involved in removing spuds? ½-1 day

### 4. Vessel Location

- a. Where is the vessel currently located? Bull Run



b. Is it working on a job? Yes Is it tied up to shore? No

c. What is the best time to make a trip to the vessel? \_\_\_\_\_

5. Surveyed Measurements (measurements from Specs)

Gantry Height:	Estimated 35 feet
Water Level:	
Top of Boom:	
Height of Boom Hinge Pin:	
Boom Cradle:	
Top of Spud:	79.5 feet

6. Vessel Height

Self-Reported		Spec measurements	
Air Draft:	90 feet (top of spuds)	Air Draft:	79.5 (top of spuds)
Air Gap:	10 feet	Air Gap:	10 feet
Water Level:	16 feet	Water Level:	16 feet
Total Height:	116 feet	Total Height:	105.5 feet

7. History Notes

Date	Item
2/20/2012	Contacted by Megan Nelson
3/8/2012	Returned River User Data Sheet for the Linde Marie via email
7/23/2012	Interviewed by Karl Krcma and Jennifer Rabby; Vessel specification sheets provided



## Marine Contractors

Owner: Advanced American Construction

Vessel: DB 4041

4041

Equip. #3-02

Manitowoc	4000 - 4041	100 T	1961
Manufacturer	Model	Max Capacity	Year



Item	Description	Unit	Quantity	Capacity
<b>Crane</b>				
1	Line 1 (Main)	LBS	875'	1 1/8" wire
	Line 2 (Whip)	LBS	405'	1 1/8" wire
	Line 3 (Whip)	LBS	---	---
	Boom Line		450'	1" wire
2	Boom	Feet	180'	
3	Width / Outriggers	Feet	n/a	
	Length / Outriggers	Feet	n/a	
4	Height w/boom down	Feet		
5	Shipping Weight	LBS	104,398	
	Trucks / Ship	EA	1	
*	Serial Number: 4041			

4041 → Notes: Length 60 X 105 X 5' DRAFT  
SPUDS 71'

4000 — Length 60 X 105 X 7 DRAFT  
SPUDS 79' 6"



## Vessel Height Verification Sheet

By: Jennifer Rabby Date: 23 July 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: Advanced American Construction
- b. Name of contact: Mike Johns
- c. Phone number (Office): 5053.445.9000 (Cell): 503.720.1108
- d. Email: mikej@callaac.com
- e. Address: 8444 NW St Helens Road City: Portland  
State: OR Zip code: 97231

### 2. Vessel

- a. ID: Serial No. 4041 b. Name: DB 4041
- c. Type: Crane Barge d. USCG Document Number:

### 3. Vessel Configuration

- a. Identify vessel configuration: Crane Barge (Portable crane on spud barge)
  - Is a vessel specification sheet available? Yes
  - Configuration shown on the sheet: No
  - What is the lowest height configuration for transport? Estimated 35ft
- b. What is the gantry configuration?  Estimated gantry height: 35 ft
- c. Does the barge have spuds? Yes
  - Height above waterline for travel? 71 Feet
  - Can the spuds be removed for travel? Only for long distances upstream for big jobs;  
not for work in the Portland Harbor
  - Work and cost involved in removing spuds? ½-1 day

### 4. Vessel Location

- a. Where is the vessel currently located? AAC Dock in Portland
- b. Is it working on a job? No Is it tied up to shore? Yes



c. What is the best time to make a trip to the vessel? \_\_\_\_\_

5. Surveyed Measurements (all measurements from specs)

Gantry Height:	Estimated 35 feet
Water Level:	
Top of Boom:	
Height of Boom Hinge Pin:	
Boom Cradle:	
Top of Spud:	71 feet

6. Vessel Height

Self-Reported		From spec sheet	
Air Draft:	90 feet (top of spuds)	Air Draft:	71 feet (top of spuds)
Air Gap:	10 feet	Air Gap:	10 feet
Water Level:	16 feet	Water Level:	16 feet
Total Height:	116 feet	Total Height:	97 feet

7. History Notes

Date	Item
2/20/2012	Contacted by Megan Nelson
3/8/2012	Returned River User Data Sheet for the Linde Marie via email
7/23/2012	Interviewed by Karl Krcma and Jennifer Rabby; Vessel specification sheets provided



# Marine Contractors

Owner: Advanced American Construction

Vessel: DB 4100

4100 DB

Equip. #3-10

Manitowoc	4100 Series 2 Vicon	225 Ton	1992
Manufacturer	Model	Max Capacity	Year



Item	Description	Unit	Quantity	Type
<b>Crane</b>				
1	Line 1 (Main)	LBS	1000'	1 1/8" wire
	Line 2 (Whip)	LBS	450'	1 1/8" wire
	Line 3 (Whip)	LBS	450'	1 1/8" wire
	Boom Wire		760'	7/8" wire
2	Boom	Feet	180'	
3	Width / Outriggers	Feet	--	--
	Length / Outriggers	Feet	--	--
4	Height w/boom down	Feet	35' 14" 2"	--
5	Shipping Weight	LBS	450,572	--
	Trucks / Ship	EA	7	--
<b>Barge</b>				
1	Width	Feet	60'	--
2	Length	Feet	105'	--
3	Depth	Feet	7'	--
4	Draft	Feet		
5	Rakes		1	--
6	Spuds	Feet	78 90	--
*	Serial Number: 413419			

Notes: Equipment on barge: 4100 (#3-10), Bulldog Gen Set 5 kw mounted on crane (no equip. no.), 25 kw multi-equip. Gen Set (#9-35), Hydra-Pac 4000, hydraulic unit for spuds (#10-01), 2 winches (#14-12 and #14-24). Deutz F3L1011F engine, replaced in 7/03.



## Vessel Height Verification Sheet

By: Jennifer Rabby Date: 23 July 2012

1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: Advanced American Construction
- b. Name of contact: Mike Johns
- c. Phone number (Office): 5053.445.9000 (Cell): 503.720.1108
- d. Email: mikej@callaac.com
- e. Address: 8444 NW St Helens Road City: Portland  
State: OR Zip code: 97231

2. Vessel

- a. ID: Serial No. 413419 b. Name: 4100 DB
- c. Type: Crane Barge d. USCG Document Number: \_\_\_\_\_

3. Vessel Configuration

- a. Identify vessel configuration: Crane Barge
- Is a vessel specification sheet available? Yes
  - Configuration shown on the sheet: No
  - What is the lowest height configuration for transport? 35 feet
- b. What is the gantry configuration? \_\_\_\_\_ Estimated gantry height: 35 Feet
- c. Does the barge have spuds? Yes
- Height above waterline for travel? 92 Feet
  - Can the spuds be removed for travel? Only for long distances upstream for big jobs;  
not for work in the Portland Harbor
  - Work and cost involved in removing spuds? ½-1 day

4. Vessel Location

- a. Where is the vessel currently located? Kalama
- b. Is it working on a job? Yes Is it tied up to shore? no



c. What is the best time to make a trip to the vessel? \_\_\_\_\_

5. Surveyed Measurements (measurements from spec sheet)

Gantry Height:	35
Water Level:	
Top of Boom:	
Height of Boom Hinge Pin:	
Boom Cradle:	
Top of Spud:	92

6. Vessel Height

Self-Reported		Heights from Spec sheet	
Air Draft:	90 feet (top of spuds)	Air Draft:	92
Air Gap:	10 feet	Air Gap:	10 feet
Water Level:	16 feet	Water Level:	16 feet
Total Height:	116 feet	Total Height:	118 feet

7. History Notes

Date	Item
2/20/2012	Contacted by Megan Nelson
3/8/2012	Returned River User Data Sheet for the Linde Marie via email
7/23/2012	Interviewed by Karl Krcma and Jennifer Rabby; Vessel specification sheets provided



## Marine Contractors

Owner: Advanced American Construction

Vessel: Paul Bunyan

Paul Bunyan

Equip# 3-20

US Navy

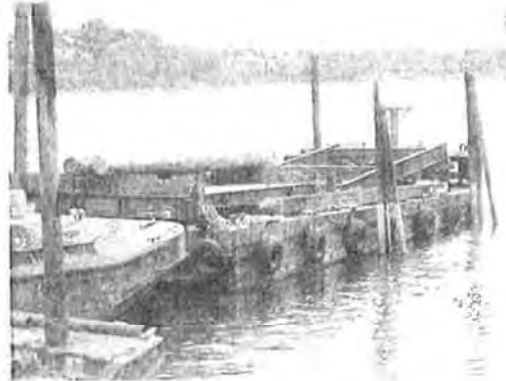
1944

Manufacturer

Model

Max Capacity

Year



Item	Description	Unit	Quantity	Capacity
1	Width	Feet	52'	
	Length	Feet	152'	
	Depth	Feet	11'	
	Draft	Feet		
	Rakes			
	Spud Pocket(s)		2	
	Spud(s)		2 <sup>78'</sup>	

Notes: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



## Vessel Height Verification Sheet

By: Jennifer Rabby Date: 23 July 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: Advanced American Construction
- b. Name of contact: Mike Johns
- c. Phone number (Office): 5053.445.9000 (Cell): 503.720.1108
- d. Email: mikej@callaac.com
- e. Address: 8444 NW St Helens Road City: Portland  
State: OR Zip code: 97231

### 2. Vessel

- a. ID: \_\_\_\_\_ b. Name: Paul Bunyan
- c. Type: Spud Barge d. USCG Document Number: \_\_\_\_\_

### 3. Vessel Configuration

- a. Identify vessel configuration: Spud Barge
  - Is a vessel specification sheet available? Yes
  - Configuration shown on the sheet: No
  - What is the lowest height configuration for transport? 11 feet with spuds removed
- b. What is the gantry configuration? N/A Estimated gantry height: N/A
- c. Does the barge have spuds? Yes
  - Height above waterline for travel? 78 Feet
  - Can the spuds be removed for travel? Only for long distances upstream for big jobs;  
not for work in the Portland Harbor
  - Work and cost involved in removing spuds? ½-1 day

### 4. Vessel Location

- a. Where is the vessel currently located? AAC Dock in Portland
- b. Is it working on a job? No Is it tied up to shore? \_\_\_\_\_



c. What is the best time to make a trip to the vessel? \_\_\_\_\_

5. Spec Measurements

Gantry Height:	
Water Level:	
Top of Boom:	
Height of Boom Hinge Pin:	
Boom Cradle:	
Top of Spud:	78 feet

6. Vessel Height

Self-Reported		Spec measurements	
Air Draft:	Not previously reported	Air Draft:	78 feet (top of spuds)
Air Gap:		Air Gap:	10 feet
Water Level:		Water Level:	16 feet
Total Height:		Total Height:	104 feet

7. History Notes

Date	Item
2/20/2012	Contacted by Megan Nelson
3/8/2012	Returned River User Data Sheet for the Linde Marie via email
7/23/2012	Interviewed by Karl Krcma and Jennifer Rabby; Vessel specification sheets provided



## Marine Contractors

---

Owner: Advanced American Construction

Vessel: Linde Marie



River User Data Sheet

By: \_\_\_\_\_ Date: 3-8-12

1. Company Name and/or Owner of Vessel and contact information

- a. Name of company: ADVANCED AMERICAN CONSTRUCTION  
b. Name of contact: MIKE JOHNS  
c. Phone number (Office): 503-445-9000 d. (Cell): 503-720-1108  
e. Email: MIKEJ@CAIAAC.COM  
f. Address: P.O. BOX 83599  
g. City: PORTLAND OR  
h. State: ORE i. Zip code: 97283

3a. Vessel Name: LINDE MARIE 3b. Vessel Type: TUG

3c. US Coast Guard Document Number: 265180

4a. Length Overall (LOA), feet: 58.4 4b. Beam (width), feet: 16.5

5. Draft (depth of hull below waterline, fully laden), feet: 5.5

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 35

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 40 NOTE ITEM 13"

8. Frequency of one-way passage underneath I-5 main channel (typical per month): 1-2

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

9. Frequency of one-way passage underneath I-5 main channel (other historic events): \_\_\_

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month):

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): 5



12. Do you have a Business Plan (e.g. 10 or 20 year plan)? What does it say regarding vessels

transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? May we have a  
copy? *W/A*

13. Other miscellaneous

*AAC IS A MARINE  
CONSTRUCTION CO.*

*HEIGHT OF VESSEL IS  
MAINLY DETERMINED BY  
A TYPICAL CRANE BARGE BIERG  
PUSHED.*

*HEIGHT OF SPUDS 90' ABOVE  
W/L "MIN" (AIR GAP 100')*

*"MIN" CRANE GANTRY HEIGHT 65'  
"AT THIS TIME" ABOVE W/L (AIR GAP 75')*

*AAC PUSHES AAC OWNED EQUIPMENT  
ONLY (TYPICALLY) SHORT HAUL OR  
JOB TUGGING • LONG HAUL WE  
CONTRACT OUT*

*Mike John*



## Marine Contractors

Company: Bergerson

Vessels:

- Betsy Ross
- Carr Barge
- Sectional Barge
- Darryl B
- Olaf J

Company did not respond to IBR request. Information below was included in the CRC NIR.



## Marine Contractors

---

Owner: Bergerson Construction Inc.

Vessels: Betsy Ross

Darryl B

Olaf J



## Vessel: Betsy Ross





Ask for Tonnage? <sup>HAS</sup> FOR TUGS ONLY

5 TOTAL  
BARGES/VESSEL

River User Data Sheet

By: \_\_\_\_\_ Date: \_\_\_\_\_

1. Company Name and/or Owner of Vessel and contact information

- a. Name of company: Bergerson Construction, Inc.
- b. Name of contact: Gregory Morrill
- c. Phone number (Office): 503-325-7130 d. (Cell): 503-440-7342
- e. Email: gmorrill@bergerson-const.com
- f. Address: 55 Portway (P.O. Box 387)
- g. City: Astoria
- h. State: OR i. Zip code: 97103

3 Cranes  
2 Tugs

- 3a. Vessel Name: Betsy Ross 3b. Vessel Type: Crane Barge

3c. US Coast Guard Document Number: N/A

- 4a. Length Overall (LOA), feet: 120' 4b. Beam (width), feet: 63'

5. Draft (depth of hull below waterline, fully laden), feet: 5'

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 40-150'

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 10'

Clarify?  
Typ. lower  
for travel  
Typ. to 70'

8. Frequency of one-way passage underneath I-5 main channel (typical per month): Varies

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

PHONE CONV.  
2/29 w/  
G. MORRILL

9. Frequency of one-way passage underneath I-5 main channel (other historic events): Varies

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month): Varies

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): Varies



12. Do you have a Business Plan (e.g. 10 or 20 year plan)? What does it say regarding vessels

transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? May we have a

copy? Yes, It does not address vessel traffic in this specific area.

13. Other miscellaneous

As a construction company predicting vessel traffic in a specific area is quite difficult as it is directly related to which contracts we are awarded.



TONNAGE = 38 TONS

River User Data Sheet

By: \_\_\_\_\_ Date: \_\_\_\_\_

1. Company Name and/or Owner of Vessel and contact information

- a. Name of company: Bergerson Construction, Inc.  
b. Name of contact: Gregory Morrill  
c. Phone number (Office): 503-325-7130 d. (Cell): 503-440-7342  
e. Email: gmorrill@bergerson-const.com  
f. Address: 55 Portway (P.O. Box 387)  
g. City: Astoria  
h. State: OR i. Zip code: 97103

3a. Vessel Name: Darryl B. 3b. Vessel Type: Tug

3c. US Coast Guard Document Number: N/A

4a. Length Overall (LOA), feet: 52' 4b. Beam (width), feet: 14.1'

5. Draft (depth of hull below waterline, fully laden), feet: 5.6'

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 20'

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 10'

8. Frequency of one-way passage underneath I-5 main channel (typical per month): Varies

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

9. Frequency of one-way passage underneath I-5 main channel (other historic events): Varies

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month): Varies

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): Varies



12. Do you have a Business Plan (e.g. 10 or 20 year plan)? What does it say regarding vessels

transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? May we have a

copy? Yes, It does not address vessel traffic in this specific area.

13. Other miscellaneous

As a construction company predicting vessel traffic in a specific area is quite difficult as it is directly related to which contracts we are awarded.



TONNAGE = 40 TONS

River User Data Sheet

By: \_\_\_\_\_ Date: \_\_\_\_\_

1. Company Name and/or Owner of Vessel and contact information

- a. Name of company: Bergerson Construction, Inc.  
b. Name of contact: Gregory Morrill  
c. Phone number (Office): 503-325-7130 d. (Cell): 503-440-7342  
e. Email: gmorrill@bergerson-const.com  
f. Address: 55 Portway (P.O. Box 387)  
g. City: Astoria  
h. State: OR i. Zip code: 97103

3a. Vessel Name: Olaf J 3b. Vessel Type: Tug

3c. US Coast Guard Document Number: N/A

4a. Length Overall (LOA), feet: 48.6' 4b. Beam (width), feet: 16.1'

5. Draft (depth of hull below waterline, fully laden), feet: 5.7'

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 35'

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 10'

8. Frequency of one-way passage underneath I-5 main channel (typical per month): Varies

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

9. Frequency of one-way passage underneath I-5 main channel (other historic events): Varies

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month): Varies

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): Varies



12. Do you have a Business Plan (e.g. 10 or 20 year plan)? What does it say regarding vessels

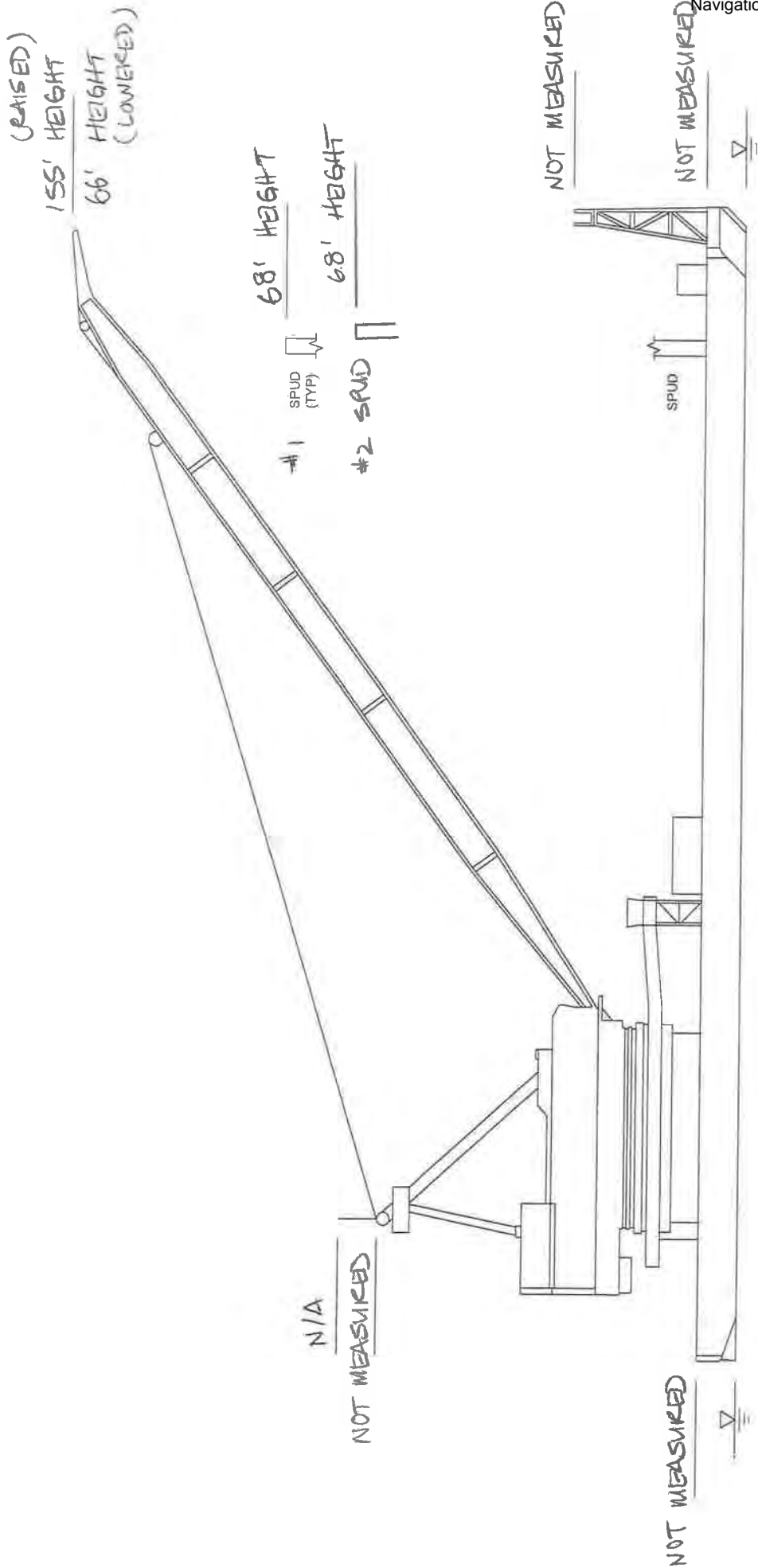
transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? May we have a

copy? Yes, It does not address vessel traffic in this specific area.

13. Other miscellaneous

As a construction company predicting vessel traffic in a specific area is quite difficult as it is directly related to which contracts we are awarded.





BETSY ROSS  
NAME

BERGERSON CONSTRUCTION INC.  
MEASURED AT  
PORT OF ASTORIA, OR

07-10-12  
DATE

LOCATION



N/A - does not exist	
N/M - exists but not measured	



## Vessel Height Verification Sheet

By: Karl Krcma Date: 10 July 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: Bergerson Construction, Inc.
- b. Name of contact: Gregory Morrill
- c. Phone number (Office): 503.325.7130 (Cell): 503.440.7342
- d. Email: gmorrill@bergersonconst.com
- e. Address: 55 Portway (P.O. Box 387) City: Astoria  
State: OR Zip code: 97103

### 2. Vessel

- a. ID: \_\_\_\_\_ b. Name: Betsy Ross
- c. Type: Crane Barge d. USCG Document Number: \_\_\_\_\_

### 3. Vessel Configuration

- a. Identify vessel configuration: Crane Barge
- Is a vessel specification sheet available? No
  - Configuration shown on the sheet: N/A
  - What is the lowest height configuration for transport? Crane down at 66 ft, spuds removed
- b. What is the gantry configuration? \_\_\_\_\_ Estimated gantry height: Not given
- c. Does the barge have spuds? Yes, two
- Height above waterline for travel? 68 Feet
  - Can the spuds be removed for travel? Only in very special circumstances when they travel far upriver on the Columbia
  - Work and cost involved in removing spuds? ½ day to day to remove spuds; need to tie up to a dock near the work area.

### 4. Vessel Location



- a. Where is the vessel currently located? Astoria, OR
- b. Is it working on a job? No Is it tied up to shore? yes
- c. What is the best time to make a trip to the vessel? Prior to August

5. Surveyed Measurements (all measurements above water line)

Gantry Height:	N/A
Water Level:	N/A
Top of Boom:	Raised = 155 ft At travel angle = 66 feet
Height of Boom Hinge Pin:	N/A
Boom Cradle:	N/A
Top of Spud:	68 feet

6. Vessel Height

Self-Reported		Surveyed	
Air Draft:	70 feet (Top of Spuds)	Air Draft:	68 feet
Air Gap:	10 feet	Air Gap:	10 feet
Water Level:	16 feet CRD	Water Level:	16 feet CRD
Total Height:	96 feet	Total Height:	94 feet

7. History Notes

Date	Item
2/17/2012	Contacted by Megan Nelson
2/29/2012	Data sheet submitted
7/3/2012	Contacted by Pete Geiger for field measurement
7/10/2012	Field measured
7/17/2012	New data sheet submitted



Marine Contractors  
Owner: Bergerson Construction  
Vessel: Carr Barge





River User Data Sheet

By: \_\_\_\_\_ Date: \_\_\_\_\_

1. Company Name and/or Owner of Vessel and contact information

- a. Name of company: Bergerson Construction, Inc.  
b. Name of contact: Gregory Morrill  
c. Phone number (Office): 503-325-7130 d. (Cell): 503-440-7342  
e. Email: gmorrill@bergerson-const.com  
f. Address: 55 Portway (P.O. Box 387)  
g. City: Astoria  
h. State: OR i. Zip code: 97103

3a. Vessel Name: Carr Barge 3b. Vessel Type: Crane Barge

3c. US Coast Guard Document Number: N/A

4a. Length Overall (LOA), feet: 104' 4b. Beam (width), feet: 40'

5. Draft (depth of hull below waterline, fully laden), feet: 6'

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 40' - 120'

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 10'

70' 2/29

8. Frequency of one-way passage underneath I-5 main channel (typical per month): Varies

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

9. Frequency of one-way passage underneath I-5 main channel (other historic events): Varies

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month): Varies

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): Varies



12. Do you have a Business Plan (e.g. 10 or 20 year plan)? What does it say regarding vessels

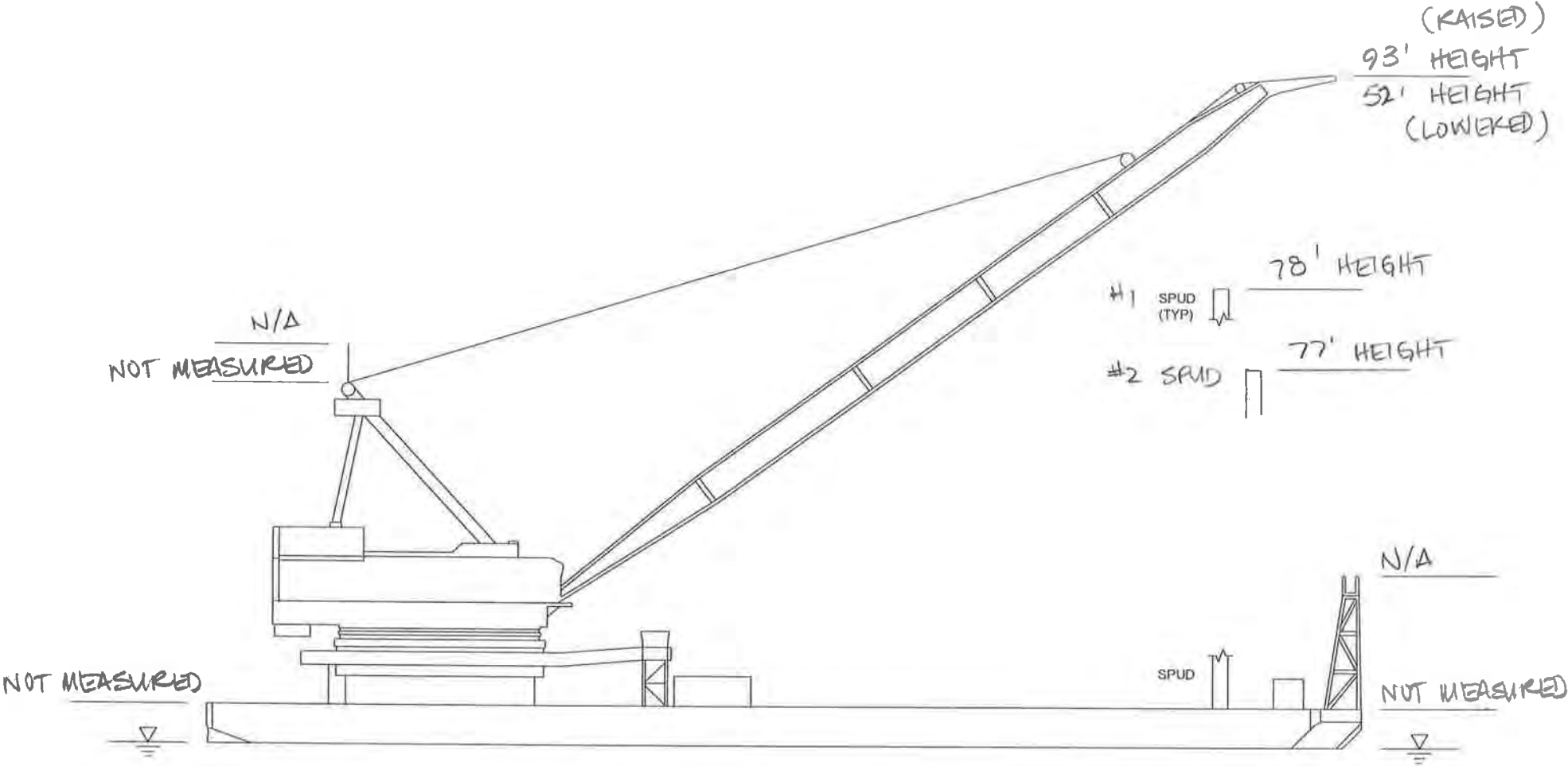
transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? May we have a

copy? Yes, It does not address vessel traffic in this specific area.

13. Other miscellaneous

As a construction company predicting vessel traffic in a specific area is quite difficult as it is directly related to which contracts we are awarded.





CARR

NAME

BERGERSON CONSTRUCTION INC.  
MEASURED AT  
PORT OF ASTORIA, OR

LOCATION

07-10-12

DATE



Page 140 of 726  
7/16/2012



## Vessel Height Verification Sheet

By: Karl Krcma Date: 10 July 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: Bergerson Construction, Inc.
- b. Name of contact: Gregory Morrill
- c. Phone number (Office): 503.325.7130 (Cell): 503.440.7342
- d. Email: gmorrill@bergersonconst.com
- e. Address: 55 Portway (P.O. Box 387) City: Astoria  
State: OR Zip code: 97103

### 2. Vessel

- a. ID: \_\_\_\_\_ b. Name: Carr Barge
- c. Type: Crane Barge d. USCG Document Number: \_\_\_\_\_

### 3. Vessel Configuration

- a. Identify vessel configuration: Crane Barge
- Is a vessel specification sheet available? No
  - Configuration shown on the sheet: N/A
  - What is the lowest height configuration for transport? Crane down at 52 ft, spuds removed
- b. What is the gantry configuration? \_\_\_\_\_ Estimated gantry height: Not given
- c. Does the barge have spuds? Yes, two
- Height above waterline for travel? 78 Feet
  - Can the spuds be removed for travel? Only in very special circumstances when they travel far upriver on the Columbia
  - Work and cost involved in removing spuds? ½ day to day to remove spuds; need to tie up to a dock near the work area.

### 4. Vessel Location



- a. Where is the vessel currently located? Astoria, OR
- b. Is it working on a job? No Is it tied up to shore? yes
- c. What is the best time to make a trip to the vessel? Prior to August

5. Surveyed Measurements (all measurements above water line)

Gantry Height:	N/A
Water Level:	N/A
Top of Boom:	Raised = 93 ft At travel angle = 52 feet
Height of Boom Hinge Pin:	N/A
Boom Cradle:	N/A
Top of Spud:	78 feet

6. Vessel Height

Self-Reported		Surveyed	
Air Draft:	70 feet (Top of Spuds)	Air Draft:	78 feet
Air Gap:	10 feet	Air Gap:	10 feet
Water Level:	16 feet CRD	Water Level:	16 feet CRD
Total Height:	96 feet	Total Height:	104 feet

7. History Notes

Date	Item
2/17/2012	Contacted by Megan Nelson
2/29/2012	Data sheet submitted
7/3/2012	Contacted by Pete Geiger for field measurement
7/10/2012	Field measured
7/17/2012	New data sheet submitted



## Marine Contractors

Owner: Bergerson Construction

Vessel: Sectional Barge

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No image available



River User Data Sheet

By: \_\_\_\_\_ Date: \_\_\_\_\_

1. Company Name and/or Owner of Vessel and contact information

- a. Name of company: Bergerson Construction, Inc.  
b. Name of contact: Gregory Morrill  
c. Phone number (Office): 503-325-7130 d. (Cell): 503-440-7342  
e. Email: gmorrill@bergerson-const.com  
f. Address: 55 Port way (P.O. Box 387)  
g. City: Astoria  
h. State: OR i. Zip code: 97103

3a. Vessel Name: Sectional Barge 3b. Vessel Type: Crane Barge

3c. US Coast Guard Document Number: N/A

4a. Length Overall (LOA), feet: 100' (Varies) 4b. Beam (width), feet: 60' (Varies)

5. Draft (depth of hull below waterline, fully laden), feet: 3'

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: ~~40' 150'~~ 70'

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 10'

2/29

8. Frequency of one-way passage underneath I-5 main channel (typical per month): Varies

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

9. Frequency of one-way passage underneath I-5 main channel (other historic events): Varies

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month): Varies

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): Varies



12. Do you have a Business Plan (e.g. 10 or 20 year plan)? What does it say regarding vessels

transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? May we have a

copy? Yes, It does not address vessel traffic in this specific area.

13. Other miscellaneous

As a construction company predicting vessel traffic in a specific area is quite difficult as it is directly related to which contracts we are awarded.



## Vessel Height Verification Sheet

By: Karl Krcma Date: 10 July 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: Bergerson Construction, Inc.
- b. Name of contact: Gregory Morrill
- c. Phone number (Office): 503.325.7130 (Cell): 503.440.7342
- d. Email: gmorrill@bergersonconst.com
- e. Address: 55 Portway (P.O. Box 387) City: Astoria  
State: OR Zip code: 97103

### 2. Vessel

- a. ID: \_\_\_\_\_ b. Name: Section Barge
- c. Type: Sectional Barge d. USCG Document Number: \_\_\_\_\_

### 3. Vessel Configuration

- a. Identify vessel configuration: Sectional Barge, 40 ft x 10 ft sections that can be connected together

- Is a vessel specification sheet available? No
- Configuration shown on the sheet: N/A
- What is the lowest height configuration for transport? Can be transported by truck

- b. What is the gantry configuration? \_\_\_\_\_ Estimated gantry height: N/A

- c. Does the barge have spuds? Yes

- Height above waterline for travel? N/A
- Can the spuds be removed for travel? Yes
- Work and cost involved in removing spuds? ½ day to day to remove spuds; need to tie up to a dock near the work area.

### 4. Vessel Location

- a. Where is the vessel currently located? Aberdeen, Wa



b. Is it working on a job? Yes Is it tied up to shore? No

c. What is the best time to make a trip to the vessel? Not a good time

5. Surveyed Measurements (all measurements above water line)

Gantry Height:	N/A
Water Level:	N/A
Top of Boom:	N/A
Height of Boom Hinge Pin:	N/A
Boom Cradle:	N/A
Top of Spud:	N/A

6. Vessel Height

Self-Reported		Surveyed	
Air Draft:	70 feet (Top of Spuds)	Air Draft:	N/A
Air Gap:	10 feet	Air Gap:	N/A
Water Level:	16 feet CRD	Water Level:	N/A
Total Height:	96 feet	Total Height:	N/A

7. History Notes

Date	Item
2/17/2012	Contacted by Megan Nelson
2/29/2012	Data sheet submitted
7/3/2012	Contacted by Pete Geiger for field measurement
7/17/2012	New data sheet submitted



## Marine Contractors

Company: CalPortland

Vessels:

- Johnny Peterson
- Sanderling

Company did not respond to IBR request. Information below was included in the CRC NIR.



## Marine Contractors

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Owner: CalPortland Co.

Vessels: Johnny Peterson  
Sanderling



River User Data Sheet

By: Tony CARNERA Date: 3-7-2012

1. Company Name and/or Owner of Vessel and contact information

- a. Name of company: CALPORTLAND CO.  
b. Name of contact: Tony CARNERA  
c. Phone number (Office): 360-694-1627 d. (Cell): 971-235-2527  
e. Email: TCARNERA@CALPORTLAND.COM  
f. Address: 3101 NW GATEWAY AVE  
g. City: VANCOUVER  
h. State: WASHINGTON i. Zip code: 98660

3a. Vessel Name: Johnny Peterson 3b. Vessel Type: TUG

3c. US Coast Guard Document Number: 296618

4a. Length Overall (LOA), feet: 52.0 4b. Beam (width), feet: 18.5

5. Draft (depth of hull below waterline, fully laden), feet: 6.6

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 32

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 3-4 Feet Above

8. Frequency of one-way passage underneath I-5 main channel (typical per month): 8  
Jan 8 Feb 8 Mar 8 Apr 8 May 8 Jun 8 Jul 8 Aug 8 Sep 8 Oct 8 Nov 8 Dec 8

9. Frequency of one-way passage underneath I-5 main channel (other historic events):       

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month):

Jan 0 Feb 0 Mar 0 Apr 0 May 0 Jun 0 Jul 0 Aug 0 Sep 0 Oct 0 Nov 0 Dec 0

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): 0



12. Do you have a Business Plan (e.g. 10 or 20 year plan)? What does it say regarding vessels

transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? May we have a

copy? *We do plan on keeping vessels*

13. Other miscellaneous *For continued operations.*



River User Data Sheet

By: Tony Carnera Date: 3-7-2012

1. Company Name and/or Owner of Vessel and contact information

- a. Name of company: CALPORTLAND CO.  
b. Name of contact: Tony Carnera  
c. Phone number (Office): 360-694-1627 d. (Cell): 971-235-2527  
e. Email: TCARNERA@CALPORTLAND.CO  
f. Address: 3101 NW GATEWAY AVE  
g. City: VINCOUEN  
h. State: WASHINGTON i. Zip code: 98660

3a. Vessel Name: Sunderling 3b. Vessel Type: Dredge

3c. US Coast Guard Document Number: 521611

4a. Length Overall (LOA), feet: 220.1 4b. Beam (width), feet: 40.0

5. Draft (depth of hull below waterline, fully laden), feet: 11.6

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 32

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 3-4 Feet

8. Frequency of one-way passage underneath I-5 main channel (typical per month): 8  
Jan 8 Feb 8 Mar 8 Apr 8 May 8 Jun 8 Jul 8 Aug 8 Sep 8 Oct 8 Nov 8 Dec 8

9. Frequency of one-way passage underneath I-5 main channel (other historic events):       

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month):

Jan 0 Feb 0 Mar 0 Apr 0 May 0 Jun 0 Jul 0 Aug 0 Sep 0 Oct 0 Nov 0 Dec 0

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): 0



12. Do you have a Business Plan (e.g. 10 or 20 year plan)? What does it say regarding vessels

transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? May we have a

copy?

*we plan on keeping vessels for future*

13. Other miscellaneous

*continued operations.*



## Marine Contractors

Company: Diversified Marine

Vessels:

- DB Freedom
- DB Lucy
- DB Vulcan
- BMC44
- BRG22
- DMI 100
- DMI 60
- Cougar
- Mariner
- Tiger

Company provided data sheets to the IBR Program. Data sheets are included below, followed by the information included in the CRC NIR.



### EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** Diversified Marine, Inc.

**Vessel Name:**

BMC44

**Vessel Type:**

Spud barge

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): Choose an item.

**Vessel Category:** Commercial

**USCG Document Number:**

**Primary Mooring Location** (*waterway milepoint, if known*):

**Type and quantity of cargo, if applicable:**

**Length (overall; ft):**

200'

**Beam (width; ft):**

35'



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - *depth of hull below waterline, fully laden:*

6'

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

78

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

**Transit speed under Interstate Bridge and Load Configuration:**

**Time of Year of Passage:**

10

**Tug Assistance Required:** Choose an item.

YES

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



### EXISTING VESSEL DATA SHEET

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<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** Diversified Marine, Inc.

**Vessel Name:**

BRG22

**Vessel Type:**

Spud barge

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): Choose an item.

**Vessel Category:** Commercial

**USCG Document Number:**

**Primary Mooring Location** (*waterway milepoint, if known*):

**Type and quantity of cargo, if applicable:**

**Length (overall; ft):**

16' Long

**Beam (width; ft):**

40'



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - *depth of hull below waterline, fully laden:*

6'

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

85'

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

**Frequency of passage under Interstate Bridge:**

**Transit speed under Interstate Bridge and Load Configuration:**

**Time of Year of Passage:**

10

**Tug Assistance Required:** Choose an item.

YES

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



## EXISTING VESSEL DATA SHEET

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<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** Diversified Marine, Inc.

**Vessel Name:**

Cougar

**Vessel Type:**

Tug

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): Choose an item.

**Vessel Category:** Commercial

**USCG Document Number:**

267389

**Primary Mooring Location** (*waterway milepoint, if known*):

**Type and quantity of cargo, if applicable:**

**Length (overall; ft):**

58.3

**Beam (width; ft):**

16.7



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - *depth of hull below waterline, fully laden:*

5.7

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

50

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

**Transit speed under Interstate Bridge and Load Configuration:**

5 knt

**Time of Year of Passage:**

10

**Tug Assistance Required:** Choose an item.

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



## EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** Diversified Marine, Inc.

**Vessel Name:**

DB Freedom

**Vessel Type:**

Derrick barge

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): Choose an item.

**Vessel Category:** Commercial

**USCG Document Number:**

507476

**Primary Mooring Location** (*waterway milepoint, if known*):

**Type and quantity of cargo, if applicable:**

**Length (overall; ft):**

152.1

**Beam (width; ft):**

60



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - *depth of hull below waterline, fully laden:*

11

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

119

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

10

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

**Transit speed under Interstate Bridge and Load Configuration:**

5 knts

**Time of Year of Passage:**

10

**Tug Assistance Required:** Choose an item.

YES

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



## EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** Diversified Marine, Inc.

**Vessel Name:**

DB Lucy

**Vessel Type:**

Derrick barge

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): Choose an item.

**Vessel Category:** Commercial

**USCG Document Number:**

**Primary Mooring Location** (*waterway milepoint, if known*):

**Type and quantity of cargo, if applicable:**

**Length (overall; ft):**

136'

**Beam (width; ft):**

37'



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - *depth of hull below waterline, fully laden:*

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**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

85

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**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

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**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

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**Transit speed under Interstate Bridge and Load Configuration:**

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**Time of Year of Passage:**

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**Tug Assistance Required:** Choose an item.

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### EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** Diversified Marine, Inc.

**Vessel Name:**

DB Vulcan

**Vessel Type:**

Derrick barge

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): Choose an item.

**Vessel Category:** Commercial

**USCG Document Number:**

**Primary Mooring Location** (*waterway milepoint, if known*):

**Type and quantity of cargo, if applicable:**

**Length (overall; ft):**

101

**Beam (width; ft):**

45



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - *depth of hull below waterline, fully laden:*

6'

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

89

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

**Transit speed under Interstate Bridge and Load Configuration:**

**Time of Year of Passage:**

15

**Tug Assistance Required:** Choose an item.

YES

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



### EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company Name:** Diversified Marine, Inc.

**Vessel Name:**

DMI 100

**Vessel Type:**

Barge

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): Choose an item.

**Vessel Category:** Commercial

**USCG Document Number:**

**Primary Mooring Location** (*waterway milepoint, if known*):

**Type and quantity of cargo, if applicable:**

**Length (overall; ft):**

**Beam (width; ft):**



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - *depth of hull below waterline, fully laden:*

---

---

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

60

---

---

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

---

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**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

---

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**Transit speed under Interstate Bridge and Load Configuration:**

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**Time of Year of Passage:**

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**Tug Assistance Required:** Choose an item.

---

---

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_  
Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_  
Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



### EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company Name:** Diversified Marine, Inc.

**Vessel Name:**

DMI 60

**Vessel Type:**

Barge

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): Choose an item.

**Vessel Category:** Commercial

**USCG Document Number:**

**Primary Mooring Location** (*waterway milepoint, if known*):

**Type and quantity of cargo, if applicable:**

**Length (overall; ft):**

60'

**Beam (width; ft):**

30'



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - *depth of hull below waterline, fully laden:*

---

---

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

60

---

---

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

---

---

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

---

---

**Transit speed under Interstate Bridge and Load Configuration:**

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**Time of Year of Passage:**

15+

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**Tug Assistance Required:** Choose an item.

YES

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**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_  
Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_  
Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



## EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company Name:** Diversified Marine, Inc.

**Vessel Name:**

Mariner

**Vessel Type:**

Tug

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): Choose an item.

**Vessel Category:** Commercial

**USCG Document Number:**

296979

**Primary Mooring Location** (*waterway milepoint, if known*):

**Type and quantity of cargo, if applicable:**

**Length (overall; ft):**

67

**Beam (width; ft):**

24



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - *depth of hull below waterline, fully laden:*

11

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

45

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

**Transit speed under Interstate Bridge and Load Configuration:**

**Time of Year of Passage:**

**Tug Assistance Required:** Choose an item.

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



### EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company Name:** Diversified Marine, Inc.

**Vessel Name:**

Tiger

**Vessel Type:**

Tug

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): Choose an item.

**Vessel Category:** Commercial

**USCG Document Number:**

256714

**Primary Mooring Location** (*waterway milepoint, if known*):

**Type and quantity of cargo, if applicable:**

**Length (overall; ft):**

56.9

**Beam (width; ft):**

17.1



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - *depth of hull below waterline, fully laden:*

6.7

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

38

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

**Transit speed under Interstate Bridge and Load Configuration:**

**Time of Year of Passage:**

**Tug Assistance Required:** Choose an item.

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



Marine Contractors  
Owner: Diversified Marine  
Vessel: BMC 44

---





River User Data Sheet

By: \_\_\_\_\_ Date: 2/17/12

1. Company Name and/or Owner of Vessel and contact information

- a. Name of company: DIVERSIFIED MARINE INC  
b. Name of contact: KURT REDD  
c. Phone number (Office): 503-289-2669 d. (Cell): \_\_\_\_\_  
e. Email: KURT@DMIPDX.COM  
f. Address: PO BOX 83723 (1801 N MARINE DR)  
g. City: PDX  
h. State: OR i. Zip code: 97283

3a. Vessel Name: SEE ATTACHED 3b. Vessel Type: \_\_\_\_\_

3c. US Coast Guard Document Number: \_\_\_\_\_

4a. Length Overall (LOA), feet: \_\_\_\_\_ 4b. Beam (width), feet: \_\_\_\_\_

5. Draft (depth of hull below waterline, fully laden), feet: \_\_\_\_\_

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 85

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 95' OR 10' ABOVE HIGHEST POINT

8. Frequency of one-way passage underneath I-5 main channel (typical per month): \_\_\_\_\_

Jan 1 Feb 4 Mar 2 Apr 1 May 1 Jun 1 Jul 1 Aug 1 Sep 1 Oct 1 Nov 1 Dec 1

9. Frequency of one-way passage underneath I-5 main channel (other historic events): \_\_\_\_\_

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month):

Jan 15 Feb 15 Mar 15 Apr 15 May 15 Jun 15 Jul 15 Aug 15 Sep 15 Oct 15 Nov 15 Dec 15

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events):

OFTEN WE USE BRIDGE DAILY DEPENDING ON WORK FLOW. IT VARIES!



12. Do you have a Business Plan (e.g. 10 or 20 year plan)? What does it say regarding vessels transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? May we have a copy?

13. Other miscellaneous

NORTH PORTLAND HARBOR BRIDGE  
IS "CRITICAL" TO OUR BUSINESS!



## DIVERSIFIED MARINE, INC.

PO Box 83723

Portland OR 97283-0723

Phone (503) 289-2669

Fax (503) 289-2825

Email: DMI83723@aol.com

www.DiversifiedMarineInc.com



Feb, 17<sup>th</sup> 2012

### Marine equipment list

#### Derrick barges:

	Capacity	Size
DB Freedom	125 Ton	60' x 155' x 5' draft (85' tall spuds)
DB Vulcan	60 Ton	45' x 101' x 5' draft (Bridge clearance 58')
DB Lucy	25 Ton	35' x 125' (85' tall spuds)

#### Barges:

DMI 60	60,000#	26' x 80' Ramp barge with spuds x 85' Tall
BMC 44	500 Ton	36' x 208 Spud barge x 80' tall
DMI 100	300 ton	60' x 100' Spud barge x 60' tall
DMI 40	15 Ton	12' x 40' work barge
DMI 50	60,000#	26' x 60' Ramp barge with spuds x 60' tall

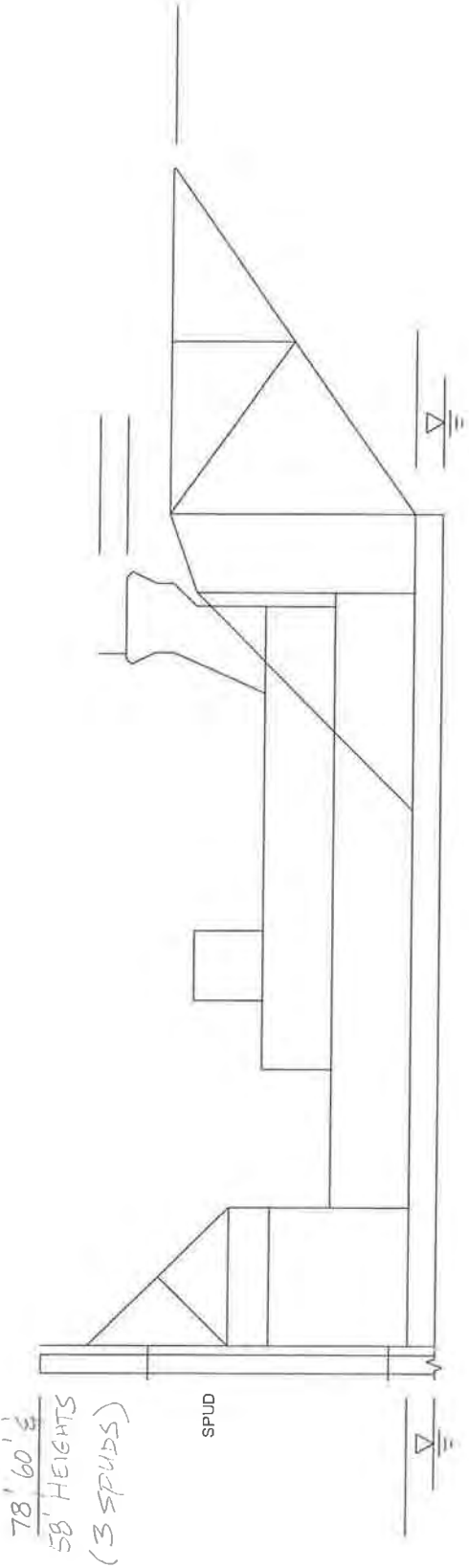
#### Tugs:

Tiger	1600 HP	18' x 65' x 6' draft (Bridge clearance required 38')
Cougar	1200 HP	22' x 65' x 6' draft (Bridge clearance required 50')
Mariner	1800 HP	25' x 75' x 10' draft (Bridge clearance required 45')

#### Utility:

MV Sandwich	1050 HP	25' x 78' x 5' draft Landing craft
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BMC 44

NAME

DIVERSIFIED MARINE

LOCATION

7-02-2012

DATE



Vessel Name	Owner	Antenna Elev (ft)	Mast Elev (ft)	Spud Elev (ft)	Boom Crane Elev (ft)	Gantry Elev (ft)	Pivot Pt Elev (ft)	Cradle Elev (ft)	Water Elev (ft)	Height Above Water (ft)
Make It So			103.7						17.0	87
		106.9							17.0	90
Wakadui	Todd Hilbelink		80.1						17.0	63
		82.8							17.0	66
DMI 60	Diversified Marine			100.2					16.0	84
Lucy	Diversified Marine				89.3				16.0	73
Freedom	Diversified Marine					77.3			16.0	61
							39.1		16.0	23
								42.9	16.0	27
					201.4				16.0	185
Vulcan	Diversified Marine					65.9			16.0	50
		74.8							16.0	59
					104.6				16.0	89
							37.0		16.0	21
R22	Diversified Marine			73.8					15.8	58
BMC44	Diversified Marine			93.5					15.8	78
				73.5					15.8	58
				75.3					15.8	60
Nancy Riley	McClure Loving Trust		86.1						17.8	68
		88.6							17.8	71



## Vessel Height Verification Sheet

By: Pete Geiger Date: 2 July 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: Diversified Marine
- b. Name of contact: Kurt Redd
- c. Phone number (Office): 503.289.2662 (Cell):
- d. Email: kurt@dmipdx.com
- e. Address: 1801 N Marine Drive City: Portland  
State: OR Zip code: 97217

### 2. Vessel

- a. ID:  b. Name: BMC44
- c. Type: Spud Barge d. USCG Document Number:

### 3. Vessel Configuration

- a. Identify vessel configuration: Spud Barge
  - Is a vessel specification sheet available? No
  - Configuration shown on the sheet: N/A
  - What is the lowest height configuration for transport? Spuds Up at 80 feet
- b. What is the gantry configuration? N/A Estimated gantry height: N/A
- c. Does the barge have spuds? Yes two. Midpoint at both ends. One Spud currently removed and one spud raised and pinned
  - Height above waterline for travel? 80 Feet
  - Can the spuds be removed for travel? Only in very special circumstances when they travel far upriver on the Columbia
  - Work and cost involved in removing spuds? 4 hours each spud to re-install; need to tie up to a dock near the work area. Would need to be accompanied by a crane.



4. Vessel Location

- a. Where is the vessel currently located? Columbia River North Portland Harbor, tied up to dolphins about ¼ mile downstream of Diversified Marine's Facility
- b. Is it working on a job? No Is it tied up to shore? Yes
- c. What is the best time to make a trip to the vessel? Anytime just give him 1 day notice

5. Surveyed Measurements (all measurements NAVD 88)

Gantry Height:	Not Surveyed – No Crane
Water Level:	15.8 feet
Top of Boom:	Not Surveyed – No Crane
Height of Boom Hinge Pin:	Not Surveyed – No Crane
Boom Cradle:	Not Surveyed – No Crane
Top of Spud:	93.5 Feet

6. Vessel Height

Self-Reported (Top of Spud)		Surveyed (Top of Spud)	
Air Draft:	80 feet (Top of Spud)	Air Draft:	78 Feet (Top of Spud)
Air Gap:	10 feet	Air Gap:	10 feet
Water Level:	16 feet	Water Level:	16 feet
Total Height:	106 feet	Total Height:	104 feet

7. History Notes

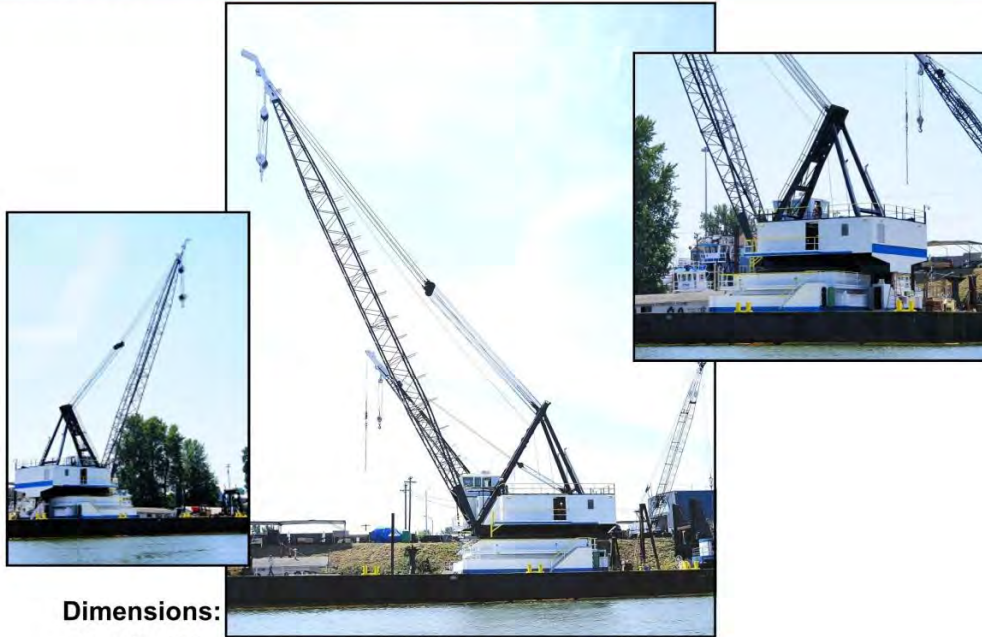
Date	Item
2/17/2012	Contacted by Megan Nelson
2/29/2012	Data sheet submitted
6/28/2012	Contacted by Pete Geiger for field measurement
7/2/2012	Field measured



Marine Contractors  
Owner: Diversified Marine  
Vessel: DB Freedom

## CRANE BARGE "DB FREEDOM"

Official No. 507476



### Dimensions:

- Length: 152
- Beam: 60'
- Depth: 12"
- Draft: 4'
- Boom: 160' to main fall
- Boom: 172' to main whip line

### Capacities:

- Fuel: 10,000 gallons
- Lift 123.5 tons off stern
- Lift: 87.4 tons @ 50' radius
- Lift: 81.2 tons @ 60' radius
- Lift: 67 tons @ 80' radius
- Lift: 25 tons @ 160' radius

### Regulatory:

- American Hoist & Derrick Co  
American 305 Revolver
- Gross tonnage: 911 GRT

### Machinery:

- Power: Diesel/Electric
- Generator: 375KW 480V
- Engine: C18

### Auxiliaries:

- 3 drum 20,000#deck winch
- Twp (2) Aux hoist: 2 drum Skagit

### Capabilities:

- Heavy Lifting
- Crane Service
- Salvage
- Pile Driving

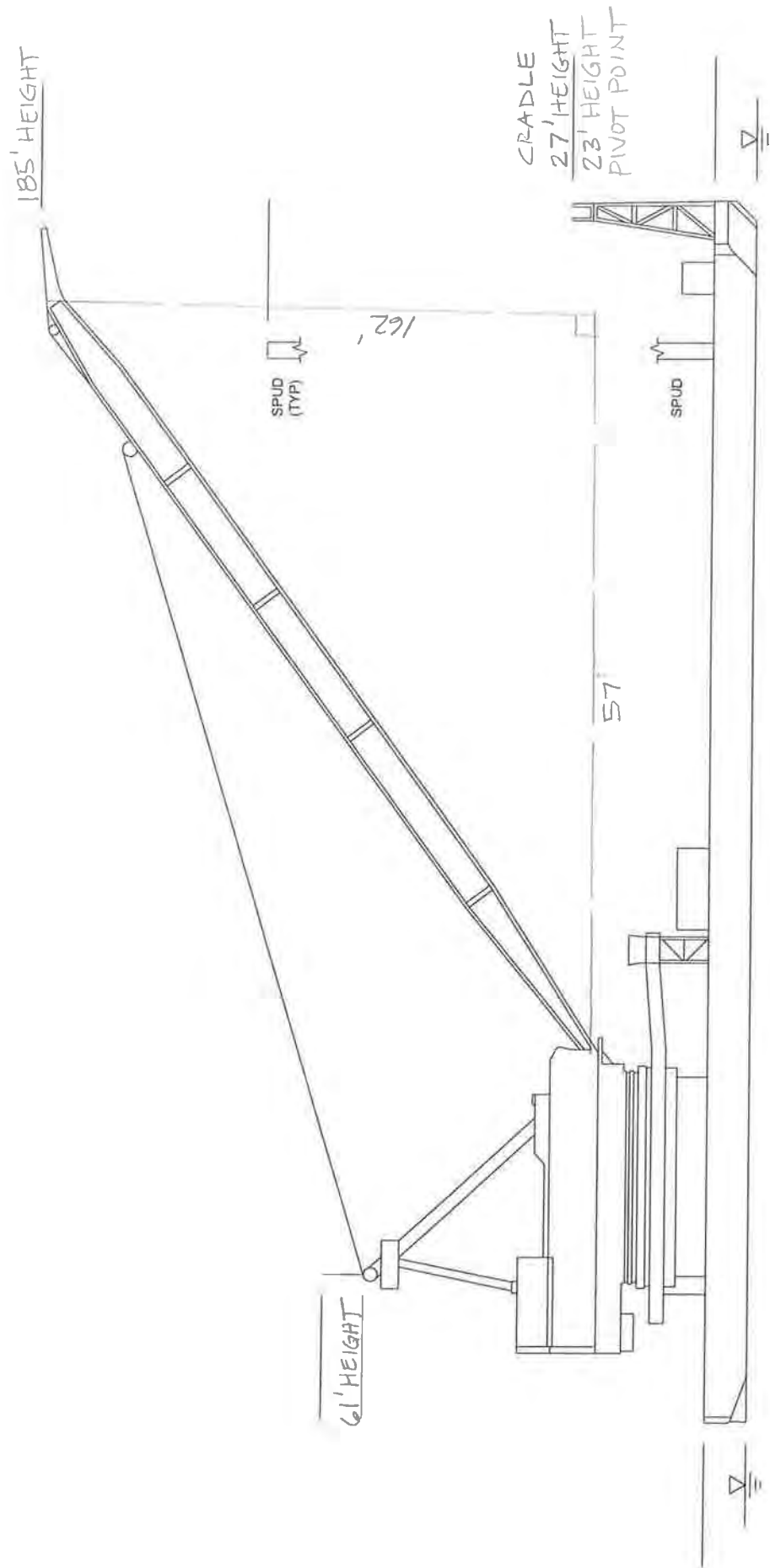
## DIVERSIFIED MARINE, INC.

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E-mail: kurt@dmipdx.com  
Website: www.dmipdx.com

See more photos and videos of our equipment on our website.





FREEDOM  
NAME

DIVERSIFIED MARINE  
LOCATION

7-02-2012  
DATE



## Vessel Height Verification Sheet

By: Pete Geiger Date: 2 July 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: Diversified Marine
- b. Name of contact: Kurt Redd
- c. Phone number (Office): 503.289.2662 (Cell):
- d. Email: kurt@dmipdx.com
- e. Address: 1801 N Marine Drive City: Portland  
State: OR Zip code: 97217

### 2. Vessel

- a. ID:  b. Name: DB Freedom
- c. Type: Crane Barge d. USCG Document Number:

### 3. Vessel Configuration

- a. Identify vessel configuration: Crane Barge
  - Is a vessel specification sheet available? Yes
  - Configuration shown on the sheet: Crane Up
  - What is the lowest height configuration for transport? Crane down at ~ 34 Degrees  
above horizontal, spuds up and pinned
- b. What is the gantry configuration?  Estimated gantry height: Not given
- c. Does the barge have spuds? Yes at least two forward. Spuds currently down
  - Height above waterline for travel? 85 Feet
  - Can the spuds be removed for travel? Only in very special circumstances when they  
travel far upriver on the Columbia
  - Work and cost involved in removing spuds? 4 hours each spud to re-install; need to tie up to  
a dock near the work area.



4. Vessel Location

- a. Where is the vessel currently located? Columbia River North Portland Harbor
- b. Is it working on a job? Yes while tied up Is it tied up to shore? yes
- c. What is the best time to make a trip to the vessel? Anytime just give him 1 day notice

5. Surveyed Measurements (all measurements NAVD 88)

Gantry Height:	77.3 feet
Water Level:	16.0 feet
Top of Boom:	Measured while working = 201.4 feet (71 degrees off horizontal) Estimated at travel angle (34 degrees off horizontal) = 135 feet
Height of Boom Hinge Pin:	39.1 feet
Boom Cradle:	42.9 feet
Top of Spud:	Not surveyed – spuds in down position

6. Vessel Height

Self-Reported		Surveyed (Top of Boom Estimated)	
Air Draft:	85 feet (Top of Spuds)	Air Draft:	119 Feet (Top of Crane)
Air Gap:	10 feet	Air Gap:	10 feet
Water Level:	16 feet CRD	Water Level:	16 feet CRD
Total Height:	111 feet	Total Height:	145 feet

7. History Notes

Date	Item
2/17/2012	Contacted by Megan Nelson
2/29/2012	Data sheet submitted
6/28/2012	Contacted by Pete Geiger for field measurement
7/2/2012	Field measured



Marine Contractors  
Owner: Diversified Marine  
Vessel: DB Lucy

## CRANE BARGE "LUCY"



### Dimensions:

- Length: 130'
- Beam: 35'
- Depth: 6' 6"
- Draft: 3'
- Boom: 90'

### Capacities:

- Fuel: 1,000 gallons
- Lift: 25 tons

### Regulatory:

- Bucyrus Erie 54B Pedestal Mounted

### Machinery:

- Power: Diesel GM 6-110

### Auxiliaries:

- Two (2) 80' x 20" spuds
- Aux hoist: 2 drum Skagit

### Capabilities:

- Crane Service
- Salvage
- Pile Driving
- Clamshell Dredging
- Duty Cycle

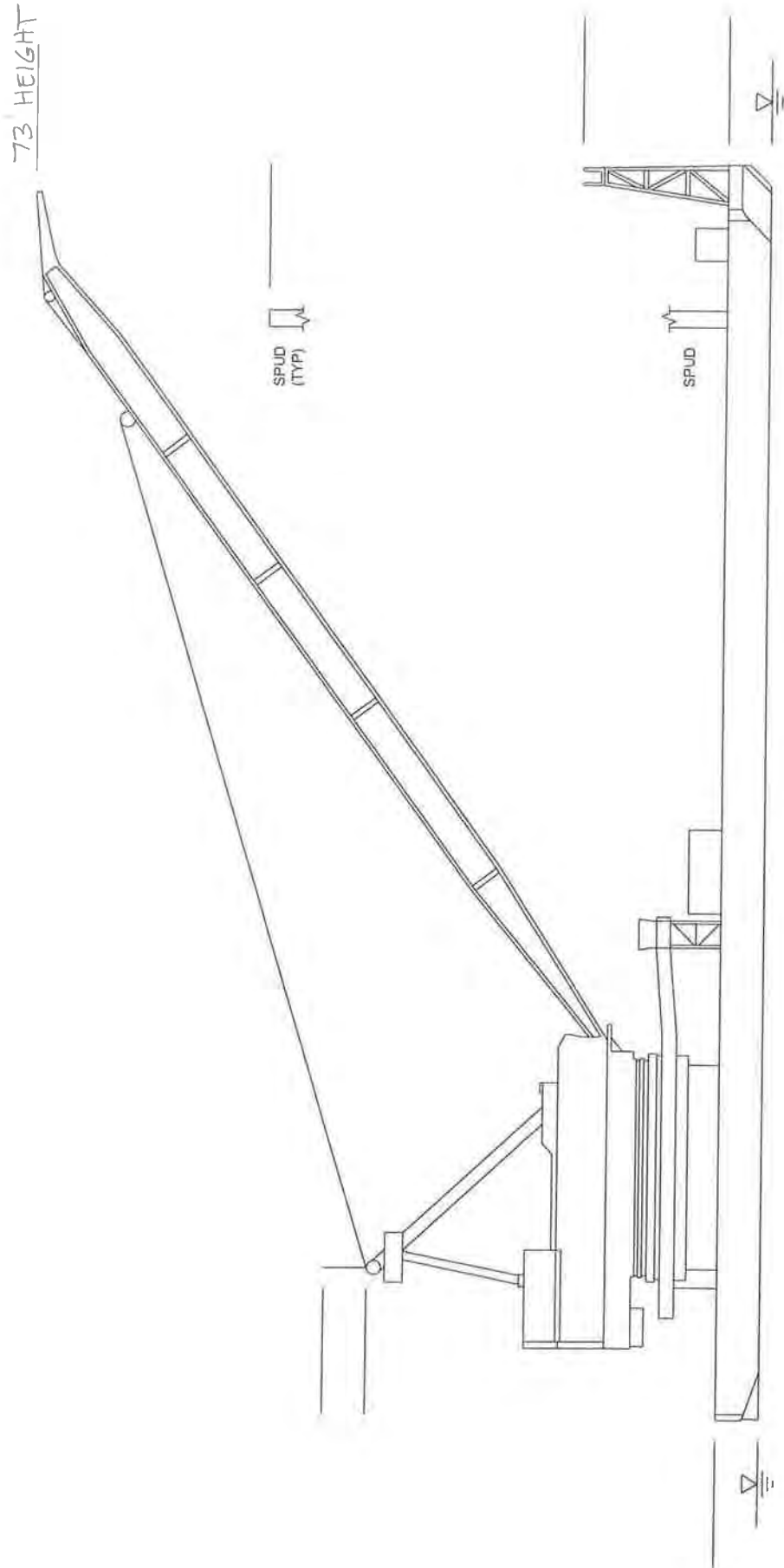
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E-mail: [kurt@dmipdx.com](mailto:kurt@dmipdx.com)  
Website: [www.dmipdx.com](http://www.dmipdx.com)

See more photos and videos of our equipment on our website.





\_\_\_\_\_  
NAME  
LUCKY

\_\_\_\_\_  
LOCATION  
DIVERSIFIED MARINE

\_\_\_\_\_  
DATE  
7-02-2012



## Vessel Height Verification Sheet

By: Pete Geiger Date: 2 July 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: Diversified Marine
- b. Name of contact: Kurt Redd
- c. Phone number (Office): 503.289.2662 (Cell):
- d. Email: kurt@dmipdx.com
- e. Address: 1801 N Marine Drive City: Portland  
State: OR Zip code: 97217

### 2. Vessel

- a. ID:  b. Name: DB Lucy
- c. Type: Crane Barge d. USCG Document Number:

### 3. Vessel Configuration

- a. Identify vessel configuration: Crane Barge
  - Is a vessel specification sheet available? Yes
  - Configuration shown on the sheet: Crane Down, Spuds Up
  - What is the lowest height configuration for transport? Crane down at ~ 34 Degrees above horizontal
- b. What is the gantry configuration?  Estimated gantry height: Not given
- c. Does the barge have spuds? Yes Center of Barge, either edge. Spuds currently down
  - Height above waterline for travel? 85 Feet
  - Can the spuds be removed for travel? Only in very special circumstances when they travel far upriver on the Columbia
  - Work and cost involved in removing spuds? 4 hours each spud to re-install; need to tie up to a dock near the work area.



4. Vessel Location

- a. Where is the vessel currently located? Columbia River North Portland Harbor
- b. Is it working on a job? No Is it tied up to shore? Yes
- c. What is the best time to make a trip to the vessel? Anytime just give him 1 day notice

5. Surveyed Measurements (all measurements NAVD 88)

Gantry Height:	Not Surveyed – Obscured by drydock
Water Level:	16.0 feet
Top of Boom:	Measured at storage angle = 89.3 feet
Height of Boom Hinge Pin:	Not Surveyed – Obscured by drydock
Boom Cradle:	Not Surveyed – Obscured by drydock
Top of Spud:	Not surveyed – No Spuds – Anchors Only

6. Vessel Height

Self-Reported (Top of Spud)		Surveyed (Top of Boom)	
Air Draft:	85 feet (Top of Spud)	Air Draft:	73 Feet (Top of Crane Boom)
Air Gap:	10 feet	Air Gap:	10 feet
Water Level:	16 feet	Water Level:	16 feet
Total Height:	111 feet	Total Height:	99 feet

7. History Notes

Date	Item
2/17/2012	Contacted by Megan Nelson
2/29/2012	Data sheet submitted
6/28/2012	Contacted by Pete Geiger for field measurement
7/2/2012	Field measured



Marine Contractors  
Owner: Diversified Marine  
Vessel: DB Vulcan

## CRANE BARGE "DB VULCAN"

Official No. 563327



### Dimensions:

- Length: 101'
- Beam: 45'
- Depth: 8' 6"
- Draft: 3' 6"
- Boom: 113' to main fall
- Boom: 120' to main whip line

### Capacities:

- Fuel: 4,500 gallons
- Lift: 60 tons @ 40' radius
- Lift: 38 tons @ 60' radius
- Lift: 14 tons @ 120' radius

### Regulatory:

- RW Kaltenback Model YDH-9  
Revolving Whirley
- Gross tonnage: 358 GRT

### Machinery:

- Power: Diesel/Electric
- Generator: GE 125KW 230V
- Engine: Cat 3306

### Auxiliaries:

- Four (4) 8000# anchors
- Aux hoist: 3 drum Skagit

### Capabilities:

- Heavy Lifting
- Crane Service
- Salvage
- Pile Driving
- Clamshell Dredging
- Duty Cycle

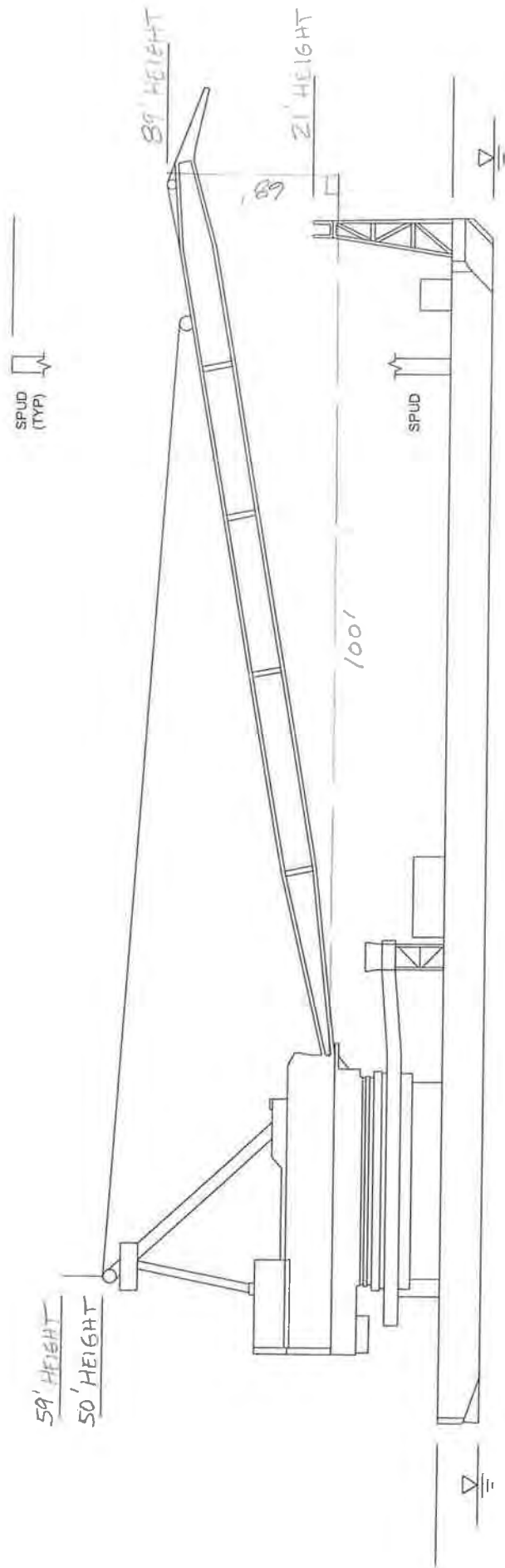
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Website: [www.dmipdx.com](http://www.dmipdx.com)

See more photos and videos of our equipment on our website.





VULCAN

NAME

DIVERSIFIED MARINE

LOCATION

7-02-2012

DATE



## Vessel Height Verification Sheet

By: Pete Geiger Date: 2 July 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: Diversified Marine
- b. Name of contact: Kurt Redd
- c. Phone number (Office): 503.289.2662 (Cell):
- d. Email: kurt@dmipdx.com
- e. Address: 1801 N Marine Drive City: Portland  
State: OR Zip code: 97217

### 2. Vessel

- a. ID:  b. Name: DB Vulcan
- c. Type: Crane Barge d. USCG Document Number:

### 3. Vessel Configuration

- a. Identify vessel configuration: Crane Barge
  - Is a vessel specification sheet available? Yes
  - Configuration shown on the sheet: Crane Up
  - What is the lowest height configuration for transport? Crane down at ~ 34 Degrees  
above horizontal
- b. What is the gantry configuration?  Estimated gantry height: Not given
- c. Does the barge have spuds? No (Anchors Only)
  - Height above waterline for travel? N/A
  - Can the spuds be removed for travel? N/A
  - Work and cost involved in removing spuds? N/A

### 4. Vessel Location

- a. Where is the vessel currently located? Columbia River North Portland Harbor
- b. Is it working on a job? No Is it tied up to shore? Yes



c. What is the best time to make a trip to the vessel? Anytime just give him 1 day notice

5. Surveyed Measurements (all measurements NAVD 88)

Gantry Height:	65.9 feet
Water Level:	16.0 feet
Top of Boom:	Measured at travel angle (34 degrees off horizontal) = 104.6 feet
Height of Boom Hinge Pin:	37.0 feet
Boom Cradle:	Not Surveyed – Obscured by tugs
Top of Spud:	Not surveyed – No Spuds – Anchors Only

6. Vessel Height

Self-Reported (Top of Gantry)		Surveyed (Top of Boom)	
Air Draft:	58 feet (Top of Gantry)	Air Draft:	89 Feet (Top of Crane Boom)
Air Gap:	10 feet	Air Gap:	10 feet
Water Level:	16 feet	Water Level:	16 feet
Total Height:	84 feet	Total Height:	115 feet

7. History Notes

Date	Item
2/17/2012	Contacted by Megan Nelson
2/29/2012	Data sheet submitted
6/28/2012	Contacted by Pete Geiger for field measurement
7/2/2012	Field measured



Marine Contractors  
Owner: Diversified Marine  
Vessel: DMI 60

---

## RAMP/SPUD BARGE "DMI60"



### Dimensions:

- Length: 60'
- Length (Ramps extended): 80'
- Beam: 24'
- Depth: 4'
- Draft: 1'
- Spuds: 85' x 12"

### Regulatory:

- Gross tonnage: GRT 48

### Machinery:

- Two (2) Pullmaster 12,000# hydraulic winches (raise and lower spuds)
- Pullmaster M25 to power ramps
- 50 HP self-contained power unit with biodegradable hydraulic oil

### Capabilities:

- Drilling support platform
- Salvage
- Floating Dock
- Bridge Inspections

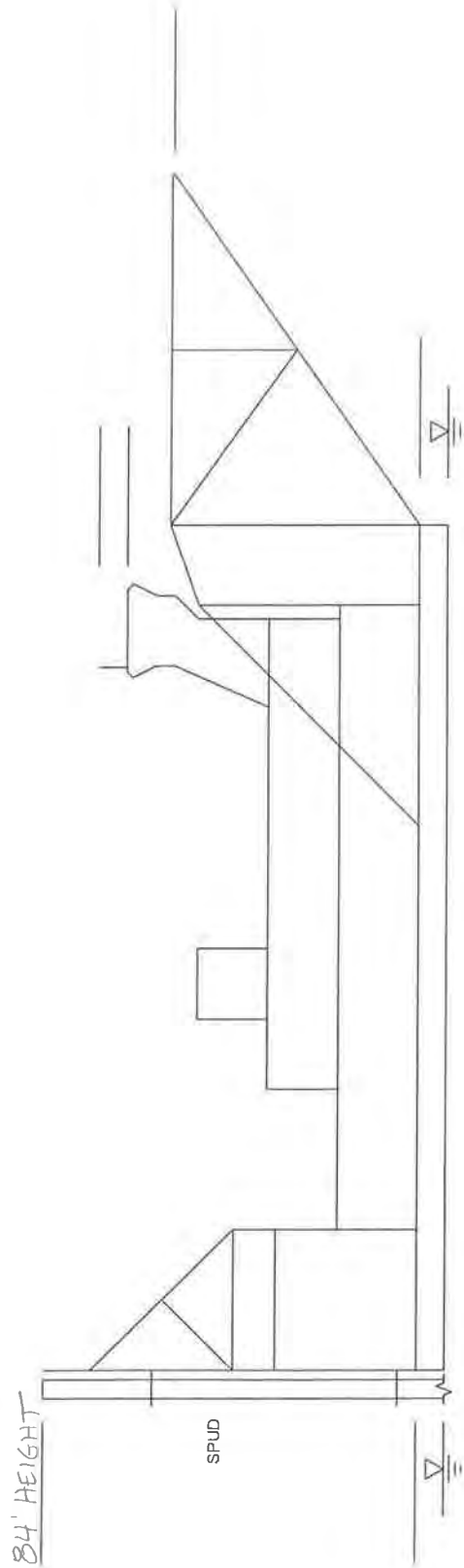
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Fax: 503-289-2825  
E-mail: kurt@dmipdx.com

See more photos and videos of our equipment on our website.





DMIGO  
NAME

DIVERSIFIED MARINE  
LOCATION

7-02-2012  
DATE



## Vessel Height Verification Sheet

By: Pete Geiger Date: 2 July 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: Diversified Marine
- b. Name of contact: Kurt Redd
- c. Phone number (Office): 503.289.2662 (Cell):
- d. Email: kurt@dmipdx.com
- e. Address: 1801 N Marine Drive City: Portland  
State: OR Zip code: 97217

### 2. Vessel

- a. ID:  b. Name: DMI 60
- c. Type: Spud Barge d. USCG Document Number:

### 3. Vessel Configuration

- a. Identify vessel configuration: Spud Barge
  - Is a vessel specification sheet available? Yes
  - Configuration shown on the sheet: Spuds Up
  - What is the lowest height configuration for transport? Spuds Up at 85 feet
- b. What is the gantry configuration? N/A Estimated gantry height: N/A
- c. Does the barge have spuds? Yes Center of Barge, either edge. One Spud currently down and one spud raised and pinned for survey
  - Height above waterline for travel? 85 Feet
  - Can the spuds be removed for travel? Only in very special circumstances when they travel far upriver on the Columbia
  - Work and cost involved in removing spuds? 4 hours each spud to re-install; need to tie up to a dock near the work area. Would need to be accompanied by a crane.



4. Vessel Location

- a. Where is the vessel currently located? Columbia River North Portland Harbor
- b. Is it working on a job? No Is it tied up to shore? Yes
- c. What is the best time to make a trip to the vessel? Anytime just give him 1 day notice

5. Surveyed Measurements (all measurements NAVD 88)

Gantry Height:	Not Surveyed – No Crane
Water Level:	16.0 feet
Top of Boom:	Not Surveyed – No Crane
Height of Boom Hinge Pin:	Not Surveyed – No Crane
Boom Cradle:	Not Surveyed – No Crane
Top of Spud:	100.2 Feet

6. Vessel Height

Self-Reported (Top of Spud)		Surveyed (Top of Spud)	
Air Draft:	85 feet (Top of Spud)	Air Draft:	84 Feet (Top of Spud)
Air Gap:	10 feet	Air Gap:	10 feet
Water Level:	16 feet	Water Level:	16 feet
Total Height:	111 feet	Total Height:	110 feet

7. History Notes

Date	Item
2/17/2012	Contacted by Megan Nelson
2/29/2012	Data sheet submitted
6/28/2012	Contacted by Pete Geiger for field measurement
7/2/2012	Field measured



## Marine Contractors

---

Owner: Diversified Marine

Vessels: BRG22

Cougar

DMI 100

DMI 40

DMI 50

Mariner

MV Sandwich

Tiger



River User Data Sheet

By: \_\_\_\_\_ Date: 2/17/12

1. Company Name and/or Owner of Vessel and contact information

- a. Name of company: DIVERSIFIED MARINE INC  
b. Name of contact: KURT REDD  
c. Phone number (Office): 503-289-2669 d. (Cell): \_\_\_\_\_  
e. Email: KURT@DMIPDX.COM  
f. Address: PO BOX 83723 (1801 N MARINE DR)  
g. City: PDX  
h. State: OR i. Zip code: 97283

3a. Vessel Name: SEE ATTACHED 3b. Vessel Type: \_\_\_\_\_

3c. US Coast Guard Document Number: \_\_\_\_\_

4a. Length Overall (LOA), feet: \_\_\_\_\_ 4b. Beam (width), feet: \_\_\_\_\_

5. Draft (depth of hull below waterline, fully laden), feet: \_\_\_\_\_

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 85

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 95' OR 10' ABOVE HIGHEST POINT

8. Frequency of one-way passage underneath I-5 main channel (typical per month): \_\_\_\_\_

Jan 1 Feb 4 Mar 2 Apr 1 May 1 Jun 1 Jul 1 Aug 1 Sep 1 Oct 1 Nov 1 Dec 1

9. Frequency of one-way passage underneath I-5 main channel (other historic events): \_\_\_\_\_

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month):

Jan 15 Feb 15 Mar 15 Apr 15 May 15 Jun 15 Jul 15 Aug 15 Sep 15 Oct 15 Nov 15 Dec 15

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events):

OFTEN WE USE BRIDGE DAILY DEPENDING ON WORK FLOW. IT VARIES!



12. Do you have a Business Plan (e.g. 10 or 20 year plan)? What does it say regarding vessels transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? May we have a copy?

13. Other miscellaneous

NORTH PORTLAND HARBOR BRIDGE  
IS "CRITICAL" TO OUR BUSINESS!



## DIVERSIFIED MARINE, INC.

PO Box 83723  
Portland OR 97283-0723  
Phone (503) 289-2669  
Fax (503) 289-2825  
Email: DMI83723@aol.com  
www.DiversifiedMarineInc.com

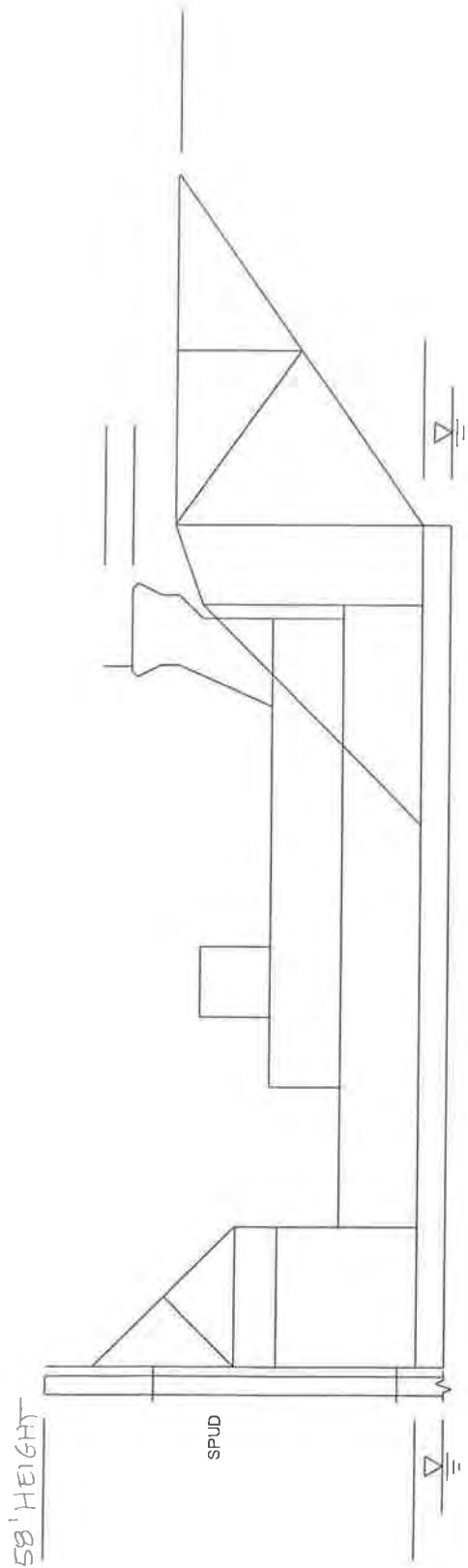


Feb, 17<sup>th</sup> 2012

### Marine equipment list

<b>Derrick barges:</b>	Capacity	Size
DB Freedom	125 Ton	60' x 155' x 5' draft (85' tall spuds)
DB Vulcan	60 Ton	45' x 101' x 5' draft (Bridge clearance 58')
DB Lucy	25 Ton	35' x 125' (85' tall spuds)
<b>Barges:</b>		
DMI 60	60,000#	26' x 80' Ramp barge with spuds x 85' Tall
BMC 44	500 Ton	36' x 208 Spud barge x 80' tall
DMI 100	300 ton	60' x 100' Spud barge x 60' tall
DMI 40	15 Ton	12' x 40' work barge
DMI 50	60,000#	26' x 60' Ramp barge with spuds x 60' tall
<b>Tugs:</b>		
Tiger	1600 HP	18' x 65' x 6' draft (Bridge clearance required 38')
Cougar	1200 HP	22' x 65' x 6' draft (Bridge clearance required 50')
Mariner	1800 HP	25' x 75' x 10' draft (Bridge clearance required 45')
<b>Utility:</b>		
MV Sandwich	1050 HP	25' x 78' x 5' draft Landing craft





R22  
NAME

DIVERSIFIED MARINE  
LOCATION

7-02-2012  
DATE



Vessel Name	Owner	Antenna Elev (ft)	Mast Elev (ft)	Spud Elev (ft)	Boom Crane Elev (ft)	Gantry Elev (ft)	Pivot Pt Elev (ft)	Cradle Elev (ft)	Water Elev (ft)	Height Above Water (ft)
Make It So			103.7						17.0	87
		106.9							17.0	90
Wakadui	Todd Hilbelink		80.1						17.0	63
		82.8							17.0	66
DMI 60	Diversified Marine			100.2					16.0	84
Lucy	Diversified Marine				89.3				16.0	73
Freedom	Diversified Marine					77.3			16.0	61
							39.1		16.0	23
								42.9	16.0	27
					201.4				16.0	185
Vulcan	Diversified Marine					65.9			16.0	50
		74.8							16.0	59
					104.6				16.0	89
							37.0		16.0	21
R22	Diversified Marine			73.8					15.8	58
BMC44	Diversified Marine			93.5					15.8	78
				73.5					15.8	58
				75.3					15.8	60
Nancy Riley	McClure Loving Trust		86.1						17.8	68
		88.6							17.8	71



## Vessel Height Verification Sheet

By: Pete Geiger Date: 2 July 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: Diversified Marine
- b. Name of contact: Kurt Redd
- c. Phone number (Office): 503.289.2662 (Cell):
- d. Email: kurt@dmipdx.com
- e. Address: 1801 N Marine Drive City: Portland  
State: OR Zip code: 97217

### 2. Vessel

- a. ID:  b. Name: BRG 22
- c. Type: Spud Barge d. USCG Document Number:

### 3. Vessel Configuration

- a. Identify vessel configuration: Spud Barge
  - Is a vessel specification sheet available? Yes
  - Configuration shown on the sheet: Spuds Raised; being pushed by tug
  - What is the lowest height configuration for transport? Spuds Up at 60 feet
- b. What is the gantry configuration? N/A Estimated gantry height: N/A
- c. Does the barge have spuds? Yes three. Center at either side and one at stern end at corner.  
Middle spuds dropped/set into riverbed and corner spud raised and pinned
  - Height above waterline for travel? 60 Feet
  - Can the spuds be removed for travel? Only in very special circumstances when they travel far upriver on the Columbia
  - Work and cost involved in removing spuds? 4 hours each spud to re-install; need to tie up to a dock near the work area. Would need to be accompanied by a crane.



4. Vessel Location

- a. Where is the vessel currently located? Columbia River North Portland Harbor, tied up to dolphins about ¼ mile downstream of Diversified Marine's Facility
- b. Is it working on a job? No Is it tied up to shore? Yes
- c. What is the best time to make a trip to the vessel? Anytime just give him 1 day notice

5. Surveyed Measurements (all measurements NAVD 88)

Gantry Height:	Not Surveyed – No Crane
Water Level:	15.8 feet
Top of Boom:	Not Surveyed – No Crane
Height of Boom Hinge Pin:	Not Surveyed – No Crane
Boom Cradle:	Not Surveyed – No Crane
Top of Spud:	73.8 Feet

6. Vessel Height

Self-Reported (Top of Spud)		Surveyed (Top of Spud)	
Air Draft:	60 feet (Top of Spud)	Air Draft:	58 Feet (Top of Spud)
Air Gap:	10 feet	Air Gap:	10 feet
Water Level:	16 feet	Water Level:	16 feet
Total Height:	86 feet	Total Height:	84 feet

7. History Notes

Date	Item
2/17/2012	Contacted by Megan Nelson
2/29/2012	Data sheet submitted
6/28/2012	Contacted by Pete Geiger for field measurement
7/2/2012	Field measured



## SPUD BARGE “BRG22”



### Dimensions:

- Length: 160'
- Length 40'
- Depth: 9'
- Spuds: Three (3) - 60' x 20"

### Regulatory:

- Gross tonnage: GRT 406

### Machinery:

- Two deck winches

### Capabilities:

- Transport
- Salvage
- Floating Dock
- Construction support

## DIVERSIFIED MARINE, INC.

PO Box 83723  
(1801 N Marine Drive - 97217)  
Portland OR 97283 USA

Phone: 503-289-2669  
Fax: 503-289-2825  
E-mail: kurt@dmipdx.com

[See more photos and videos of our equipment on our website.](#)



## Marine Contractors

Company: The Dutra Group

Vessels:

- Derrick 24
- Paula Lee

Company did not respond to IBR request. Information below was included in the CRC NIR.



## Marine Contractors

---

Owner: The Dutra Group

Vessel: Derrick 24





## Telephone Conversation Memorandum

project: CRC - Data Verification job no. 80312 CS date: 7/3/12  
(use complete number)

from: Ralph Petereit talked to: Chris Petersen

indicate department, field office, etc., "for in-house" calls.  
indicate agency or firm for other than "in-house" calls.

item discussed: Dutra Dredging Marine Equipment

information obtained: Dutra has 2 large derrick barges, the Paula Lee and Derrick 24. The Paula Lee has an 80' height and the Derrick 24 has a 70' height. This includes a few feet of clearance. Both barges are currently working in Southern California. To get to the Columbia River they would remove the spuds and lay them down on deck for travel up the coast. When they had a job in Lewiston they had to remove the A-frame / gantry and the height became 52'.

The her highest point on both barges is the top of the A-frame / gantry. The boom lays flat and rests in a cradle. He has full size drawings that he can make copies of and send me. DB 24 has been to Lewiston twice. (1991+?)

Chris is currently in a Dr. Appointment and will call me back.

action required: Follow-up call to obtain drawings. Call Steve Lee in the equipment department.

distribution:

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by: R. Petereit



The Derrick 24 (same name as Mansons Derrick 24 but they are different) has the following dimensions.

Width = 54 ft + tires

Length = 150 ft

Draft (light) = 5 ft

Draft (heavy) = 9 ft

Distance between deck and A-frame = 60 ft 10 in

Hull height = 13 ft

The A-frame is the highest point on the derrick barge while being towed.

The Pavla Lee has the following dimensions

Width = 68 feet + tires

Length = 250 ft

Boom length = 140 ft

Draft (light) = 5 ft

Draft (heavy) = 10 ft

Hull height = 15 ft

Distance between deck and top of A-frame = 70 ft

As with the DB 24, the A-frame is the highest point on the derrick barge while it is being towed.



Marine Contractors  
Owner: The Dutra Group  
Vessel: Paula Lee

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No image available



# Columbia River CROSSING



## River User Data Sheet

By: Ralph Petereit Date: 2/23/2012

### 1. Company Name and/or Owner of Vessel and contact information

Name of company: Dutra Group

Name of contact: Chris Peterson

Phone number (Office): 510-703-4554 (Cell): \_\_\_\_\_

Email: cpeterson@dutragroup.com

Address: 2350 Kerner Blvd., Suite 200

City: San Rafael State: CA Zip code: 94901

3a. Vessel Name: Paula Lee 3b. Vessel Type: Floating crane

3c. US Coast Guard Document Number: 649607

4a. Length Overall (LOA), feet: 250 4b. Beam (width), feet: 68

5. Draft (depth of hull below waterline, fully laden), feet: \_\_\_\_\_

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: \_\_\_\_\_

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): \_\_\_\_\_

8. Frequency of one-way passage underneath I-5 main channel (typical per month): N/A

Jan \_\_\_\_ Feb \_\_\_\_ Mar \_\_\_\_ Apr \_\_\_\_ May \_\_\_\_ Jun \_\_\_\_ Jul \_\_\_\_ Aug \_\_\_\_ Sep \_\_\_\_ Oct \_\_\_\_ Nov \_\_\_\_ Dec \_\_\_\_

9. Frequency of one-way passage underneath I-5 main channel (other historic events): \_\_\_\_\_

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month): N/A

Jan \_\_\_\_ Feb \_\_\_\_ Mar \_\_\_\_ Apr \_\_\_\_ May \_\_\_\_ Jun \_\_\_\_ Jul \_\_\_\_ Aug \_\_\_\_ Sep \_\_\_\_ Oct \_\_\_\_ Nov \_\_\_\_ Dec \_\_\_\_

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): \_\_\_\_\_

12. Do you have a Business Plan (e.g. 10 or 20 year plan)? \_\_\_\_\_

What does it say regarding vessels transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? \_\_\_\_\_

May we have a copy? \_\_\_\_\_

13. Other miscellaneous Chris stated that if we have information

on General Const. Co or Manson Construction Co, that  
the Paula Lee would have similar navigation requirements  
The Paula Lee participated in the 2010 Columbia River  
Dredging Project downriver of the I-5 Bridge





## Telephone Conversation Memorandum

project: CRC - Data Verification job no. 80312 CS date: 7/3/12  
(use complete number)

from: Ralph Petereit talked to: Chris Petersen

indicate department, field office, etc., "for in-house" calls.  
indicate agency or firm for other than "in-house" calls.

item discussed: Dutra Dredging Marine Equipment

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distribution: 

--	--	--	--	--	--

by: R. Petereit



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Draft (heavy) = 9 ft

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Hull height = 13 ft

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The Pavla Lee has the following dimensions

Width = 68 feet + tires

Length = 250 ft

Boom length = 140 ft

Draft (light) = 5 ft

Draft (heavy) = 10 ft

Hull height = 15 ft

Distance between deck and top of A-frame = 70 ft

As with the DB 24, the A-frame is the highest point on the derrick barge while it is being towed.



## Marine Contractors

Company: General Construction Company

Vessels:

- DB General
- DB Alameda
- DB Oakland
- DB Olympia
- DB Pacific
- DB Seattle

Company confirmed the information provided during the CRC NIR is still accurate (email confirmation included below). Vessel details that follow were included in the CRC NIR.



**From:** [Brian Carrico](#)  
**To:** [Nicole McDermott](#)  
**Subject:** Fw: Interstate Bridge Program  
**Date:** Thursday, September 23, 2021 11:36:04 AM  
**Attachments:** [image002.png](#)  
[image003.png](#)  
[image004.png](#)  
[image005.png](#)

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**From:** Kent.Boden <Kent.Boden@kiewit.com>  
**Sent:** Thursday, September 23, 2021 11:23 AM  
**To:** Brian Carrico <Brian.Carrico@interstatebridge.org>  
**Cc:** Todd.Wille <Todd.Wille@kiewit.com>  
**Subject:** Interstate Bridge Program

Hello Brian, there are three vessels no longer in service; the Beaver, Tacoma, and Anchorage. The remainder of the information is accurate. Please feel free to call me if you have any questions.



**Kent Boden**  
Pursuits Manager, Kiewit Bridge & Marine

**Kiewit Infrastructure West Co.**  
2200 Columbia House Blvd, Vancouver, WA 98661  
360.693.1478 (P) 360.721.9208 (C)  
Kiewit.com An Equal Opportunity Employer

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**From:** Brian Carrico <Brian.Carrico@interstatebridge.org>  
**Sent:** Thursday, September 23, 2021 9:17 AM  
**To:** Kent.Boden <Kent.Boden@kiewit.com>  
**Subject:** [EXTERNAL] Interstate Bridge Program

Kent - Thanks for taking my call today. Attached is the information submitted for the CRC program back in 2012. We would appreciate a review of this information to confirm that it remains accurate. We would especially want to know if any of the specifications have changed, if any of the fleet are no longer in service, if other vessels should be considered and whether you have any planned or potential projects that would result in the need to transit through the I-5 bridge area.



Feel free to contact me with any questions.

Brian

**Brian Carrico**  
**Interstate Bridge Replacement Program**  
**Environmental Program**

**O:** 360-823-6122 | **C:** 360-433-7775

**E:** [brian.carrico@interstatebridge.org](mailto:brian.carrico@interstatebridge.org)

[interstatebridge.org](http://interstatebridge.org)





Marine Contractors  
Owner: General Construction  
Vessel: D.B. Alameda



**GENERAL  
CONSTRUCTION  
COMPANY**

**D.B. ALAMEDA**  
100 TON FLOATING CRANE



### **CAPABILITIES**

- Piledriving
- Duty Cycle
- Clamshell Dredging
- Heavy Lifting
- Crane Service

### **SPECIFICATIONS**

- Main Crane: Dravo-Wellman 413D
- Capacities: 100 tons @ 55' radius over stern  
80 tons @ 50' radius fully revolving  
30 tons @ 120' radius 2-line whip  
15 tons @ 160' single whip
- Boom: 160' to main fall
- Barge Size: 142' x 58' x 12'
- Classification: USCG
- Draft (std.): 5'-10"
- Spuds: Two 28" square x 90' long
- Bunkers: 6,500 gallons diesel fuel



NOTE: BREADTH DOES NOT INCLUDE FENDERS. DEPTH = DRAFT + FREEBOARD  
 BNSF Interstate 5 Columbia River Crossing  
 Navigation Impact Report

		Official Number	Length	Breadth	Depth	Gross Tonnage
<b>Floating Cranes</b>						
53-0705	DB Tacoma, 37 ton	505025	150	44	9.5	557
53-0706	DB Olympia, 80 ton	1027118	150	60	10	756
53-0707	DB Beaver, 98 ton	602235	115.9	52	8.8	577
53-0732	DB Columbia, 125 ton	1048155	141	58	13	893
53-0733	DB Seattle, 165 ton	547079	152	70	11.6	1158
53-0734	DB Oakland Dredge	1089113	140	70	12	987
53-0738	DB Vancouver, 130 ton	587032	210	60	13.1	1487
53-0739	DB Pacific, 165 ton	653245	250	72	13.7	2114
53-0737	DB Los Angeles, 300 ton	1047575	210	68	15	1799
53-0736	DB General, 700 ton	1042279	288	100	18	4040
53-0755	DB Anchorage 75 ton	CG599745	120	50	9.1	
53-0754	DB Alameda 65 ton	1075264	142	58	12	830
<b>Spud Barges</b>						
53-0679	GC-26 Spud Barge	CG007597	119.5	43	9	
53-0544	Kiewit Pacific Barge	1041180	153.6	60	12	928
53-0830	Jeanne Barge	503792	164.9	50	12.1	731
53-0680	Burrard Barge	CG051637	116	51.6	10	
<b>Dump Barges</b>						
53-0704	Pt. Basalt Dump Barge, 1375 CY	597335	180	50	13.5	1086
53-0750	Pt. Defiance Dump Barge, 1375 CY	661902	180	50	14	1083
53-0756	Pt. No Point Dump Barge, 2000 CY	505209	217	43.1	15.4	1288
53-0749	Pt. Vashon Dump Barge, 1375 CY	605636	180	50	12	957
<b>Small Flat Deck Barges</b>						
53-0700	Longview Barge	UNDOC.	65	25	5	
53-0763	GC 20 Flat Barge	1172636	85	26	4.5	83
53-0681	GC 25 Flat Barge	UNDOC.	110	30	8	
53-0682	GC 28 Flat Barge	1140218	110	35	8	258
53-0685	GC 31 Flat Barge	1140219	110	32	8	236
53-0742	GC 34 Flat Barge	1140217	110	35	8	258
53-0743	GC 35 Flat Barge	1140215	110	35	8	258
53-0744	GC 36 Flat Barge	1140213	110	32	8	236
53-0745	GC 37 Flat Barge	1140212	110	35	6	194
53-0764	GC 39 Flat Barge	1172640	110	30	8	221
53-0854	GC 40 Flat Barge	1172646	110	32	8	236
53-0855	GC 41 Flat Barge	1172650	110	32	8	236
<b>Large Flat Deck Barges</b>						
53-0686	GC-101 Flat Barge	522512	164.1	50.1	10.2	745
53-0687	GC-102 Flat Barge	522513	164.1	50.1	10.2	745
53-0688	GC-103 Flat Barge	523820	164.1	50.1	10.2	745
53-0689	GC-104 Flat Barge	523821	164.1	50.1	10.2	745
53-0690	GC-120 Flat Barge	558616	159.6	50	12.4	902
53-0691	GC-121 Flat Barge	557752	159.6	50.5	12.4	902
53-0693	GC-151 Flat Barge	508395	150	42	11.3	586
53-0694	GC-152 Flat Barge	507931	150	42	9.3	523
53-0759	GC-155 Flat Barge	294820	150.3	42.1	10.5	607
53-0858	GC-156 Flat Barge	508468	144	48	10	479
53-0859	GC-160 Flat Barge	297320	160.1	43.6	10.2	607
53-0698	GC-173 Flat Barge	298614	178	50	11.6	946
53-0857	GC-175 Flat Barge	278799	170.2	44	11.6	806
53-0752	GC-180 Flat Barge	503956	180	45.1	11.5	768
53-0765	CG-181 Flat Barge	273546	175	60	9	793
53-0801	GC-183 Flat Barge	502560	180	44.1	16.2	1095
53-0821	GC-184 Flat Barge	508544	178	50	11.6	946
53-0829	GC-185 Flat Barge	561206	180	50	11.3	945
53-0699	GC-191 Flat Barge	288082	189.5	44	13.5	1027
53-0748	GC-192 Flat Barge	542082	178.1	50	12	1097
53-0692	GC-205 Flat Barge	503698	210	54	14.5	1341
53-0263	KP-202 Barge	504019	200	45	14	1056
53-0266	KP-203 Barge	504480	200	45	14	1050



# Columbia River CROSSING



## River User Data Sheet

By: RALPH PETEREIT Date: 2/27/2012

### 1. Company Name and/or Owner of Vessel and contact information

Name of company: GENERAL CONSTRUCTION CO.

Name of contact: PAT BOYD - EQUIPMENT MANAGER

Phone number (Office): 206-938-6750 (Cell): 206-498-8815

Email: pat.boyd@kiewit.com

Address: 3838 W. MARGINAL WAY SW

City: SEATTLE State: WA Zip code: 98106

FLOATING CRANE/

3a. Vessel Name: D. B. ALAMEDA 3b. Vessel Type: DERRICK BARGE

3c. US Coast Guard Document Number: \_\_\_\_\_

4a. Length Overall (LOA), feet: 142 4b. Beam (width), feet: 61.5

5. Draft (depth of hull below waterline, fully laden), feet: 6

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 71

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 5-10

8. Frequency of one-way passage underneath I-5 main channel (typical per month):

Jan \_\_\_\_ Feb \_\_\_\_ Mar \_\_\_\_ Apr \_\_\_\_ May \_\_\_\_ Jun \_\_\_\_ Jul \_\_\_\_ Aug \_\_\_\_ Sep \_\_\_\_ Oct \_\_\_\_ Nov \_\_\_\_ Dec \_\_\_\_

9. Frequency of one-way passage underneath I-5 main channel (other historic events): \_\_\_\_\_

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month):

Jan \_\_\_\_ Feb \_\_\_\_ Mar \_\_\_\_ Apr \_\_\_\_ May \_\_\_\_ Jun \_\_\_\_ Jul \_\_\_\_ Aug \_\_\_\_ Sep \_\_\_\_ Oct \_\_\_\_ Nov \_\_\_\_ Dec \_\_\_\_

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): \_\_\_\_\_

12. Do you have a Business Plan (e.g. 10 or 20 year plan)? NOT AVAILABLE

What does it say regarding vessels transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? \_\_\_\_\_

May we have a copy? \_\_\_\_\_

13. Other miscellaneous \_\_\_\_\_



## Vessel Height Verification Sheet

By: Ralph Petereit Date: July 10, 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: General Construction Co.
- b. Name of contact: Pat Boyd – Equipment Manager
- c. Phone number (Office): (206) 938-6758 (Cell): (206) 498-8815
- d. Email: PAT.BOYD@KIEWIT.COM
- e. Address: 3838 W. Marginal Way City: Seattle  
State: WA Zip code: 98106

### 2. Vessel

- a. ID: \_\_\_\_\_ b. Name: DB Alameda
- c. Type: Crane Barge d. USCG Document Number: 1075264

### 3. Vessel Configuration

- a. Identify vessel configuration: Crane barge
  - Is a vessel specification sheet available? Yes
  - Configuration shown on the sheet: Yes
  - What is the lowest height configuration for transport? 71 ft 2 in.
- b. What is the gantry configuration? Pinned Estimated gantry height: 71 ft 2 in
- c. Does the barge have spuds? Yes
  - Height above waterline for travel? Gantry height
  - Can the spuds be removed for travel? Yes
  - Work and cost involved in removing spuds? ½ - full day

### 4. Vessel Location

- a. Where is the vessel currently located? Portland
- b. Is it working on a job? Yes – Tri Met Bridge Is it tied up to shore? No
- c. What is the best time to make a trip to the vessel? NA



5. Measurements from Spec Sheet

Gantry Height:	71 ft 2 in
Water Level:	
Top of Boom:	
Height of Boom Hinge Pin:	
Boom Cradle:	
Top of Spud:	

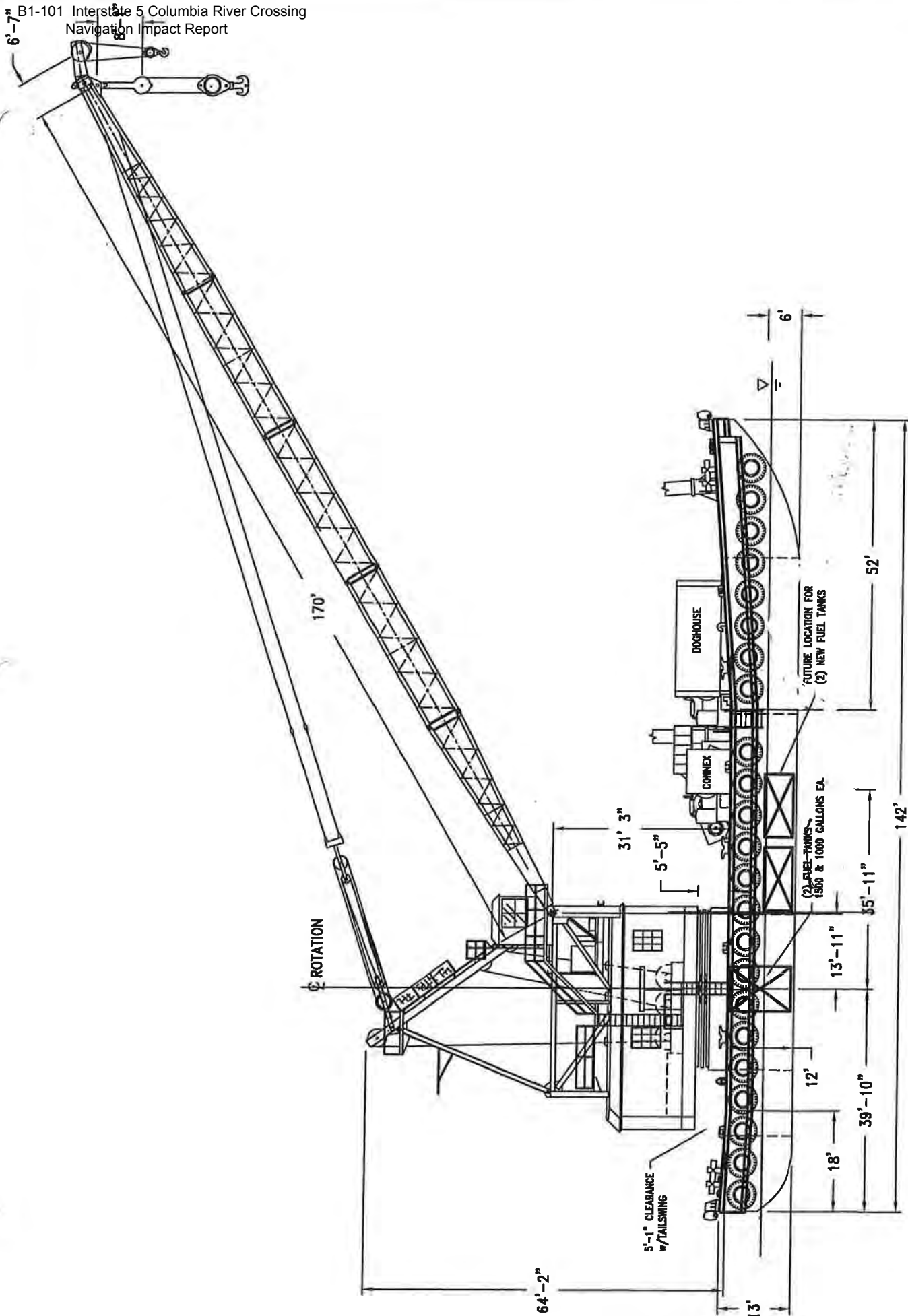
6. Vessel Height

Self-Reported		From Spec Sheet	
Air Draft:	71 ft	Air Draft:	71 ft 2 in
Air Gap:	5 – 10 ft	Air Gap:	10 ft
Water Level:	16	Water Level:	16
Total Height:	97 ft	Total Height:	97 ft 2 in

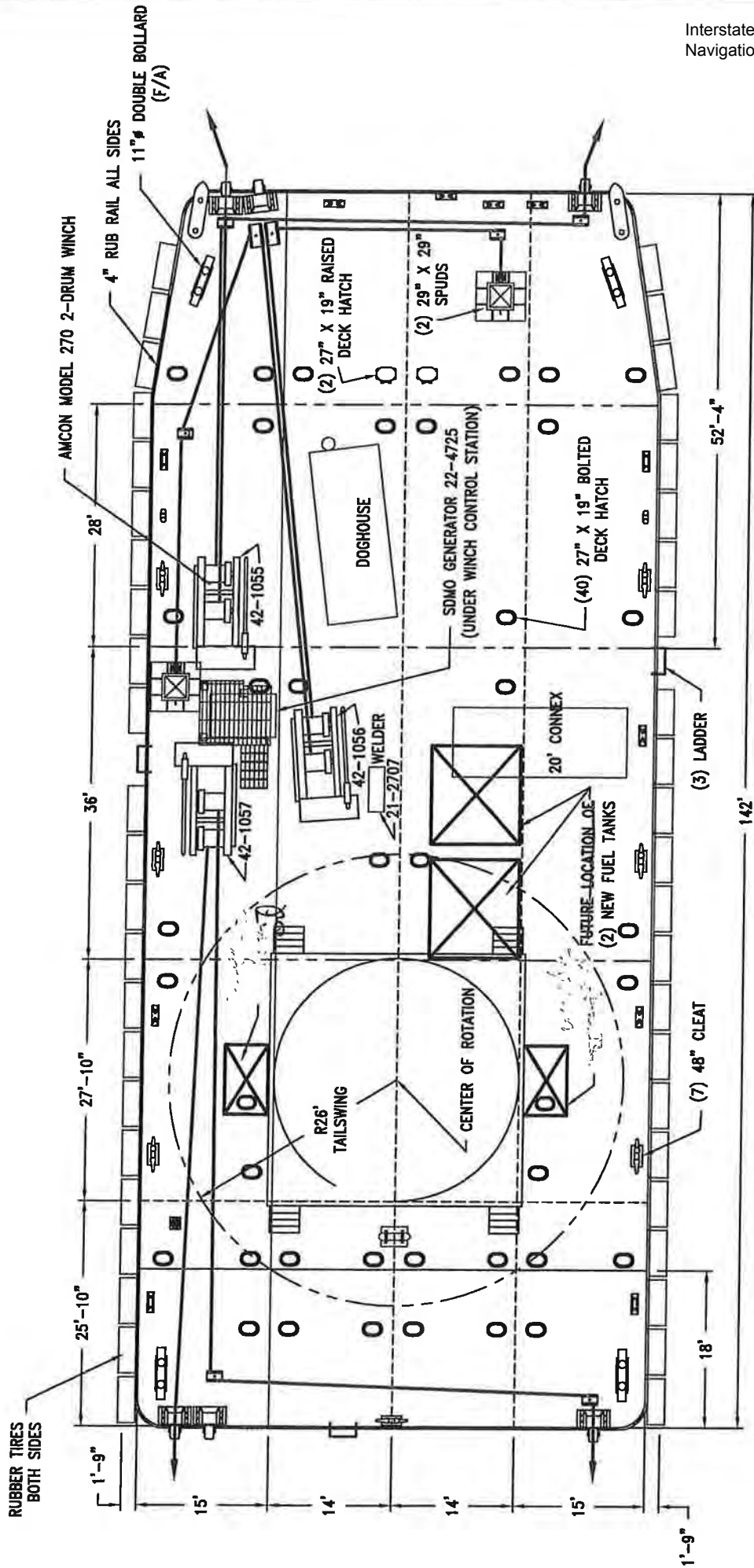
7. History Notes

Date	Item
6/29/2012	Contacted Pat Boyd- Equipment Manager
7/10/2012	Visited Yard to confirm vessel locations and heights











## Marine Contractors

Owner: General Construction

Vessel: D.B. General



**GENERAL  
CONSTRUCTION  
COMPANY**

**D.B. GENERAL**  
700 TON FLOATING CRANE



### SPECIFICATIONS

- Main Crane: Clyde 52
- Capacities: 700 tons @ 70' radius over the stern  
500 tons @ 70' radius fully revolving  
40 tons @ 243' radius (auxiliary)  
25 tons @ 257' radius (whip)
- Boom: 200' to main fall (260' available)  
230' to auxiliary line (290' available)  
245' to whip line (305' available)
- Barge Size: 300' x 100' x 18'
- Classification: ABS+A1, USCG
- Draft (std.): 8'-0"
- Spuds: Two 48"Ø x 90' long
- Anchors: 6-point moorage
- Deck Loading: 2,000 psf uniform
- Bunkers: 50,000 gallons diesel fuel  
310,000 gallons fresh water



### CAPABILITIES

- Heavy Lifting
- Piledriving
- Offshore Construction & Service
- Duty Cycle – Dredging
- Pipe Lay

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Please contact Pat Boyd-Equipment Manager at (206) 938-6758 or pat.boyd@kiewit.com for load charts, deck configuration, and availability.

[www.generalconstructionco.com](http://www.generalconstructionco.com)



# Columbia River CROSSING



## River User Data Sheet

By: RALPH PETEREIT Date: 2/27/2012

### 1. Company Name and/or Owner of Vessel and contact information

Name of company: GENERAL CONSTRUCTION CO.

Name of contact: PAT BOYD - EQUIPMENT MANAGER

Phone number (Office): 206-938-6750 (Cell): 206-498-8815

Email: pat.boyd@kiewit.com

Address: 3838 W. MARGINAL WAY SW

City: SEATTLE State: WA Zip code: 98106

FLOATING CRANE/

3a. Vessel Name: D.B. GENERAL 3b. Vessel Type: DERRICK BARGE

3c. US Coast Guard Document Number: \_\_\_\_\_

4a. Length Overall (LOA), feet: 300 4b. Beam (width), feet: 105.8

5. Draft (depth of hull below waterline, fully laden), feet: 8

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 93

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 5-10

8. Frequency of one-way passage underneath I-5 main channel (typical per month):

Jan \_\_\_\_ Feb \_\_\_\_ Mar \_\_\_\_ Apr \_\_\_\_ May \_\_\_\_ Jun \_\_\_\_ Jul \_\_\_\_ Aug \_\_\_\_ Sep \_\_\_\_ Oct \_\_\_\_ Nov \_\_\_\_ Dec \_\_\_\_

9. Frequency of one-way passage underneath I-5 main channel (other historic events): \_\_\_\_\_

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month): NONE

Jan \_\_\_\_ Feb \_\_\_\_ Mar \_\_\_\_ Apr \_\_\_\_ May \_\_\_\_ Jun \_\_\_\_ Jul \_\_\_\_ Aug \_\_\_\_ Sep \_\_\_\_ Oct \_\_\_\_ Nov \_\_\_\_ Dec \_\_\_\_

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): \_\_\_\_\_

12. Do you have a Business Plan (e.g. 10 or 20 year plan)? NOT AVAILABLE

What does it say regarding vessels transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? NOTHING IN THE WORKS FOR ANYTHING LARGER THAN THIS BARGE.

May we have a copy? \_\_\_\_\_

13. Other miscellaneous THIS IS GENERAL'S / KIEWIT'S LARGEST CRANE BARGE. IT HAS GONE UNDER THE BRIDGE TO TAKE THE CRANE OFF THE DAVY CROCKET MANY YEARS AGO, AS WELL AS SOME PICKS UP AT THOMSEN METAL FAB. - BUT CAN'T REMEMBER WHEN



River User Data Sheet

By: \_\_\_\_\_ Date: \_\_\_\_\_

1. Company Name and/or Owner of Vessel and contact information

- a. Name of company: GENERAL CONSTRUCTION COMPANY
- b. Name of contact: \_\_\_\_\_
- c. Phone number (Office): \_\_\_\_\_ d. (Cell): \_\_\_\_\_
- e. Email: \_\_\_\_\_
- f. Address: 33455 6TH AVE S.
- g. City: FEDERAL WAY
- h. State: WA i. Zip code: 98003

3a. Vessel Name: D.B. GENERAL 3b. Vessel Type: CRANE BARGE

3c. US Coast Guard Document Number: 1042279

4a. Length Overall (LOA), feet: 288.0 4b. Beam (width), feet: 100.0

5. Draft (depth of hull below waterline, fully laden), feet: 8'

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 93'

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 10'

8. Frequency of one-way passage underneath I-5 main channel (typical per month): \_\_\_\_\_

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

9. Frequency of one-way passage underneath I-5 main channel (other historic events): \_\_\_\_\_

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month):

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): \_\_\_\_\_



12. Do you have a Business Plan (e.g. 10 or 20 year plan)? What does it say regarding vessels transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? May we have a copy?

13. Other miscellaneous



## Vessel Height Verification Sheet

By: Ralph Petereit Date: July 10, 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: General Construction Co.
- b. Name of contact: Pat Boyd – Equipment Manager
- c. Phone number (Office): (206) 938-6758 (Cell): (206) 498-8815
- d. Email: PAT.BOYD@KIEWIT.COM
- e. Address: 3838 W. Marginal Way City: Seattle  
State: WA Zip code: 98106

### 2. Vessel

- a. ID: \_\_\_\_\_ b. Name: DB General
- c. Type: Crane Barge d. USCG Document Number: 1042279

### 3. Vessel Configuration

- a. Identify vessel configuration: Crane barge
  - Is a vessel specification sheet available? Yes
  - Configuration shown on the sheet: Yes
  - What is the lowest height configuration for transport? 93 ft
- b. What is the gantry configuration? Pinned Estimated gantry height: 93 ft
- c. Does the barge have spuds? Yes
  - Height above waterline for travel? Gantry height
  - Can the spuds be removed for travel? Yes
  - Work and cost involved in removing spuds? ½ - full day

### 4. Vessel Location

- a. Where is the vessel currently located? Terminal 105 – Doing day jobs in the Puget Sound Region
- b. Is it working on a job? Yes Is it tied up to shore? Depends on the day
- c. What is the best time to make a trip to the vessel? Need to call for daily schedule



5. Measurements from Spec Sheet

Gantry Height:	93 ft
Water Level:	
Top of Boom:	
Height of Boom Hinge Pin:	
Boom Cradle:	
Top of Spud:	

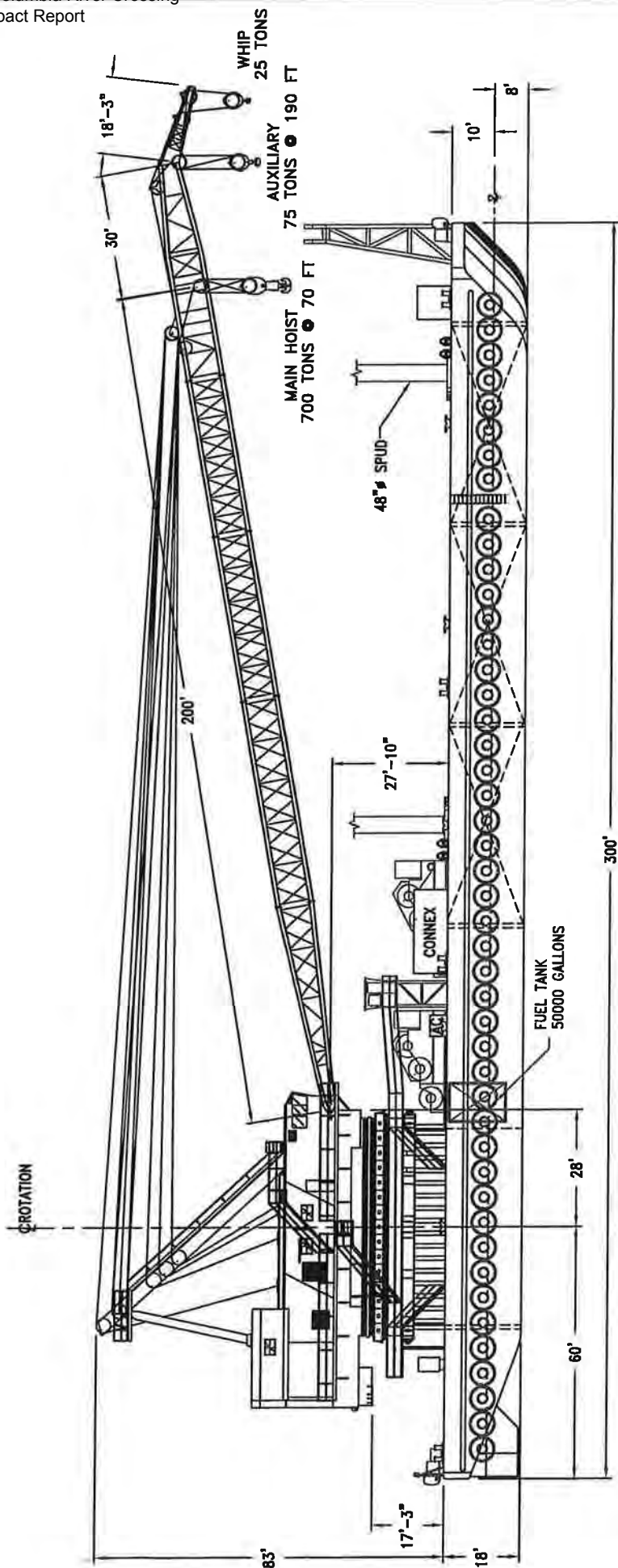
6. Vessel Height

Self-Reported		From Spec Sheet	
Air Draft:	93 ft	Air Draft:	93 ft
Air Gap:	5 – 10 ft	Air Gap:	10 ft
Water Level:	16	Water Level:	16
Total Height:	119 ft	Total Height:	119 ft

7. History Notes

Date	Item
6/29/2012	Contacted Pat Boyd- Equipment Manager
7/10/2012	Visited Yard to confirm vessel locations and heights





OUTBOARD PROFILE



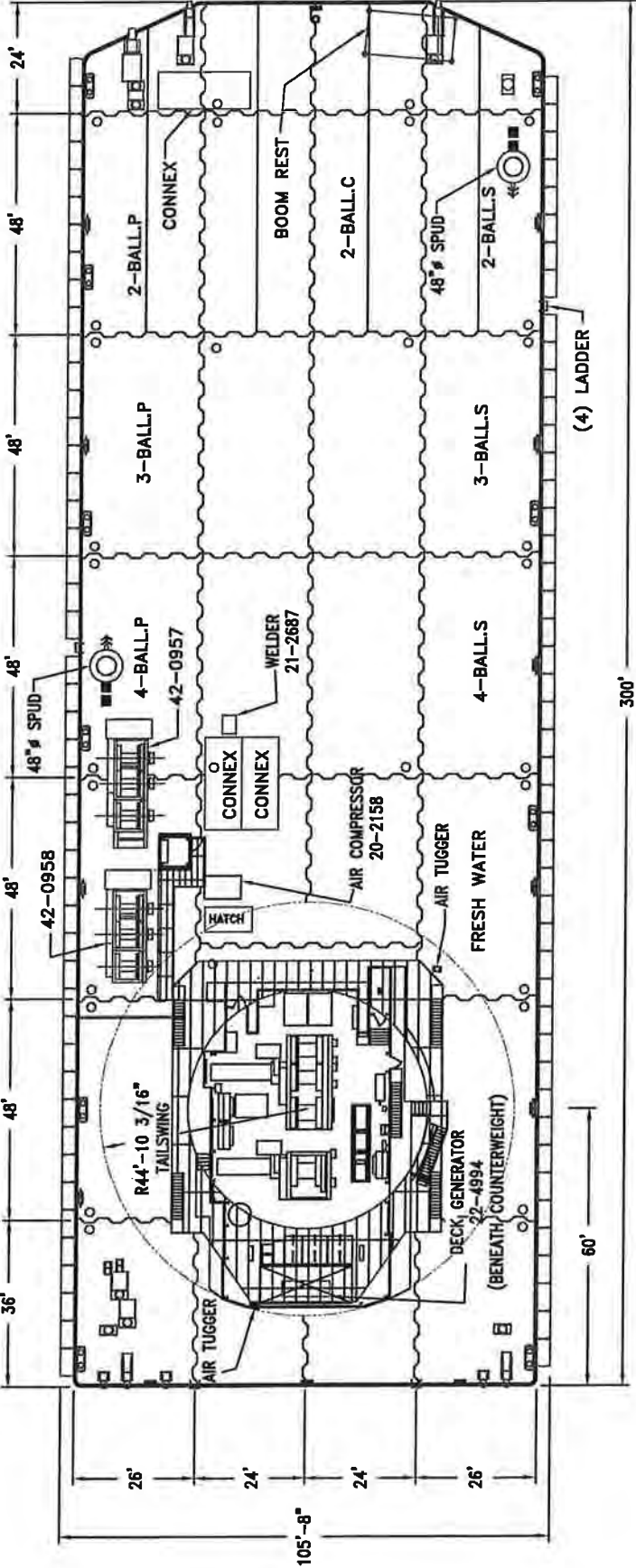
GENERAL CONSTRUCTION COMPANY  
19472 POWDER HILL PL \* POULSBORO, WA \* 98370-7466  
(360) 779-3200 \* FAX (360) 779-3132

D.B. GENERAL (700 TON) - #53-0736

ISSUED: JAN 2010

FC-53-0736-2





DECK PLAN





## Marine Contractors

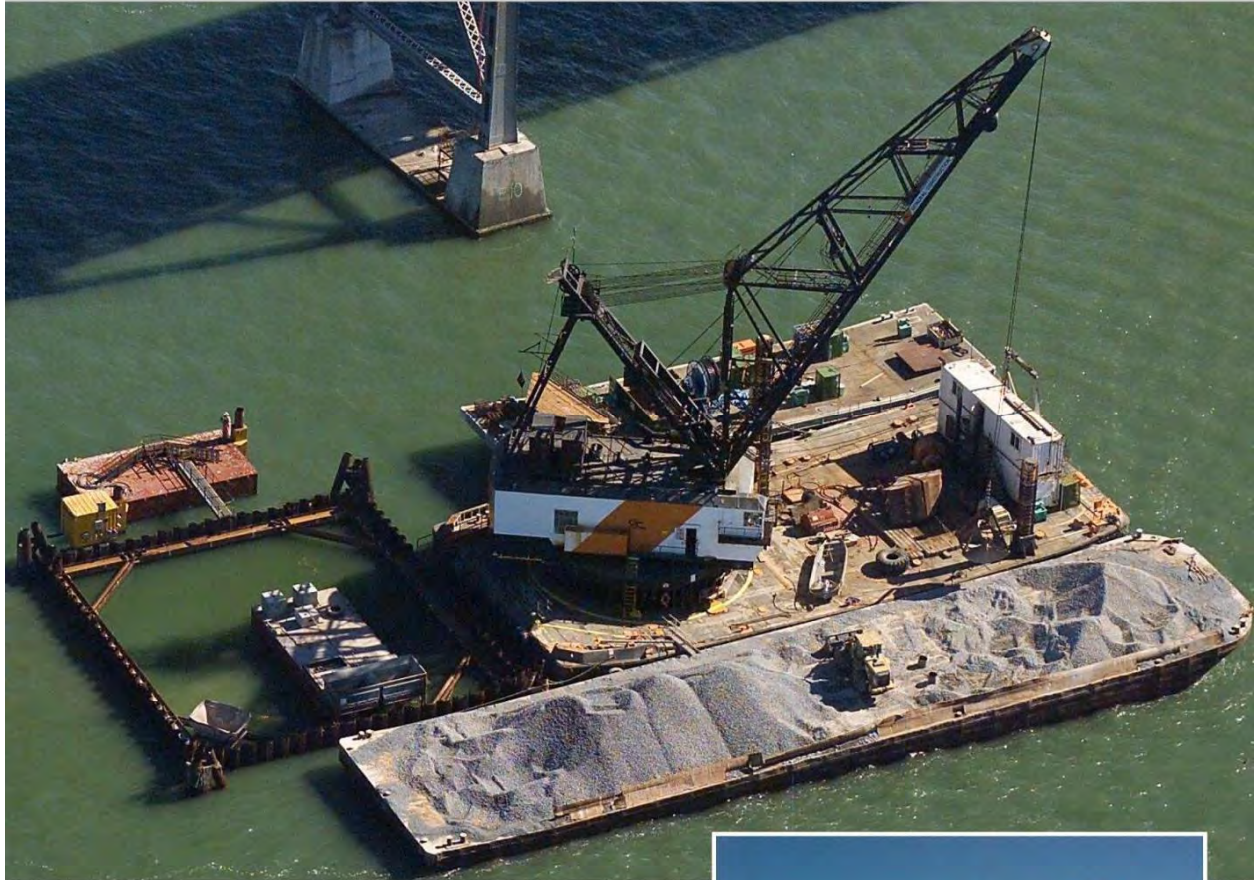
Owner: General Construction

Vessel: D.B. Oakland



**GENERAL  
CONSTRUCTION  
COMPANY**

**D.B. OAKLAND**  
60 TON FLOATING CRANE



### SPECIFICATIONS

- Main Crane: Dravo
- Power: Diesel or electric shore power
- Capacities: 60 tons @ 105' radius duty-cycle  
25 tons @ 125' radius duty-cycle
- Clamshell: 27 CY Atlas environmental bucket  
14 CY Hawco heavy digging bucket
- Boom: 120' fixed bridge boom
- Barge Size: 140' x 70' x 12.5'
- Classification: USCG
- Draft (std.): 4'-0"
- Spuds: Two 36" square x 90' long
- Deck Loading: 1,000 psf uniformly distributed
- Bunkers: 10,000 gallons diesel fuel



### CAPABILITIES

- Clamshell Dredging
- Jetties & Breakwaters
- Crane Service

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Please contact Pat Boyd-Equipment Manager at (206) 938-6758 or pat.boyd@kiewit.com for load charts, deck configuration, and availability.

[www.generalconstructionco.com](http://www.generalconstructionco.com)



# Columbia River CROSSING



## River User Data Sheet

By: RALPH PETEREIT Date: 2/27/2012

### 1. Company Name and/or Owner of Vessel and contact information

Name of company: GENERAL CONSTRUCTION CO.

Name of contact: PAT BOYD - EQUIPMENT MANAGER

Phone number (Office): 206-938-6750 (Cell): 206-498-8815

Email: pat.boyd@kiewit.com

Address: 3838 W. MARGINAL WAY SW

City: SEATTLE State: WA Zip code: 98106

FLOATING CRANE/

3a. Vessel Name: D.B. OAKLAND 3b. Vessel Type: DERRICK BARGE

3c. US Coast Guard Document Number: \_\_\_\_\_

4a. Length Overall (LOA), feet: 140 4b. Beam (width), feet: 70

5. Draft (depth of hull below waterline, fully laden), feet: 6

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 84.9

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 5-10

8. Frequency of one-way passage underneath I-5 main channel (typical per month):

Jan \_\_\_\_ Feb \_\_\_\_ Mar \_\_\_\_ Apr \_\_\_\_ May \_\_\_\_ Jun \_\_\_\_ Jul \_\_\_\_ Aug \_\_\_\_ Sep \_\_\_\_ Oct \_\_\_\_ Nov \_\_\_\_ Dec \_\_\_\_

9. Frequency of one-way passage underneath I-5 main channel (other historic events): \_\_\_\_\_

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month):

Jan \_\_\_\_ Feb \_\_\_\_ Mar \_\_\_\_ Apr \_\_\_\_ May \_\_\_\_ Jun \_\_\_\_ Jul \_\_\_\_ Aug \_\_\_\_ Sep \_\_\_\_ Oct \_\_\_\_ Nov \_\_\_\_ Dec \_\_\_\_

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): \_\_\_\_\_

12. Do you have a Business Plan (e.g. 10 or 20 year plan)? NOT AVAILABLE

What does it say regarding vessels transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? \_\_\_\_\_

May we have a copy? \_\_\_\_\_

13. Other miscellaneous \_\_\_\_\_



## Vessel Height Verification Sheet

By: Ralph Petereit Date: July 10, 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: General Construction Co.
- b. Name of contact: Pat Boyd – Equipment Manager
- c. Phone number (Office): (206) 938-6758 (Cell): (206) 498-8815
- d. Email: PAT.BOYD@KIEWIT.COM
- e. Address: 3838 W. Marginal Way City: Seattle  
State: WA Zip code: 98106

### 2. Vessel

- a. ID: \_\_\_\_\_ b. Name: DB Oakland
- c. Type: Crane Barge d. USCG Document Number: 1089113

### 3. Vessel Configuration

- a. Identify vessel configuration: Crane barge
  - Is a vessel specification sheet available? Yes
  - Configuration shown on the sheet: Yes
  - What is the lowest height configuration for transport? 78 ft 10 in
- b. What is the gantry configuration? Pinned Estimated gantry height: 78 ft 10 in
- c. Does the barge have spuds? Yes
  - Height above waterline for travel? Gantry height
  - Can the spuds be removed for travel? Yes
  - Work and cost involved in removing spuds? ½ - full day

### 4. Vessel Location

- a. Where is the vessel currently located? In the yard, going to Bangor July 23<sup>rd</sup>.
- b. Is it working on a job? No Is it tied up to shore? Yes
- c. What is the best time to make a trip to the vessel? Any time



5. Measurements from Spec Sheet

Gantry Height:	78 ft 10 in
Water Level:	
Top of Boom:	
Height of Boom Hinge Pin:	
Boom Cradle:	
Top of Spud:	

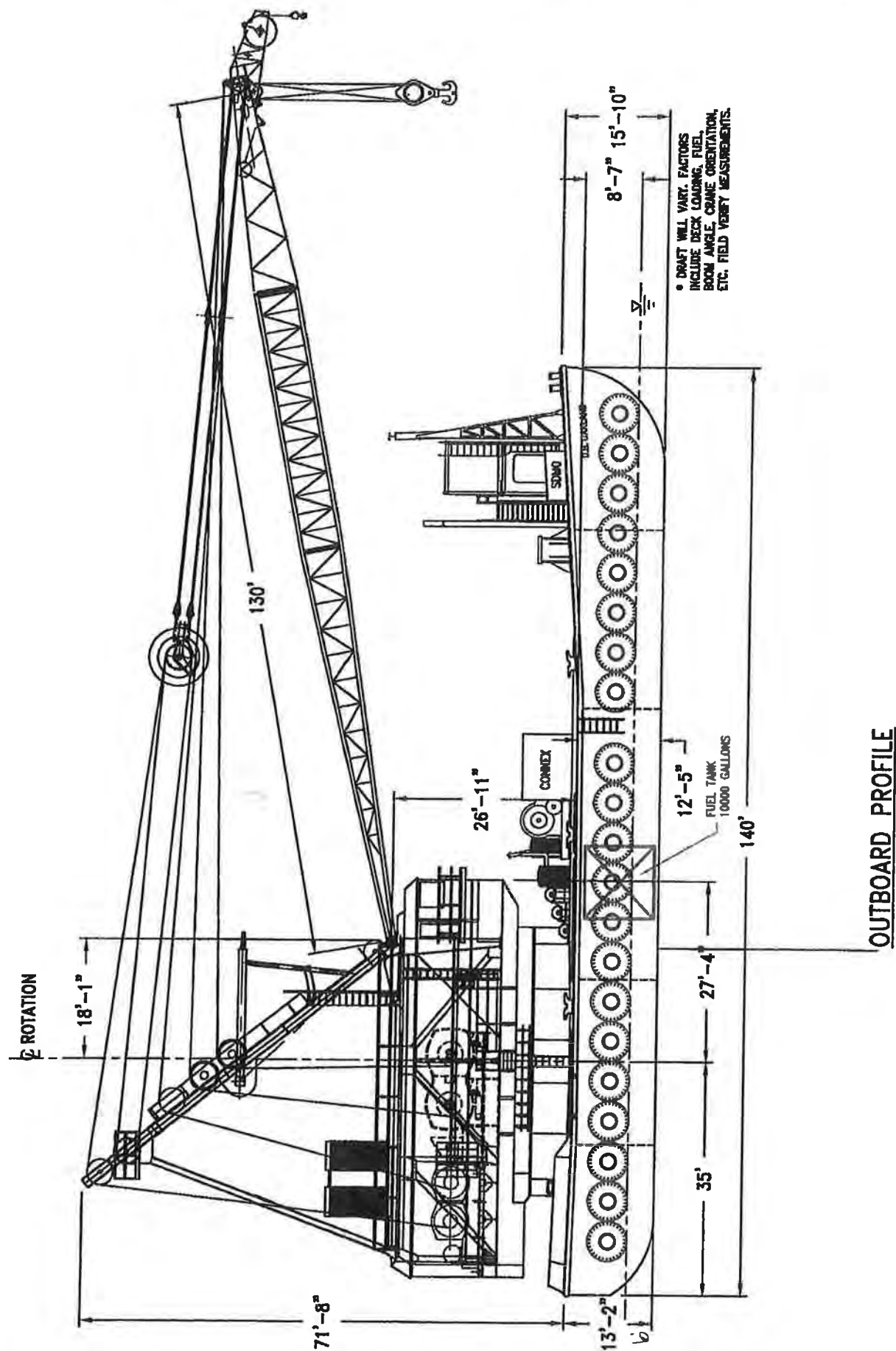
6. Vessel Height

Self-Reported		From Spec Sheet	
Air Draft:	84.9 ft	Air Draft:	78 ft 10 in
Air Gap:	5 – 10 ft	Air Gap:	10 ft
Water Level:	16	Water Level:	16
Total Height:	110.9 ft	Total Height:	104 ft 10 in

7. History Notes

Date	Item
6/29/2012	Contacted Pat Boyd- Equipment Manager
7/10/2012	Visited Yard to confirm vessel locations and heights



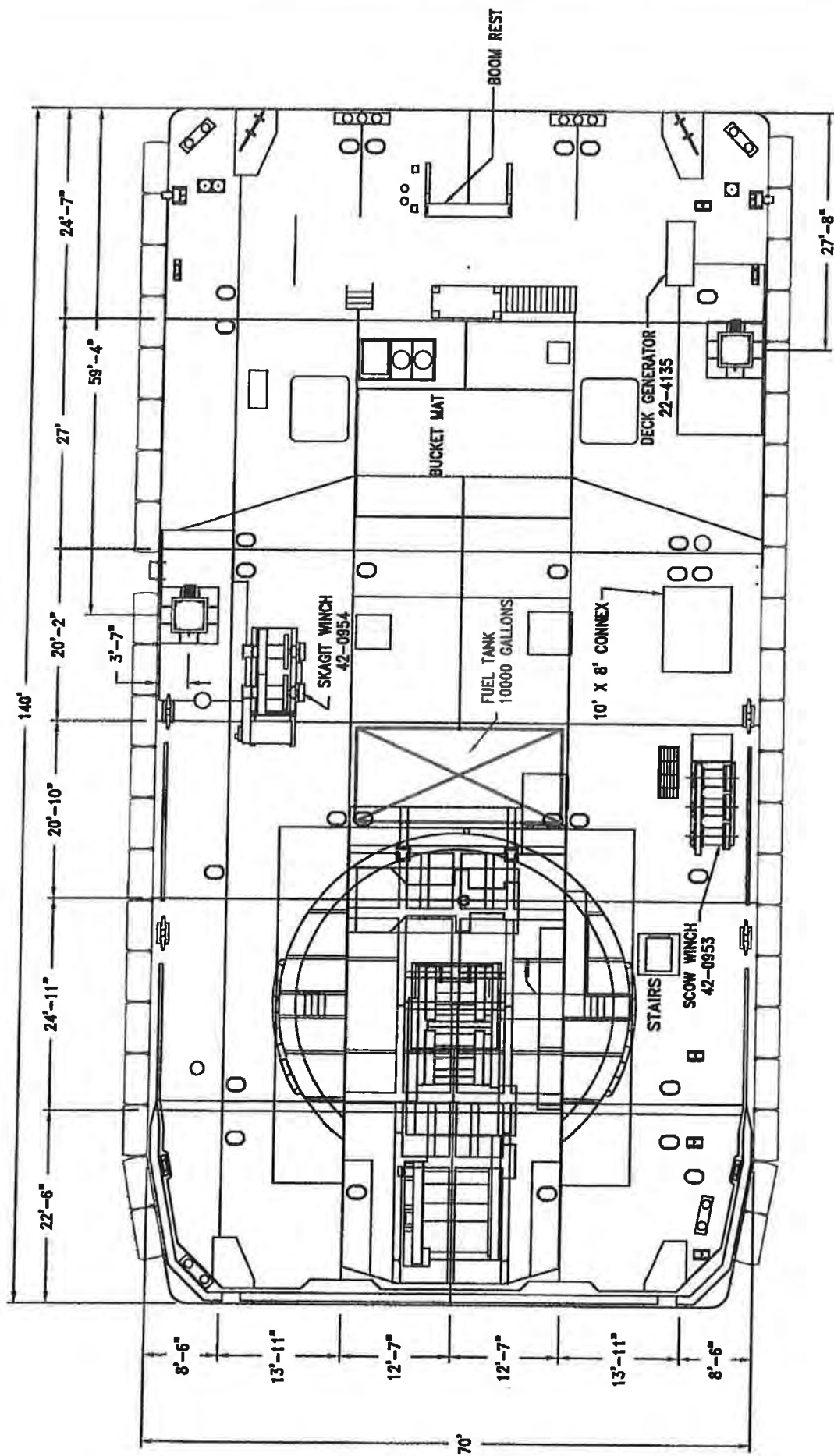


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3838 WEST MARGINAL WAY S • SEATTLE, WA • 98106  
(206) 938-6750 • FAX (206) 938-6766

**D.B. OAKLAND (210 TON) - 53-0734**

ISSUED: - OCT 2010  
FC-53-0734-2/6





DECK PLAN

**GENERAL CONSTRUCTION COMPANY**  
3838 WEST MARGINAL WAY S • SEATTLE, WA • 98106  
(206) 938-6750 • FAX (206) 938-6766

**D.B. OAKLAND (210 TON) - 53-0734**

ISSUED: - OCT 2010  
FC-53-0734-3/6



## Marine Contractors

Owner: General Construction

Vessel: D.B. Olympia



**GENERAL  
CONSTRUCTION  
COMPANY**

**D.B. OLYMPIA**  
100 TON FLOATING CRANE



### SPECIFICATIONS

- Main Crane: Dravo-Wellman 413
- Capacities: 100 tons @ 55' radius over stern  
80 tons @ 50' radius fully revolving  
15 tons @ 75' duty-cycle  
15 tons @ 160' radius
- Boom: 160' to main fall (200' available)  
165' to main whip line (205' available)  
Additional 50' luffing jib available
- Barge Size: 150 x 60' x 10'
- Classification: USCG
- Draft (std.): 4'-0"
- Spuds: Two 28" square x 90' long
- Bunkers: 6,000 gallons diesel fuel



### CAPABILITIES

- Piledriving
- Duty Cycle
- Clamshell Dredging
- Heavy Lifting
- Crane Service



# Columbia River CROSSING



## River User Data Sheet

By: RALPH PETEREIT Date: 2/27/2012

### 1. Company Name and/or Owner of Vessel and contact information

Name of company: GENERAL CONSTRUCTION CO.

Name of contact: PAT BOYD - EQUIPMENT MANAGER

Phone number (Office): 206-938-6750 (Cell): 206-498-8815

Email: pat.boyd@kiewit.com

Address: 3838 W. MARGINAL WAY SW

City: SEATTLE State: WA Zip code: 98106

3a. Vessel Name: D.B. OLYMPIA 3b. Vessel Type: FLOATING CRANE / DERRICK BARGE

3c. US Coast Guard Document Number: \_\_\_\_\_

4a. Length Overall (LOA), feet: 150 4b. Beam (width), feet: 63

5. Draft (depth of hull below waterline, fully laden), feet: 4

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 70.1

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 5-10

8. Frequency of one-way passage underneath I-5 main channel (typical per month):

Jan \_\_\_\_ Feb \_\_\_\_ Mar \_\_\_\_ Apr \_\_\_\_ May \_\_\_\_ Jun \_\_\_\_ Jul \_\_\_\_ Aug \_\_\_\_ Sep \_\_\_\_ Oct \_\_\_\_ Nov \_\_\_\_ Dec \_\_\_\_

9. Frequency of one-way passage underneath I-5 main channel (other historic events): \_\_\_\_\_

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month):

Jan \_\_\_\_ Feb \_\_\_\_ Mar \_\_\_\_ Apr \_\_\_\_ May \_\_\_\_ Jun \_\_\_\_ Jul \_\_\_\_ Aug \_\_\_\_ Sep \_\_\_\_ Oct \_\_\_\_ Nov \_\_\_\_ Dec \_\_\_\_

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): \_\_\_\_\_

12. Do you have a Business Plan (e.g. 10 or 20 year plan)? NOT AVAILABLE

What does it say regarding vessels transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? \_\_\_\_\_

May we have a copy? \_\_\_\_\_

13. Other miscellaneous \_\_\_\_\_



## Vessel Height Verification Sheet

By: Ralph Petereit Date: July 10, 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: General Construction Co.
- b. Name of contact: Pat Boyd – Equipment Manager
- c. Phone number (Office): (206) 938-6758 (Cell): (206) 498-8815
- d. Email: PAT.BOYD@KIEWIT.COM
- e. Address: 3838 W. Marginal Way City: Seattle  
State: WA Zip code: 98106

### 2. Vessel

- a. ID: \_\_\_\_\_ b. Name: DB Olympia
- c. Type: Crane Barge d. USCG Document Number: 1027118

### 3. Vessel Configuration

- a. Identify vessel configuration: Crane barge
- Is a vessel specification sheet available? Yes
  - Configuration shown on the sheet: Yes
  - What is the lowest height configuration for transport? 70 ft 1.5 in
- b. What is the gantry configuration? Pinned Estimated gantry height: 70 ft 1.5 in
- c. Does the barge have spuds? Yes
- Height above waterline for travel? Gantry height
  - Can the spuds be removed for travel? Yes
  - Work and cost involved in removing spuds? ½ - full day

### 4. Vessel Location

- a. Where is the vessel currently located? Lake Washington, WA.
- b. Is it working on a job? Yes – 520 Bridge Replacement Is it tied up to shore? No

–



c. What is the best time to make a trip to the vessel? None currently

5. Measurements from Spec Sheet

Gantry Height:	78 ft 10 in
Water Level:	
Top of Boom:	
Height of Boom Hinge Pin:	
Boom Cradle:	
Top of Spud:	

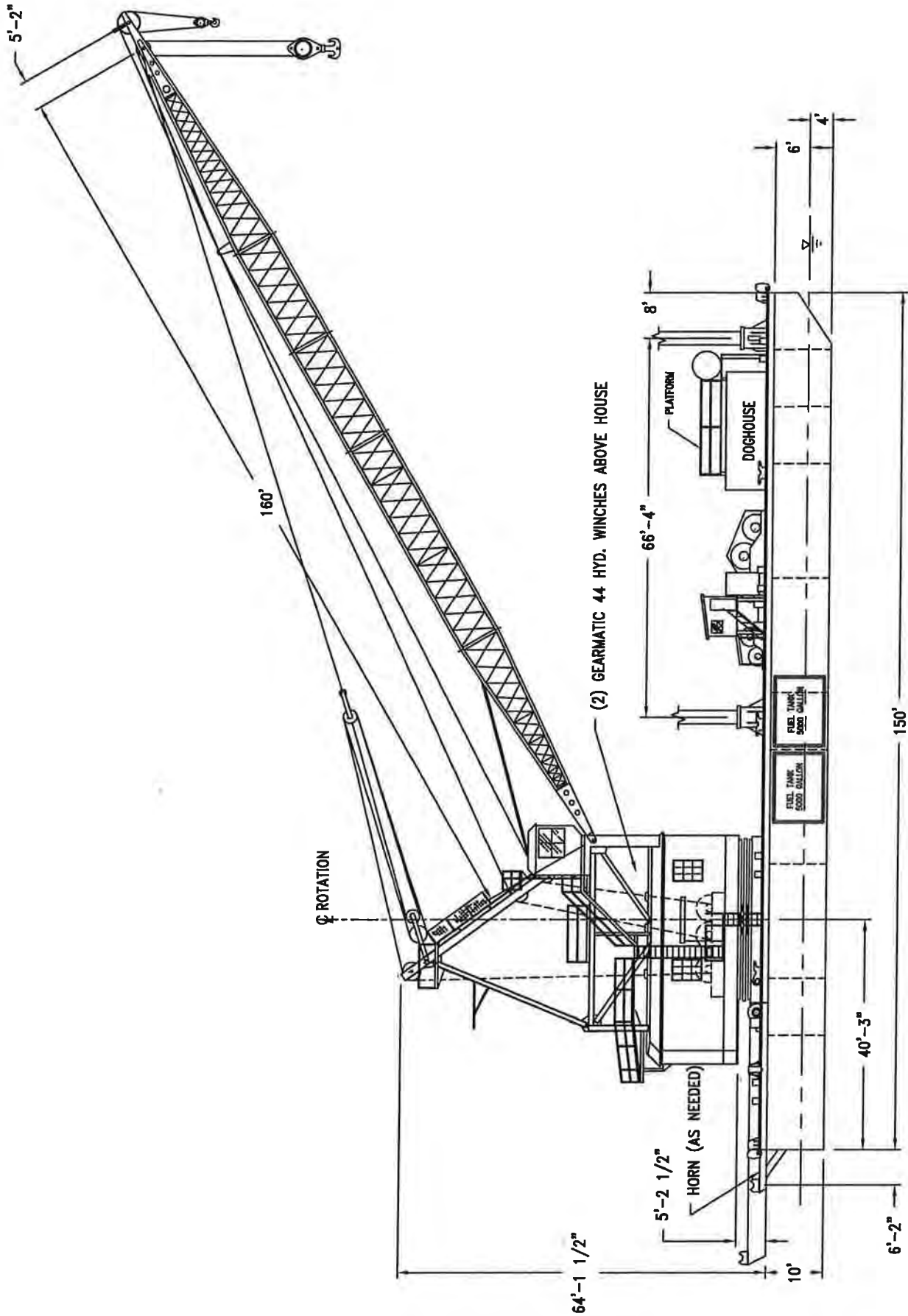
6. Vessel Height

Self-Reported		From Spec Sheet	
Air Draft:	70.1 ft	Air Draft:	70 ft 1.5 in
Air Gap:	5 – 10 ft	Air Gap:	10 ft
Water Level:	16	Water Level:	16
Total Height:	96.1 ft	Total Height:	96 ft 1.5 in

7. History Notes

Date	Item
6/29/2012	Contacted Pat Boyd- Equipment Manager
7/10/2012	Visited Yard to confirm vessel locations and heights





# OUTBOARD PROFILE

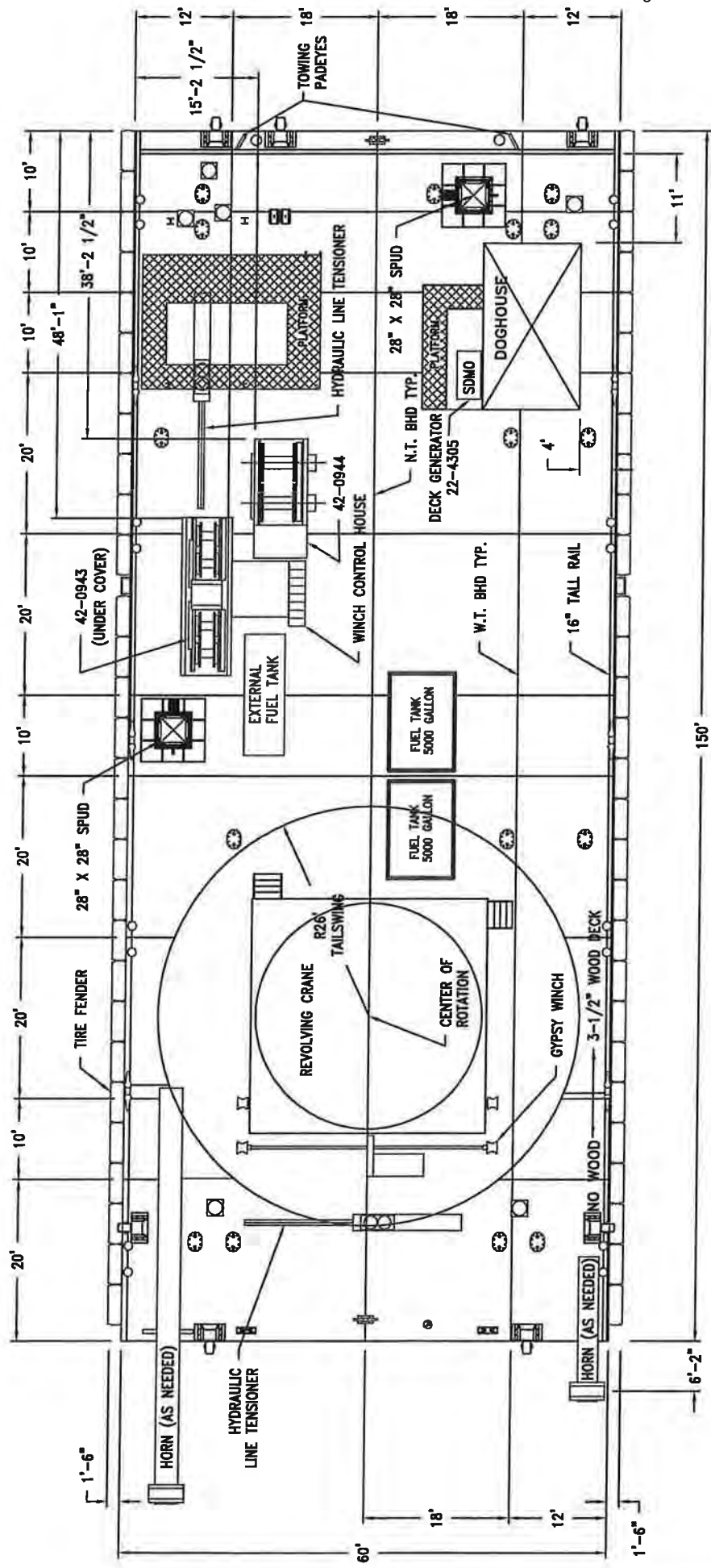
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19472 POWDER HILL PL \* POULSBRO, WA \* 98370-7466  
(360) 779-3200 \* FAX (360) 779-3132

**D.B. OLYMPIA (100 TON) - #53-0706**

ISSUED: - JAN 2010  
FC-53-0706-3







DECK PLAN



GENERAL CONSTRUCTION COMPANY  
19472 POWDER HILL PL • POULSBRO, WA • 98370-7466  
(360) 779-3200 • FAX (360) 779-3132

D.B. OLYMPIA (100 TON) - #53-0706

ISSUED: - JAN 2010  
FC-53-0706-3



## Marine Contractors

Owner: General Construction

Vessel: D.B. Pacific



**GENERAL  
CONSTRUCTION  
COMPANY**

**D.B. PACIFIC**  
180 TON FLOATING CRANE

### CAPABILITIES

- Piledriving
- Heavy Lifting
- Duty Cycle – Dredging
- Offshore Construction & Service
- Pipe Lay

### SPECIFICATIONS

- Main Crane: American M-25A
- Capacities: 180 tons @ 44' radius fully revolving  
42 tons @ 130' radius fully revolving
- Boom: 120' to main fall (200' available)  
126' to whip line (206' available)
- Barge Size: 250' x 72' x 15'
- Classification: ABS+A1, USCG
- Draft (std.): 7'-0"
- Spuds: Not available
- Anchors: 6-point moorage
- Deck Loading: 1,800 psf uniformly distributed
- Bunkers: 35,000 gallons diesel fuel  
3,000 gallons fresh water



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Please contact Pat Boyd-Equipment Manager at (206) 938-6758 or pat.boyd@kiewit.com for load charts, deck configuration, and availability.

[www.generalconstructionco.com](http://www.generalconstructionco.com)



# Columbia River CROSSING



## River User Data Sheet

By: RALPH PETEREIT Date: 2/27/2012

**1. Company Name and/or Owner of Vessel and contact information**

Name of company: GENERAL CONSTRUCTION CO.

Name of contact: PAT BOYD - EQUIPMENT MANAGER

Phone number (Office): 206-938-6750 (Cell): 206-498-8815

Email: pat.boyd@kiewit.com

Address: 3838 W. MARGINAL WAY SW

City: SEATTLE State: WA Zip code: 98106

3a. Vessel Name: D.B. PACIFIC 3b. Vessel Type: FLOATING CRANE / DERRICK BARGE

3c. US Coast Guard Document Number: \_\_\_\_\_

4a. Length Overall (LOA), feet: 250 4b. Beam (width), feet: 72

5. Draft (depth of hull below waterline, fully laden), feet: 7

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 86.5

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 5-10

8. Frequency of one-way passage underneath I-5 main channel (typical per month):

Jan \_\_\_\_ Feb \_\_\_\_ Mar \_\_\_\_ Apr \_\_\_\_ May \_\_\_\_ Jun \_\_\_\_ Jul \_\_\_\_ Aug \_\_\_\_ Sep \_\_\_\_ Oct \_\_\_\_ Nov \_\_\_\_ Dec \_\_\_\_

9. Frequency of one-way passage underneath I-5 main channel (other historic events): \_\_\_\_\_

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month):

Jan \_\_\_\_ Feb \_\_\_\_ Mar \_\_\_\_ Apr \_\_\_\_ May \_\_\_\_ Jun \_\_\_\_ Jul \_\_\_\_ Aug \_\_\_\_ Sep \_\_\_\_ Oct \_\_\_\_ Nov \_\_\_\_ Dec \_\_\_\_

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): \_\_\_\_\_

12. Do you have a Business Plan (e.g. 10 or 20 year plan)? NOT AVAILABLE

What does it say regarding vessels transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? \_\_\_\_\_

May we have a copy? \_\_\_\_\_

13. Other miscellaneous \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_



## Vessel Height Verification Sheet

By: Ralph Petereit Date: July 10, 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: General Construction Co.
- b. Name of contact: Pat Boyd – Equipment Manager
- c. Phone number (Office): (206) 938-6758 (Cell): (206) 498-8815
- d. Email: PAT.BOYD@KIEWIT.COM
- e. Address: 3838 W. Marginal Way City: Seattle  
State: WA Zip code: 98106

### 2. Vessel

- a. ID: \_\_\_\_\_ b. Name: DB Pacific
- c. Type: Crane Barge d. USCG Document Number: 65245

### 3. Vessel Configuration

- a. Identify vessel configuration: Crane barge
  - Is a vessel specification sheet available? Yes
  - Configuration shown on the sheet: Yes
  - What is the lowest height configuration for transport? 86 ft 5 in
- b. What is the gantry configuration? Pinned Estimated gantry height: 83 ft
- c. Does the barge have spuds? Yes
  - Height above waterline for travel? 86 ft 5 in
  - Can the spuds be removed for travel? Yes
  - Work and cost involved in removing spuds? ½ - full day

### 4. Vessel Location

- a. Where is the vessel currently located? Lake Washington, WA.
- b. Is it working on a job? Yes – 520 Bridge Replacement Is it tied up to shore? No
- c. What is the best time to make a trip to the vessel? None currently



5. Measurements from Spec Sheet

Gantry Height:	83 ft
Water Level:	
Top of Boom:	
Height of Boom Hinge Pin:	
Boom Cradle:	
Top of Spud:	

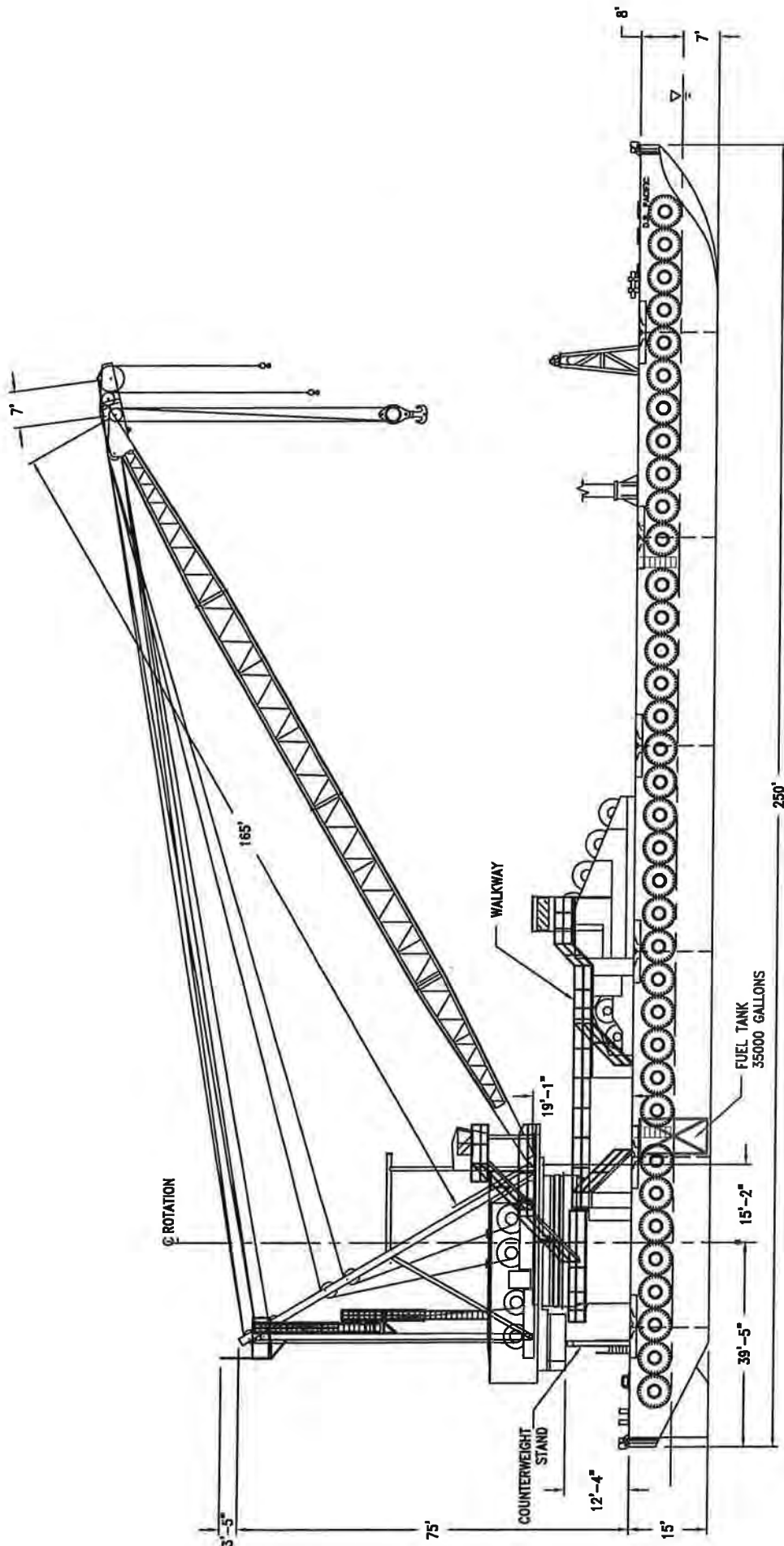
6. Vessel Height

Self-Reported		From Spec Sheet	
Air Draft:	86.5 ft	Air Draft:	86 ft 5 in
Air Gap:	5 – 10 ft	Air Gap:	10 ft
Water Level:	16	Water Level:	16
Total Height:	112.5 ft	Total Height:	112 ft 5 in

7. History Notes

Date	Item
6/29/2012	Contacted Pat Boyd- Equipment Manager
7/10/2012	Visited Yard to confirm vessel locations and heights





OUTBOARD PROFILE

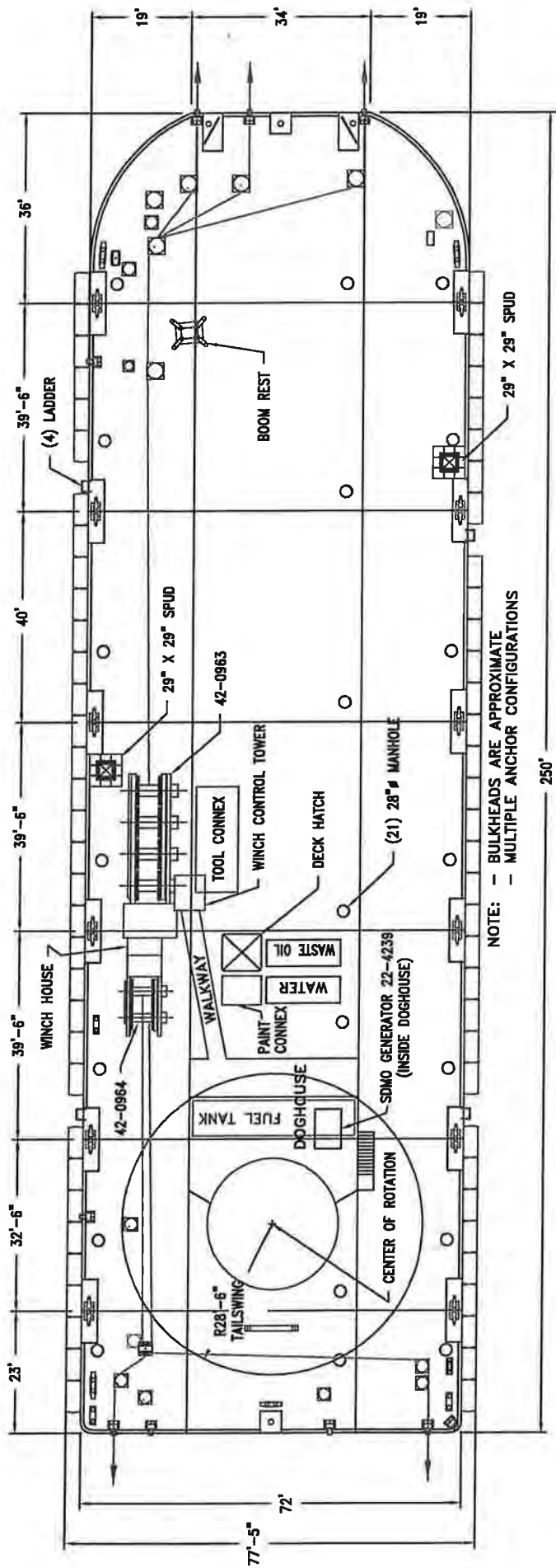


GENERAL CONSTRUCTION COMPANY  
19472 POWDER HILL PL \* POULSBRO, WA \* 98370-7466  
(360) 779-3200 \* FAX (360) 779-3132

D.B. PACIFIC (180 TON) - #53-0739

ISSUED: - JAN 2010  
FC-53-0739-4





DECK PLAN



## Marine Contractors

Owner: General Construction

Vessel: D.B. Seattle



**GENERAL  
CONSTRUCTION  
COMPANY**

**D.B. SEATTLE**  
165 TON FLOATING CRANE



### CAPABILITIES

- Clamshell Dredging
- Piledriving
- Rock Jetties and Breakwaters
- Heavy Lifting

### SPECIFICATIONS

- Main Crane: American M-25A
- Capacities: 165 tons @ 50' radius over stern  
150 tons @ 50' radius fully revolving  
50 tons @ 90' duty-cycle (150' boom)
- Clamshell: 27 CY Atlas environmental bucket  
14 CY Hawco heavy digging bucket
- Boom: 165' to main fall (210' available)  
177' to whip line (222' available)
- Barge Size: 150' x 70' x 12.5'
- Classification: USCG
- Draft (std.): 7'-0"
- Spuds: Two 28" square x 90' long
- Bunkers: 45,000 gallons diesel fuel  
2,350 gallons fresh water

© 2007 General Construction Company, 19472 Powder Hill Place N.E., Poulsbo, WA 98370 ♦ Phone (360) 779-3200 ♦ Fax (360) 779-3132  
Please contact Pat Boyd-Equipment Manager at (206) 938-6758 or pat.boyd@kiewit.com for load charts, deck configuration, and availability.

[www.generalconstructionco.com](http://www.generalconstructionco.com)



# Columbia River CROSSING



## River User Data Sheet

By: RALPH PETEREIT Date: 2/27/2012

### 1. Company Name and/or Owner of Vessel and contact information

Name of company: GENERAL CONSTRUCTION CO.

Name of contact: PAT BOYD - EQUIPMENT MANAGER

Phone number (Office): 206-938-6750 (Cell): 206-498-8815

Email: pat.boyd@kiewit.com

Address: 3838 W. MARGINAL WAY SW

City: SEATTLE State: WA Zip code: 98106

3a. Vessel Name: D.B. SEATTLE 3b. Vessel Type: FLOATING CRANE / DERRICK BARGE

3c. US Coast Guard Document Number: \_\_\_\_\_

4a. Length Overall (LOA), feet: 152 4b. Beam (width), feet: 76

5. Draft (depth of hull below waterline, fully laden), feet: 7.5

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 90

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 5 - 10

8. Frequency of one-way passage underneath I-5 main channel (typical per month):

Jan \_\_\_\_ Feb \_\_\_\_ Mar \_\_\_\_ Apr \_\_\_\_ May \_\_\_\_ Jun \_\_\_\_ Jul \_\_\_\_ Aug \_\_\_\_ Sep \_\_\_\_ Oct \_\_\_\_ Nov \_\_\_\_ Dec \_\_\_\_

9. Frequency of one-way passage underneath I-5 main channel (other historic events): \_\_\_\_\_

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month):

Jan \_\_\_\_ Feb \_\_\_\_ Mar \_\_\_\_ Apr \_\_\_\_ May \_\_\_\_ Jun \_\_\_\_ Jul \_\_\_\_ Aug \_\_\_\_ Sep \_\_\_\_ Oct \_\_\_\_ Nov \_\_\_\_ Dec \_\_\_\_

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): \_\_\_\_\_

12. Do you have a Business Plan (e.g. 10 or 20 year plan)? NOT AVAILABLE

What does it say regarding vessels transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? \_\_\_\_\_

May we have a copy? \_\_\_\_\_

13. Other miscellaneous \_\_\_\_\_



## Vessel Height Verification Sheet

By: Ralph Petereit Date: July 10, 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: General Construction Co.
- b. Name of contact: Pat Boyd – Equipment Manager
- c. Phone number (Office): (206) 938-6758 (Cell): (206) 498-8815
- d. Email: PAT.BOYD@KIEWIT.COM
- e. Address: 3838 W. Marginal Way City: Seattle  
State: WA Zip code: 98106

### 2. Vessel

- a. ID: \_\_\_\_\_ b. Name: DB Seattle
- c. Type: Crane Barge d. USCG Document Number: 547079

### 3. Vessel Configuration

- a. Identify vessel configuration: Crane barge
  - Is a vessel specification sheet available? Yes
  - Configuration shown on the sheet: Yes
  - What is the lowest height configuration for transport? 85 ft 11 in
- b. What is the gantry configuration? Pinned Estimated gantry height: 75 ft 6 in
- c. Does the barge have spuds? Yes
  - Height above waterline for travel? 85 ft 11 in
  - Can the spuds be removed for travel? Yes
  - Work and cost involved in removing spuds? ½ - full day

### 4. Vessel Location

- a. Where is the vessel currently located? Lake Washington, WA.
- b. Is it working on a job? Yes – 520 Bridge Replacement Is it tied up to shore? No
- c. What is the best time to make a trip to the vessel? None currently



5. Measurements from Spec Sheet

Gantry Height:	75 ft 6 in
Water Level:	
Top of Boom:	
Height of Boom Hinge Pin:	
Boom Cradle:	
Top of Spud:	

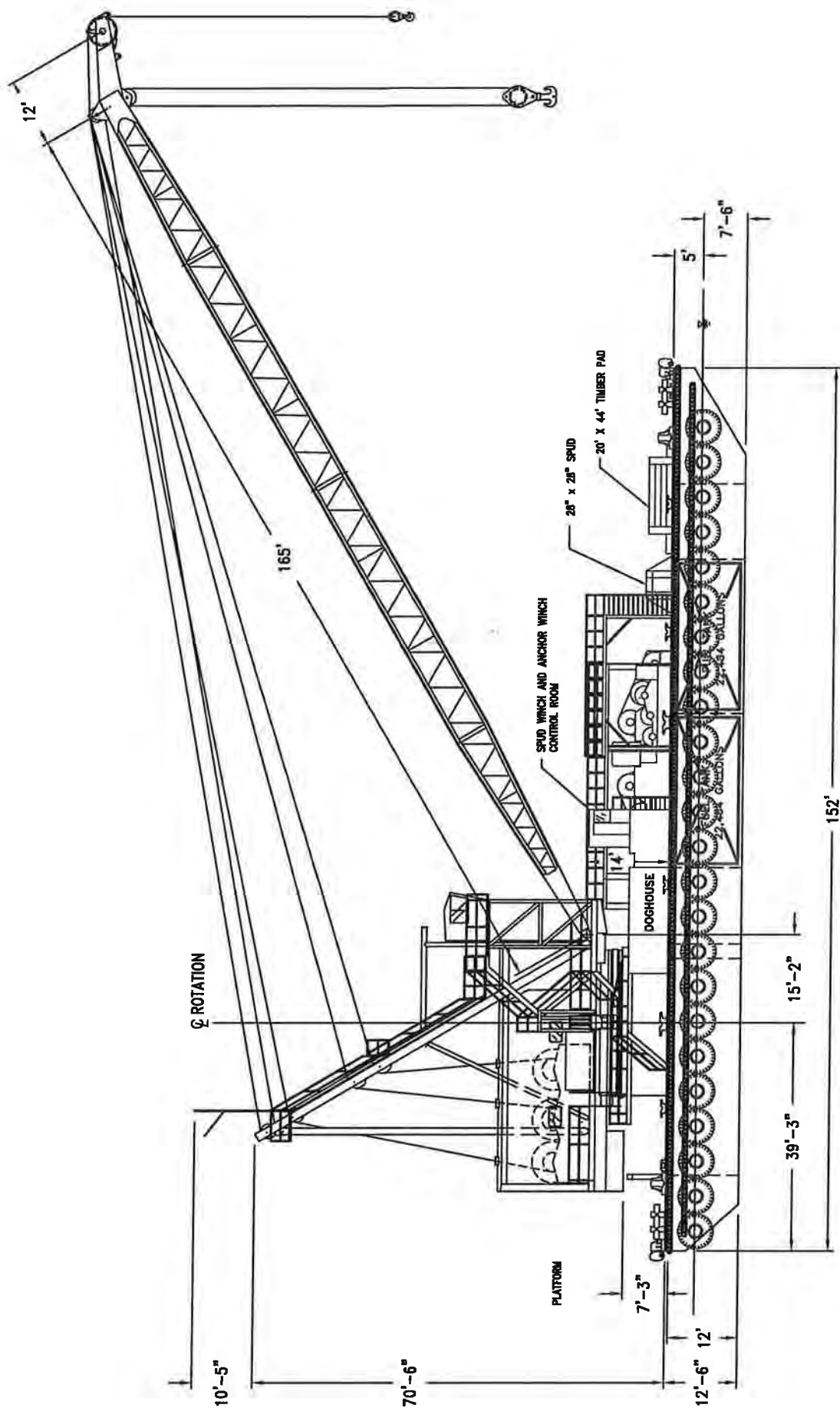
6. Vessel Height

Self-Reported		From Spec Sheet	
Air Draft:	90 ft	Air Draft:	85 ft 11 in
Air Gap:	5 – 10 ft	Air Gap:	10 ft
Water Level:	16	Water Level:	16
Total Height:	116 ft	Total Height:	111 ft 11 in

7. History Notes

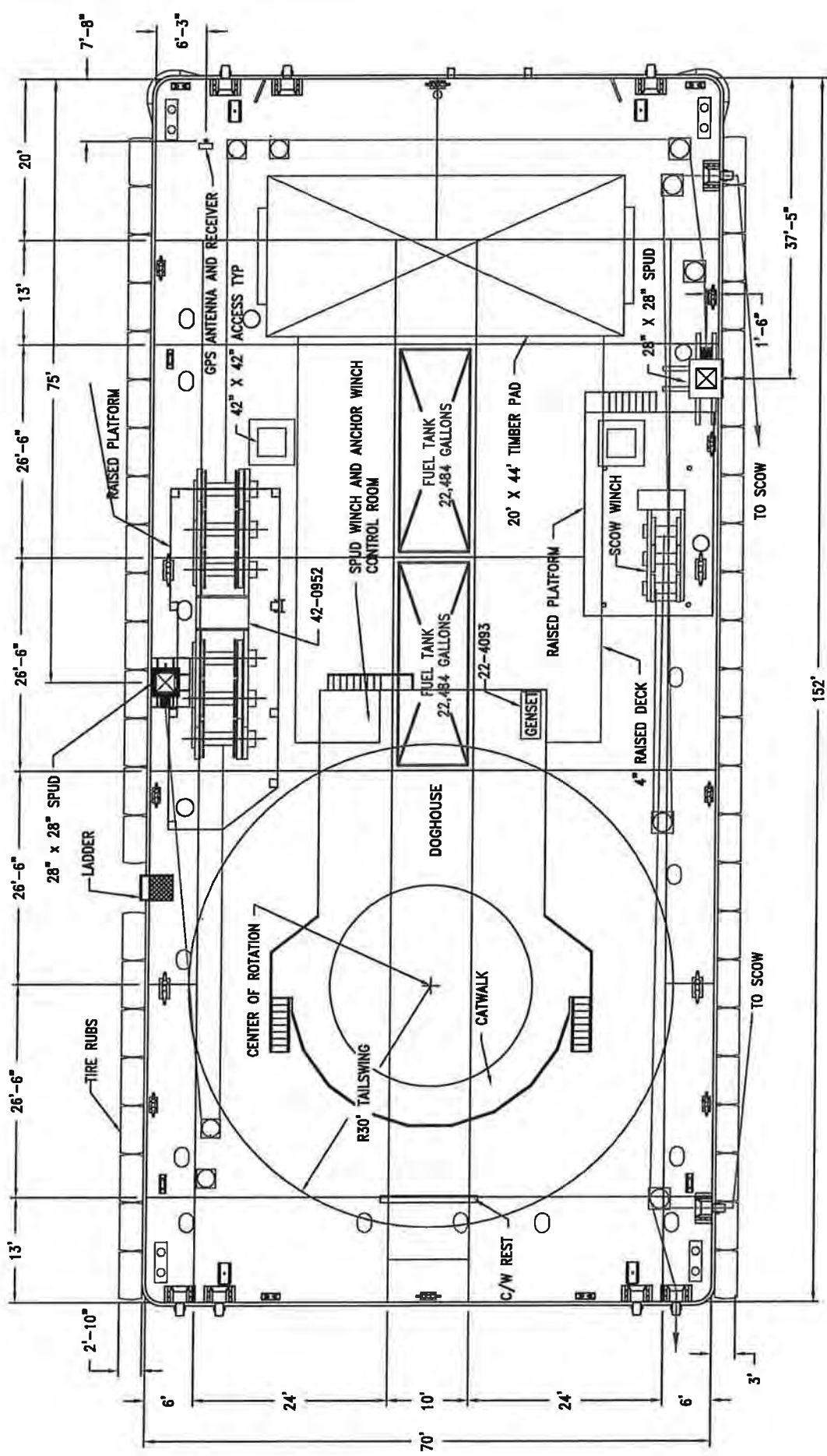
Date	Item
6/29/2012	Contacted Pat Boyd- Equipment Manager
7/10/2012	Visited Yard to confirm vessel locations and heights





OUTBOARD PROFILE





NOTE: MULTIPLE ANCHOR CONFIGURATIONS

DECK PLAN

	GENERAL CONSTRUCTION COMPANY 19472 POWDER HILL PL • POULSBORO, WA • 98370-7466 (360) 779-3200 • FAX (360) 779-3132	D.B. SEATTLE (165 TON) - #53-0733	ISSUED: JAN 2010 FC-53-0733-3
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## Marine Contractors

Company: Hickey Marine

Vessels:

- Sea Hawk
- Sea Horse
- Sea Lion
- Sea Vulture

Company did not respond to IBR request. Information below was included in the CRC NIR.



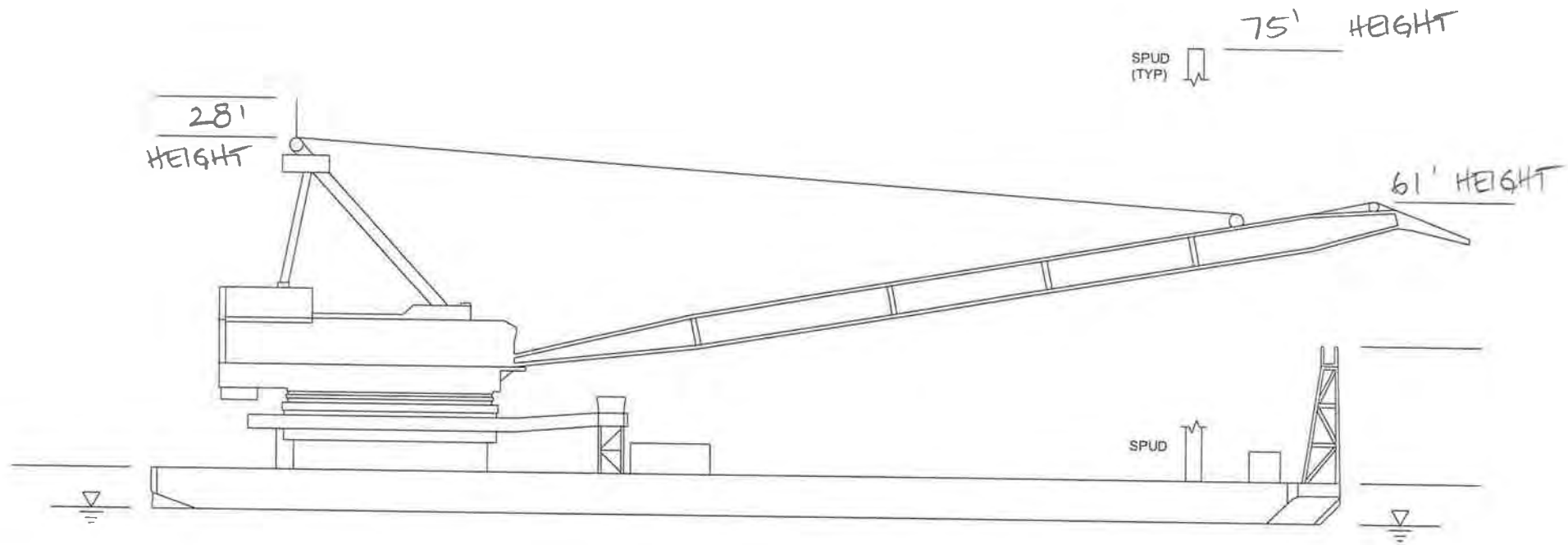
## Marine Contractors

Owner: Hickey Marine Enterprises

Vessel: Sea Hawk







SEA HAWK

NAME

HICKEY MARINE

LOCATION

07-05-12

DATE



[illegible]



## Vessel Height Verification Sheet

By: Pete Geiger Date: 5 July 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: Hickey Marine Enterprises/HME Construction
- b. Name of contact: Greg Speyer/Darrell Jamieson
- c. Phone number (Office): 360.695.4553 (Cell): \_\_\_\_\_
- d. Email: [gregs@hickeymarine.com](mailto:gregs@hickeymarine.com); [darrellj@hickeymarine.com](mailto:darrellj@hickeymarine.com)
- e. Address: 6801 NW Old Lower River Road City: Vancouver
- State: WA Zip code: 98660

### 2. Vessel

- a. ID: \_\_\_\_\_ b. Name: SeaHawk
- c. Type: Derrick Barge with Crane d. USCG Document Number: \_\_\_\_\_

### 3. Vessel Configuration

- a. Identify vessel configuration: Crane Boom lowered in travel position; Spud Up on Pin
- Is a vessel specification sheet available? On ProjectSolve
  - Configuration shown on the sheet: not shown, photo only
  - What is the lowest height configuration for transport? ~75 Feet (Spud on Pin)
- b. What is the gantry configuration? Assembled with Pins Estimated gantry height: Not given
- c. Does the barge have spuds? Yes, Two
- Height above waterline for travel? Center (2) = 75 feet
  - Can the spuds be removed for travel? Only on very rare occasions
  - Work and cost involved in removing spuds? 4 hours to reset spuds. Need to find a site to harbor or tie up to. Spuds often need separate barge to transport them.

### 4. Vessel Location

- a. Where is the vessel currently located? Columbia River
- b. Is it working on a job? Yes but at HMI Is it tied up to shore? Yes



c. What is the best time to make a trip to the vessel? Anytime, Just need a few days advance notice.

5. Surveyed Measurements (all measurements NAVD 88)

Gantry Height:	44.0 feet
Water Level:	15.6 feet
Top of Boom:	77.0 feet (Travel angle ~17.5 degrees off horizontal)
Height of Boom Hinge Pin:	Not Measured
Boom Cradle:	Not Measured – No Boom Cradle
Top of Spud:	90.4 feet
Top of Deck:	Not Measured

6. Vessel Height

Self-Reported		Surveyed	
Air Draft:	75 feet	Air Draft:	75 feet
Air Gap:	10 feet	Air Gap:	10 feet
Water Level:	16 feet (CRD)	Water Level:	16 feet (CRD)
Total Height:	101 feet	Total Height:	101 feet

7. History Notes

Date	Item
2/23/2012	Contacted by Jennifer Rabby
2/23/2012	Data sheet submitted
6/28/2012	Contacted by Pete Geiger for field measurement
7/5/2012	Field measured





Hickey Marine Enterprises, Inc.

## **D.B. SEA** **HAWK**

**CERTIFICATION: ABS LOADLINE**

**HULL DIMENSIONS: 110' X 44' X  
10'**

**PERFORMANCE: 50 Ton LIFT  
CAPACITY**

**BOOM LENGTHS: 100' – 150'**



*spud H. 75' to water*

**OPERATION: D.B. SEA HAWK is equipped to perform dredging and pile driving operations.**

**DECK EQUIPMENT: Two 75' spuds, 3 drum Skagit deck winch, 100kw generator, APE 100 vibratory hammer, Vulcan 06 impact hammer. Clamshell buckets ranging from 3cy to 5cy.**

**FUEL CAPACITY: 6,000 GALLONS**

6801 NW Old Lower River Road, Vancouver, WA 98660  
Office (360) 695-4553 Fax (360) 695-3295  
Email – djamiesonhme@comcast.net



## Marine Contractors

Owner: Hickey Marine Enterprises

Vessel: Sea Horse

---





River User Data Sheet

By: Annika Rabb Date: 2/23/2012  
10:00am

1. Company Name and/or Owner of Vessel and contact information

- a. Name of company: HME Hickey Marine Enterprises  
b. Name of contact: Greg Speyer & Darrell Jamieson  
c. Phone number (Office): 360.695.4553 d. (Cell): 360.772.4068  
e. Email: gregs@hickeymarine.com  
f. Address: 6801 NW Old Laver River Rd.  
g. City: Vancouver  
h. State: WA i. Zip code: 98660

- 3a. Vessel Name: Seahorse 3b. Vessel Type: Derrick Barge!  
(largest of 4) Crane  
3c. US Coast Guard Document Number: \_\_\_\_\_

- 4a. Length Overall (LOA), feet: 142 4b. Beam (width), feet: 60

5. Draft (depth of hull below waterline, fully laden), feet: 6.5'  
6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 75' gantry  
90' with  
spuds  
7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of  
bridge): 10' They request 100' clearance when  
they go through bridges  
8. Frequency of one-way passage underneath I-5 main channel (typical per month): Approx. 6x/yr. for  
all 4 vessels  
Oct - March  
Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

9. Frequency of one-way passage underneath I-5 main channel (other historic events): \_\_\_\_\_

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per  
month): None

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic

events): Rarely have a need to go through because  
they can get to either side without going  
through

Diversified Marine is in N. Portland Harbor but doesn't  
go above the I-5 bridge.



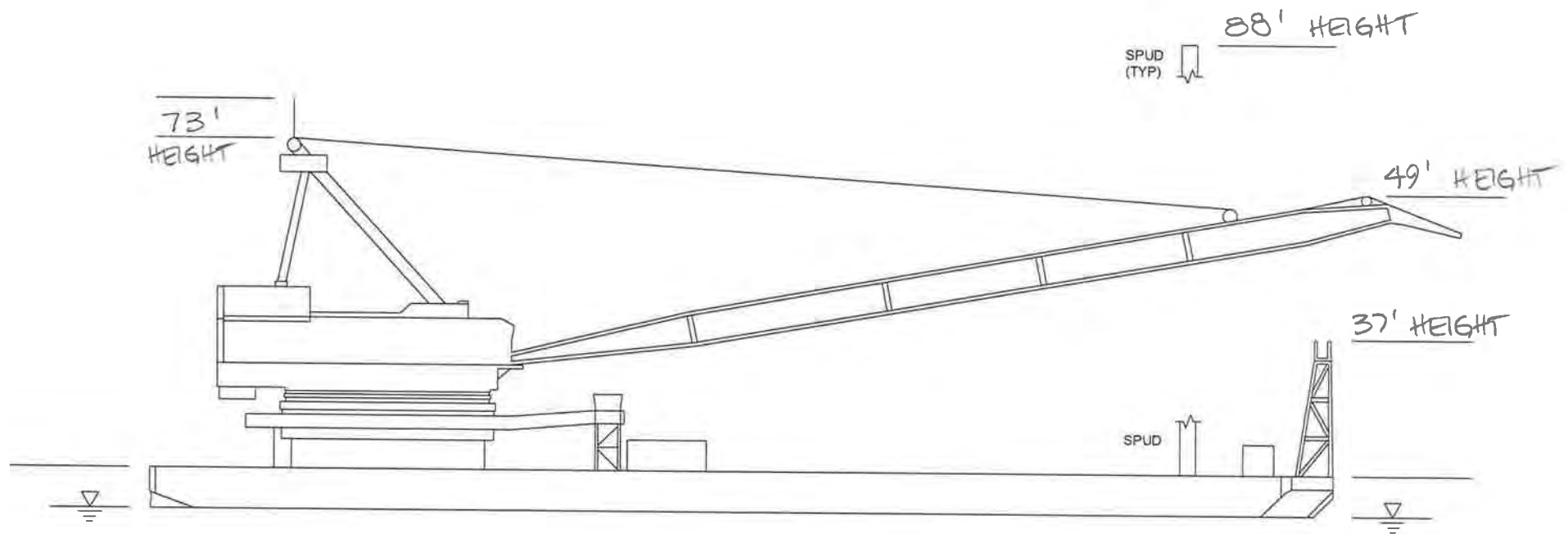
12. Do you have a Business Plan (e.g. 10 or 20 year plan)? What does it say regarding vessels

transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? May we have a copy?

13. Other miscellaneous

- △ They don't see a need for larger equipment. They have lengthened their spuds in the past. When they do that, they pull them out and barge them upstream.
- The gantry height (75') is the limiting factor. It is not adjustable. Other companies could have higher gantries.
- Bridge height of 125' at O'CRD would accommodate most users.
- Most of their work is in the Willamette Harbor. Also go up to Bonneville Dam, <sup>taking Seathorse + SeaVulture there in March</sup>. Currently working in Longview & Pasco <sup>(grain elevators, petroleum docks)</sup>. Dams and other facilities upstream for maint. Work on Columbia, Willamette, and Snake Rivers.
- They can often "sneak" through the bridge high span rather than the lift span, depends on draft.
- They don't usually lower spuds, but can if the draft is good. Risk of losing spuds/bending them.
- March each year there is a shut down of the locks, so several barges (HME + others) going then.





SEA HORSE

NAME

HICKEY MARINE  
LOCATION

07-05-12  
DATE



## Vessel Height Verification Sheet

By: Pete Geiger

Date: 5 July 2012

1. Company Name and/or Owner of Vessel and Contact Information

a. Name of company: Hickey Marine Enterprises/HME Construction

b. Name of contact: Greg Speyer/Darrell Jamieson

c. Phone number (Office): 360.695.4553 (Cell): \_\_\_\_\_

d. Email: [gregs@hickeymarine.com](mailto:gregs@hickeymarine.com); [darrellj@hickeymarine.com](mailto:darrellj@hickeymarine.com)

e. Address: 6801 NW Old Lower River Road City: Vancouver

State: WA Zip code: 98660

2. Vessel

a. ID: \_\_\_\_\_ b. Name: SeaHorse

c. Type: Derrick Barge with Crane d. USCG Document Number: \_\_\_\_\_

3. Vessel Configuration

a. Identify vessel configuration: Crane Boom Down Near Cradle; Aft Spud Up on Pin

- Is a vessel specification sheet available? On ProjectSolve
- Configuration shown on the sheet: Crane Boom Up; Spuds Down
- What is the lowest height configuration for transport? ~90 Feet (Aft Spud on Pin)

b. What is the gantry configuration? Assembled with Pins Estimated gantry height: 75 Feet

c. Does the barge have spuds? Yes, Three

- Height above waterline for travel? Aft = 90 feet Center (2) = 79 feet
- Can the spuds be removed for travel? Only on very rare occasions
- Work and cost involved in removing spuds? 4 hours to reset spuds. Need to find a site to harbor or tie up to. Spuds often need separate barge to transport them.

4. Vessel Location

a. Where is the vessel currently located? Columbia River

b. Is it working on a job? No Is it tied up to shore? Yes



c. What is the best time to make a trip to the vessel? Anytime, Just need a few days advance notice.

5. Surveyed Measurements (all measurements NAVD 88)

Gantry Height:	88.7 feet
Water Level:	15.6 feet
Top of Boom:	65.1 feet
Height of Boom Hinge Pin:	Not Measured
Boom Cradle:	52.2 feet
Top of Spud:	104.0 feet
Top of Deck:	Not Measured

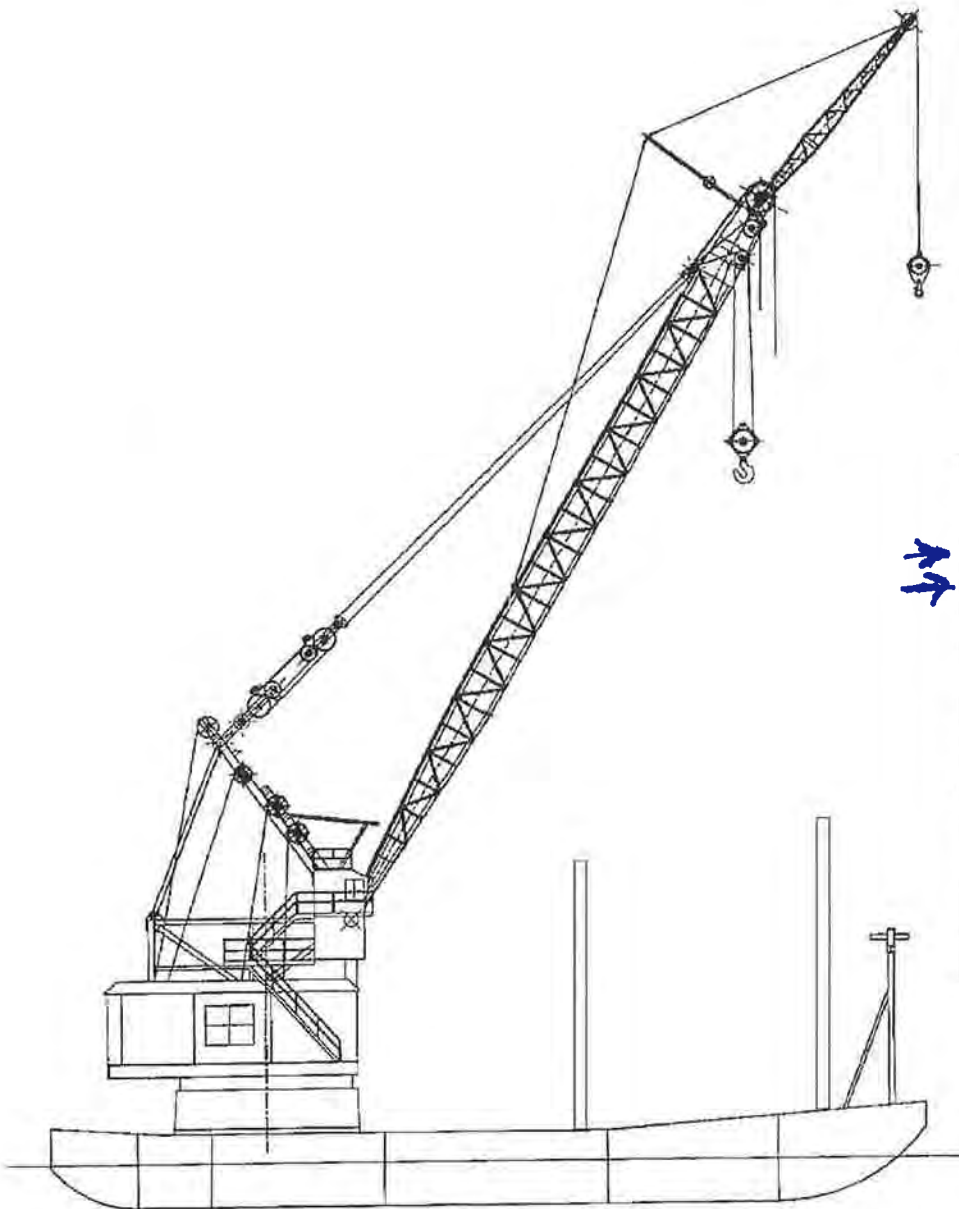
6. Vessel Height

Self-Reported (Spud)		Surveyed (Spud)	
Air Draft:	90 feet	Air Draft:	88 feet
Air Gap:	10 feet	Air Gap:	10 feet
Water Level:	16 feet (CRD)	Water Level:	16 feet (CRD)
Total Height:	116 feet	Total Height:	114 feet

7. History Notes

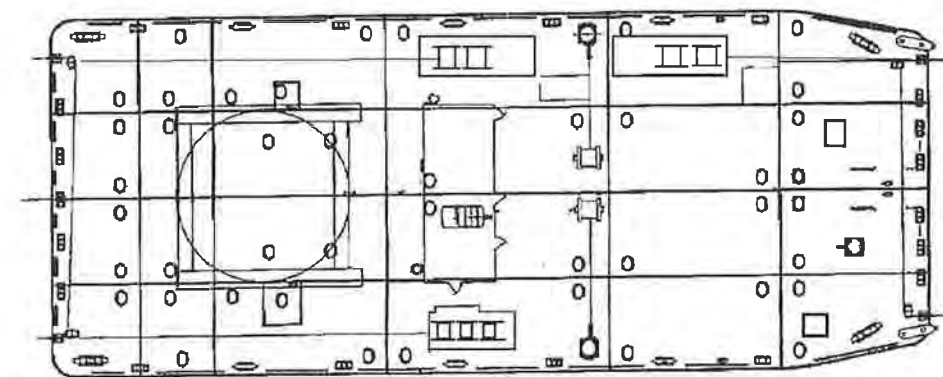
Date	Item
2/23/2012	Contacted by Jennifer Rabby
2/23/2012	Data sheet submitted
6/28/2012	Contacted by Pete Geiger for field measurement
7/5/2012	Field measured





ELEVATIONS TAKEN WITH FUEL TANKS FULL

	FROM DECK	FROM WATER @ 5' FREEBOARD
CENTER SPUDS (ON PIN)	74'	79'
AFT SPUD (ON PIN)	79'	89' 3"
BOOM GANTRY	70'	75'
HEEL PIN	35' 2"	40' 2"
TOP OF CAB WITH HANDRAIL	47' 6"	52' 6"
TOP OF CAB W/O HANDRAIL	44' 3"	49' 3"
OPERATOR EYE LEVEL	41'	46'
CENTER PIN TO BOW	107'	
CENTER PIN TO STERN	35'	
CENTER PIN TO SIDE	29'	
HEEL PIN TO CENTER PIN (HORIZONTAL)	15'	
(DISTANCE) MULTI-PART SHEAVES TO POINTSHEAVES	10'	
STANDARD BOOM LENGTH	125' UTILIZING MULTI-PART	135' MAIN BOOM POINT SHEAVES
OPTIONAL BOOM ATTACHMENTS	20' MIDSECTION	40' JIB



Hull:	142' x 58' x 12' 7' Draft
	Beam 58'-6" with rub rails. 62" edge of tires
Fuel Capacity:	20,000 gallons
Mainlines :	2" x 425' with 135' boom. 440' for rear drum.
	2" x 385' with 115' boom. 400' for rear drum.
Tag Line:	¾" x 500'
Boom and Heavy Lift:	1 1/8" x 1900'
Spuds :	
Center	1 ¼" x 550'
Aft	1" x 550'
Atlas 10yd Clamshell :	2" x 125' 45,000lbs
Atlas 14yd Clamshell :	2" x 135' 32,000lbs
Atlas 10yd Re- handle:	1 ½" x 70' 20,000lbs
21yd CA:	2" x 80' 30,000lbs
14yd CA:	1 ½" x 70' 17,000lbs
3-Drum fleetng Lines:	1" x 900'

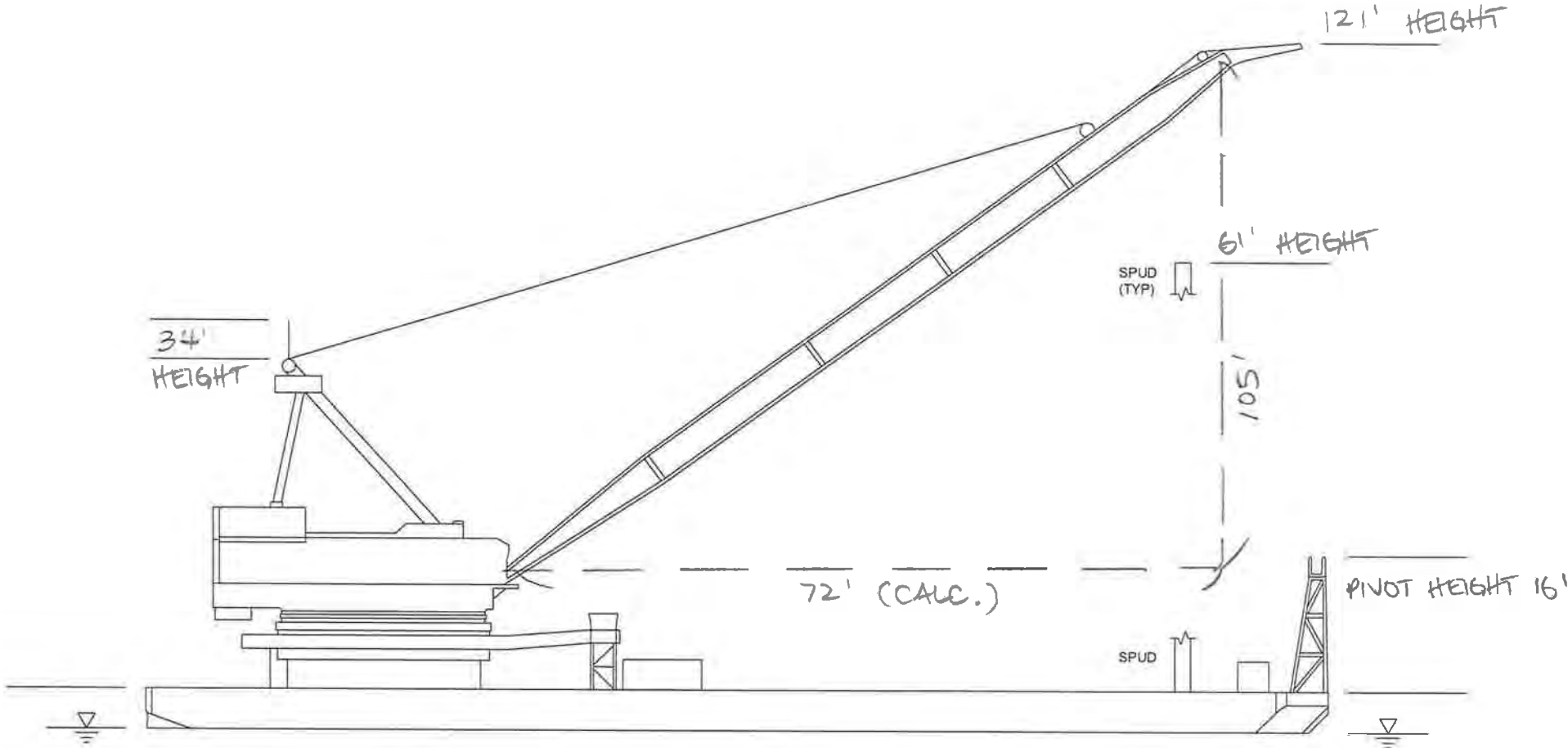


Marine Contractors  
Owner: Hickey Marine Enterprises  
Vessel: Sea Lion

---







SEA LION

NAME

HICKEY MARINE

LOCATION

07-05-12

DATE



## Vessel Height Verification Sheet

By: Pete Geiger Date: 5 July 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: Hickey Marine Enterprises/HME Construction
- b. Name of contact: Greg Speyer/Darrell Jamieson
- c. Phone number (Office): 360.695.4553 (Cell): \_\_\_\_\_
- d. Email: [gregs@hickeymarine.com](mailto:gregs@hickeymarine.com); [darrellj@hickeymarine.com](mailto:darrellj@hickeymarine.com)
- e. Address: 6801 NW Old Lower River Road City: Vancouver
- State: WA Zip code: 98660

### 2. Vessel

- a. ID: \_\_\_\_\_ b. Name: Sea Lion
- c. Type: Derrick Barge with Crane d. USCG Document Number: \_\_\_\_\_

### 3. Vessel Configuration

- a. Identify vessel configuration: Crane Boom Elevated above Spuds; Both Spuds dropped
- Is a vessel specification sheet available? On ProjectSolve
  - Configuration shown on the sheet: not shown, photo only
  - What is the lowest height configuration for transport? ~75 Feet (Spud on Pin)
- b. What is the gantry configuration? Assembled with Pins Estimated gantry height: Not given
- c. Does the barge have spuds? Yes, Two
- Height above waterline for travel? Center (2) = 75 feet
  - Can the spuds be removed for travel? Only on very rare occasions
  - Work and cost involved in removing spuds? 4 hours to reset spuds. Need to find a site to harbor or tie up to. Spuds often need separate barge to transport them.

### 4. Vessel Location

- a. Where is the vessel currently located? Columbia River
- b. Is it working on a job? No Is it tied up to shore? Yes



c. What is the best time to make a trip to the vessel? Anytime, Just need a few days advance notice.

5. Surveyed Measurements (all measurements NAVD 88)

Gantry Height:	49.4 feet
Water Level:	15.6 feet
Top of Boom:	Measured while stored =136.6 feet (56 degrees off horizontal) Estimated at travel angle(17.5 degrees off horizontal) = 69.6 feet
Height of Boom Hinge Pin:	31.9 feet
Boom Cradle:	Not Measured (obscured)
Top of Spud:	77.0 (Spud imbedded in river bottom)
Top of Deck:	Not Measured

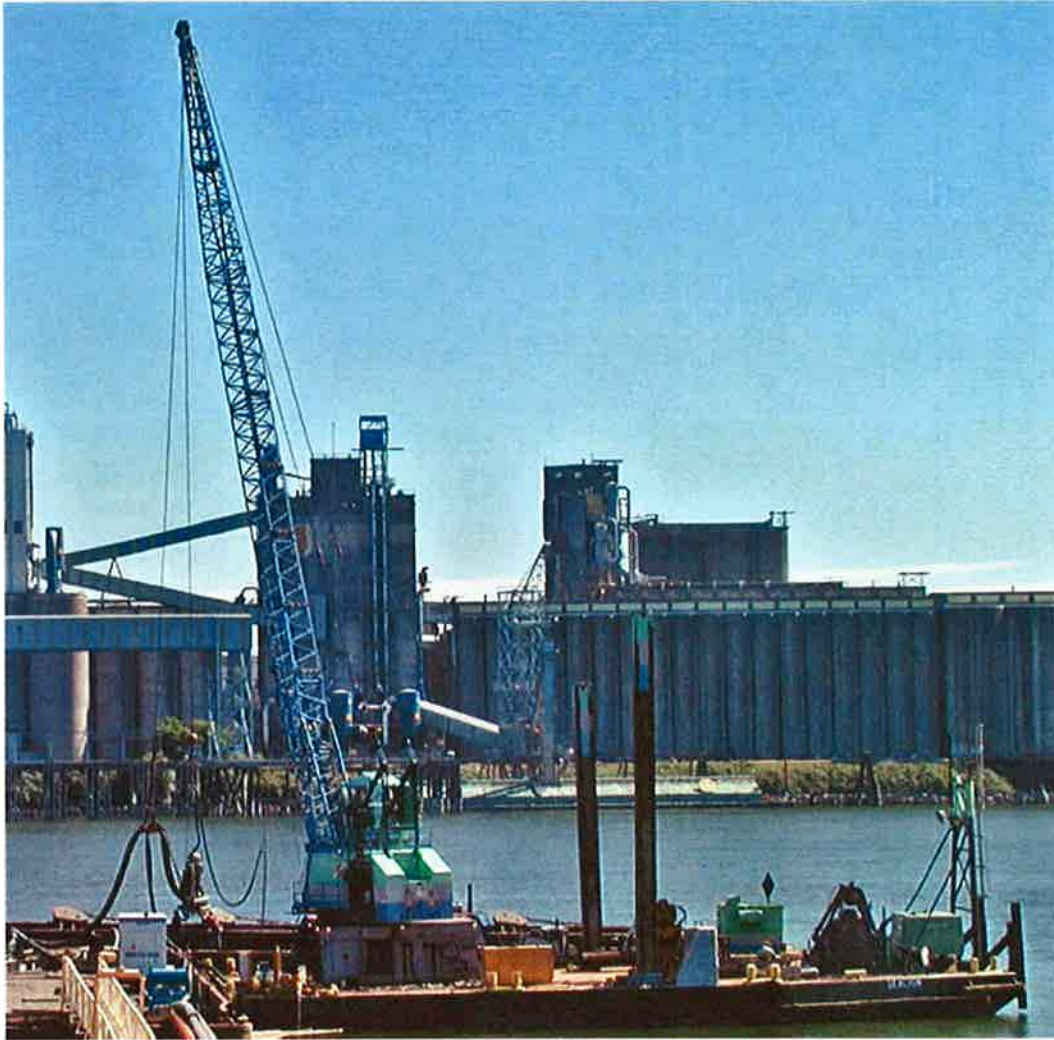
6. Vessel Height

Self-Reported (Spuds)		Surveyed (Spuds)	
Air Draft:	75 feet	Air Draft:	75 feet (From Self Reporting)
Air Gap:	10 feet	Air Gap:	10 feet
Water Level:	16 feet (CRD)	Water Level:	16 feet (CRD)
Total Height:	101 feet	Total Height:	101 feet

7. History Notes

Date	Item
2/23/2012	Contacted by Jennifer Rabby
2/23/2012	Data sheet submitted
6/28/2012	Contacted by Pete Geiger for field measurement
7/5/2012	Field measured





## SEA LION

The Derrick Barge Sea Lion is a Manitowoc 60 Ton mounted crane on a 103' x 50' x 8' barge. Main draw-works power is provided by a Cummins diesel 300 HP. She is set up with two winch controlled spuds. She was rebuilt in 1970. She has a minimum Height of 34.5' along with Minimum draft of 3' and Maximum draft of 5'. She has a 4,000 gallon fuel capacity which is separate from the hull. Clamshell Buckets available: 3 cy Yaun digging, 3.5 cy Esco digging, 3 cy Erie heavy duty digging, and 5 cy Yaun re-handle.

*Spud Height 75' to Water*



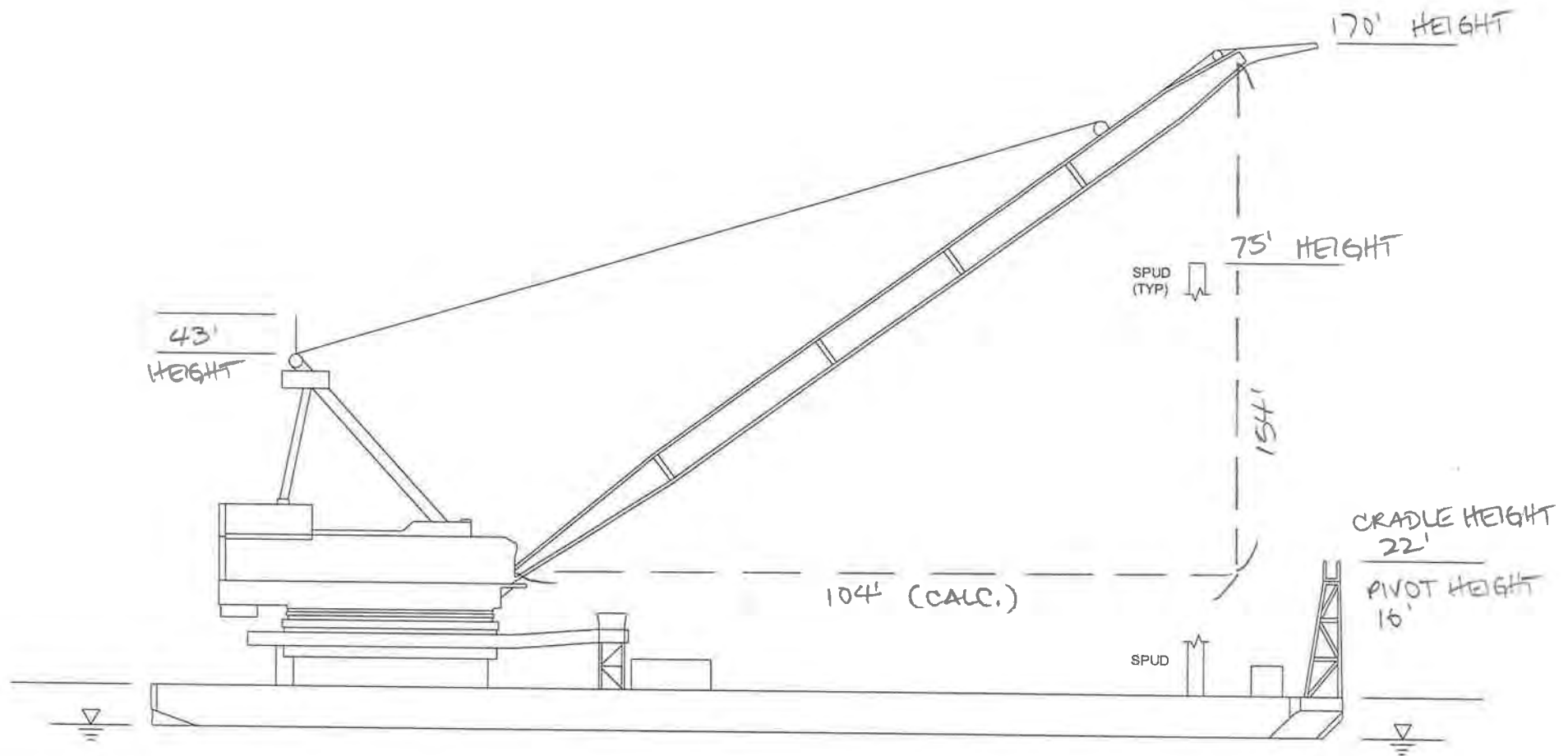
## Marine Contractors

Owner: Hickey Marine Enterprises

Vessel: Sea Vulture







SEA VULTURE

NAME

HICKEY MARINE

LOCATION

07-05-12

DATE



## Vessel Height Verification Sheet

By: Pete Geiger

Date: 5 July 2012

1. Company Name and/or Owner of Vessel and Contact Information

a. Name of company: Hickey Marine Enterprises/HME Construction

b. Name of contact: Greg Speyer/Darrell Jamieson

c. Phone number (Office): 360.695.4553 (Cell): \_\_\_\_\_

d. Email: [gregs@hickeymarine.com](mailto:gregs@hickeymarine.com); [darrellj@hickeymarine.com](mailto:darrellj@hickeymarine.com)

e. Address: 6801 NW Old Lower River Road City: Vancouver

State: WA Zip code: 98660

2. Vessel

a. ID: \_\_\_\_\_ b. Name: Sea Vulture

c. Type: Derrick Barge with Crane d. USCG Document Number: \_\_\_\_\_

3. Vessel Configuration

a. Identify vessel configuration: Crane Boom Elevated above Spuds; Bow Spud Up on Pin

- Is a vessel specification sheet available? On ProjectSolve
- Configuration shown on the sheet: not shown, plan view only
- What is the lowest height configuration for transport? ~77 Feet (Bow Spud on Pin)

b. What is the gantry configuration? Assembled with Pins Estimated gantry height: Not given

c. Does the barge have spuds? Yes, Three

- Height above waterline for travel? Bow = 77 feet Center (2) = 48 feet
- Can the spuds be removed for travel? Only on very rare occasions
- Work and cost involved in removing spuds? 4 hours to reset spuds. Need to find a site to harbor or tie up to. Spuds often need separate barge to transport them. Sea Vulture cannot reach its own spuds, necessitating a second crane.

4. Vessel Location

a. Where is the vessel currently located? Columbia River



b. Is it working on a job? No Is it tied up to shore? Yes

c. What is the best time to make a trip to the vessel? Anytime, Just need a few days advance notice.

5. Surveyed Measurements (all measurements NAVD 88)

Gantry Height:	58.4 feet
Water Level:	15.6 feet
Top of Boom:	Measured while stored =185.8 feet (56 degrees off horizontal) Estimated at travel angle(17.5 degrees off horizontal) = 87.6 feet
Height of Boom Hinge Pin:	31.8 feet
Boom Cradle:	37.9 feet
Top of Spud:	90.7
Top of Deck:	Not Measured

6. Vessel Height

Self-Reported		Surveyed	
Air Draft:	77 feet	Air Draft:	75 Feet (Spud)
Air Gap:	10 feet	Air Gap:	10 feet
Water Level:	16 feet (CRD)	Water Level:	16 feet (CRD)
Total Height:	103 feet	Total Height:	101 feet

7. History Notes

Date	Item
2/23/2012	Contacted by Jennifer Rabby
2/23/2012	Data sheet submitted
6/28/2012	Contacted by Pete Geiger for field measurement
7/5/2012	Field measured



## D.B. SEA VULTURE 60' X 112' X 10'

38' 5" TOP OF GANTRY TO DECK

11' 10" CENTER OF HEEL PIN TO DECK

26' 6" CENTER PIN TO BOW

30' CENTER PIN TO EDGE OF BARGE

23' CENTER PIN TO OUTSIDE EDGE OF COUNTERWEIGHT

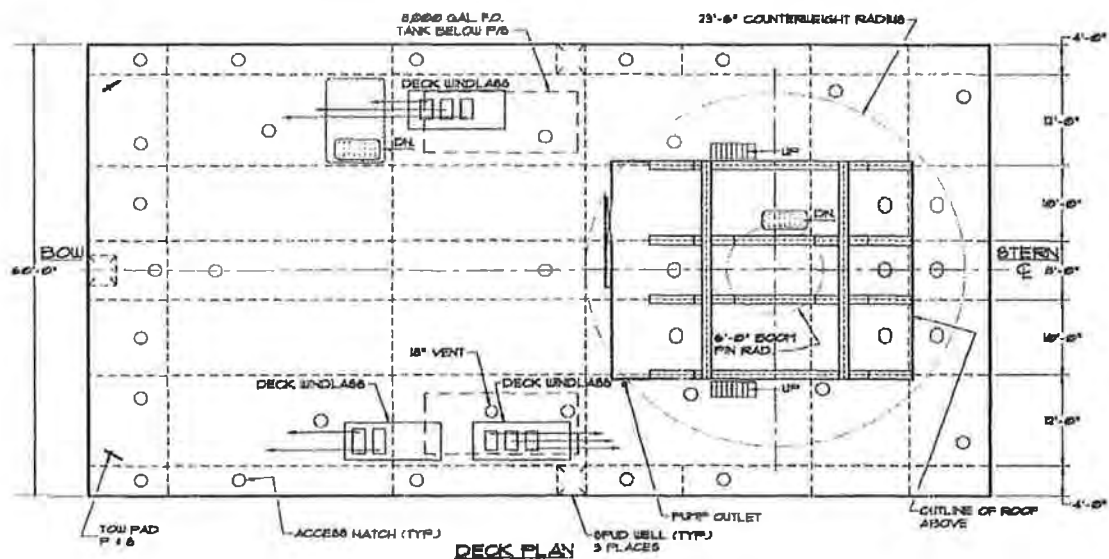
85' 6" CENTER PIN TO STERN

12' 6" COUNTERWEIGHT CLEARANCE TO SPUD

20' 6" HEEL PIN TO BOW

SPUDS: 77' ON PIN – WATER TO TOP 83' OVERALL PLUS 3' POINT

SHORT SPUDS: 48' ON PIN – WATER TO TOP 55' OVERALL PLUS 2' 6" POINT





## Marine Contractors

Company: JE McAmis

Vessel:

- Heidi Renee

Company did not respond to IBR request. Information below was included in the CRC NIR.



Marine Contractors  
Owner: J.E. McAmis  
Vessel: Heidi Renee

---





River User Data Sheet

By: Patty Gillett Date: 2-27-12

1. Company Name and/or Owner of Vessel and contact information

- a. Name of company: J.E. McAMIS, INC.  
b. Name of contact: Patty Gillett  
c. Phone number (Office): 530-891-5061 d. (Cell): \_\_\_\_\_  
e. Email: jemcamis@jemcamis.com  
f. Address: 2485 Notre Dame Blvd.  
g. City: Chico  
h. State: CA i. Zip code: 95928

3a. Vessel Name: Heidi Renee 3b. Vessel Type: Barge

3c. US Coast Guard Document Number: 1232925

4a. Length Overall (LOA), feet: 211.2 4b. Beam (width), feet: 60

5. Draft (depth of hull below waterline, fully laden), feet: 12

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: \_\_\_\_\_

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): \_\_\_\_\_

8. Frequency of one-way passage underneath I-5 main channel (typical per month): 1

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

9. Frequency of one-way passage underneath I-5 main channel (other historic events): 1

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month): N/A

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

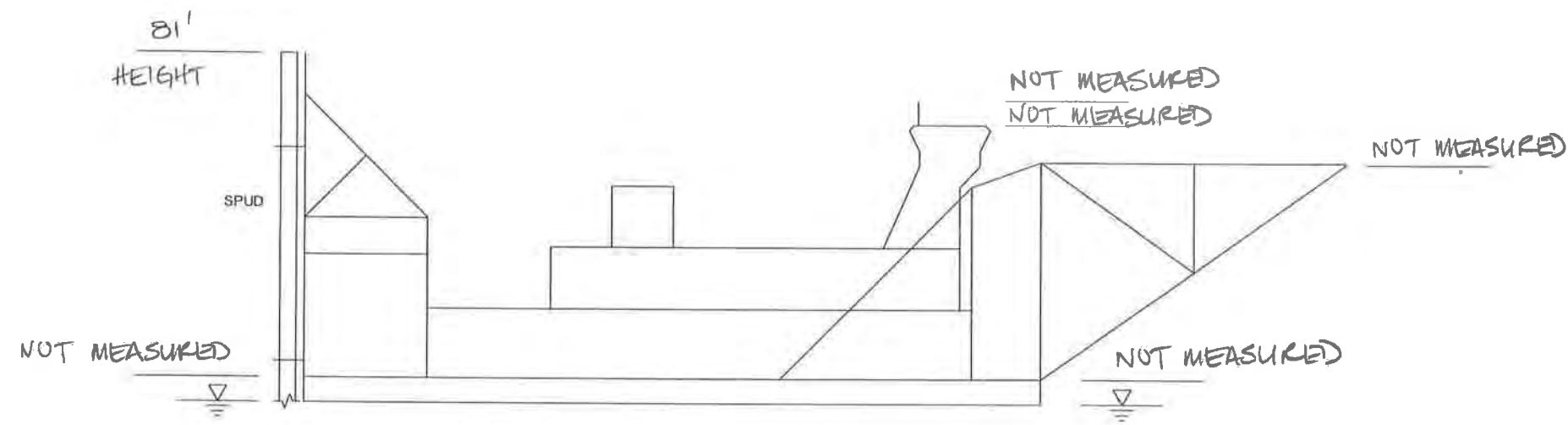
11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): N/A



12. Do you have a Business Plan (e.g. 10 or 20 year plan)? What does it say regarding vessels transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? May we have a copy? *no*

13. Other miscellaneous





HEIDI RENEE

NAME

J.E. McAMIS  
MEASURED AT  
TONGUE POINT, ASTORIA, OR

LOCATION

07-10-12

DATE



Page 287 of 726  
7/16/2012



## Vessel Height Verification Sheet

By: Karl Krcma Date: 10 July 2012

1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: J.E. McAmis
- b. Name of contact: John McAmis, Jr (Chico, CA)/Aaron Anderson (Astoria, OR)
- c. Phone number (Office): 530.891.5061 (J.McAmis) (Cell): 503.791.2161 (A.Anderson)
- d. Email: jemcamis@jemcamis.com
- e. Address: 2485 Notre Dame Blvd City: Chico  
State: CA Zip code: 95928

2. Vessel

- a. ID: \_\_\_\_\_ b. Name: Heidi Renee
- c. Type: Spud Barge d. USCG Document Number: 1232925

3. Vessel Configuration

- a. Identify vessel configuration: Spuds Up on Pin
  - Is a vessel specification sheet available? No
  - Configuration shown on the sheet: not shown, photo only
  - What is the lowest height configuration for transport? ~81 Feet (Spud on Pin)
- b. What is the gantry configuration? N/A Estimated gantry height: N/A
- c. Does the barge have spuds? Yes, Two
  - Height above waterline for travel? Center (2) = 81 feet
  - Can the spuds be removed for travel? Only on very rare occasions
  - Work and cost involved in removing spuds? 1/2 day to full day to reset spuds. Need to find a site to harbor or tie up to. Need a crane to lift spuds.

4. Vessel Location

- a. Where is the vessel currently located? Tongue Point, Astoria, Columbia River
- b. Is it working on a job? No Is it tied up to shore? Yes



c. What is the best time to make a trip to the vessel? Prior August.

5. Surveyed Measurements (all measurements NAVD 88)

Gantry Height:	N/A
Water Level:	15.6 feet
Top of Boom:	N/A
Height of Boom Hinge Pin:	N/A
Boom Cradle:	N/A
Top of Spud:	81 feet
Top of Deck:	Not Measured

6. Vessel Height

Self-Reported		Surveyed	
Air Draft:	70 feet	Air Draft:	81 feet
Air Gap:	10 feet	Air Gap:	10 feet
Water Level:	16 feet (CRD)	Water Level:	16 feet (CRD)
Total Height:	96 feet	Total Height:	107 feet

7. History Notes

Date	Item
2/17/2012	Contacted by Megan Nelson
2/27/2012	Data sheet submitted
6/28/2012	Contacted by Karl Krcma for field measurement
7/10/2012	Field measured
7/17/2012	New data sheet submitted



## Marine Contractors

Company: JT Marine

Vessels:

- Christy T
- Irene T
- DB Astoria
- DB Taylor
- LeAnne T

Company provided data sheets to the IBR Program. Data sheets are included below, followed by the information included in the CRC NIR.



**Company/Owner Name:** JT Marine, Inc.

**Vessel Name:**

Cristy T

**Vessel Type:**

Tug

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): Choose an item.

**Vessel Category:** Commercial

**USCG Document Number:**

231849

**Primary Mooring Location** (*waterway milepoint, if known*):

JT Marine Vancouver, WA

**Type and quantity of cargo, if applicable:**

**Length (overall; ft):**

99.3

**Beam (width; ft):**

24



**Draft (ft)** - depth of hull below waterline, fully laden:

10

**Air Draft (ft)** - height of highest fixed point above waterline, unladen:

55

**Air Gap (ft)** - desired clearance from highest fixed point to lowest part of bridge:

10

**Safety Margin (ft)** horizontal clearance required by vessel to navigate through the bridge:

100' (always pushing a tow)

**Transit speed under Interstate Bridge and Load Configuration:**

**Time of Year of Passage:**

all year long

**Tug Assistance Required:** Choose an item.

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan\_\_10\_\_ Feb\_\_10\_\_ Mar\_\_10\_\_ Apr\_\_10\_\_ May\_\_10\_\_ June\_\_10\_\_

Jul\_\_10\_\_ Aug\_\_10\_\_ Sep\_\_10\_\_ Oct\_\_10\_\_ Nov\_\_10\_\_ Dec\_\_10\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan\_\_1\_\_ Feb\_\_1\_\_ Mar\_\_1\_\_ Apr\_\_1\_\_ May\_\_1\_\_ June\_\_1\_\_

Jul\_\_1\_\_ Aug\_\_1\_\_ Sep\_\_1\_\_ Oct\_\_1\_\_ Nov\_\_1\_\_ Dec\_\_1\_\_



**Company/Owner Name:** JT Marine, Inc.

**Vessel Name:**

DB Astoria

**Vessel Type:**

Crane barge

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): Choose an item.

**Vessel Category:** Commercial

**USCG Document Number:**

**Primary Mooring Location** (*waterway milepoint, if known*):

**Type and quantity of cargo, if applicable:**

**Length (overall; ft):**

118

**Beam (width; ft):**

33



**Draft (ft)** - depth of hull below waterline, fully laden:

4

**Air Draft (ft)** - height of highest fixed point above waterline, unladen:

80 with spuds; 30 spuds out

**Air Gap (ft)** - desired clearance from highest fixed point to lowest part of bridge:

10

**Safety Margin (ft)** horizontal clearance required by vessel to navigate through the bridge:

**Transit speed under Interstate Bridge and Load Configuration:**

**Time of Year of Passage:**

**Tug Assistance Required:** Choose an item.

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan\_\_10\_\_ Feb\_\_10\_\_ Mar\_\_10\_\_ Apr\_\_10\_\_ May\_\_10\_\_ June\_\_10\_\_

Jul\_\_10\_\_ Aug\_\_10\_\_ Sep\_\_10\_\_ Oct\_\_10\_\_ Nov\_\_10\_\_ Dec\_\_10\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan\_\_1\_\_ Feb\_\_1\_\_ Mar\_\_1\_\_ Apr\_\_1\_\_ May\_\_1\_\_ June\_\_1\_\_

Jul\_\_1\_\_ Aug\_\_1\_\_ Sep\_\_1\_\_ Oct\_\_1\_\_ Nov\_\_1\_\_ Dec\_\_1\_\_



**Company/Owner Name:** JT Marine, Inc.

**Vessel Name:**

DB Taylor

**Vessel Type:**

Crane barge

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): Choose an item.

**Vessel Category:** Commercial

**USCG Document Number:**

514786

**Primary Mooring Location** (*waterway milepoint, if known*):

**Type and quantity of cargo, if applicable:**

**Length (overall; ft):**

148

**Beam (width; ft):**

50



**Draft (ft)** - depth of hull below waterline, fully laden:

5

**Air Draft (ft)** - height of highest fixed point above waterline, unladen:

90' w/ spuds

75' w/ spuds out

**Air Gap (ft)** - desired clearance from highest fixed point to lowest part of bridge:

10

**Safety Margin (ft)** horizontal clearance required by vessel to navigate through the bridge:

60'

**Transit speed under Interstate Bridge and Load Configuration:**

**Time of Year of Passage:**

**Tug Assistance Required:** Choose an item.

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_ 10 \_\_\_ Feb \_\_\_ 10 \_\_\_ Mar \_\_\_ 10 \_\_\_ Apr \_\_\_ 10 \_\_\_ May \_\_\_ 10 \_\_\_ June \_\_\_ 10 \_\_\_

Jul \_\_\_ 10 \_\_\_ Aug \_\_\_ 10 \_\_\_ Sep \_\_\_ 10 \_\_\_ Oct \_\_\_ 10 \_\_\_ Nov \_\_\_ 10 \_\_\_ Dec \_\_\_ 10 \_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_ 1 \_\_\_ Feb \_\_\_ 1 \_\_\_ Mar \_\_\_ 1 \_\_\_ Apr \_\_\_ 1 \_\_\_ May \_\_\_ 1 \_\_\_ June \_\_\_ 1 \_\_\_

Jul \_\_\_ 1 \_\_\_ Aug \_\_\_ 1 \_\_\_ Sep \_\_\_ 1 \_\_\_ Oct \_\_\_ 1 \_\_\_ Nov \_\_\_ 1 \_\_\_ Dec \_\_\_ 1 \_\_\_



**Company/Owner Name:** JT Marine, Inc.

**Vessel Name:**

Irene T

**Vessel Type:**

Tug

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): No

**Vessel Category:** Commercial

**USCG Document Number:**

241235

**Primary Mooring Location** (*waterway milepoint, if known*):

**Type and quantity of cargo, if applicable:**

**Length (overall; ft):**

62

**Beam (width; ft):**

18



**Draft (ft)** - depth of hull below waterline, fully laden:

8

**Air Draft (ft)** - height of highest fixed point above waterline, unladen:

50

**Air Gap (ft)** - desired clearance from highest fixed point to lowest part of bridge:

10

**Safety Margin (ft)** horizontal clearance required by vessel to navigate through the bridge:

**Transit speed under Interstate Bridge and Load Configuration:**

**Time of Year of Passage:**

**Tug Assistance Required:** Choose an item.

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan\_\_10\_\_ Feb\_\_10\_\_ Mar\_\_10\_\_ Apr\_\_10\_\_ May\_\_10\_\_ June\_\_10\_\_

Jul\_\_10\_\_ Aug\_\_10\_\_ Sep\_\_10\_\_ Oct\_\_10\_\_ Nov\_\_10\_\_ Dec\_\_10\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan\_\_1\_\_ Feb\_\_1\_\_ Mar\_\_1\_\_ Apr\_\_1\_\_ May\_\_1\_\_ June\_\_1\_\_

Jul\_\_1\_\_ Aug\_\_1\_\_ Sep\_\_1\_\_ Oct\_\_1\_\_ Nov\_\_1\_\_ Dec\_\_1\_\_



**Company/Owner Name:**

**Vessel Name:**

LeAnn T

**Vessel Type:**

Tow boat

**Specialized Vessel** (e.g. limited maneuverability due to design or mode of operation. If yes, please describe): Choose an item.

**Vessel Category:** Choose an item.

Comemrcial

**USCG Document Number:**

250205

**Primary Mooring Location** (waterway milepoint, if known):

**Type and quantity of cargo, if applicable:**

**Length (overall; ft):**

72.3'

**Beam (width; ft):**

22.3'



**Draft (ft)** - depth of hull below waterline, fully laden:

7.9'

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**Air Draft (ft)** - height of highest fixed point above waterline, unladen:

---

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**Air Gap (ft)** - desired clearance from highest fixed point to lowest part of bridge:

---

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**Safety Margin (ft)** horizontal clearance required by vessel to navigate through the bridge:

---

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**Transit speed under Interstate Bridge and Load Configuration:**

---

---

**Time of Year of Passage:**

---

---

**Tug Assistance Required:** Choose an item.

---

---

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan 10 Feb 10 Mar 10 Apr 10 May 10 June 10

Jul 10 Aug 10 Sep 10 Oct 10 Nov 10 Dec 10

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



## Marine Contractors

Owner: JT Marine

Vessel: DB Astoria





# Columbia River CROSSING



## River User Data Sheet

By: Irene TDate: 3-22-2012

### 1. Company name and/or owner of vessel and contact information

Name of company: JT Marine Inc.Name of contact: Irene ToristajaPhone number (Office): 360-750-1300 (Cell): \_\_\_\_\_Email: irene@jtmarineinc.comAddress: 2301 SE Hidden way, Suite 100City: VancouverState: WAZip code: 986613a. Vessel name: DB Astoria3b. Vessel type: crane barge3c. U.S. Coast Guard Document Number: N/A4a. Length Overall (LOA), feet: 118'4b. Beam (width), feet: 33'5. Draft (depth of hull below waterline, fully laden), feet: 4'6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 100'7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 10'

8. Frequency of one-way passage underneath I-5 main channel (typical per month):

Jan 10 Feb 10 Mar 10 Apr 10 May 10 Jun 10 Jul 10 Aug 10 Sep 10 Oct 10 Nov 10 Dec 10

9. Frequency of one-way passage underneath I-5 main channel (other historic events): \_\_\_\_\_

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month):

Jan 1 Feb 1 Mar 1 Apr 1 May 1 Jun 1 Jul 1 Aug 1 Sep 1 Oct 1 Nov 1 Dec 1

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): \_\_\_\_\_

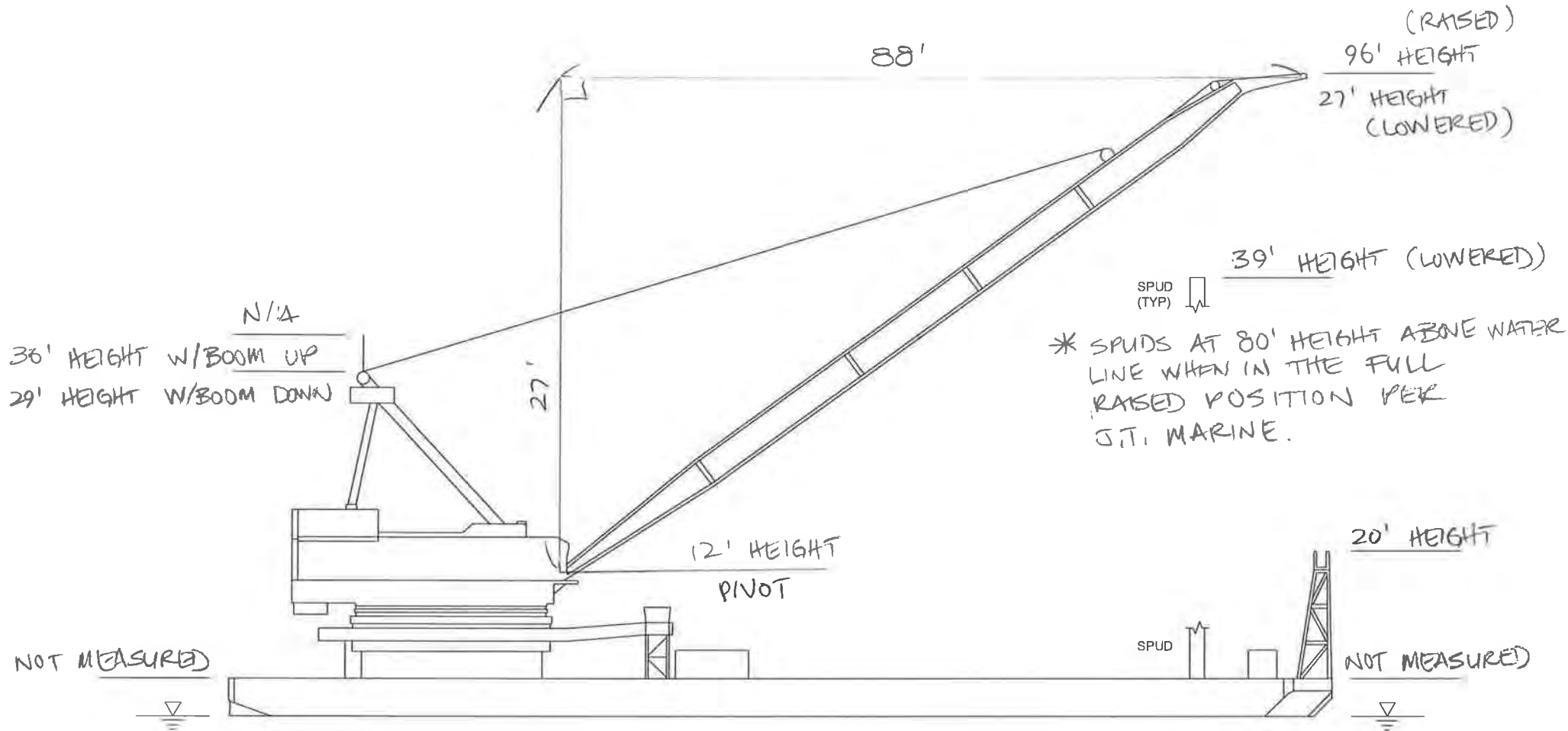
12. Do you have a business plan (e.g. 10 or 20 year plan)? NO

What does it say related to vessels traveling under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? \_\_\_\_\_

May we have a copy? \_\_\_\_\_

13. Other (additional sheets may be attached.) N/A





N/A  
36' HEIGHT W/BOOM UP  
29' HEIGHT W/BOOM DOWN

NOT MEASURED

DB ASTORIA

NAME

J.T. MARINE  
MEASURED AT  
VANCOUVER, WA

LOCATION

07-12-12

DATE



Task AH802DE\_CRC Vessel Verification\_071212.xlsx



## Vessel Height Verification Sheet

By: Pete Geiger Date: 12 July 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: JT Marine
- b. Name of contact: Waino Toristoja
- c. Phone number (Office): 360.750.1300 (Cell): 360.567.8382
- d. Email: waino@jtmarineinc.com
- e. Address: 2301 SW Hidden Way, #100 City: Vancouver  
State: WA Zip code: 98661

### 2. Vessel

- a. ID: \_\_\_\_\_ b. Name: DB Astoria
- c. Type: Crane Barge d. USCG Document Number: N/A

### 3. Vessel Configuration

- a. Identify vessel configuration: Crane Barge
  - Is a vessel specification sheet available? No
  - Configuration shown on the sheet: N/A
  - What is the lowest height configuration for transport? Crane down in cradle, spuds up and pinned
- b. What is the gantry configuration? Pinned Estimated gantry height: Not given
- c. Does the barge have spuds? Yes two foreward port and aft starboard. Both Spuds down
  - Height above waterline for travel? 80 Feet
  - Can the spuds be removed for travel? Only in very special circumstances when they travel far upriver on the Columbia
  - Work and cost involved in removing spuds? 4 hours each spud to re-install; need to tie up to a dock near the work area. Cannot lift both spuds with own crane.



4. Vessel Location

- a. Where is the vessel currently located? Columbia River
- b. Is it working on a job? No Is it tied up to shore? Yes
- c. What is the best time to make a trip to the vessel? Anytime just give him 1 day notice

5. Surveyed Measurements (all measurements NAVD 88)

Gantry Height:	51.3 feet
Water Level:	14.8 feet
Top of Boom:	Measured while working = 111 feet (71 degrees off horizontal) Estimated height while traveling: 27 feet
Height of Boom Hinge Pin:	26.9 feet
Boom Cradle:	34.9 feet
Top of Spud:	53.9 – spuds in down position

6. Vessel Height

Self-Reported		Surveyed	
Air Draft:	80 feet (top of spuds)	Air Draft:	36.5 feet
Air Gap:	10 feet	Air Gap:	10 feet
Water Level:	16 feet CRD	Water Level:	16 feet CRD
Total Height:	106 feet	Total Height:	62.5 feet <sup>1</sup>

<sup>1</sup> Note: The spuds were in the down position when surveyed.

7. History Notes

Date	Item
3/27/2012	Contacted by Ron Del Rosario
3/28/2012	Data sheet submitted
6/28/2012	Contacted by Pete Geiger for field measurement
7/12/2012	Field measured



## Marine Contractors

Owner: JT Marine

Vessel: DB Taylor





# Columbia River CROSSING



## River User Data Sheet

By: Irene TDate: 3-22-2012

### 1. Company name and/or owner of vessel and contact information

Name of company: JT Marine IncName of contact: Irene TorstoraPhone number (Office): 360-750-1300

(Cell): \_\_\_\_\_

Email: irene@jtmarineincAddress: 2301 SE Hidden Way, Suite 100City: VancouverState: WAZip code: 986613a. Vessel name: DB Taylor3b. Vessel type: Crane barge3c. U.S. Coast Guard Document Number: 5147864a. Length Overall (LOA), feet: 148'4b. Beam (width), feet: 50'5. Draft (depth of hull below waterline, fully laden), feet: 5'6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 150'

143' as per  
time for 3/27/12

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 10'

8. Frequency of one-way passage underneath I-5 main channel (typical per month):

Jan 10 Feb 10 Mar 10 Apr 10 May 10 Jun 10 Jul 10 Aug 10 Sep 10 Oct 10 Nov 10 Dec 10

9. Frequency of one-way passage underneath I-5 main channel (other historic events): \_\_\_\_\_

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month):

Jan 1 Feb 1 Mar 1 Apr 1 May 1 Jun 1 Jul 1 Aug 1 Sep 1 Oct 1 Nov 1 Dec 1

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): \_\_\_\_\_

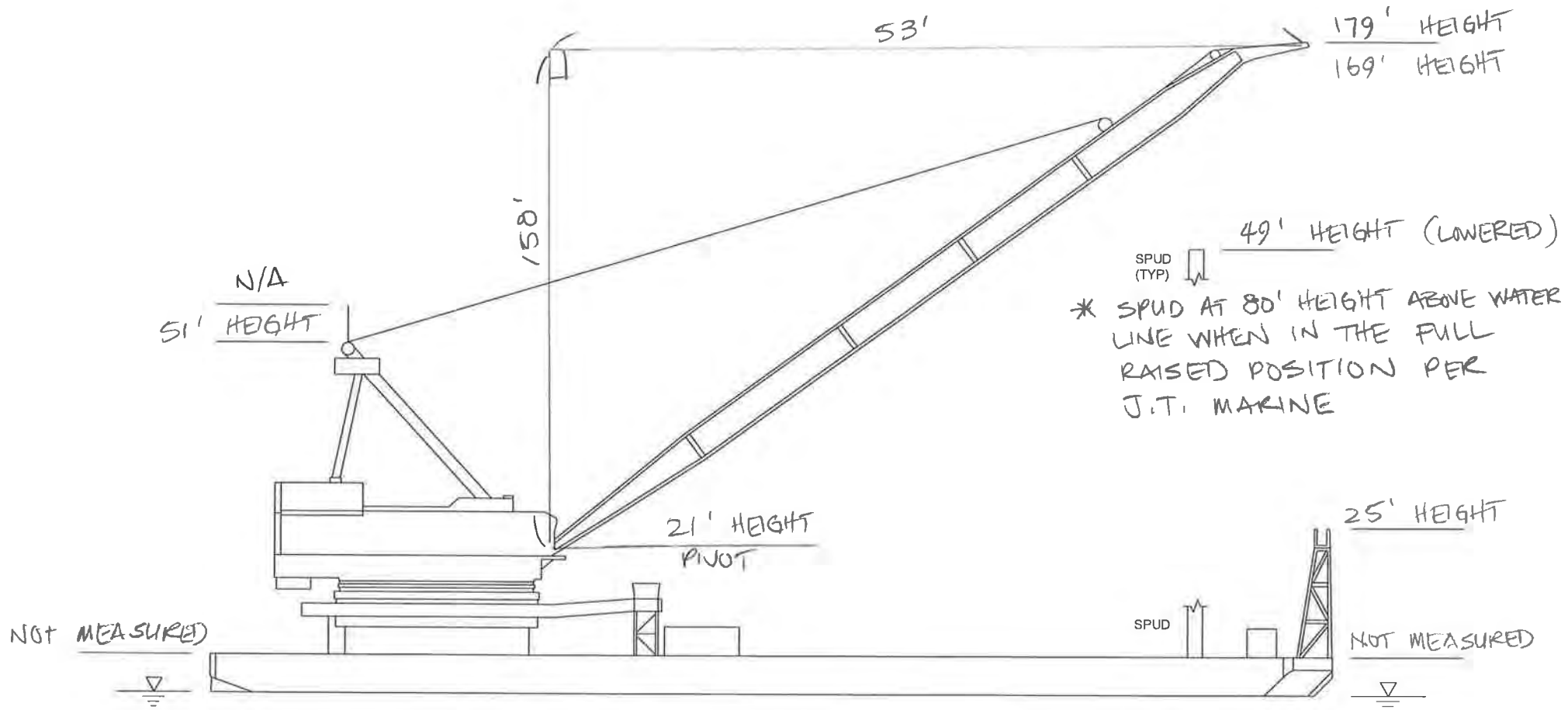
12. Do you have a business plan (e.g. 10 or 20 year plan)? NO

What does it say related to vessels traveling under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? \_\_\_\_\_

May we have a copy? \_\_\_\_\_

13. Other (additional sheets may be attached.) NA





DB TAYLOR  
NAME

J.T. MARINE  
MEASURED AT  
SELLWOOD BRIDGE, PORTLAND, OR  
LOCATION

07-12-12  
DATE



## Vessel Height Verification Sheet

By: Pete Geiger Date: 12 July 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: JT Marine
- b. Name of contact: Waino Toristoja
- c. Phone number (Office): 360.750.1300 (Cell): 360.567.8382
- d. Email: waino@jtmarineinc.com
- e. Address: 2301 SW Hidden Way, #100 City: Vancouver  
State: WA Zip code: 98661

### 2. Vessel

- a. ID: \_\_\_\_\_ b. Name: DB Taylor
- c. Type: Crane Barge d. USCG Document Number: 514786

### 3. Vessel Configuration

- a. Identify vessel configuration: Crane Barge
  - Is a vessel specification sheet available? No
  - Configuration shown on the sheet: N/A
  - What is the lowest height configuration for transport? Crane down in cradle, spuds up and pinned
- b. What is the gantry configuration? Pinned Estimated gantry height: Not given
- c. Does the barge have spuds? Yes two midpoint. Spuds currently down
  - Height above waterline for travel? 80 Feet
  - Can the spuds be removed for travel? Only in very special circumstances when they travel far upriver on the Columbia
  - Work and cost involved in removing spuds? 4 hours each spud to re-install; need to tie up to a dock near the work area. Can lift both spuds with own crane.



#### 4. Vessel Location

- a. Where is the vessel currently located? Willamette River Sellwood Bridge
- b. Is it working on a job? Yes Is it tied up to shore? No
- c. What is the best time to make a trip to the vessel? Anytime just give him 1 day notice

#### 5. Surveyed Measurements (all measurements NAVD 88)

Gantry Height:	65.3 feet
Water Level:	13.8 feet
Top of Boom <sup>1</sup> :	Measured while working = 192.7 feet (71 degrees off horizontal) Estimated height at travel angle: <ul style="list-style-type: none"> <li>220 foot long boom: 131 feet</li> <li>166.6 foot long boom: 51 feet (limit is the gantry height)</li> </ul>
Height of Boom Hinge Pin:	35.0 feet
Boom Cradle:	38.9 feet
Top of Spud:	62.4 feet – spuds in down position <sup>2</sup>

<sup>1</sup> Note: JT Marine reported that they use two different booms on the DB Taylor; one with a length of 220 feet and one with a length of 166.6 feet.

<sup>2</sup> JT Marine self reported that the height to the top of their spuds are 80 feet.

#### 6. Vessel Height

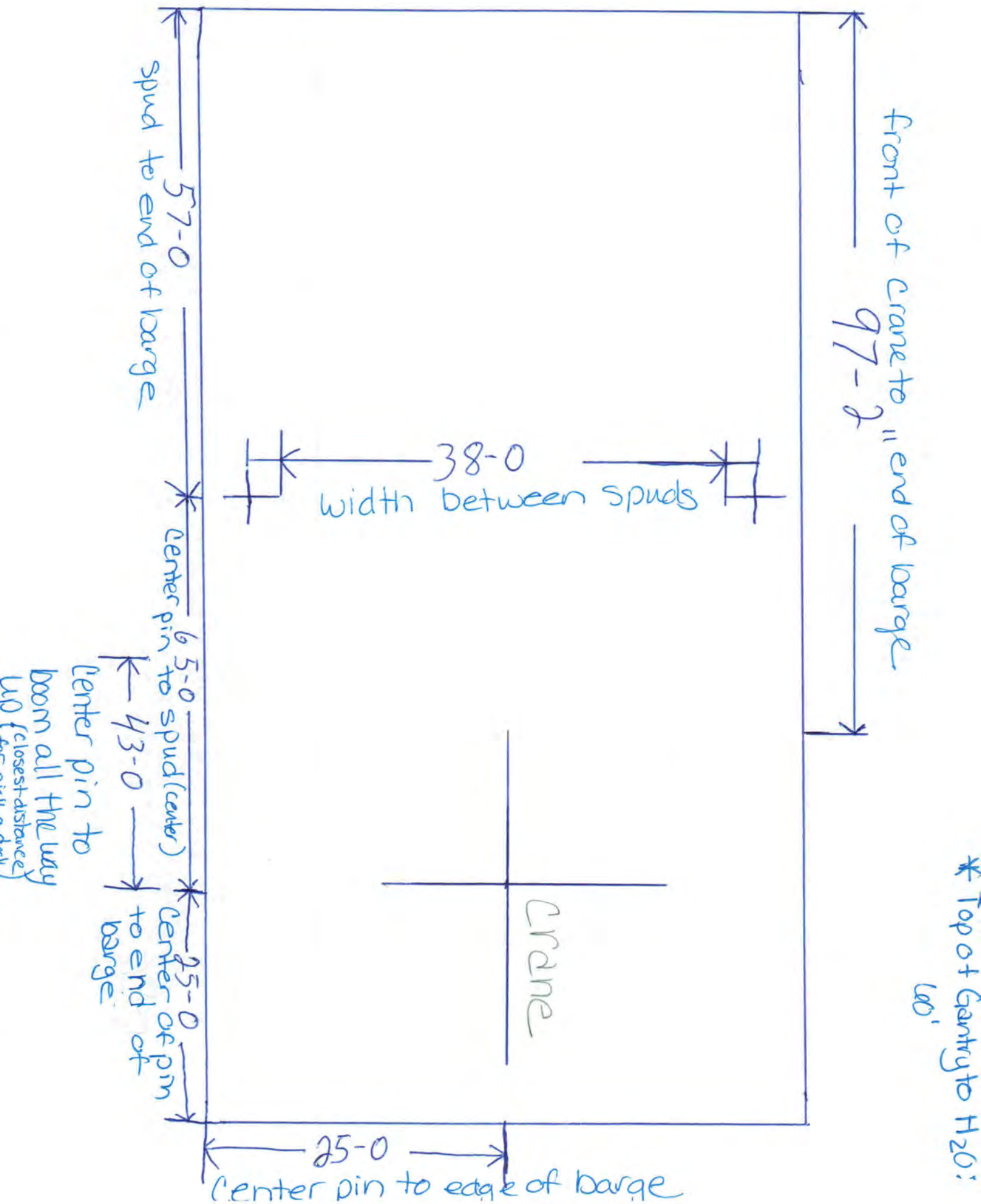
Self-Reported		Surveyed <sup>1</sup>	
166.6 foot boom		220 foot boom	
Air Draft:	80 feet (top of spuds)	Air Draft:	131 feet
Air Gap:	10 feet	Air Gap:	10 feet
Water Level:	16 feet CRD	Water Level:	16 feet CRD
Total Height:	106 feet	Total Height:	157 feet

<sup>1</sup> Note: The surveyed air draft measurement shown is the estimated travel height based on the surveyed boom length.

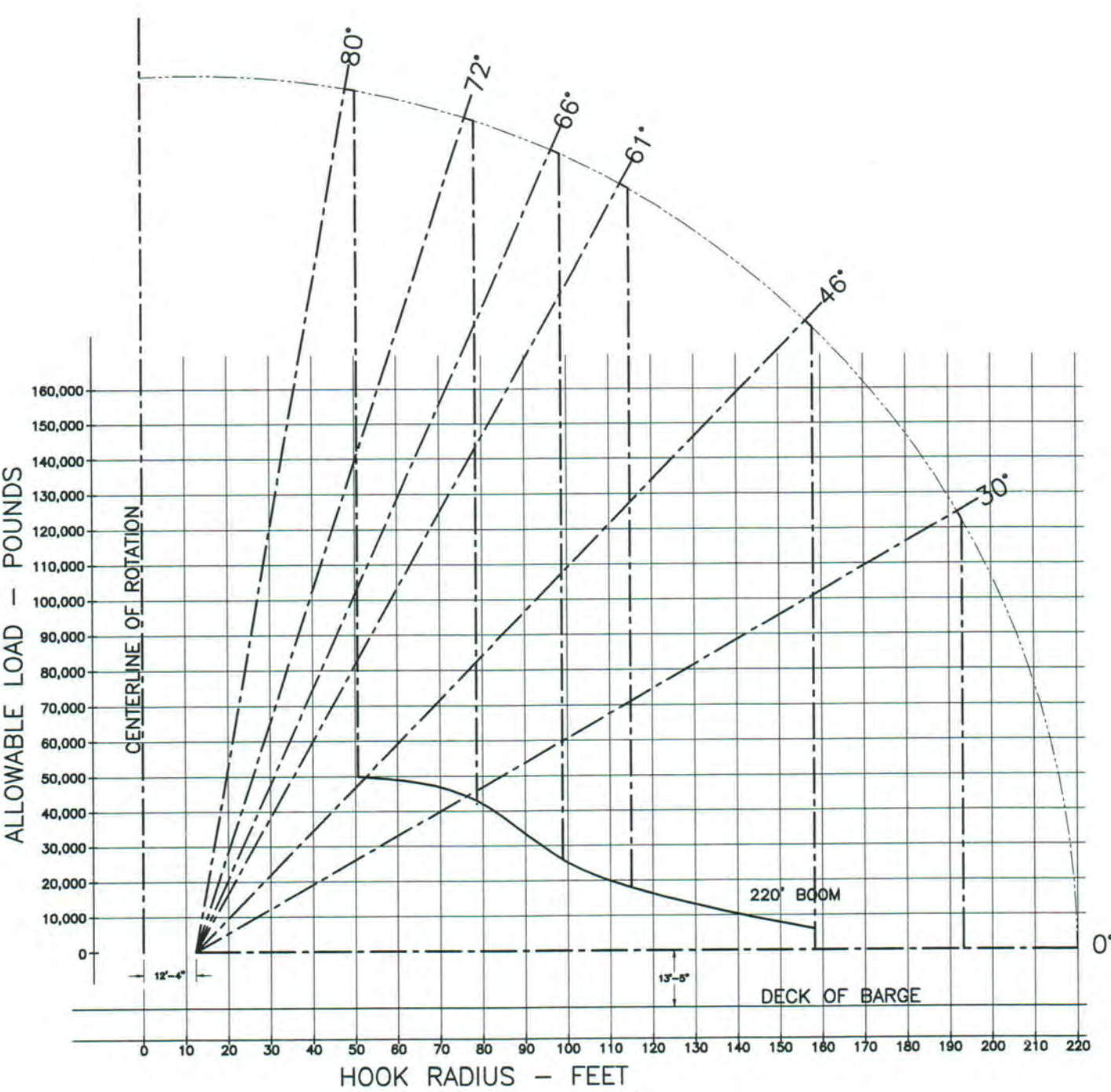
#### 7. History Notes

Date	Item
3/27/2012	Contacted by Ron Del Rosario
3/28/2012	Data sheet submitted
6/28/2012	Contacted by Pete Geiger for field measurement
7/12/2012	Field measured





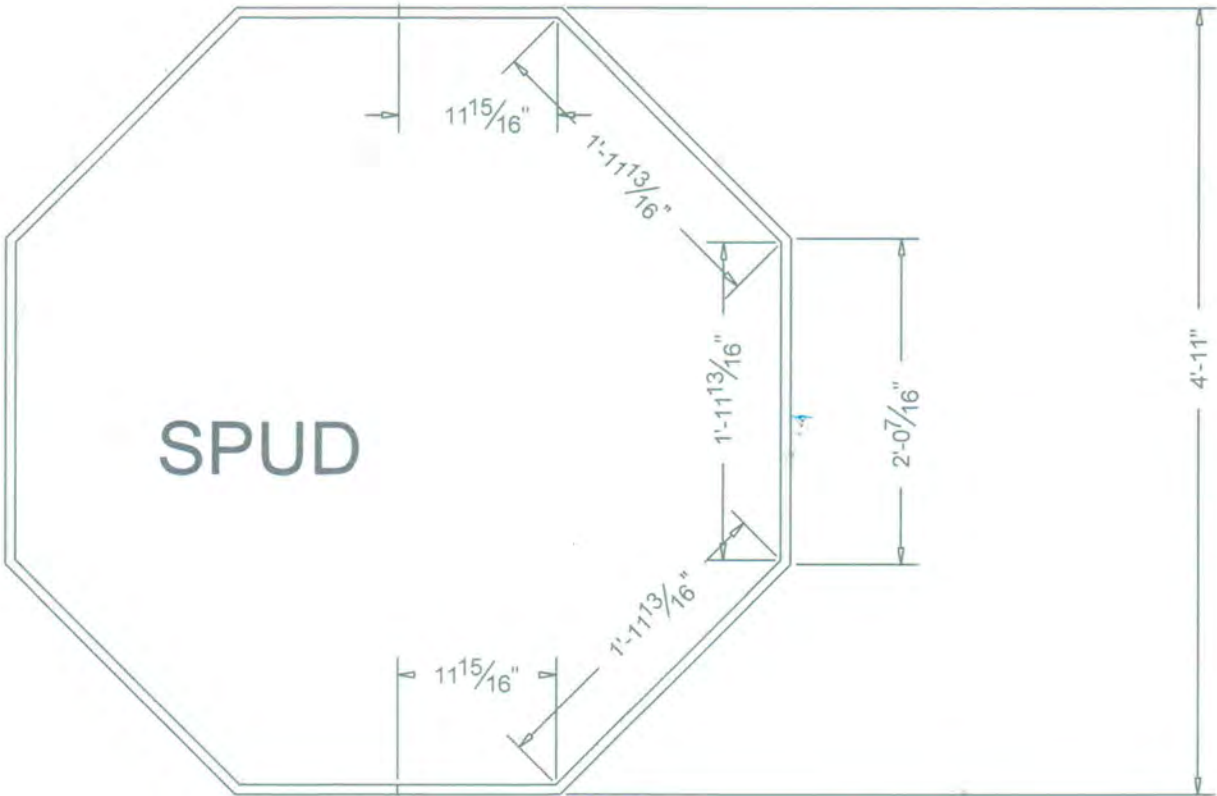




DERRICK BARGE TAYLOR  
MAIN HOOK — ALLOWABLE LOAD  
WITH 220 FOOT BOOM

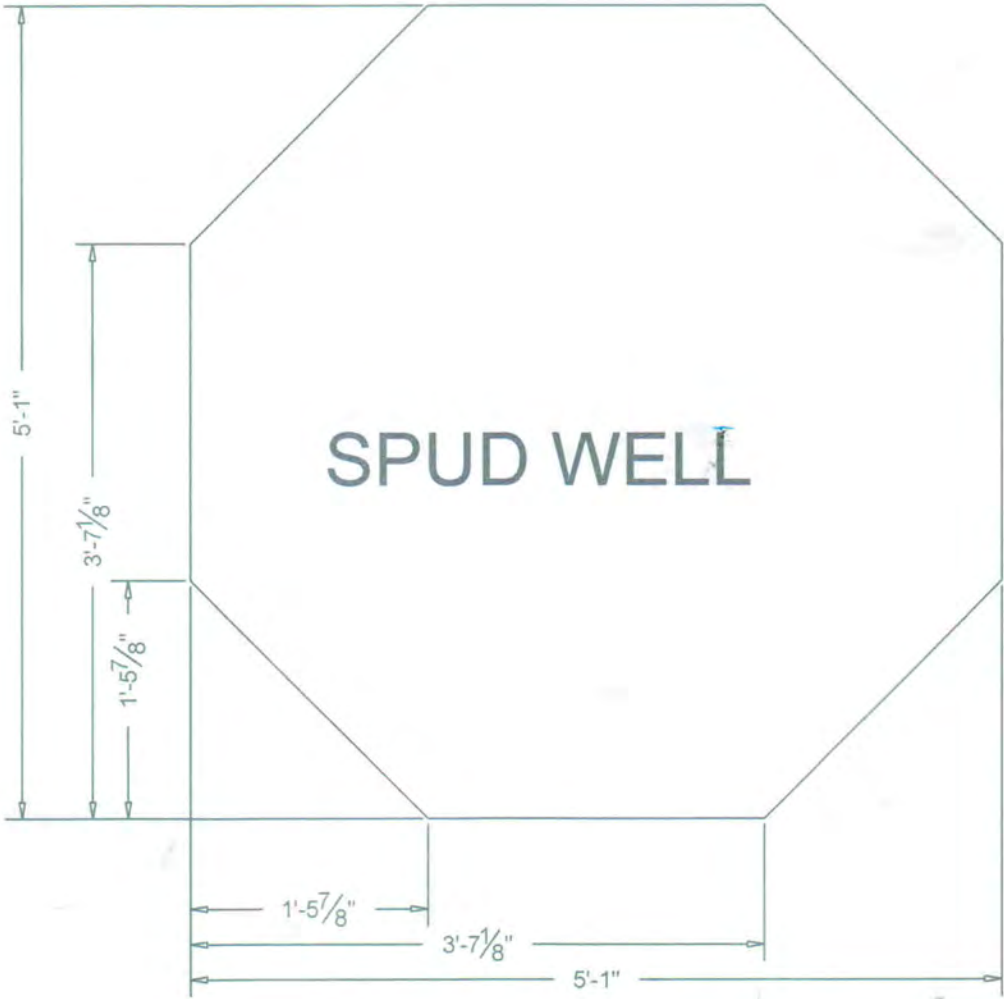
McKERNAN FILE: P10-07  
BY: JCMcK 2-12-11





Hi-Tech Metal Fabrication Inc. 2301 SE Hidden Way, Suite 100 Vancouver, WA 98661	CUSTOMER	SCALE	NA
	ADDRESS	DRAWN BY	WG
	ADDRESS	DATE	2/27/2011
		DRAWING #	
		REV	0
?		JOB #	







## Marine Contractors

Company: Knife River

Vessels:

- KR-1
- ITB-282

Company did not respond to IBR request. Information below for KR-1 was included in the CRC NIR. Information for ITB-282 was included in the Hood River-White Salmon Bridge Replacement NIR.



## Marine Contractors

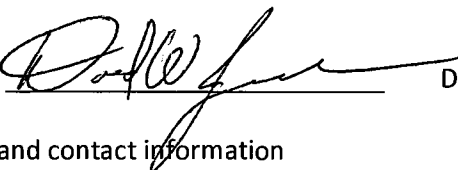
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Owner: Knife River

Vessel: KR-1



## River User Data Sheet

By:  Date: 3-6-12

### 1. Company Name and/or Owner of Vessel and contact information

- a. Name of company: **Knife River Northwest**
- b. Name of contact: **Dave Jensen**
- c. Phone number (Office): **503-944-3500** d. (Cell): **503-706-5117**
- e. Email: **dave.jensen@kniferiver.com**
- f. Address: **12222 NW Marina Way**
- g. City: **Portland**
- h. State: **OR** i. Zip code: **97231-2300**

3a. Vessel Name: **KR-1** 3b. Vessel Type: **Deck Barge**

3c. US Coast Guard Document Number: **590980**

4a. Length Overall (LOA), feet: **282** 4b. Beam (width), feet: **78**

5. Draft (depth of hull below waterline, fully laden), feet: **13.5'**

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: **48.5'**

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): **5'**

8. Frequency of one-way passage underneath I-5 main channel (typical per month):

Jan 4 Feb 4 Mar 6 Apr 6 May 8 Jun 12 Jul 16 Aug 18 Sep 18 Oct 12 Nov 4 Dec 4

9. Frequency of one-way passage underneath I-5 main channel (other historic events):

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month): **N/A**

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): **N/A**

12. Do you have a Business Plan (e.g. 10 or 20 year plan)? What does it say regarding vessels transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? May we have a copy? **Nothing formalized at this time. As the economy recovers, the frequency of trips under the bridge will increase – possibly twice as much.**

13. Other miscellaneous



**VESSEL DATA SHEET**

Please fill out the data sheet below. Please complete a data sheet for each vessel in your fleet that transits under the Hood River – White Salmon Bridge. In addition, please note any future vessel or cargo plans that might require different vessels to transit under the bridge.

**Company Name:****Vessel Name:**

Current name: ITB-282

**Vessel Type:**

Deck Barge

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): Choose an item.

**Vessel Category:** Choose an item.

Commercial

**USCG Document Number:**

596502

**Primary Mooring Location** (*waterway milepoint, if known*):

Sundial

**Type and quantity of cargo, if applicable:**

Aggregate

**Length (overall; ft):**

282

**Beam (width; ft):**

78

**Draft (ft)** - *depth of hull below waterline, fully laden:*

13.5



**VESSEL DATA SHEET, CONT.**

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

48.5

---

---

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

5

---

---

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

---

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**Frequency of passage under HR-WS Bridge:**

Most likely never

---

---

**Transit speed under HR-WS Bridge and Load Configuration:**

---

---

**Time of Year of Passage:**

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---

**Tug Assistance Required:** Choose an item.

---

---

**Ability to Modify** *(If yes, provide details including cost of modification and who pays cost):* Choose an item.

---

---

**Please identify any future vessel or cargo plans that might require different vessels to transit under the bridge. Attach additional pages as needed.**



## Marine Contractors

Company: Manson Construction Company

Vessel:

- Derrick No. 24
- Haakon

Company did not respond to IBR request. Information below was included in the CRC NIR.



Marine Contractors  
Owner: Manson Construction  
Vessel: Derrick No. 24



*Serving the Nation's Waterways Since 1905*

**Fleet**

**Derrick Barges/Clamshell Dredges “Derrick #24”**



**“Derrick #24” Specifications**

**Dimensions**

Length:  
200 ft / 60.9 m  
  
Beam:  
84 ft / 25.6 m  
  
Depth:  
13 ft / 3.96 m  
  
Draft:  
6 ft / 1.8 m

**Operating Parameters**

Maximum Linepull w/ boom  
extended 65 ft (19.8 m):  
800,000 lb / 3,558 kN  
  
Fuel:  
40,000 gal / 151,400



# Columbia River CROSSING



## River User Data Sheet

By: RALPH PETEREIT Date: 2/27/2012

### 1. Company Name and/or Owner of Vessel and contact information

Name of company: MANSON CONSTRUCTION CO.

Name of contact: RANDY THORSEN

Phone number (Office): 206-762-0850 (Cell): 206-793-2630

Email: rthorsen@mansonconstruction.com

Address: 5209 E. MARGINAL WAY S.

City: SEATTLE State: WA Zip code: 98134

3a. Vessel Name: DERRICK NO. 24 3b. Vessel Type: FLOATING CRANE / DERRICK BARGE

3c. US Coast Guard Document Number: \_\_\_\_\_

4a. Length Overall (LOA), feet: 200 4b. Beam (width), feet: 90

5. Draft (depth of hull below waterline, fully laden), feet: 6

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 99

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 5-10

8. Frequency of one-way passage underneath I-5 main channel (typical per month):

Jan \_\_\_\_ Feb \_\_\_\_ Mar \_\_\_\_ Apr \_\_\_\_ May \_\_\_\_ Jun \_\_\_\_ Jul \_\_\_\_ Aug \_\_\_\_ Sep \_\_\_\_ Oct \_\_\_\_ Nov \_\_\_\_ Dec \_\_\_\_

9. Frequency of one-way passage underneath I-5 main channel (other historic events): \_\_\_\_\_

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month):

Jan \_\_\_\_ Feb \_\_\_\_ Mar \_\_\_\_ Apr \_\_\_\_ May \_\_\_\_ Jun \_\_\_\_ Jul \_\_\_\_ Aug \_\_\_\_ Sep \_\_\_\_ Oct \_\_\_\_ Nov \_\_\_\_ Dec \_\_\_\_

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): \_\_\_\_\_

12. Do you have a Business Plan (e.g. 10 or 20 year plan)? NOT AVAILABLE

What does it say regarding vessels transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? \_\_\_\_\_

May we have a copy? \_\_\_\_\_

13. Other miscellaneous LOCATED IN SEATTLE AND IS THE LARGEST BARGE IN THE PACIFIC NW, THIS BARGE HAS NOT BEEN UP THE COLUMBIA RIVER IN OVER 10 YEARS, NO CURRENT PLANS TO RELOCATE THIS BARGE TO THE COLUMBIA RIVER



## Vessel Height Verification Sheet

By: Ralph Petereit Date: July 21, 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: Manson Construction Co.
- b. Name of contact: Randy Thorsen – Northwest Operations Manager
- c. Phone number (Office): (206) 762-0850 (Cell): (206) 793-2630
- d. Email: RTHORSEN@MANSONCONSTRUCTION.COM
- e. Address: 5209 E. Marginal Way City: Seattle
- State: WA Zip code: 98124

### 2. Vessel

- a. ID: \_\_\_\_\_ b. Name: Derrick 24
- c. Type: Crane Barge d. USCG Document Number: 657491

### 3. Vessel Configuration

- a. Identify vessel configuration: Crane Barge
- Is a vessel specification sheet available? Yes
  - Configuration shown on the sheet: Yes
  - What is the lowest height configuration for transport? Gantry Height
- b. What is the gantry configuration? \_\_\_\_\_ Estimated gantry height: 98 ft 7 in
- c. Does the barge have spuds? Yes
- Height above waterline for travel? 98 ft 7 in
  - Can the spuds be removed for travel? Yes
  - Work and cost involved in removing spuds? \_\_\_\_\_

### 4. Vessel Location

- a. Where is the vessel currently located? Lake Washington, WA.
- b. Is it working on a job? Yes – 520 Bridge Replacement Is it tied up to shore? No
- c. What is the best time to make a trip to the vessel? None currently



5. Measurements from Spec Sheet

Gantry Height:	98 ft 7 in
Water Level:	
Top of Boom:	
Height of Boom Hinge Pin:	
Boom Cradle:	
Top of Spud:	

6. Vessel Height

Self-Reported		From Spec Sheet	
Air Draft:	99 ft	Air Draft:	98 ft 7 in
Air Gap:	5 – 10 ft	Air Gap:	10
Water Level:	16	Water Level:	16
Total Height:	125 ft	Total Height:	124 ft 7 in

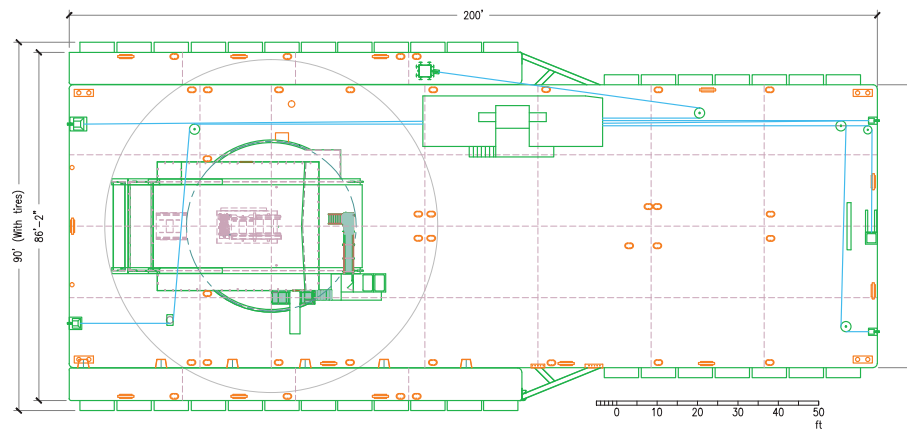
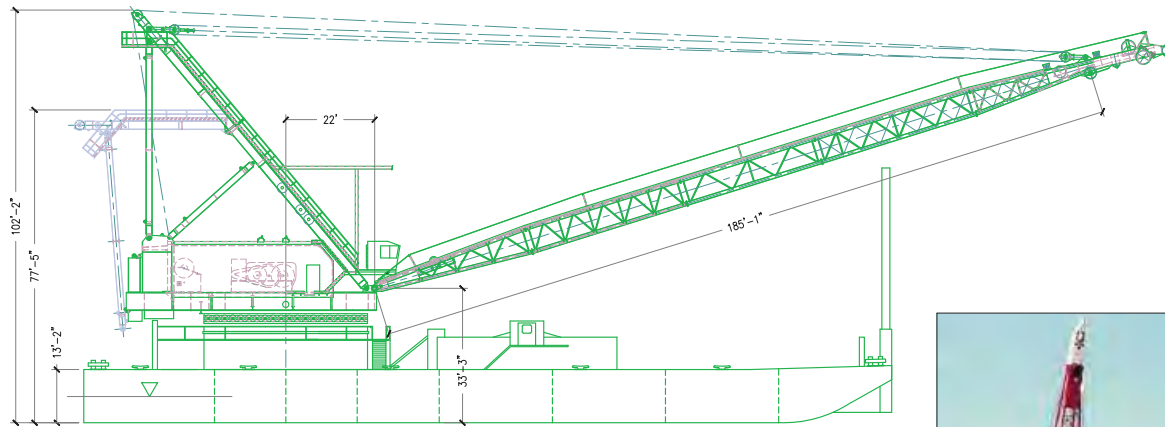
7. History Notes

Date	Item
6/27/2012	Called and left message for Randy Thorsen – NW Ops Manager
7/9/2012	Called Randy, was told to send e-mail
7/9/2012	Sent-mail with information request
7/21/2012	Still no reply





## Manson Derrick 24



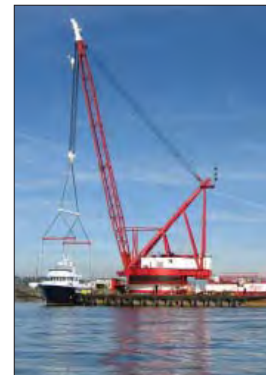
### Miscellaneous Characteristics

<b>Crane Manufacture</b>	Clyde Iron Works
Model Number	42-DE-145
Serial Number	CW 3931
Circle Diameter	42' Diameter

<b>Rigging Wire</b>	
Main Hoist	5,150' 1 1/4" 6x26
2-Part Whip	1,150' 1 1/4" 6x26
Whip Line	550' 1" 6x26
Boom (Topping Gear)	5,250' 1 1/4" 6x26

### Miscellaneous Characteristics

<b>Spud Wire</b>	
Side Spud	360' 1 1/4"
Stern Spud	360' 1 1/4"
<b>Anchor Wire</b>	
Stern Anchors (2)	1,700' 1 1/4" 6x26
Bow Anchors (2)	1,700' 1 1/4" 6x26
<b>Normal Fues Capacity</b>	40,000 Gallons (1"=307 Gallons)
<b>Boom (Topping Gear)</b>	3,000 Gallons



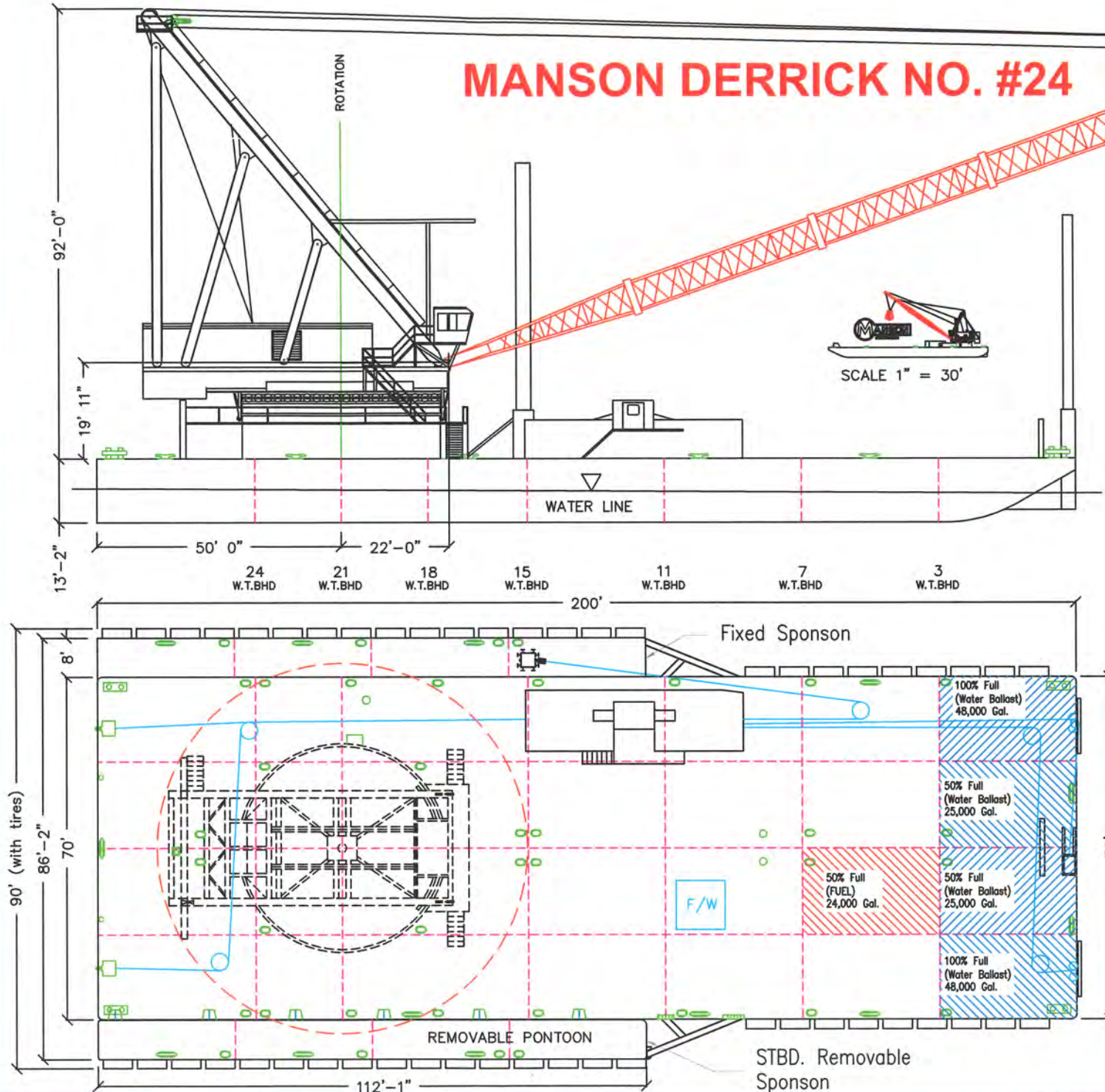
### Principal Characteristics

Length Overall	200'-0"
Beam Overall (With Pontoons & Tires)	90'-0"
Beam Overall (With Pontoons)	86'-2"
Beam Overall (W/O Pontoon)	78'-0"
Barge Depth	13'-0"
Minimum Draft	7'-0"
Distance Deck to Boom Heel	22'-3"
Boom Length to Main Block	185'-0"
Boom Length to 2-Part Whip	156'-0"
Boom Length to Whip	207'-2"
Boom Length Main to Whip	22'-0"
Spuds - 92' Each, Good to 70' Depth	2 - Each





## MANSON DERRICK NO. #24



### PRINCIPAL CHARACTERISTICS

LENGTH OVERALL	200'-0"
BEAM OVERALL (WITH PONTOONS & TIRES)	90'-0"
BEAM OVERALL (WITH PONTOONS)	86'-2"
BEAM OVERALL (W/O PONTOON)	78'-0"
BARGE DEPTH	13'-0"
DRAFT	7'-0"
DISTANCE DECK TO BOOM HEEL	22'-3"
BOOM LENGTH TO MAIN BLOCK	185'-0"
BOOM LENGTH TO 2-PART WHIP	156'-0"
BOOM LENGTH TO WHIP	207'-0"
BOOM LENGTH MAIN TO WHIP	22'-0"
SPUDS - 92' EA., GOOD TO 70' DEPTH	2 EA.

### LIFT CAPACITY CHART IN POUNDS

BOOM RADIUS FEET	HEAVY LIFT OVER STERN 185 FOOT BOOM	HEAVY LIFT FULL REVOLVING 185 FOOT BOOM	2 PART WHIP LINE FULL REVOLVING 185 FOOT BOOM
65'	800,000		60,000
70'	800,000		60,000
75'	800,000	600,000	60,000
80'	739,000	567,900	60,000
85'	671,700	538,000	60,000
95'	563,300	483,000	60,000
105'	479,500	434,200	60,000
115'	412,100	388,900	60,000
125'	356,500	346,500	60,000
135'	309,200	306,400	60,000
145'	268,100	268,100	60,000
155'	231,600	231,600	60,000
165'	198,400	198,400	60,000
175'	167,300	167,300	60,000
185'	137,100	137,100	60,000
195'	105,500	105,500	60,000

### MISCELLANEOUS CHARACTERISTICS

CRANE MANUFACTURE	CLYDE IRON
MODEL NUMBER	42-DE-145
SERIAL NUMBER	CW 3931
CIRCLE DIAMETER	42' DIAMETER
RIGGING WIRE	
MAIN HOIST	5,350' 1 1/4" 6 X 26
2-PART WHIP	700' 1 1/4" 6 X 26
WHIP LINE	600' 1 1/8" 18 X 19 DY18
BOOM (TOPPING GEAR)	5,240' 1 1/4" 6 X 26
SPUD WIRE	
SIDE SPUD	360' 1 1/4"
STERN SPUD	360' 1 1/4"
ANCHOR WIRE	
STERN ANCHOR'S (2)	1,700' 1 1/4" 6 X 26
BOW ANCHOR'S (2)	1,700' 1 1/4" 6 X 26
NORMAL FUEL CAPACITY	40,000 GALS. (1" = 307 GALS.)
NORMAL WATER CAPACITY	3,000 GALS.



Marine Contractors  
Owner: Manson Construction  
Vessel: Haakon

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## River User Data Sheet

By: RALPH PETEREIT Date: 2/27/2012

### 1. Company Name and/or Owner of Vessel and contact information

Name of company: MANSON CONSTRUCTION CO.

Name of contact: RANDY THORSEN

Phone number (Office): 206-762-0850 (Cell): 206-793-2630

Email: rthorsen@mansonconstruction.com

Address: 5209 E. MARGINAL WAY S.

City: SEATTLE State: WA Zip code: 98134

3a. Vessel Name: HAAKON 3b. Vessel Type: FLOATING CRANE/  
DERRICK BARGE

3c. US Coast Guard Document Number: \_\_\_\_\_

4a. Length Overall (LOA), feet: 280 4b. Beam (width), feet: 68

5. Draft (depth of hull below waterline, fully laden), feet: 9

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 84

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 5-10

8. Frequency of one-way passage underneath I-5 main channel (typical per month):

Jan \_\_\_\_ Feb \_\_\_\_ Mar \_\_\_\_ Apr \_\_\_\_ May \_\_\_\_ Jun \_\_\_\_ Jul \_\_\_\_ Aug \_\_\_\_ Sep \_\_\_\_ Oct \_\_\_\_ Nov \_\_\_\_ Dec \_\_\_\_

9. Frequency of one-way passage underneath I-5 main channel (other historic events): \_\_\_\_\_

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month):

Jan \_\_\_\_ Feb \_\_\_\_ Mar \_\_\_\_ Apr \_\_\_\_ May \_\_\_\_ Jun \_\_\_\_ Jul \_\_\_\_ Aug \_\_\_\_ Sep \_\_\_\_ Oct \_\_\_\_ Nov \_\_\_\_ Dec \_\_\_\_

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): \_\_\_\_\_

12. Do you have a Business Plan (e.g. 10 or 20 year plan)? NOT AVAILABLE

What does it say regarding vessels transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? \_\_\_\_\_

May we have a copy? \_\_\_\_\_

13. Other miscellaneous \_\_\_\_\_



## Vessel Height Verification Sheet

By: Ralph Petereit Date: July 21, 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: Manson Construction Co.
- b. Name of contact: Randy Thorsen – Northwest Operations Manager
- c. Phone number (Office): (206) 762-0850 (Cell): (206) 793-2630
- d. Email: RTHORSEN@MANSONCONSTRUCTION.COM
- e. Address: 5209 E. Marginal Way City: Seattle  
State: WA Zip code: 98124

### 2. Vessel

- a. ID: \_\_\_\_\_ b. Name: Haakon
- c. Type: Crane Barge d. USCG Document Number: 246141

### 3. Vessel Configuration

- a. Identify vessel configuration: Crane Barge
  - Is a vessel specification sheet available? Yes
  - Configuration shown on the sheet: Yes
  - What is the lowest height configuration for transport? Gantry Height
- b. What is the gantry configuration? \_\_\_\_\_ Estimated gantry height: 84 ft
- c. Does the barge have spuds? Yes
  - Height above waterline for travel? 84 ft
  - Can the spuds be removed for travel? Yes
  - Work and cost involved in removing spuds? \_\_\_\_\_

### 4. Vessel Location

- a. Where is the vessel currently located? Gulf of Mexico
- b. Is it working on a job? Yes Is it tied up to shore? No
- c. What is the best time to make a trip to the vessel? None currently



5. Measurements from Spec Sheet

Gantry Height:	84 ft
Water Level:	
Top of Boom:	
Height of Boom Hinge Pin:	
Boom Cradle:	
Top of Spud:	

6. Vessel Height

Self-Reported		From Spec Sheet	
Air Draft:	84 ft	Air Draft:	84 ft
Air Gap:	5 – 10 ft	Air Gap:	10
Water Level:	16	Water Level:	16
Total Height:	106 ft	Total Height:	106 ft

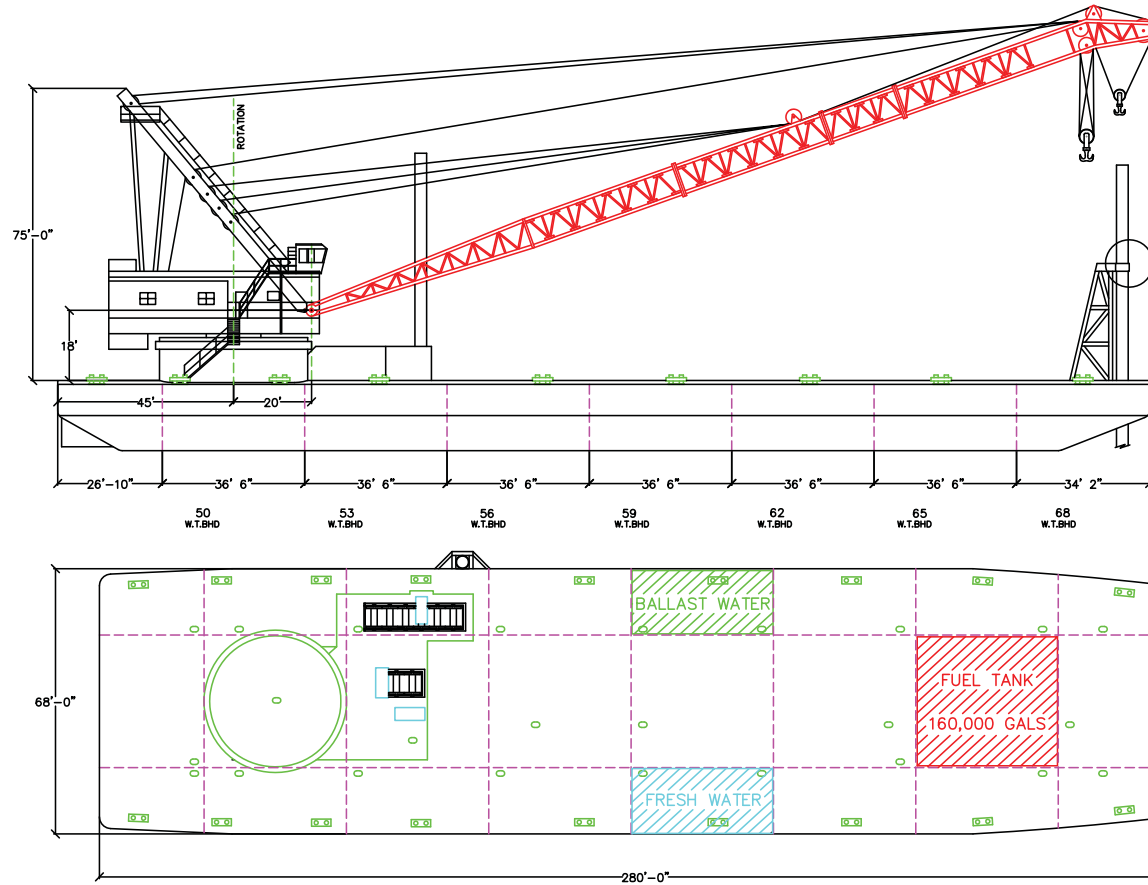
7. History Notes

Date	Item
6/27/2012	Called and left message for Randy Thorsen – NW Ops Manager
7/9/2012	Called Randy, was told to send e-mail
7/9/2012	Sent-mail with information request
7/21/2012	Still no reply





## Manson Derrick Haakon



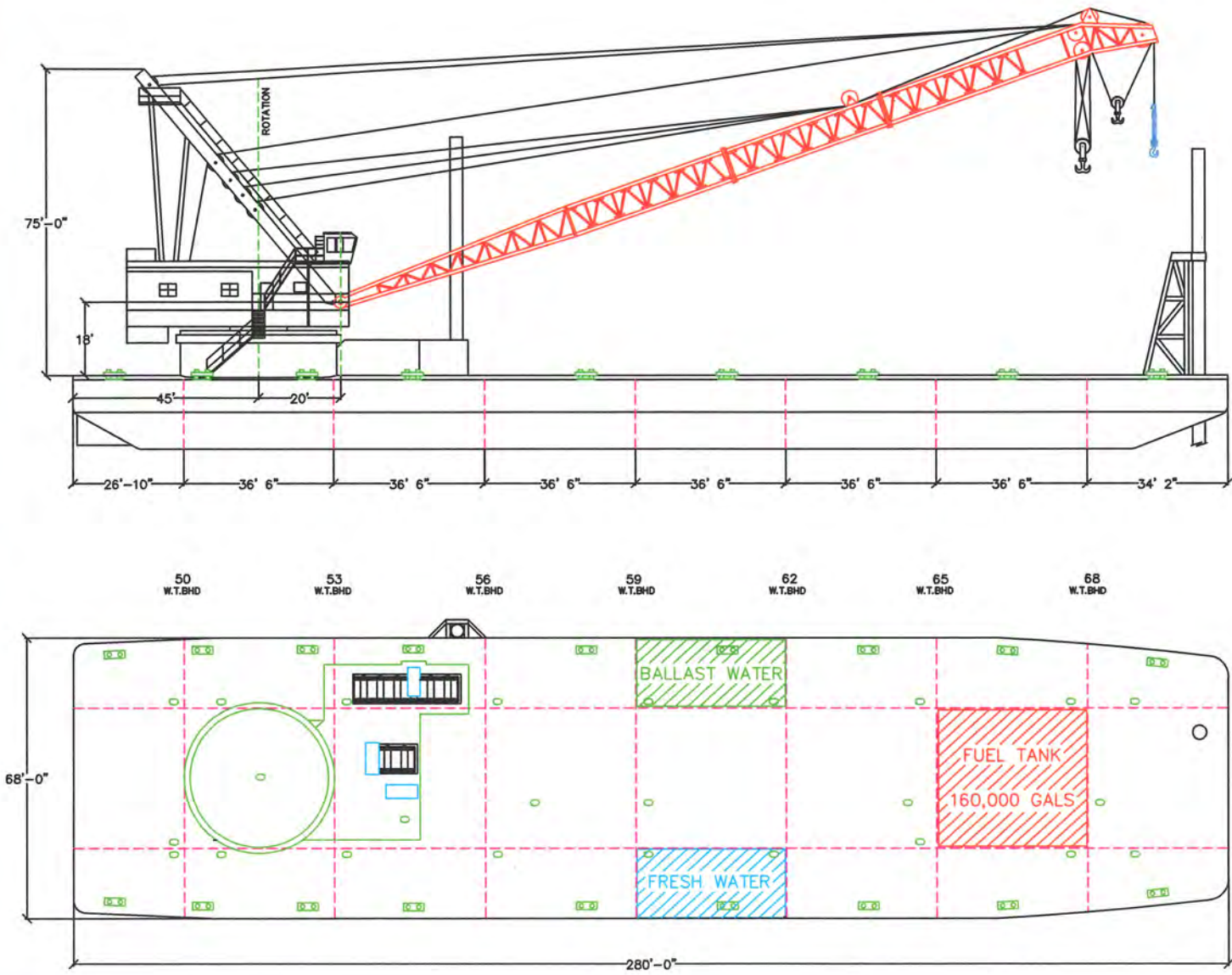
### Principal Characteristics

Length Overall	280'-0"
Beam Overall (Without Spuds & Fenders)	68'-0"
Barge Depth at Main Deck	18'-0"
Mean Draft	9'-0"
Distance Deck to Boom Heel	18'-0"
Boom Length to Main	210'-0"
Boom Length Main to Whip	16'-0"
Spuds	Two
Clamshell Bucket Capacity (Cu Yards)	15 Cubic Yards





# MANSON DERRICK "HAAKON"



## PRINCIPAL CHARACTERISTICS

LENGTH OVERALL	280'-0"
BEAM OVERALL (WITHOUT FENDERS)	68'-0"
BARGE DEPTH	18'-0"
MEAN DRAFT	9'-0"
DISTANCE DECK TO BOOM HEEL	18'-0"
BOOM LENGTH TO MAIN	190'-0"
BOOM LENGTH MAIN TO WHIP	16'-0"
SPUDS	TWO
CLAMSHELL BUCKET CAPACITY	15 CU.YDS.



SCALE : 1" = 40'

## LIFT CAPACITY CHART IN POUNDS

BOOM RADIUS FEET	FULL REVOLVING 190 FOOT BOOM	OVER STERN 190 FOOT BOOM
55'		750,000
60'	500,000	750,000
70'	440,000	657,000
80'	390,000	537,000
90'	332,000	453,000
100'	265,000	389,000
110'	238,000	337,000
120'	210,000	293,000
130'	192,000	256,000
140'	175,000	223,000
150'	158,000	193,000
160'	140,000	167,000
170'	124,000	142,000
180'	102,000	118,000
190'	80,000	95,000
200'	56,000	75,000

FULL REVOLVING LOADS FOR 3 DEGREES COMBINED LIST & ROLL  
Page 333 of 726



## Marine Contractors

Company: Mark Marine Service

### Vessels:

- DB Camas
- DB Columbia
- DB Sequoia
- Paterson Barge
- Mark 12
- Mark 1
- Mark 3
- Mark 5
- Mark 6
- M/V South Creek
- Barge #7
- Patricia
- Umatilla

Company did not respond to IBR request. Information below for DB Columbia, Patricia, Umatilla, Barge #7, and DB Camas were included in the CRC NIR. Information for DB Sequoia, Mark 12, Paterson Barge, Mark 1, Mark 3, Mark 5, Mark 6, and M/V South Creek were included in the Hood River-White Salmon Bridge Replacement NIR.



## Marine Contractors

---

Owner: Mark Marine Service

Vessels: DB Columbia

Patricia

Umatilla



## Vessel: DB Columbia





River User Data Sheet

By: Craig Mark Date: 3/1/12

1. Company Name and/or Owner of Vessel and contact information

- a. Name of company: mark Marine Service, Inc  
b. Name of contact: Craig Mark  
c. Phone number (Office): 360 837 2677 d. (Cell): 360 772 0916  
e. Email: markmarine@earthlink.net  
f. Address: P.O. Box 574  
g. City: Washougal  
h. State: WA i. Zip code: 98671

3a. Vessel Name: DB Columbia 3b. Vessel Type: Derrick Barge

3c. US Coast Guard Document Number: undocumented

4a. Length Overall (LOA), feet: 140 4b. Beam (width), feet: 34

5. Draft (depth of hull below waterline, fully laden), feet: 12

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 25'

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): bridge at Owater 110'

8. Frequency of one-way passage underneath I-5 main channel (typical per month): \_\_\_\_\_

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

9. Frequency of one-way passage underneath I-5 main channel (other historic events): \_\_\_\_\_

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month):

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): \_\_\_\_\_



12. Do you have a Business Plan (e.g. 10 or 20 year plan)? What does it say regarding vessels transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? May we have a copy?

13. Other miscellaneous



River User Data Sheet

By: Craig Mark Date: 3/1/12

1. Company Name and/or Owner of Vessel and contact information

- a. Name of company: mark Marine Service, Inc  
b. Name of contact: Craig Mark  
c. Phone number (Office): 360 837 2677 d. (Cell): 360 772 0916  
e. Email: markmarine@earthlink.net  
f. Address: P.O. Box 574  
g. City: Washougal  
h. State: WA i. Zip code: 98671

3a. Vessel Name: Patricia 3b. Vessel Type: Twin diesel oil screw  
Towboat with Tower

3c. US Coast Guard Document Number: 236788

4a. Length Overall (LOA), feet: 84 4b. Beam (width), feet: 22

5. Draft (depth of hull below waterline, fully laden), feet: 7

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: ~~25~~ 48'

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 110' For we Push CRANE Barges

8. Frequency of one-way passage underneath I-5 main channel (typical per month): \_\_\_\_\_

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

9. Frequency of one-way passage underneath I-5 main channel (other historic events): \_\_\_\_\_

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month):

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): 1 Per Year



12. Do you have a Business Plan (e.g. 10 or 20 year plan)? What does it say regarding vessels transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? May we have a copy?

13. Other miscellaneous



River User Data Sheet

By: Craig Mark Date: 3/1/12

1. Company Name and/or Owner of Vessel and contact information

- a. Name of company: Mark Marine Service, Inc.  
b. Name of contact: Craig Mark  
c. Phone number (Office): 360 837 2677 d. (Cell): 360 772 0916  
e. Email: markmarine@earthlink.net  
f. Address: P.O. Box 574  
g. City: Washougal  
h. State: WA i. Zip code: 98671

3a. Vessel Name: Umatilla (AKA: Washougal) 3b. Vessel Type: Twin diesel oil screw  
Towboat with tower

3c. US Coast Guard Document Number: 227132

4a. Length Overall (LOA), feet: 82.5 4b. Beam (width), feet: 20.0

5. Draft (depth of hull below waterline, fully laden), feet: 7.5

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 50

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 110' For Weigh CRANE Barges

8. Frequency of one-way passage underneath I-5 main channel (typical per month): \_\_\_\_\_

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

9. Frequency of one-way passage underneath I-5 main channel (other historic events): \_\_\_\_\_

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month):

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

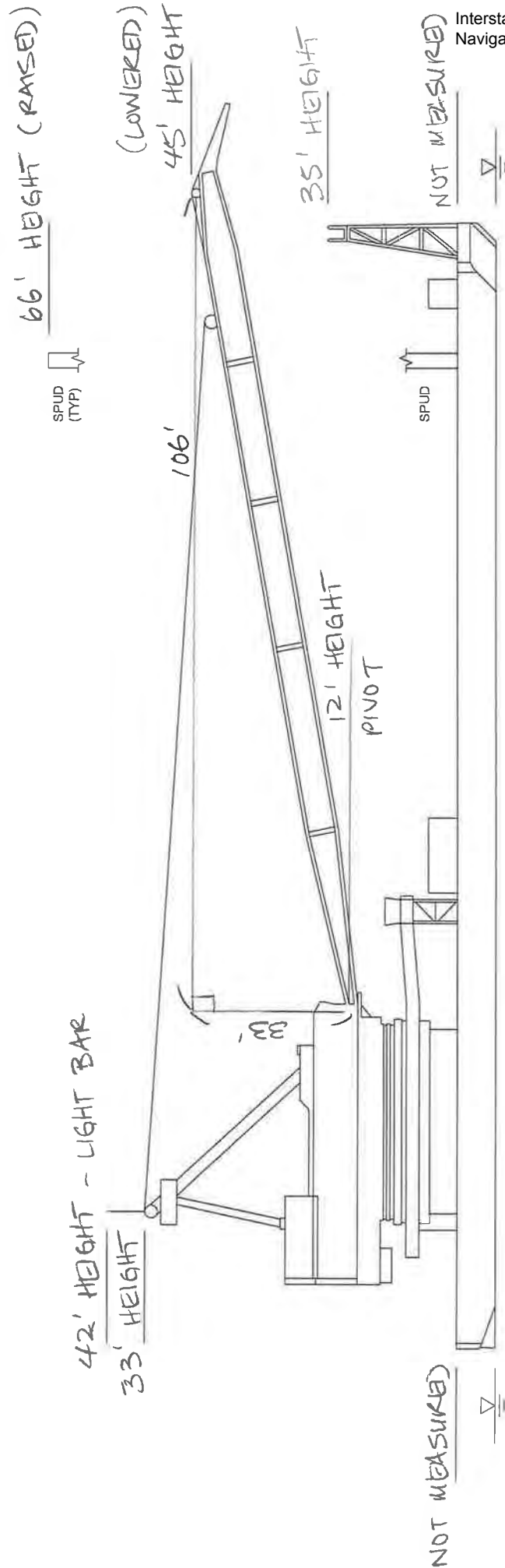
11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): 1 Per year



12. Do you have a Business Plan (e.g. 10 or 20 year plan)? What does it say regarding vessels transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? May we have a copy?

13. Other miscellaneous





DB COLUMBIA

NAME

MARK MARINE SERVICE

MEASURED AT  
WASHOUGAL, WA

LOCATION

07-13-12

DATE



N/A - does not exist



## Vessel Height Verification Sheet

By: Pete Geiger Date: 13 July 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: Mark Marine
- b. Name of contact: Craig Mark
- c. Phone number (Office): 360.837.2677 (Cell): 360.772.0916
- d. Email: markmarine@earthlink.net
- e. Address: 1498 SE 12<sup>th</sup> Street/PO Box 574 City: Washougal  
State: WA Zip code: 98671

### 2. Vessel

- a. ID: \_\_\_\_\_ b. Name: DB Columbia
- c. Type: Derrick Barge with Crane d. USCG Document Number: \_\_\_\_\_

### 3. Vessel Configuration

- a. Identify vessel configuration: Crane Boom Elevated below Spuds; Port Spud Up on Pin
  - Is a vessel specification sheet available? No
  - Configuration shown on the sheet: N/A
  - What is the lowest height configuration for transport? ~75 Feet (Port Spud on Pin)
- b. What is the gantry configuration? Assembled with Pins Estimated gantry height: Not given
- c. Does the barge have spuds? Yes, Two
  - Height above waterline for travel? Port=75 feet Starboard = 75 feet
  - Can the spuds be removed for travel? Only on very rare occasions
  - Work and cost involved in removing spuds? 4 hours to reset spuds. Need to find a site to harbor or tie up to. Spuds often need separate barge to transport them.

### 4. Vessel Location

- a. Where is the vessel currently located? Columbia River
- b. Is it working on a job? No Is it tied up to shore? Yes



c. What is the best time to make a trip to the vessel? Anytime, Just need a few days advance notice.

5. Surveyed Measurements (all measurements NAVD 88)

Gantry Height:	51.8 feet
Water Level:	18.4 feet
Top of Boom:	63.9 feet
Height of Boom Hinge Pin:	30.7 feet
Boom Cradle:	53.5 feet
Top of Spud:	84.1 feet
Top of Deck:	Not Measured

6. Vessel Height

Self-Reported		Surveyed	
Air Draft:	75 feet	Air Draft:	66 feet (top of spud)
Air Gap:	10 feet	Air Gap:	10 feet
Water Level:	16 feet (CRD)	Water Level:	16 feet (CRD)
Total Height:	101 feet	Total Height:	92 feet

7. History Notes

Date	Item
3/1/2012	Contacted by Jennifer Rabby
3/1/2012	Data sheet submitted
7/6/2012	Contacted by Karl Krcma for field measurement
7/13/2012	Field measured



Marine Contractors  
Owner: Mark Marine Service  
Vessel: Barge #7

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River User Data Sheet

By: \_\_\_\_\_ Date: \_\_\_\_\_

1. Company Name and/or Owner of Vessel and contact information

- a. Name of company: MARK MARINE SERVICE, INC  
b. Name of contact: Craig Mark  
c. Phone number (Office): 360 834-2677 d. (Cell): (360) 772-0916  
e. Email: Markmarine@earthlink.net  
f. Address: P.O. Box 574  
g. City: WASHOUGAL  
h. State: WA i. Zip code: 98671

3a. Vessel Name: Barge #7 3b. Vessel Type: CRANE Barge

3c. US Coast Guard Document Number: undocumented

4a. Length Overall (LOA), feet: 100 4b. Beam (width), feet: 40

5. Draft (depth of hull below waterline, fully laden), feet: 4

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 80'

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 110'

8. Frequency of one-way passage underneath I-5 main channel (typical per month): \_\_\_\_\_

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

9. Frequency of one-way passage underneath I-5 main channel (other historic events): \_\_\_\_\_

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month):

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): \_\_\_\_\_



Marine Contractors  
Owner: Mark Marine Service  
Vessel: DB Camas

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No image available



River User Data Sheet

By: Craig Mark Date: 3/1/12

1. Company Name and/or Owner of Vessel and contact information

- a. Name of company: Mark Marine Service, Inc  
b. Name of contact: Craig Mark  
c. Phone number (Office): 360 837 2677 d. (Cell): 360 772 0916  
e. Email: markmarine@earthlink.net  
f. Address: P.O. Box 574  
g. City: Washougal  
h. State: WA i. Zip code: 98671

3a. Vessel Name: DB Camas 3b. Vessel Type: Derrick Barge

3c. US Coast Guard Document Number: undocumented

4a. Length Overall (LOA), feet: 90 4b. Beam (width), feet: 34

5. Draft (depth of hull below waterline, fully laden), feet: 12

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 25'

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): Bridge should be A 110' At Zero water

8. Frequency of one-way passage underneath I-5 main channel (typical per month): \_\_\_\_\_

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

9. Frequency of one-way passage underneath I-5 main channel (other historic events): \_\_\_\_\_

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month):

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): 1 Per year



12. Do you have a Business Plan (e.g. 10 or 20 year plan)? What does it say regarding vessels transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? May we have a copy?

13. Other miscellaneous



EXISTING VESSEL DATA SHEET, CONT.

Company Name: Mark Marine Service, Inc

Vessel Name:

DB Sequoia

Vessel Type:

Derrick Barge (crane)

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe): Choose an item.

Vessel Category: Choose an item.

USCG Document Number:

Primary Mooring Location (waterway milepoint, if known):

Type and quantity of cargo, if applicable:

Length (overall; ft):

100'

Beam (width; ft):

40'

Draft (ft) - depth of hull below waterline, fully laden:

10'



**EXISTING VESSEL DATA SHEET, CONT.**

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

75'

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**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

25'

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**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

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**Frequency of passage under HR-WS Bridge:**

0-2 times a year

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**Transit speed under HR-WS Bridge and Load Configuration:**

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**Time of Year of Passage:**

Anytime of year

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**Tug Assistance Required:** Choose an item.

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**Ability to Modify** *(If yes, provide details including cost of modification and who pays cost):* Choose an item.

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EXISTING VESSEL DATA SHEET, CONT.

Company Name: Mark Marine Service, Inc.

Vessel Name:

Mark 12

Vessel Type:

Material Barge w/ spuds

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe): Choose an item.

Vessel Category: Choose an item.

USCG Document Number:

1140207

Primary Mooring Location (waterway milepoint, if known):

Type and quantity of cargo, if applicable:

Length (overall; ft):

110'

Beam (width; ft):

35'

Draft (ft) - depth of hull below waterline, fully laden:

11'



**EXISTING VESSEL DATA SHEET, CONT.**

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

75' Spuds

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**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

25'

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**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

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**Frequency of passage under HR-WS Bridge:**

0-2 times a year

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**Transit speed under HR-WS Bridge and Load Configuration:**

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**Time of Year of Passage:**

Anytime

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---

**Tug Assistance Required:** Choose an item.

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**Ability to Modify** *(If yes, provide details including cost of modification and who pays cost):* Choose an item.

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EXISTING VESSEL DATA SHEET, CONT.

Company Name: Mark Marine Service, Inc

Vessel Name:

Paterson Barge

Vessel Type:

Ramp Barge w/spuds

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe): Choose an item.

Vessel Category: Choose an item.

USCG Document Number:

Primary Mooring Location (waterway milepoint, if known):

Type and quantity of cargo, if applicable:

Length (overall; ft):

75'

Beam (width; ft):

24'

Draft (ft) - depth of hull below waterline, fully laden:

4



**EXISTING VESSEL DATA SHEET, CONT.**

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

70' Spuds

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**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

25'

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**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

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**Frequency of passage under HR-WS Bridge:**

0-2 times

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**Transit speed under HR-WS Bridge and Load Configuration:**

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**Time of Year of Passage:**

Anytime

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**Tug Assistance Required:** Choose an item.

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**Ability to Modify** *(If yes, provide details including cost of modification and who pays cost):* Choose an item.

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EXISTING VESSEL DATA SHEET, CONT.

Company Name: Mark Marine Service, Inc

Vessel Name:

Mark 1

Vessel Type:

Material Barge w/spuds

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe): Choose an item.

Vessel Category: Choose an item.

USCG Document Number:

Primary Mooring Location (waterway milepoint, if known):

Type and quantity of cargo, if applicable:

Length (overall; ft):

50'

Beam (width; ft):

16'

Draft (ft) - depth of hull below waterline, fully laden:

5'



**EXISTING VESSEL DATA SHEET, CONT.**

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

40' Spuds

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**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

25'

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**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

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**Frequency of passage under HR-WS Bridge:**

0-2 times a year

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**Transit speed under HR-WS Bridge and Load Configuration:**

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**Time of Year of Passage:**

Anytime

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**Tug Assistance Required:** Choose an item.

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**Ability to Modify** *(If yes, provide details including cost of modification and who pays cost):* Choose an item.

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EXISTING VESSEL DATA SHEET, CONT.

Company Name: Mark Marine Service, Inc

Vessel Name:

Mark 3

Vessel Type:

Material Barge

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe): Choose an item.

Vessel Category: Choose an item.

USCG Document Number:

Primary Mooring Location (waterway milepoint, if known):

Type and quantity of cargo, if applicable:

Length (overall; ft):

155'

Beam (width; ft):

40'

Draft (ft) - depth of hull below waterline, fully laden:

11'



**EXISTING VESSEL DATA SHEET, CONT.**

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

42' boat

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**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

25'

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**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

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**Frequency of passage under HR-WS Bridge:**

0-2 times per year

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**Transit speed under HR-WS Bridge and Load Configuration:**

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---

**Time of Year of Passage:**

Anytime

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---

**Tug Assistance Required:** Choose an item.

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**Ability to Modify** *(If yes, provide details including cost of modification and who pays cost):* Choose an item.

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EXISTING VESSEL DATA SHEET, CONT.

Company Name: Mark Marine Service, Inc

Vessel Name:

Mark 5

Vessel Type:

Material Barge

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe): Choose an item.

Vessel Category: Choose an item.

USCG Document Number:

Primary Mooring Location (waterway milepoint, if known):

Type and quantity of cargo, if applicable:

Length (overall; ft):

115'

Beam (width; ft):

30'

Draft (ft) - depth of hull below waterline, fully laden:

8'



**EXISTING VESSEL DATA SHEET, CONT.**

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

42' boat

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---

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

25'

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---

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

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**Frequency of passage under HR-WS Bridge:**

0-2 times per year

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**Transit speed under HR-WS Bridge and Load Configuration:**

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---

**Time of Year of Passage:**

Anytime

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---

**Tug Assistance Required:** Choose an item.

---

---

**Ability to Modify** *(If yes, provide details including cost of modification and who pays cost):* Choose an item.

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EXISTING VESSEL DATA SHEET, CONT.

Company Name: Mark Marine Service, Inc

Vessel Name:

Mark 6

Vessel Type:

Material Barge

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe): Choose an item.

Vessel Category: Choose an item.

USCG Document Number:

Primary Mooring Location (waterway milepoint, if known):

Type and quantity of cargo, if applicable:

Length (overall; ft):

115'

Beam (width; ft):

30'

Draft (ft) - depth of hull below waterline, fully laden:

8'



**EXISTING VESSEL DATA SHEET, CONT.**

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

42' boat

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---

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

25'

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---

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

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**Frequency of passage under HR-WS Bridge:**

0-2 times per year

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---

**Transit speed under HR-WS Bridge and Load Configuration:**

---

---

**Time of Year of Passage:**

Anytime

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---

**Tug Assistance Required:** Choose an item.

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---

**Ability to Modify** *(If yes, provide details including cost of modification and who pays cost):* Choose an item.

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EXISTING VESSEL DATA SHEET, CONT.

Company Name: Mark Marine Service, Inc

Vessel Name:

M/V South Creek (aka: Grant)

Vessel Type:

Tug

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe): Choose an item.

Vessel Category: Choose an item.

USCG Document Number:

1231465

Primary Mooring Location (waterway milepoint, if known):

Type and quantity of cargo, if applicable:

Length (overall; ft):

25'

Beam (width; ft):

14'

Draft (ft) - depth of hull below waterline, fully laden:

5'



**EXISTING VESSEL DATA SHEET, CONT.**

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

42'

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---

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

25'

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---

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

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**Frequency of passage under HR-WS Bridge:**

0-2 times per year

---

---

**Transit speed under HR-WS Bridge and Load Configuration:**

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---

**Time of Year of Passage:**

Anytime

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---

**Tug Assistance Required:** Choose an item.

---

---

**Ability to Modify** *(If yes, provide details including cost of modification and who pays cost):* Choose an item.

---

---



**EXISTING VESSEL DATA SHEET, CONT.**

**Company/Owner Name:** Mark Marine Service

**Vessel Name:**

DB Camas –

**Vessel Type:**

Crane Barge

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): Choose an item.

**Vessel Category:** Choose an item.

commercial

**USCG Document Number:**

**Primary Mooring Location** (*waterway milepoint, if known*):

**Type and quantity of cargo, if applicable:**

**Length (overall; ft):**

90

**Beam (width; ft):**

34

**Draft (ft)** - *depth of hull below waterline, fully laden:*

12



**EXISTING VESSEL DATA SHEET, CONT.**

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

75

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**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

25

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---

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

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**Frequency of passage under HR-WS Bridge:**

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**Transit speed under HR-WS Bridge and Load Configuration:**

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**Time of Year of Passage:**

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---

**Tug Assistance Required:** Choose an item.

---

---

**Ability to Modify** *(If yes, provide details including cost of modification and who pays cost):* Choose an item.

---

---

**Please identify any future vessel or cargo plans that might require different vessels to transit under the bridge. Attach additional pages as needed.**



**EXISTING VESSEL DATA SHEET, CONT.**

**Company/Owner Name:** Mark Marine Service

**Vessel Name:**

DB Columbia

**Vessel Type:**

Crane Barge

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): Choose an item.

**Vessel Category:** Choose an item.

commercial

**USCG Document Number:**

**Primary Mooring Location** (*waterway milepoint, if known*):

**Type and quantity of cargo, if applicable:**

**Length (overall; ft):**

140

**Beam (width; ft):**

34

**Draft (ft)** - *depth of hull below waterline, fully laden:*

12



**EXISTING VESSEL DATA SHEET, CONT.**

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

75

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---

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

25

---

---

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

---

---

**Frequency of passage under HR-WS Bridge:**

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---

**Transit speed under HR-WS Bridge and Load Configuration:**

---

---

**Time of Year of Passage:**

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---

**Tug Assistance Required:** Choose an item.

---

---

**Ability to Modify** *(If yes, provide details including cost of modification and who pays cost):* Choose an item.

---

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## Marine Contractors

Company: NorthBank Civil and Marine

Vessel:

- Northbank

Company provided data sheets to IBR Program. No information was included in CRC NIR.



### EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** Northbank Civil and Marine, inc.

**Vessel Name:**

Northbank

**Vessel Type:**

Crane Barge

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): Yes

Pushed by 850 HP St. Helens tug boat

**Vessel Category:** Commercial

**USCG Document Number:**

1282254

**Primary Mooring Location** (*waterway milepoint, if known*):

Port of Morrow

**Type and quantity of cargo, if applicable:**

N/A

**Length (overall; ft):**

110

**Beam (width; ft):**

50



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - *depth of hull below waterline, fully laden:*

4 to 6

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

With crane boomed down in travel position, 51 feet

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

10

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

100 feet for either side of barge (250 ft opening)

**Transit speed under Interstate Bridge and Load Configuration:**

**Time of Year of Passage:**

**Tug Assistance Required: Yes**

**Frequency of passage under Interstate Bridge main channel (typical per month):** Varies – 0-3 times/year

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):** Zero

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



## Marine Contractors

Company: Ross Island

Vessels:

- Dredge #7
- Rossisle

Company provided information and a photo via email. Email is included below, followed by information included in the CRC NIR.



**From:** [Randy Steed](#)  
**To:** [Brian Carrico](#)  
**Cc:** [Nicole McDermott](#)  
**Subject:** RE: Interstate Bridge Replacement Program  
**Date:** Wednesday, May 5, 2021 10:38:15 AM  
**Attachments:** [image001.png](#)  
[image002.png](#)  
[image003.png](#)  
[image004.png](#)

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Good Morning Brian:

Ross Island Sand & Gravel Co. is indeed still a user of the Columbia with our dredging and marine construction operations. We pass through the Interstate Bridge two to four (2-4) times per year with our sand mining Dredge #7 pushed by the Tug Rossisle. Dredge #7 with it's positioning spuds raised requires a vertical clearance of 75' from the water surface.

See attached example photo.

Thank You for allowing our input. Ross Island is of course interested in what portions of the replacement project we can assist in with our marine construction cranes and barges.

ROSS ISLAND SAND & GRAVEL CO.

Randall H. "Randy" Steed  
President & Chief Operating Officer

Office (503) 239-5504  
[randysteed@ridredge.com](mailto:randysteed@ridredge.com)

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**From:** Brian Carrico <Brian.Carrico@interstatebridge.org>  
**Sent:** Tuesday, May 4, 2021 4:23 PM  
**To:** Randy Steed <randysteed@ridredge.com>  
**Cc:** Nicole McDermott <Nicole.McDermott@interstatebridge.org>  
**Subject:** Interstate Bridge Replacement Program

Mr. Steed,

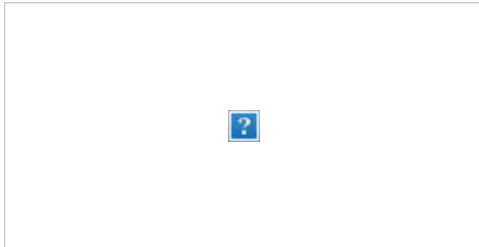
I am part of the team working on the Interstate Bridge (IBR) Program for ODOT and WSDOT (<https://www.interstatebridge.org/>). I am reaching to you because Ross Island vessels were included in the Navigation Impact Report completed for the prior Columbia River Crossing project and we are validating and updating this data for the IBR program. We reached out to the contact listed in 2012 (Paul Godsil) but the email address was rejected. Can you provide a name and contact information for someone who can provide information your vessels and their use of the Columbia River at the I-5 bridge? Thanks in advance for your time and feel free



to reach out if you have any questions specific to this request or the program in general.

Regards,

Brian



## [I-5 Bridge Replacement Program](#)

Interstate 5 provides a critical connection between Oregon and Washington that supports local jobs and families, and is a vital trade route for regional, national and international economies. Beyond the concrete and steel of the existing bridge

[www.interstatebridge.org](http://www.interstatebridge.org)

**Brian Carrico**

**Interstate Bridge Replacement Program  
Environmental Program**

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[interstatebridge.org](http://interstatebridge.org)









## Marine Contractors

Owner: Ross Island Sand and Gravel

Vessel: RI Dredge No. 7

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River User Data Sheet

By: Ron Del Rosario Date: 3/6/2012

1. Company Name and/or Owner of Vessel and contact information

- a. Name of company: Ross Island Sand and Gravel
- b. Name of contact: Paul Godsil
- c. Phone number (Office): 503-239-5504 d. (Cell): \_\_\_\_\_
- e. Email: ptgodsil@ridredge.com
- f. Address: 4315 Se McLoughlin Blvd
- g. City: Portland
- h. State: Or i. Zip code: 97282

3a. Vessel Name: RI Dredge no.7 3b. Vessel Type: Cutter Section Dredge

3c. US Coast Guard Document Number: \_\_\_\_\_

4a. Length Overall (LOA), feet: 185 4b. Beam (width), feet: 35

5. Draft (depth of hull below waterline, fully laden), feet: 5.5

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 80

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): \_\_\_\_\_

8. Frequency of one-way passage underneath I-5 main channel (typical per month): \_\_\_\_\_

Jan 1 Feb 1 Mar 1 Apr 1 May 1 Jun 1 Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

9. Frequency of one-way passage underneath I-5 main channel (other historic events): \_\_\_\_\_

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month):

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): \_\_\_\_\_



12. Do you have a Business Plan (e.g. 10 or 20 year plan)? What does it say regarding vessels transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? May we have a copy?
13. Other miscellaneous



## Marine Industries and Fabricators

Company: Greenberry

Company provided the following information to the IBR Program.



## EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** Greenberry Industrial LLC

**Vessel Name:**

Third-party

**Vessel Type:**

Barge and Tug

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): Yes

Tugboat towing barge

**Vessel Category:** Commercial

**USCG Document Number:**

Third-party

**Primary Mooring Location** (*waterway milepoint, if known*):

N/A

**Type and quantity of cargo, if applicable:**

Modules, Process modules, piperacks, MCC buildings, Alaska Sealift Modules, Drill Rigs, Pressure Vessels, Shiploaders, Piling Templates, Vessels, Bridge Girders, Bridge Components, Railroad Bridges, DOT Bridge Sections, Autoclaves, Slugcatcher Vessels, Port Assemblies, Material Handling Systems, Conveyor Systems, Dock Sections, Bridge Maintenance Travelers, and various other over-dimensional fabricated items.

**Length (overall; ft):**

650 Feet

**Beam (width; ft):**



**VESSEL DATA SHEET, CONT.**

**120 Feet**

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**Draft (ft)** - *depth of hull below waterline, fully laden:*

**18ft**

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**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

**136 Feet**

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**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

**1 Foot**

---

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**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

**10 Feet?**

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**Transit speed under Interstate Bridge and Load Configuration:**

**10-12kts MAX**

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**Time of Year of Passage:**

**Year round**

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**Tug Assistance Required:Yes**

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**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_1\_\_\_ Feb \_\_\_1\_\_\_ Mar \_\_\_1\_\_\_ Apr \_\_\_1\_\_\_ May \_\_\_1\_\_\_ June \_\_\_1\_\_\_

Jul \_\_\_1\_\_\_ Aug \_\_\_1\_\_\_ Sep \_\_\_1\_\_\_ Oct \_\_\_1\_\_\_ Nov \_\_\_1\_\_\_ Dec \_\_\_1\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_0\_\_\_ Feb \_\_\_0\_\_\_ Mar \_\_\_0\_\_\_ Apr \_\_\_0\_\_\_ May \_\_\_0\_\_\_ June \_\_\_0\_\_\_

Jul \_\_\_0\_\_\_ Aug \_\_\_0\_\_\_ Sep \_\_\_0\_\_\_ Oct \_\_\_0\_\_\_ Nov \_\_\_0\_\_\_ Dec \_\_\_0\_\_\_



## Marine Industries and Fabricators

Company: Thompson Metal Fab

Company provided the following information to the IBR Program.



# **Interstate Bridge Replacement Project**

Thompson Metal Fab – Impact Statement























May 26, 2021

**Presented by John Rudi**

Owner, President – Thompson Metal Fab

Page 386 of 726



	<b>INTRODUCTION .....</b>	<b>1</b>
	<b>COLUMBIA BUSINESS CENTER .....</b>	<b>2</b>
	<b>THOMPSON METAL FAB .....</b>	<b>4</b>
	<i>Marine/Hydro .....</i>	<i>5</i>
	<i>Tanks/Vessels.....</i>	<i>8</i>
	<i>Bridge.....</i>	<i>9</i>
	<i>Modular/Structural.....</i>	<i>11</i>
	<i>Oil &amp; Gas .....</i>	<i>14</i>
	<b>LOCAL BENEFIT &amp; LOOKING AHEAD .....</b>	<b>24</b>
	<i>Willow Expansion/Pikka Expansion/Horseshoe Unit .....</i>	<i>26</i>
	<i>Aerospace.....</i>	<i>28</i>
	<i>Offshore Wind and Wave.....</i>	<i>30</i>
	<i>Burnside Bridge .....</i>	<i>32</i>
	<i>Golden Gate Bridge Seismic Retrofit.....</i>	<i>33</i>
	<i>West Coast Moveable Bridges .....</i>	<i>33</i>
	<i>Hydroelectric Maintenance Projects.....</i>	<i>33</i>
	<i>Desalination in California.....</i>	<i>35</i>
	<i>Wartime Efforts.....</i>	<i>35</i>
	<b>IN CLOSING .....</b>	<b>35</b>
	<b>ATTACHMENTS</b>	
	<b>APPENDIX A – Bridge Clearance Visual Aid</b>	
	<b>APPENDIX B – River Usage Data</b>	
	<b>APPENDIX C – Photo Gallery</b>	



## **INTRODUCTION**

The history of Thompson Metal Fab includes two major influences, the opening of the Interstate Bridge in 1917, and the opening of the Columbia Business Center (*originally Henry Kaiser's Vancouver Shipyard*) in 1942. Over the years, Thompson Metal Fab (TMF), the Columbia Business Center (CBC) and the Interstate Bridge will see their history evolve due to the changing needs of the region, rapid population growth, and dynamic industrial development. For these same reasons, their history also begins to connect, and their futures are tied together.



*The original Thompson Metal Fab facility, shown in 2018. Thompson moved from this location and to Vancouver in the early 1970's. The old facility has since been demolished, making way for the brand new Meyer Memorial Trust building.*



*Original span of the Interstate Bridge opened 1917 – shown here in 1931.*

The original Interstate Bridge (current day northbound span) was completed and opened in February of 1917. Upon completion of this span, travelers could go from Canada to Mexico on one complete roadway. This was not only a big accomplishment for the country, but it was also an opportunity for growth, specifically in southwestern Washington. At the time the bridge was opened, there were approximately 250,000 people in Portland, compared to the 12,000 in Vancouver. The new bridge would provide opportunity for dynamic population movement, economic growth, and forever connect not only two states, but two communities. To satisfy the needs of this expanding community, a second 'twin' span was eventually completed and opened in 1958.

With a clearance of 72 feet, most river barges can pass under the bridge without impact when the drawbridge is closed. This is not the case with large industrial projects, like those manufactured currently by Thompson Metal Fab, or for large vessels, like the Liberty and Victory ships from the early 1940's. At full height, the current lift span can accommodate 178' from the water to the underside of the bridge. This "air gap" allows very large loads to pass upriver and downriver and has driven the development of upstream industrial areas such as the Columbia Business Center, originally known as Henry Kaiser's Vancouver Shipyard.



**COLUMBIA BUSINESS CENTER (former Kaiser Vancouver Shipyard)**



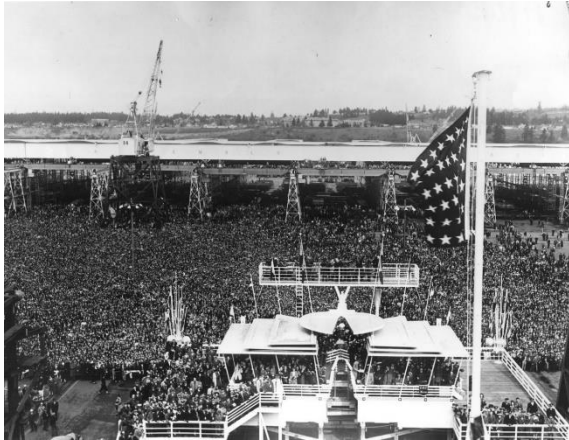
*Building 40 and 41 of current day Thompson Metal Fab is shown prominently in the middle of this picture. At the time this picture was taken (circa early 1940's) the building and entire industrial area would have been known as Kaiser's Vancouver Shipyards.*

At nearly 200-acres, Kaiser's Vancouver Shipyard began production in early 1942 with an initial payroll of 38,000 workers. This facility, along with two in Portland, produced 752 ships during WWII and peaked at 97,000 workers in total. Many of these workers migrated from other parts of the country and is part of the reason why the Portland/Vancouver area saw such a big jump in population at this time. The development of these shipyards certainly contributed to the need for a new span (eventually built and completed in 1958) and the need to modify the original span, completed in 1960. For perspective on what these facilities were able to produce, the construction on the first Liberty ship took 131 days in 1941. By 1943, Kaiser workers were averaging a completed Liberty ship in 42-days and three ships were being completed each day. Record production for a completed ship was 10-days, although that production was bested by one of the Kaiser facilities in Richmond, CA (4-days, 15-hours, 29-minutes).



*[1943] Escort carriers at the Vancouver Shipyards (current day Thompson Metal Fab)*





*75,000 people (largest crowd in Clark County's history) assembled on April 5, 1943 to witness first lady Eleanor Roosevelt christen the 'Alazon Bay' escort aircraft. Current day Thompson Metal Fab is seen prominently in the background.*

drive opportunity to the Columbia Business Center as oil companies looked for fabricators to build "jacket liners" for new offshore wells. The facility could support the work on the massive infrastructure and the bridge was high enough to allow the jacket liners to be shipped downstream.

The 1960's and 1970's saw the construction of new dams on the Columbia River and Snake River in addition to the development of major oil fields in Alaska (i.e. Prudhoe Bay). Ongoing work on the US Interstate Highway System also provided opportunity for new bridges, including four highly visible bridges in Portland: Morrison Bridge (1958), Marquam Bridge (1966), Freemont Bridge (1973), and the Glenn L. Jackson Memorial Bridge (1982). These would be opened to accommodate a shifting population and to relieve pressure on traffic crossing the Interstate Bridge.

After the war ended and the need for shipbuilding diminished, learning how to leverage these 'abandoned' facilities for future industrial growth was important. The size of the facility at the Vancouver Shipyard was simply greater than most fabrication shops of the day. Even now, it remains one of the largest fabrication facilities on the West Coast. The sheer size of the building, access to a large yard, and location to a major waterway made the facility at the future Columbia Business Center an extremely attractive option for the large infrastructure needs that were coming.

The Portland/Vancouver Metro area became highly industrialized by the 1960's, driven by the ability of the Columbia Business Center and companies such as Thompson Metal Fab. This strong local economy centered around logging, pulp & paper products, and maritime transport on the Columbia River; and stimulated additional growth in the region. The California oil boom would also

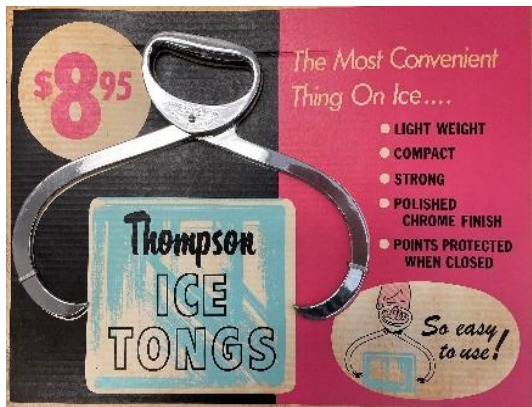


*Infrastructure for the California offshore oil fields being manufactured at the Columbia Business Center in 1967. Thompson Metal Fab would begin operations here a few years later in 1973.*



## **THOMPSON METAL FAB**

In 1937, “Pudge” Thompson opens ‘Thompson Metal Fab’ at 2405 Vancouver Avenue in Portland, OR. The opening of his facility comes 20-years after the opening of the Interstate Bridge while also pre-dating the second span by 20-years.



The origin story of Thompson Metal Fab is a humble one, especially compared to the work they do today. Pudge and his craftsmen manufactured lightweight metal products for the dairy and timber industries. One product, the Thompson Ice Tongs, held US patent #D206,091 and a quick Google search shows that the Thompson Ice Tongs are still selling online to this day. Thanks in part to the WWII war effort, expansion of TMF continued during the 1940's and 1950's; mirroring the growth of the community it served and the new industrial opportunities.

*Original marketing display of the Thompson Ice Tongs*

In 1973, after 36 years, Pudge Thompson sold his company to Harder Mechanical, whose story is like TMF's. Harder began as a small local plumbing contractor who was founded in 1934. A few years later they reinvented themselves so they could build housing for the workers at the Portland area shipyards during WWII. As the region continued to see growth, so did Harder who saw the acquisition of Thompson Metal Fab as a way to expand their capabilities and stake a claim on some of these emerging industries (i.e. hydroelectric dams). Shortly after the acquisition, the original Thompson Metal Fab facility (Portland, OR) was closed for good, and all operations were moved to the old Kaiser Shipyard in Vancouver, WA – a facility well suited to support the large projects Harder Mechanical would earn as they grew and expanded.

Thompson Metal Fab would transfer ownership again in the early 2000's with even more emphasis on how to maximize the capacity. The size of the facility requires TMF to be a diversified business and one with experience in multiple disciplines, including:

**Marine/Hydro**



**Tanks/Vessels**



**Bridges**



**Modular/Structural**



**Oil & Gas**





Since the early 1970's, TMF has completed countless projects while working over 10-Million man-hours (*estimated*). The following list showcases some of the completed projects over the last 40+ years. In each case, transportation by barge was required (either by design or necessity), and in many cases the load passed under the Interstate Bridge.

*Projects noted with (\*) were not completed by Thompson Metal Fab but are on this list to showcase examples of other mega projects where a facility like Thompson's was required (Big shop, assembly yard, barge loading capabilities)*



## MARINE/HYDRO

### The Dalles Dam, Downstream Navigation Lock Miter Gates, Columbia River, WA/OR, USA [2011]

*Two Miter Gates were manufactured, where each gate measured 52' W x 106' L and weighed 1-Million pounds each. Due to navigational lock closures on the Columbia River, an aggressive fabrication and delivery schedule was required which required a fabricator with ample space and ability to load a barge. Picture to the right shows one gate getting ready to be loaded on the barge. Seen in the background is Parker Drilling Rig 272 & 273. Those rigs would ship just a few months after this load.*



### Lower Monumental Dam, Downstream Navigation Lock Lift Gate, Snake River, WA, USA [2010]

*The finished weight of this structure was 1.5-Million pounds and would ship to the jobsite by barge in three segments. The final gate is 88' W x 84' H*

### Ice Harbor Dam, Removable Spillway Weir, Snake River, WA, USA [2005]

*This removable spillway weir is designed to move juvenile fish more efficiently through the dam spillways. The unit measured 70' in width x 68' in height x 105' in length. It weighed 950-tons and is taller than Thompson's facility! The weir was completely fabricated at TMF and then transported by barge to Cascade General for repositioning before shipping to the jobsite on the Snake River.*





Lower Granite Dam, Removable Spillway Weir, Snake River, WA, USA [2001]

*The removable spillway weir is designed to move juvenile fish more efficiently downstream through the dam spillways. The weir was 83' wide x 61' deep x 115' long and weighed approximately 1,000-tons. The weir was completely fabricated at TMF and then transported by barge to Cascade General for repositioning before shipping to the jobsite on the Snake River.*



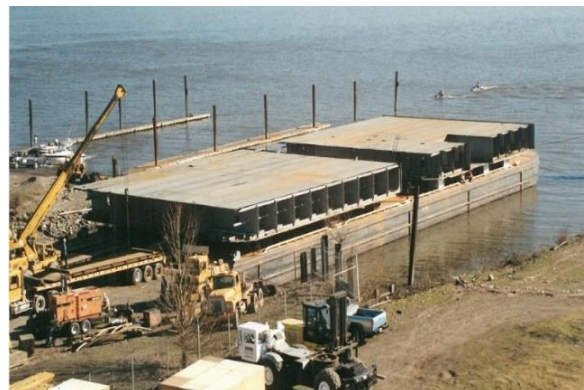
Esperanza 124 MW Power Barge [1999]

*Recently retrofitted in 2017 in Panama, it was originally fabricated in 1999 by Thompson Metal Fab, and transported to Cascade General in Portland, OR for final assembly and functional testing. The barge measured 105' wide x 30' deep x 284' long with a weight of 1,800-tons. The completed barge was loaded on a 400' L x 100' W barge for delivery to Cascade General.*



Golmar Explorer Ship Conversion [1997]

*In 1997, Thompson fabricated multiple items for the infamous Golmar Explorer ship which was developed for the CIA and at the direction of Howard Hughes. By the mid-1990's the ship had changed hands a few times over and was in the process of being converted into an oil drilling vessel. TMF fabricated two double-bottom sections, four thruster tubs, vessel exhaust stacks, and manifold systems for this project. Completed components were transported by barge from TMF to Cascade General Shipyard.*





John Day Dam, Upstream Navigation Lock Gate, Columbia River, WA/OR, USA [1991]

*This gate was fabricated at the Columbia Business Center. The gate measured 28' deep x 80' high x 120' wide and weighed 105-tons. It was transported standing (80' high) for installation purposes.*

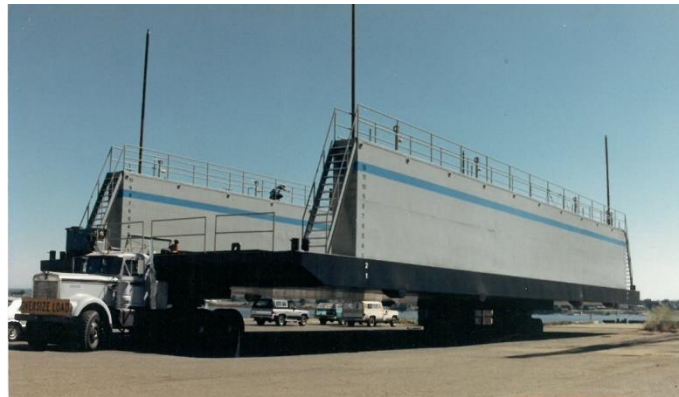
Pacific Marine Hull Fabrication, Honolulu, HI, USA [1989]

*TMF fabricated a 365-ton "SWATH" (Small Waterplane Area Twin Hull) excursion vessel. The fabrication consisted of twin cigar-shaped hulls that were 9' in diameter and 132' in length with vessel beams measuring 53'. Thompson's location adjacent to the Columbia River proved valuable for launching the vessel. After sea trials, the "Navatek" vessel headed to Hawaii. The vessel is still operating today.*



Christensen Shipbuilders, Dry Dock, Vancouver, WA, USA [1987]

*210' long dry dock was fabricated by TMF, including all walls, deck, ballast tanks and piping*



Columbia River Barge Conversions [1979-1971]

*Thompson converted barges to carry wood chips in support of the pulp and paper mills. The converted barges were fabricated to ABS and USCG standards. Projects were installed at our adjacent dock and barge facilities.*

Alaska Ferry Conversion [1973]

*Thompson Metal Fab supplied an exhaust funnel, solarium structure and modular subcomponents for the passenger ferry that travels the Inland Passage to Alaska. The existing ferry was cut in half and lengthened, with TMF fabricating all components for this major renovation. All items delivered by barge to the shipyard.*

Other Examples Include:

- WSDOT Coleman Dock Improvements [2023] \*
- Ballard Lock & Dam, Navigation Lock Center Miter Gates, Lake Washington, WA, USA [2022] \*



- John Day Dam, 150-Ton Gantry Crane, Columbia River, OR/WA, USA [2022] \*
- McNary Dam, Intake Bulkhead Gates, Columbia River, OR/WA, USA [2022] \*
- Port of Alaska Petroleum & Cement Terminal Expansion, Anchorage, Alaska, USA [2021]
- Ward Cove Ferry Dock Expansion, Ward Cove, Alaska, USA [2020]
- WSDOT Mukilteo Dock Improvements, Mukilteo, WA, USA [2020] \*
- The Dalles Dam, Upstream Navigation Lock Radial Gate, Columbia River, OR/WA, USA [2016] \*
- Lower Granite Dam Expansion, Snake River, Washington, USA [1987]
- Revelstoke Dam, Columbia River, British Columbia, Canada [1984] \*
- Bonneville Dam Expansion, Columbia River, Oregon, USA [1981] \*
- Brownlee Dam Expansion, Snake River, ID/OR, USA [1980] \*
- American Falls Dam Replacement, Snake River, ID, USA [1978] \*
- Ice Harbor Dam Expansion, Snake River, Washington, USA [1976] \*
- Grand Coulee Dam Expansion, Columbia River, Washington, USA [1974] \*
- Mica Dam, Columbia River, British Columbia, Canada [1973] \*
- John Day Dam, Columbia River, WA/OR, USA [1971] \*
- Little Goose Dam, Snake River, Washington, USA [1970] \*
- Lower Monumental Dam, Snake River, Washington, USA [1969] \*



## TANKS/VESSELS

### Phillips 66 Prefractioner Tower, Rodeo, CA, USA [2015]

*The 200-ton tower stretched 126' Long and transitions from 10'-6" diameter at the smallest to 17'-0" at the largest. The vessel was manufactured in three separate sections before being married together at Thompson's shop. The vessel shell and heads are made from clad plate which provides the necessary strength while also providing the required corrosion protection on the interior. For final acceptance, nearly 120,000 gallons of water was pumped into the vessel for a leak test. The vessel was pressurized over a period to ensure that all welds were water-tight.*





REC Solar Grade Silicon Project, Moses Lake, WA, USA [2007]

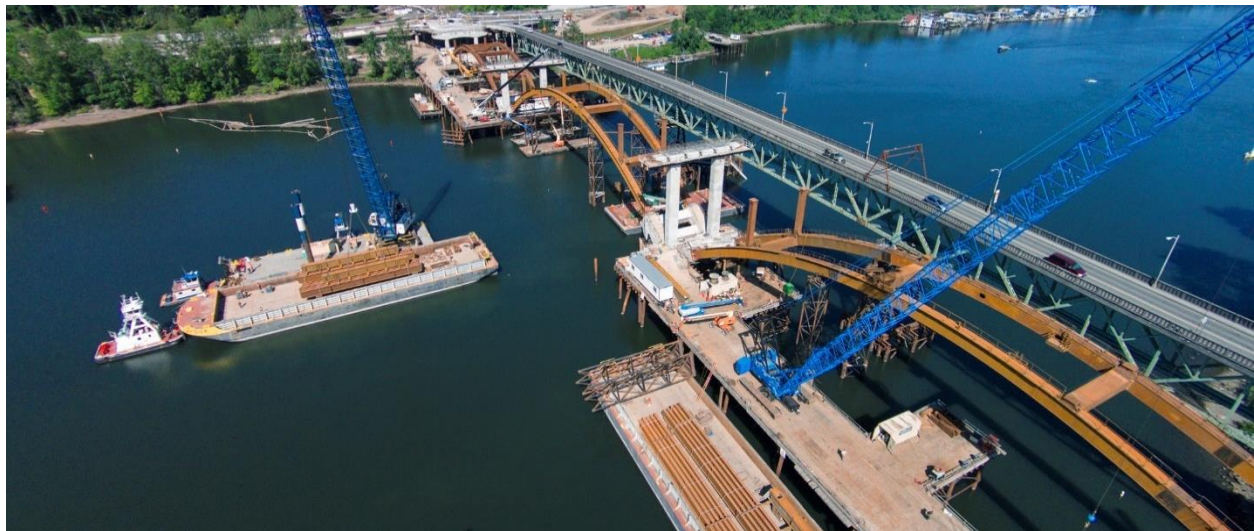
*Thompson Metal Fab manufactured a total of 10 process vessels for the solar grade silicon industry. The project included four vessels which required barge transportation due to their size. Those vessels were 150" ID x nearly 120'-0" L and weighed over 200,000 LBS/ea. Vessels were barged to Pasco, WA and then shipped over the road to Moses Lake.*



**BRIDGE**

Sellwood Bridge, Portland, OR, USA [2016]

*Thompson's scope of supply included fabrication of all major bridge components: Arches, Arch Cross-frames, Vertical Spandrels, and the Bridge Deck Steel. Over 5,000-tons in total. The distinctive feature of the bridge are the three arches which cover 1,275' of the total 1,976' crossing. Each arch was fabricated in segments, with each segment 100' long. Because of the project's location on the Willamette River, steel was delivered to the jobsite with seven barge loads. Multiple barges can be seen here with incoming steel deliveries.*





Bay Bridge Connector, Bay Area, CA, USA [2006]

*TMF painted two orthotropic tub girders that were fabricated at the Columbia Business Center. Each weighed more than 1,600-tons and measured over 200' L x 80' W. Girders were transported by barge to the Bay Area for erection.*

Richmond San Rafael Bridge, Bay Area, CA, USA [2004]

*10,000 tons of structural bridge steel for the substructure was supplied for a seismic retrofit. Total fabrication took three years to complete. Larger components were transported by barge and direct to the jobsite.*

Tri-Met Terry Moore Pedestrian Bridge, Portland, OR, USA [1996]

*Fabricated at the Columbia Business Center, TMF painted the pedestrian bridge spanning HWY 26 near the HWY 217 junction. Completed sections were shipped by barge to a nearby location before being trucked to the jobsite.*

1<sup>st</sup> Ave & Duwamish Bascule Bridge, Seattle, WA, USA [1996]

*Completed truss sections for this project were fabricated at the Columbia Business Center, painted by Thompson, and assembled at the facility. Transportation to the jobsite in Seattle was done over the water, by barge.*

Nimitz Freeway, Bay Area, CA, USA [1995]

*This project consisted of (13) curved tub girders for the reconstruction of the Nimitz Freeway in the Bay Area. Girders were fabricated at the Columbia Business Center and painted by TMF. The total project weighed 6,000-tons with the largest girders weighing 450-tons; 50' W x 250' L. This project required four barges for delivery to jobsite..*

I-90 East Channel Bridge, Seattle, WA, USA [1986]

*Trapezoidal tub girders that varied from 98' to 198' in length and weighed between 60 and 200-tons each were fabricated at the Columbia Business Center and painted by Thompson Metal Fab. Girders were pre-assembled and completed sections loaded on a barge for transport to Lake Washington.*



Other Examples Include:

- BNSF Bridge 66.4 Replacement, Cook, WA, USA [2020] \*
- BNSF Bridge 58.8 Replacement, Home Valley, WA, USA [2019] \*
- Wittpenn Bridge, Jersey City, NJ, USA [2017] \*
- Sauvie Island Bridge, Portland, OR, USA [2004] \*
- Glenn L. Jackson Bridge, WA/OR, USA [1982] \*
- Freemont Bridge, Portland, OR, USA [1973] \*





## MODULAR/STRUCTURAL

### Intel Expansion, Hillsboro, OR, USA [2010's - Present]

*Expansion at the Intel facility in Hillsboro has been going on for some time and Thompson has supplied numerous modular structures in support of their effort. In 2020, TMF shipped the largest modules to date, buildings that were 44' W x 97' L x 16' H. Due to their size, the buildings could break apart in half, but still required a barge to get from TMF's facility to the jobsite as shipping over the road was not an option.*



### Caltrans, East Tie-In Project, Bay Area, CA, USA [2008-2009]

*Thompson was selected by Caltrans (owner) to work with TY-Lin (designer), CC Myers (contractor) and DCCI (erector) to fabricate 3,100-tons of temporary steel to provide detour for the Oakland Bay Bridge at Yerba Vista Island. Thanks to the size of their facility TMF could meet the 'expedited' schedule requirement for this project. Major components required four barge loads from TMF's facility to the job-site in California. Project was completed in 2009.*

### OHSU Tram, Portland, OR, USA [2006]

*TMF fabricated the center support tower, the lower station, and the upper station for the tram project. The major components were transported by barge from TMF to the jobsite in Portland, OR where they were offloaded and erected.*







*The team at Thompson Metal Fab standing in front of base of the iconic Portland Aerial Tram mid-tower. The tram is located at the OHSU hospital in Portland and spans across I-405. The tower base is over 40' high as shown in this picture.*

#### Alaska Gold Mining Project, Nome, Alaska, USA [2005]

*Thompson fabricated hoppers, grizzly grates, ball mill chutes, structural supports, modification of the ball mill, and other mining equipment for this project. TMF's facility was used for the marshaling yard and the load out point for all equipment and structures. Delivery was made via barge to Nome, AK.*

#### Boeing Delta IV Launch Table, Vandenberg AFB, CA, USA [2003]

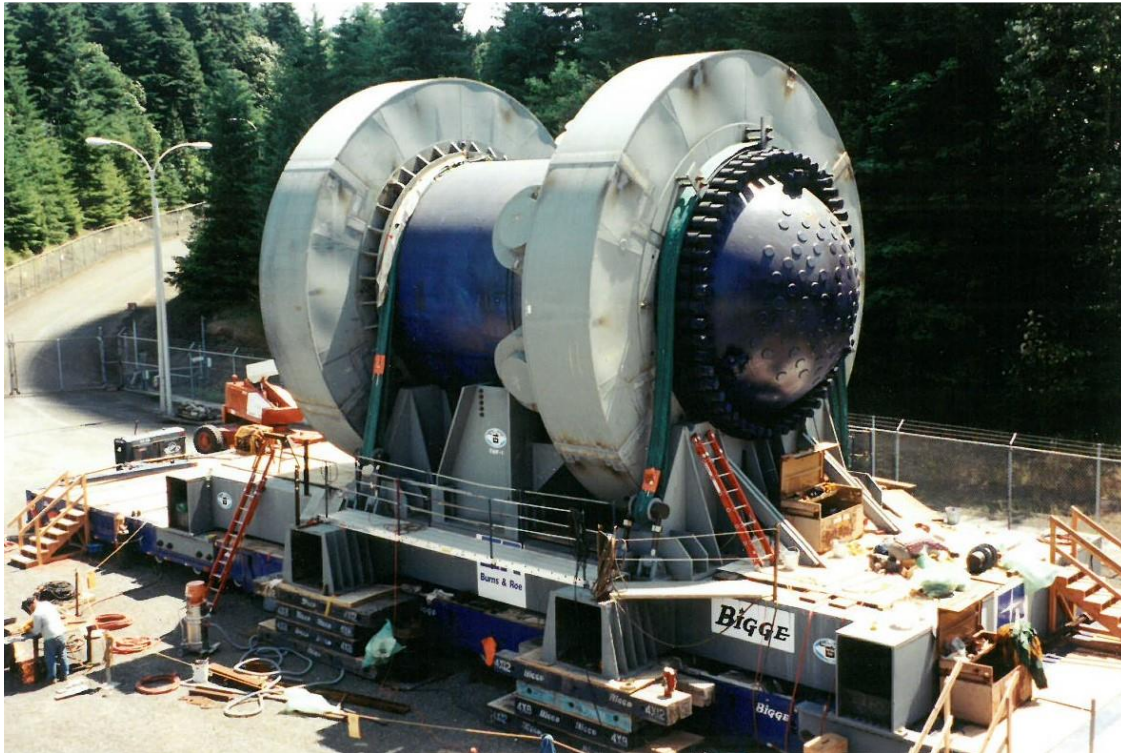
*The 98' long x 33' high x 46' wide launch table weighed 580-tons. The project also included large flame deflector components which weighed up to 120-tons. The launch table and flame deflectors were fully assembled at the TMF facility and transported by barge to Vandenberg Air Force Base in California. It was then off-loaded and installed at the launch site.*





PGE Decommissioning Trojan Nuclear Reactor Project, Rainier, OR, USA [1998]

*TMF fabricated a 120-ton transport structure and 5" THK shielding enclosures. The completed structures were shipped by barge to the jobsite where the decommissioned reactor was loaded. The entire load was then shipped by barge to the final storage location at Hanford – Richland, WA.*



Powell River Paper Company, British Columbia, CANADA [1991]

*Thompson supplied the fabricated steel for a Chlorine Dioxide Module that measured 35' wide x 76' high x 35' long. This module weighed 350-tons and was transported by barge in the vertical position from TMF's facility in Vancouver, WA to the Power River Paper Company in British Columbia, Canada.*

Georgia Pacific Wood Chip Material Handling System, Toledo, OR, USA [1973]

*TMF fabricated six 280' tube conveyor sections and all support towers for this project. The completed structures were transported by barge to Toledo, OR and installed.*





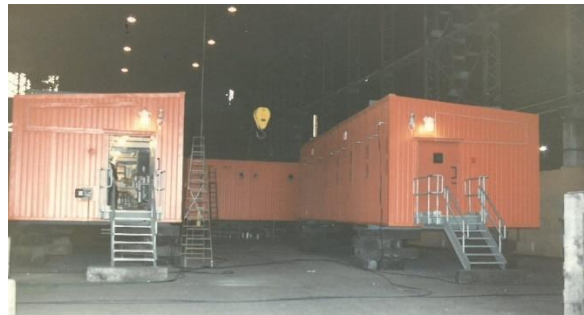
Other Examples Include:

- Data Centers, The Dalles, OR, USA [2010's – Present] \*
- Data Centers, Hermiston, OR, USA [2010's – Present] \*
- Pre-Heater Tower, Richmond, British Columbia, CANADA [1997]
- Portland Expo Center, Portland, OR, USA [1995]
- Bulk Material Handling System, Sacramento, CA, USA [1993]
- Newport Bay Floating Restaurant, Portland, OR, USA [1986]



**OIL & GAS**

The turnkey modular service TMF offers today reflects what kicked off in the 1980's. By that point work at Prudhoe Bay was ongoing, but the infrastructure needed to support the development was still in process. In 1984, Thompson supported ARCO by manufacturing two 96-room housing modules. Each module was 40' wide x 46' high x 80' long. In addition, two Utilidor Modules were manufactured (*each 10' W x 22' H x 24' L*). In 1985, more infrastructure was sent to ARCO; these 'bases' were 33' wide x 100' long x 10' high. Thompson also supported Conoco's Milne Point unit in 1985 with the supply of (10) module bases and (11) skids. These structures weighed anywhere from 20 to 270 tons each, with a max dimension of 64' W x 123' L x 12' H. Manufacturing structures of this size and delivering complete to the jobsite seems strange in the lower-48, but given the expanse of the North Slope, it's well suited to receive large infrastructure without other physical limitations to navigate. Additionally, with as fast as the development was happening, there was a value placed on 'set it and leave it' projects; things that could be installed and immediately put-to-use.







*Massive platforms for the Alaska oilfields being fabricated at Thompson Metal Fab in the mid-1980's. The platforms nearly took up the entire width of a bay (80')*



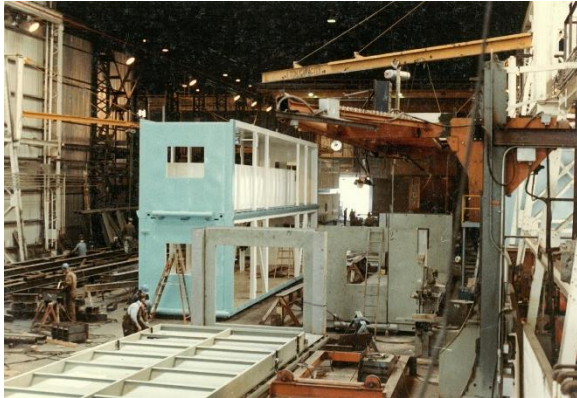
*The platforms (seen left) were delivered by barge to Alaska where high capacity trucks and dollies (shown above) off loaded the structures for delivery to the jobsite.*

Thompson's experience in supplying the oil fields eventually led to connections with the drilling contractors. The drilling contractors work on behalf of the owners to drill production wells and test holes as part of the exploration process. Drillers operate large equipment (known as rigs) to drill the holes. Thompson's first experience with rigs started in the late 1980's with Pool Arctic (*now Nabors Drilling*) who was a drilling contractor working on Alaska's North Slope. At one point, Pool Arctic operated the largest fleet of drill rigs on the North Slope. When TMF began working for Pool, they were looking to expand their fleet to meet market demand. This required retrofitting current rigs due to advances in equipment technology and drilling conditions that surpassed the capability of their rigs. Retrofitting works the same way as a new-build, only backwards. In a retrofit, the rig is placed on the barge and then shipped to a location large enough to receive it over the water and with enough yard space to accommodate the work. There are very few facilities on the West Coast who can accommodate this. Retrofits are just as attractive to TMF as new-builds. During a retrofit it is not unusual for some level of "rigging down" to happen and for structures to be placed in the shop. In that circumstance, it is very attractive to contractors to work with a facility large enough to handle these structures and keep them under the roof and out of the elements.



*AADCO merged with Pool Arctic in 1983 and provided the rig shown above as part of the merger. This rig would be retrofitted by TMF.*





*Modular fabrication at Thompson Metal Fab for a Pool Arctic retrofit. The modules shown here represent the scale of a 'truckable' module, typically 12' H x 10' W x 40' L*

Traditionally, drill rigs are built by manufacturing a series of truckable modules. These modules are fully assembled at the manufacturer's yard for verification, testing, and commissioning. Upon approval, the rig is completely disassembled for transportation to the jobsite. "Rigging up" is the process by which all these truckable modules are then reconnected together and recommissioned. Depending on the size of the rig, it is not unusual for 200 truckloads to be needed to move from the manufacturing location to jobsite. The process of putting a rig back together in remote locations can take months and cuts into production time. The ability to offer a turnkey service and integrate work in Thompson's shop and in their yard ultimately saves money in the long run – and contractors and owners have come to expect the capacity TMF can

offer. During the early development of Prudhoe Bay in the Arctic, machinery and field services were limited and getting the required equipment to the jobsite required creative solutions. Field work is expensive and risky; and often there is limitations to what can be performed. Thompson can build larger modules for delivery, which provides a distinct advantage by minimizing costs in the field and minimizing risk.

Parker Drilling was one of the first contractors who recognized that one solution to the problems on the North Slope was to simply to deliver a *bigger* rig. A bigger rig would be capable of holding more robust equipment which would allow for drilling longer, bigger holes for greater production. The benefit of drilling longer holes is that you do not need to move the rig from pad to pad as frequently; you can cover a lot more ground from just one spot. They understood the importance of downtime and the full capacity of what TMF could offer with regards to turnkey modular fabrication. The design for Parker Drilling's Rig 245 swapped out the multiple, smaller, truckable



*A large module for Parker Drilling Rig 245 moving from TMF's shop to their yard for assembly. Seen in the background is the mast and substructure of this massive drilling rig.*



*Rig 245 shown here at the assembly yard. When fully raised, the mast hangs high in the Vancouver, WA skyline.*



modules and consolidated them into fewer 'mega modules.' Less modules simply take less time to put back together in the field. What could be 4-6 months in field work could now be up and running in weeks. Also, by eliminating trucks, the risk of loads being damaged during transport is reduced dramatically. Parkers' vision of 'mega modules' required a facility that offered a few things: a big shop, big yard, skilled workforce, access to water for shipping, and a logistically friendly location.



*Parker Drilling Rig 245 being 'rigged up' at Thompson Metal Fab's yard. This yard space is immediately adjacent to the manufacturing facility and to the roll-on/roll-off barge slip. The ability to offer turnkey projects and delivery via water has given Thompson Metal Fab an advantage in the marketplace.*

Drilling equipment has long been manufactured in Houston, Louisiana, and other Gulf state locations. These facilities manufacture the truckable modules and often the large offshore platforms. They certainly have the shop, yard, workforce, and access to water – but they do not have a strategic location to Alaska when it comes to logistics. To get a barge from the Gulf to the North Slope requires passage through the Panama Canal just to get from one side of the continent to the other. The added time for shipping and the added cost of voyage does not justify the mega module concept. What is needed is a manufacturer in the Pacific Northwest. TMF's location at the old Kaiser shipyard in Vancouver, WA provides the space and direct access to a deep-water barge slip with roll-on/roll-off access. The combination of a heavy-industrial construction facility and a support yard with marine transportation capability is an important asset to the region's industrial job base and has potential to attract large job producing projects. This capability has enabled TMF to stay competitive in a business that has largely moved overseas.



Becoming a proven West Coast manufacturer of drilling equipment gave drilling contractors an option that was not there previously. By entering the market, engineers could now extend the limits of their design and present solutions that were attractive to both contractors and owners who were seeking to replicate what Parker did with Rig 245, the first mega-rig on the North Slope. Among the design variables that has always been taken into consideration are the shipping clearances between our facility and the North Slope of Alaska. In that distance, there are three bridges which loads must pass under: The Interstate Bridge, the Lewis & Clark Bridge, and the Astoria-Megler Bridge. Of those three, the Interstate has the lowest total clearance, but is currently sufficient to meet the requirements of transporting mega modules.



*Doyon Drilling Rig 25 shown on the barge in the foreground. Due to the size of the rig and its six mega-modules, two barges were required for delivery to Alaska's North Slope. The background shows the remaining modules for Rig 25, in addition to Parker Drilling's AADU Rigs (Rig 272 and Rig 273)*

Thompson's greatest competitive advantage in earning business with the drilling contractors is their ability to ship completed, commissioned, turn-key 'mega modules' to the jobsite. If that advantage is eliminated, they will be priced out of the market. In addition to competing against the Gulf states, they actively compete with Canadian shops in Alberta. Because of the exchange rate, those facilities have a 30% pricing advantage, all other things being equal. That is the magnitude of the shipping advantage they have at Thompson. Contractors are willing to pay a





*Picture of the Interstate Bridge in 2011 showing both the original Northbound span (background) and the second span (foreground) which opened in 1958 to traffic in both directions. In 1960, the second span was dedicated to Southbound traffic only. (Photo shows TMF manufactured drill rigs, AADU Rig 272 & 273 for Parker Drilling)*

premium to avoid truckable modules manufactured in interior Canada or in the Gulf. It is the Contractor's advantage in the long term to have mega modules as their risk is lower, their down time is lower, field erection and trucking costs diminish, etc. Please note, these mega modules can only have their loads diminished so much (because of shipping clearance issues, etc.) before the concept no longer makes sense and the design is forced back to a more traditional build plan.



## **PROJECT EXAMPLES:**

### Hilcorp Innovation Rig, North Slope, Alaska, USA [2016]

*The Innovation Rig is the next generation of drilling equipment. At nearly 1.5-Million LBS of steel, this rig consists of multiple modules and was built up to 50' H in TMF's shop before moving to their yard for final fit-up. At 9-months, this was the fastest rig build in Thompson's history, a true testament to their size and capability.*



### Parker Drilling AADU Rig 272 & 273, North Slope, Alaska, USA [2011]

*Each drilling rig was comprised of three main modules. The Mud Modules weigh 600-tons, the Drill Modules weigh 700-tons, and the Utility Modules weigh 460-tons. The Mud and Utility Modules are 48' wide x 55' high x 99' long. The Drill Module is 76' high with the mast in the lay-down position.*



### Doyon Drilling Rig 25, North Slope, Alaska, USA [2010]

*4-million LBS of steel and aluminum fabricated for Rig 25, a project where TMF also acted as the General Contractor. TMF managed all rig-up activities including mechanical, electrical, and functional checkout. This rig consisted of six primary modules: Power Complex (550-tons, 56' L x 40' W x 42' H); Drill Complex (560-tons, 96' L x 37' W x 40' H); Pipe Complex (560-tons, 68' L x 47' W x 25' H); Mud Complex (550-tons, 68' L x 40' W x 49' H); Pump Complex (560-tons, 64' L x 40' W x 52' H); Casing Complex (500-tons, 60' L x 56' W x 40' H). The 26' x 25' Mast extends to 148' L.*





Parker Drilling/British Petroleum Liberty Rig, North Slope, Alaska, USA [2009]



*This drilling rig shipped from our facility to the North Slope of Alaska in July 2009. TMF furnished approximately 5.5-million pounds of fabricated steel. The rig was the world's largest land-based rig at the time of manufacturing and consisted of three large modules. The Drill Module was 58' W x 98' H x 68' L, weighing 900-tons. The Pipe Barn module was 158' W x 45' H x 170' L, weighing 2,560-tons. The Drill Service Module was 50' W x 48' H x 177' L, weighing 2,600-tons.*





Pool Arctic Rig 6, North Slope, Alaska, USA [1998]

*The Rig 6 project was a retrofit of the existing rig and included all new structural framing in addition to new mechanical components for the moving system. At the time of manufacturing, it was reported by the tire manufacturer to be the largest rubber tire vehicle in the world. Nicknamed 'Radio Flyer', this backbone of this rig is twin 6' x 10' box girders which support the drill floor and mast, and transfers load to the substructure.*



Nordic Calista Rig 3, North Slope, Alaska, USA [1998]

*In 1998, TMF completed and delivered Modular Mobile Oil Drilling Rig 3 to Nordic Calista. The rig includes 850-tons of fabricated steel, it measures 45' wide x 78' high x 110' long. The rig was transported by barge to the North Slope of Alaska.*



Parker Drilling Rig 245, North Slope, Alaska, USA [1990]

*In 1990, TMF fabricated a self-propelled mobile oil drilling rig. The drilling module was 43' wide x 78' high x 150' long and weighed 3,000-tons. The utility module was 40' wide x 58' high and 130' long, weighing 1,500-tons. The cutting module is 30' wide x 30' high x 40' L, weighing 350-tons. The completed drilling rig was transported by ocean-going barge from TMF's facility to the North Slope.*

ConocoPhillips Milne Point, North Slope, Alaska, USA [1987]

*3,400-tons of fabricated modular steel structures were supplied to ConocoPhillips. This took three ocean-going barge loads to deliver to Alaska.*

ARCO Operation Center Housing Expansion, North Slope, Alaska, USA [1985]

*Modular superstructures (40' W x 65' H x 80' L) were fabricated along with bases and decking housing modules. Completed modules were loaded onto a barge and transported direct to the North Slope.*





Other Examples Include:

- Crowley, Monopod Pile, Cook Inlet, Alaska, USA [2014]
- Saxon Rig 147 Retrofit, Cook Inlet, Alaska, USA [2013]
- Saxon Rig 169 Retrofit, Cook Inlet, Alaska, USA [2013]
- Kuukpik Rig 5 Retrofit, North Slope, Alaska, USA [2005]
- Pool Arctic Rig 9, North Slope, Alaska, USA [1999]
- Nordic-Calista Rig 1 Retrofit, North Slope, Alaska, USA [1997]
- Pool Arctic Rig 4, North Slope, Alaska, USA [1994]
- Petro Star Refinery (Valdez), Alaska, USA [1993] \*
- Pool Arctic Rig 3, North Slope, Alaska, USA [1990]
- Petro Star Refinery (North Star), Alaska, USA [1985] \*
- Trans Alaska Pipeline System (TAPS), Alaska, USA [1977]
- Prudhoe Bay, Alaska, USA
  - *Discovered (1968), Start of Production (1977), Peak Production (1988)*
- Cherry Point Refinery, Washington, USA [1971] \*
- Cook Inlet Monopod, Cook Inlet, Alaska, USA [1970's] \*
- Kenai Refinery, Alaska, USA [1969] \*
- Maintenance on California refining facilities
- Maintenance on Washington refining facilities



*With a structural height of 126', this pile template for a monopod in the Cook Inlet (Alaska) is one of the largest structures to ship from the Columbia Business Center in the last 40-years. Thompson Metal Fab manufactured piling for this project, delivered in 2014.*





*Taken in the early 1970's, the photo above shows Thompson Metal Fab shortly after closing the original facility in Portland and moving to Vancouver. Thompson added fiberglass roofing and walls to bays 5 through 9 to create an enclosed space. The land has been developed quite a bit in the last 40-years (including improvements to the roll-on/roll-off barge slip), but the building remains virtually the same.*

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### **LOCAL BENEFIT & LOOKING AHEAD**

Because of Thompson's 40-year reputation, logistical advantage and modern quality programs required, they have a distinct benefit. Loss of that logistical advantage due to a diminished shipping clearance (or other) is not something they could replace. Earning this business is a tremendous benefit to Thompson, their employees, and their local community. For example, any one rig project is equivalent to one year of revenues, in addition to hundreds of direct high wage jobs, as well as work for hundreds of local small businesses.

Due to the magnitude of work, contractors often mobilize to Vancouver to manage the construction. This includes management, engineers, and other personnel to ensure that projects are delivered on time. This staff of people stay long-term in local hotels, rent from local citizens, spend entertainment dollars with local small businesses, and are an economic benefit. They not only employ the staff at TMF, but they also employ local electricians, machinists, painters, millwrights, pipe fitters, hydraulic operators, boilermakers, sheet metal workers, and other trades. This work also supports various apprentice programs which train the next generation of trade workers. Loss of this total benefit cannot be replaced.





*Local businesses see boosts in revenues when major job producing projects are brought to the Columbia Business Center. Due to the nature of these large projects, stakeholders often move management teams to Vancouver to oversee manufacturing.*

History has shown us that building a new link between Vancouver and Portland will bond our communities together and provide opportunity for economic growth and expansion. We also see that there is a correlation between the bridge, the growth of our community, and Thompson Metal Fab. The need for large-scale fabrication remains and markets that require TMF's services show no sign of slowing. There is potential for an industrial rebirth, one that mimics the industrial expansion of the 1950's through 1970's. While it is yet to be seen at the time of this writing, the federal government will at some point pass an infrastructure spending bill, which intends to replace our aging and deteriorating bridges, dams, and other critical works. Just as building these original structures kept generations of people working, so will the effort to replace these structures.

Thompson is encouraged by the commitment made to develop renewable energy sources. TMF has directly supported this effort for decades by manufacturing equipment that grows polysilicon crystals used in the development of solar panels. They have even been successful exporting domestically manufactured polysilicon equipment to countries such as China. Being a part of clean and renewable projects is something TMF does every day, thanks to the nature of their business. Steel is the most recycled material on Earth and steel products are 100% recyclable at the end of their useful life. Once produced, steel can be continually recycled into a new steel product without deterioration in product quality. Even the byproducts of steel work can be reused. Weld slag is used in cement, road construction, fertilizers, and hydraulic engineering. Process gasses are used to produce heat and electricity. Metal oxides can be recovered from steel making dust. Steel's inherent durability and recyclability make it an ideal fit for a circular economy. Allowing Thompson Metal Fab to continue producing steel products in the manner they do currently is a critical component in the continued development of clean energy and in effort to reduce America's carbon footprint.

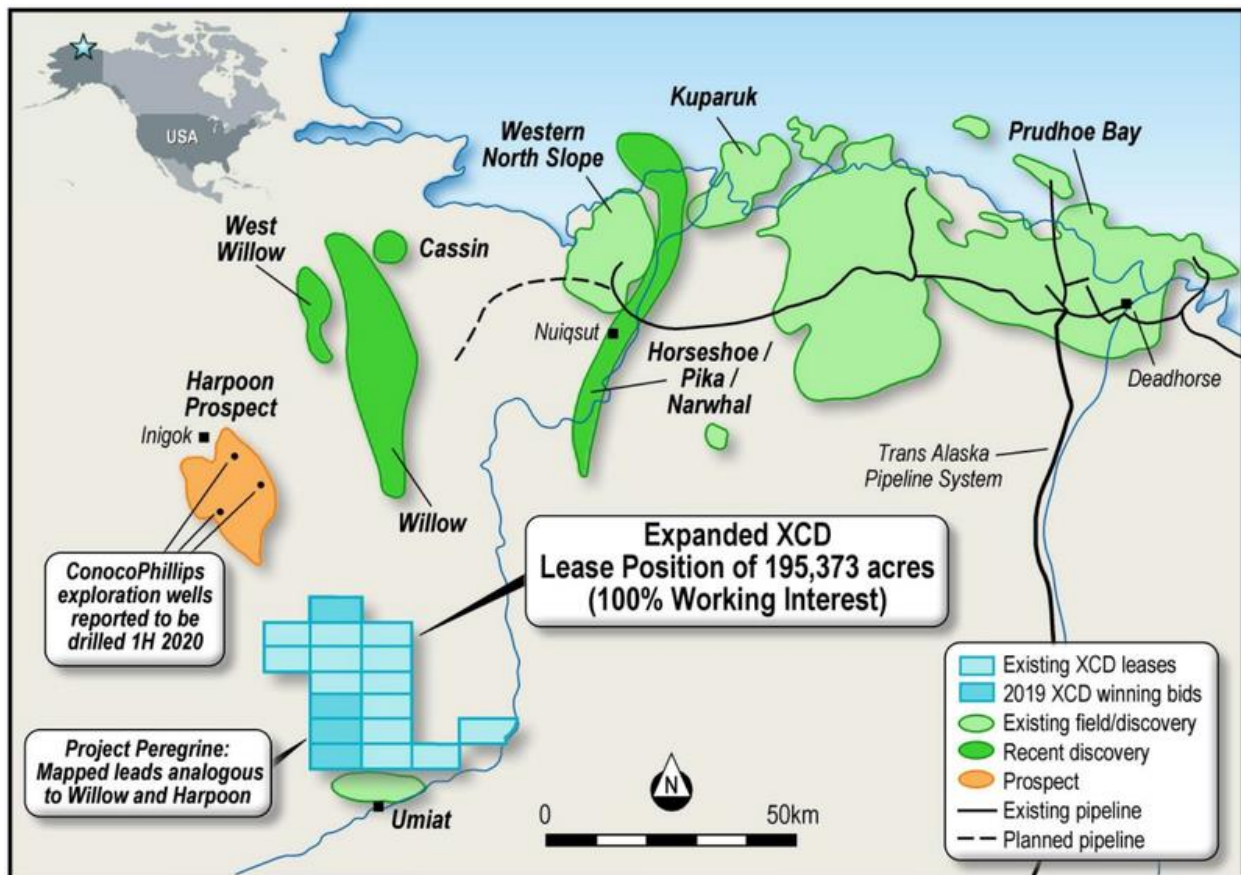
As Thompson looks ahead to the future, they are currently tracking several projects and emerging markets which will certainly require a shop of their size and skill set. These projects will likely require delivery by barge and be of scale greater than or equal to what has been demonstrated. As noted, TMF has a competitive advantage with projects that require delivery by water and there is no other comparable, active facility with a roll-on/roll-off barge slip on the West Coast. Future opportunities include:

- ConocoPhillips – Willow expansion (*drill rigs, modules*)
- Oil Search – Pikka expansion (*drill rigs, modules*)



- Horseshoe Unit – Future North Slope Expansion (*drill rigs, modules*)
- Aerospace
- Offshore Wind and Wave power generators
- Burnside Bridge
- Golden Gate Bridge Seismic Retrofit
- West Coast Movable Bridges
- Hydroelectric Maintenance Projects
- Desalination in California
- Port of Nome - Expansion

#### Willow Expansion/Pikka Expansion/Horseshoe Unit





In many regards, the original Prudhoe Bay development has reached the end of its useful life. In 2020 original Owner, BP, sold their Prudhoe rights to ConocoPhillips and Hilcorp. Hilcorp is renowned for their ability to acquire 'legacy wells' and get a high level of production thanks to their ability to match modern technology with lean processes. What bigger companies might steer away from or flat out abandon due to high overheads, Hilcorp (a smaller independent company) can come in and still make profits for many years. The sale of Prudhoe and acquisition by Hilcorp signals the end of an era at Prudhoe, but it also marks the beginning of Alaska's next chapter in oil production.

In 2016, discovery wells were drilled in the Willow unit, owned by ConocoPhillips. The Willow unit is immediately west of Prudhoe and other large operating units but is on land that is largely under-developed. During the expansion of Prudhoe Bay facilities were tied into one another (Alpine, Kuparuk, Oooguruk, Milne Point, North Star, Endicott), man camps often shared, and roads and bridges integrated into one logistical network. Willow is far enough outside of this integrated network that relying on the existing infrastructure to support further expansion is not feasible. New piping systems would be needed, new roads would be required, new processing modules installed, and essentially a 'mini Prudhoe' would need to be built from scratch. After a successful exploration and appraisal season in 2018 it is estimated that Willow could contain up to 750-million barrels of oil and the infrastructure that would support Willow could produce approximately 100,000 barrels per day. Assuming full production each day of the year, Willow would be 'on-line' for 20-years.



*This massive process module is being loaded out for delivery to the North Slope of Alaska in July 1990. This industrial equipment rivals the size of most downtown buildings and is representative of the equipment currently being requested for North Slope expansion projects. Due to scale and complex nature of work, this sort of equipment cannot be manufactured at the remote jobsite or accomplished at all in Alaska.*





*This massive process module is being loaded out for delivery to the North Slope of Alaska in July 1990. This industrial equipment rivals the size of most downtown buildings and is representative of the equipment currently being requested for North Slope expansion projects.*

Flanked by existing units, Alpine and Kuparuk, sits Pikka. The Pikka unit is part of the Nanushuk Field which is estimated to hold as much as 1.5-billion barrels of oil. This is considered to be the biggest conventional onshore oil discovery in the US in the last 30-years. Upon full development, it is anticipated that Pikka will produce 120,000 barrels per day, and on some accounts up to 160,000 barrels per day. Conservatively, there is enough oil here to keep Pikka online for nearly 35-years.

Like Willow, there's just no infrastructure in Pikka despite being sandwiched by two existing fields. Early planning on Pikka included budgetary Requests for Proposal which were submitted by Pikka's Owner, Oil Search. One RFP requested multiple modules nearly 80' H x 200' L x 80' W, a fairly typical example of the infrastructure which is required.

Finally, early testing has been going on in the Horseshoe unit of the North Slope (south of the Willow and Pikka unit) and early indication is that Horseshoe will also be a high volume area, with volume of over 1-billion barrels. Combined with Willow and Pikka, the makings of a modern day Prudhoe Bay is in the works and could be a generational project.

## **Aerospace**

Vandenberg Air Force Base is home to the US Air Force, United Launch Alliance, Space X, and now home of the Space Force, a branch of the US Air Force. Blue Origin is looking at Vandenberg as well and this will produce new opportunities for launch facilities. The western range is advantageous and continues to serve the needs of the industry. All these groups are getting a boost from "REACH" (Regional Economic Action Coalition). Currently, Vandenberg has the only Space Launch Complex (SLC) to launch for polar orbit. The Cape is working on a program for this, but currently the capability does not exist.



(Report from 'REACH' available for online viewing at <https://reachcentralcoast.org/wp-content/uploads/Phase-0-Report.pdf>)

Excerpt from the referenced report:

*"Driven in large part by commercial enterprises, space is now a \$425-billion industry that's expected to grow to \$3-trillion over the next three decades...It's a huge opportunity and why REACH adopted building a thriving space enterprise as a core initiative in our 2030 plan."*

This bold plan by the State in collaboration with all the stake holders will result in the construction of new facilities to support launch efforts at Vandenberg. Launch towers and/or mobile assemble buildings will be major projects that will require work on very large structures within this decade. The work on these facilities in the past been done by NW Oregon/SW Washington fabricators – including Thompson Metal Fab. This work requires facilities with large yard areas and heavy fabrication capabilities as well as a barge loading facility that is capable of supporting ocean going barges. There are very few of these types of facilities on the West Coast. The Columbia Business Center is one of those few spaces and represents a location that has both barge loading capabilities and the manufacturing capacity through groups like Thompson Metal Fab.

Past work in California dating back to the 1960's has been done at the Columbia Business Center. Jacket Liners for the Santa Barbara oil field were built at this location. Work for both Space Launch Complex 3 (SLC 3) and SLC 6 were done at Columbia Business Center. Much of this work required a full bridge raise to facilitate passage of the cargo on board a barge.

In addition to this planning at Vandenberg, Space X is now under contract for two more launches from there.

([https://www.noozhawk.com/article/defense\\_department\\_awards\\_contract\\_to\\_spacex\\_for\\_2\\_vandenberg\\_afb\\_launches](https://www.noozhawk.com/article/defense_department_awards_contract_to_spacex_for_2_vandenberg_afb_launches))



*Pictures from Space Launch Complex-6 on April 26, 2021 show before and during launch of United Launch Alliance Delta IV Heavy rocket carrying a classified spy satellite. The launch table was manufactured by Thompson Metal Fab and delivered to the jobsite in 2003.*





Excerpt from NOOZHAWK Santa Barbara:

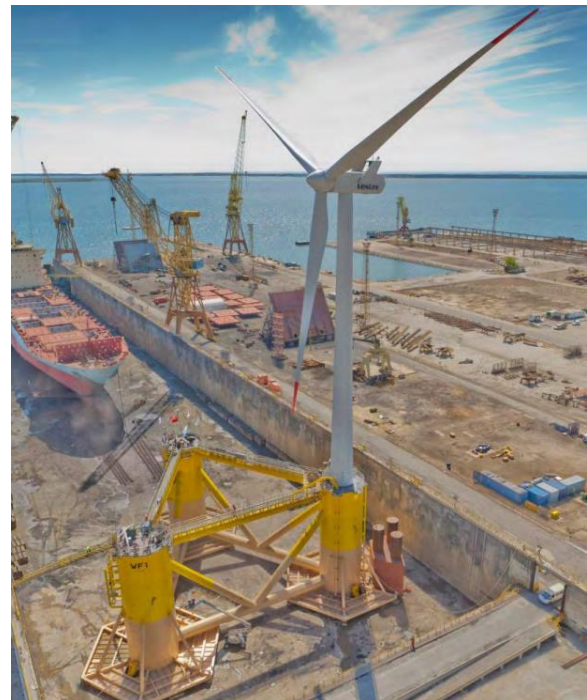
*“The Department of Defense awarded Space Exploration Technologies a pair of missions that will involve two rocket launches from Vandenberg Air Force Base for the military’s next-generation of space-based tools for warfighters....The announcement in the final hours of 2020 put the firm-fixed-price contract cost for SpaceX at \$150,450,000...The first launch will occur in September 2022, and the second mission will take place no later than March 31, 2023, to complete putting the constellation in space, according to the award by the Space Development Agency in Washington, D.C.”*

SpaceX and United Launch Alliance have been awarded a 40%/60% split for launching DOD payloads. This award was made in August of 2020. For work at Vandenberg, SpaceX will have to add the capability of vertical integration of DOD payloads. This will require Space X to build a Mobile Service Tower (MST) or a similar structure to facilitate vertical integration of their vehicles. Currently SpaceX does all integration horizontally, installing satellites and rockets onto Falcon 9 and Falcon Heavy inside hangars near the company’s launch pads. But some of the of the US Government’s most sensitive and expensive intelligence-gathering satellites are designed to be mounted on their launch vehicles vertically. SpaceX officials have indicated that vertical integration capability is required of participants in the National Security Space Launch Phase 2 Launch Service Procurement.

### **Offshore Wind and Wave**

Currently there are no independent organizations/companies willing to make the upfront investment into this emerging market. The land based wind industry grew because of federal tax credits that made it profitable, and without federal assistance it is unlikely that offshore systems will get the boost needed.

Recently, the administration under President Biden cited their plan to expand the use of off-shore wind farms in effort to develop renewable energy sources. The goal of the Biden Administration is to increase capacity of the current off-shore systems to power 10-Million homes by the year 2030. To meet that target, the administration intends to accelerate the permitting of projects along the coastlines and to open waters for development. \$3-Billion in federal loan guarantees are available for offshore wind projects and for investing in the nation’s port properties to support wind construction.



Mirroring this goal to develop offshore wind energy, the states of California and Oregon have introduced bills to develop wind energy along their coastlines. California bill AB525 sets a goal of 10GW of offshore wind by 2040,



3GW of which to be established by 2030. Oregon's HB3375 also sets a goal of 3GW by 2030. Oregon's effort is sponsored by a Republican (Rep. David Brock Smith) who has positioned the states bill as an opportunity to stimulate economic development and resiliency.

Currently there is not a facility on the West Coast that is set up to assemble these massive offshore wind systems. Thompson Metal Fab certainly has the capacity to manufacture the floating bases, and the facility/space to receive the wind towers and turbines. We also have the space to perform all assembly required. All opportunity to participate with this emerging market is gone however if the new bridge is not at a suitable height. Our current plan to participate with this emerging market is to manufacture the bases at TMF and float them downstream to a satellite yard where the towers and turbines can be assembled and installed on our bases. With that plan in place, we can utilize our current facility for all the heavy manufacturing, and provided that we are not impacted by the height of the I-5 bridge, we can ship these structures to wherever the assembly yard is located. The Biden administration keys in on one important factor, most coastal port properties are not currently set up to handle this massive manufacturing and investment in the properties must be made.

Most of the current facilities manufacturing offshore structures are on the American East Coast, or in the Gulf. Even though these facilities have the capacity, they are not well positioned to support the manufacturing of offshore systems for the West Coast. To reach the West Coast, all cargo must travel through the Panama Canal and the distance associated with voyage makes the transportation very expensive and further defines the reason why developing a manufacturer on the West Coast is so important.



**Figure A-20 Vancouver**

*Image above comes from BOEM report in 2016 which evaluates various sites on the West Coast that would be suitable for the development of offshore wind power manufacturing. The far right shows the Columbia Business Center, and predominantly in middle is Thompson Metal Fab.*

Thompson Metal Fab is one of possibly two manufacturers on the West Coast who has the size of facility, yard space and direct access to water to make our company a very attractive option for full-scale manufacturing of offshore systems. When you look at the total capacity of the Columbia Business Park, there is more than enough space and infrastructure to use our location in a dynamic way. If the new bridge does not at least accommodate this emerging market, it will be very difficult to develop the required infrastructure at all on the West Coast. Let us not lose what we currently have.



On March 3<sup>rd</sup>, 2016, the Bureau of Ocean Energy Management published a 256-page report that names the Columbia Business Park as a viable option for manufacturing offshore wind systems, but also notes that if the new height of the I-5 bridge is lowered below its current air gap it will severely restrict this type of manufacturing for any facility that is upstream of the bridge (i.e. Thompson Metal Fab).

***To download a PDF file of the Environmental Studies Program report, go to the US Department of the Interior, Bureau of Ocean Energy Management, Environmental Studies Program Information System website and search for OCS Study BOEM 2016-011.***



*Images above comes from the 2016 BOEM report which shows the manufacturing and shipping capabilities of the Columbia Business Center for the wave power industry.*

## **Burnside Bridge**

The Burnside Bridge is scheduled for start of construction in 2024. There are two alternatives to the movable portion of the bridge: Replace the existing double-leaf bascule bridge with a vertical lift bridge – or – replace the bridge with a modern double-leaf bascule. The replacement of the approaches is difficult and would be best with a long span alternative. The option of a Tied-Arch, Cable-Stayed or Truss Span is attractive.



*Image above shows the Sauvie Island Bridge being shipped to the jobsite via barge on the Willamette River and passing under the Burlington Northern RR Bridge in Portland, OR. Delivery of steel for the new Burnside Bridge would take a similar approach, due to the limited area for construction at the jobsite in downtown Portland, OR. Bridge steel coming from the Columbia Business Center would pass under the Interstate Bridge to reach the jobsite.*



Due to congestion at the job site, moving the major spans into place will be done by water. Similar work has been done in the past on the Freemont Bridge, Sauvie Island Bridge and Sellwood Bridge.

### **Golden Gate Bridge Seismic Retrofit**

The Golden Gate Bridge has an upcoming project that is one of the largest projects on a single bridge that is not new construction. The iconic towers on the Golden Gate Bridge will be retrofitted in addition to the deck steel between the two towers. This project was due to be completed by 2024 but has been delayed by other projects *(currently scheduled to be complete in 2023)*.

### **West Coast Movable Bridges**

California has 36 movable (non-railroad) bridges. Of that group, four are in poor condition and 25 are in fair. Replacement will be recommended for some of these bridges and most will be shipped to the job-site by barge.

Oregon has the previously mentioned Burnside Bridge coming up. Additionally, the Rose Quarter Improvement project which will include the manufacturing of major steel spans.

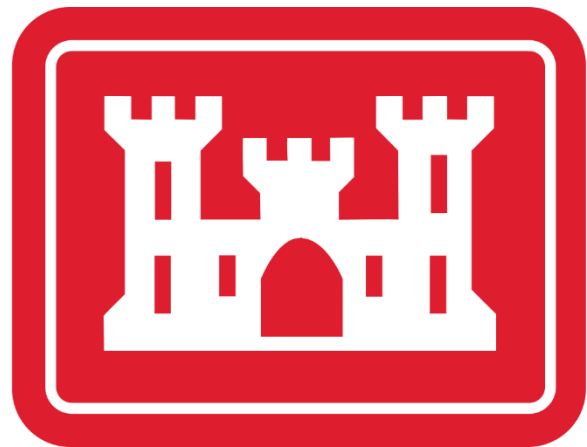
Washington has 51 movable bridges (non-railroad). 10 are in poor condition and 34 are in fair condition. These bridges will be slow to replace due to budget issues but most of the poor condition bridges will be replace.

### **Hydroelectric Maintenance Projects**

The current 2021 (fiscal year) budget work plan for the US Army Corps of Engineers is \$2.7-Billion. Much of this work will be on the Columbia River system. Applicable work for TMF is as follows:

#### Portland District

- Bonneville Dam
  - Powerhouse 2, 65-Ton Tailrace Gantry Crane Replacement
  - Headgate Repair Pit Rehab
  - Powerhouse 1 Trash Racks
  - Fish Guidance Efficiency
- John Day Dam
  - Navigation Lock Downstream Gate Bearing Shoe Replacement
  - Trash Racks Replacement
- Cougar Dam:
  - Spillway Gate Rehab
  - Butterfly Valves





- Foster Dam:
  - Oil Spill Prevention
  - Oil Water Separator
  - Fish Weir Follow-on
- Detroit Dam:
  - Spillway Gate Rehab
- Dexter Dam:
  - Trash racks
  - Intake Gates
  - 25-Ton Intake Gantry Crane Replacement
- Green Peter Dam:
  - 180-Ton Bridge Crane Rehab
- Big Cliff Dam:
  - 40-Ton Intake Gantry Crane
  - Trash Racks and Gates Rehab

#### Seattle District

- Libby Dam
  - 75-Ton Intake Gantry Crane Rehab
- Albeni Falls Dam
  - Turbine Maintenance Platform
- Chief Joseph Dam
  - Intake Gates Rehab or Replacement
  - Turbine Maintenance Platform
  - 50-Ton Intake Gantry Crane Rehab
  - 18-Ton Tailrace Gantry Crane Rehab

#### Walla Walla District

- Ice Harbor Dam
  - Intake Gate Hydraulic System Upgrades
- Lower Monumental Dam
  - Turbine Maintenance Platform
- Lower Granite Dam
  - Turbine Maintenance Platforms



## Desalination in California

California is always in a water crisis. They have new reservoirs planned that will require outlet works, gates, etc. Most of this work will ship by truck/train, but shipping over the water (by barge) will be the modular structures for new equipment in the planned Desalination facilities that California needs to sustain the population growth.

30-miles north of San Diego is the Claude “Bud” Lewis Carlsbad Desalination Plant, the largest effort in North America to turn salt water into fresh water. Each day 100-million gallons of seawater are pushed through semi permeable membranes to create 50-million gallons of fresh water that is piped to municipal users. Carlsbad, which became fully operational in 2015, creates about 10% of the fresh water the 3.1-million people in the region use, at about twice the cost of the other main source of water. This is a real issue for California and will require the state to build more of these desalination plants.

## Wartime Efforts

It is important to plan for the unforeseen as well. Contingency comes in many forms; but let us not lose sight of the reason why the facility exists to begin with. Kaiser built the facility as part of the war effort in WWII.

Because of the shipping clearances allowed when the drawbridge was at full height, the Vancouver Shipyards could produce Liberty and Victory war ships despite being upstream from the bridge. If that height is impacted by a fixed structure at a *lower* clearance, the ability for Thompson to support major wartime efforts is certainly

diminished especially when compared to the capacity we could offer today. As noted previously, we are one of only a handful of facilities on the West Coast who has facility large enough to manufacture the structures we do and ship over the water. Reducing shipping clearances will certainly limit Thompson’s ability to be a strategic West Coast manufacturer if a major wartime event occurs.



*Henry Kaiser's Vancouver Shipyard, shown in development in 1942. Eventually becoming the Columbia Business Center, this facility would become a strategic West Coast manufacturing facility.*

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## IN CLOSING

Thompson Metal Fab supports the new Interstate Bridge Replacement project. The region has outgrown the capacity of the current span and a new bridge is needed to reflect current and future needs. Innovations in transportation have changed the way people travel and move goods since 1917; and modern engineering, materials, manufacturing, and construction should allow for a beautiful, robust structure that will serve the needs for future generations. Currently the lift span on the Interstate Bridge is 178' at maximum clearance, any reduction



on a new span will have significant impact on TMF's industrial competitiveness. Less clearance will inhibit Thompson's ability to attract job-producing industrial projects to the region. Lower bridge clearance will also cause constraints for current and future energy infrastructure needs where TMF is counted on to be a major supplier to energy producers. Impacts to clearance could also affect the development of renewable energy sources, such as offshore wind. A facility, like that at Thompson Metal Fab in the current configuration, will be critical in the success of offshore wind programs on the West Coast. Additionally, users such as the US Army Corps of Engineers, will be impacted as they depend on TMF to deliver structures by barge to support our region's dams and ports East of I-5.

We recognize a new Interstate Bridge replacement needs to meet the requirements of all modern and future modes of transportation, and that requirement will most likely impact our historical, current, and future usage of river transit. However, Thompson also recognizes the importance of a new, safe, and modern bridge to the region, and is willing to work with the Interstate Bridge Replacement project team to preserve Thompson Metal Fab and hundreds of family wage jobs, while at the same time advancing a much needed new bridge to the future.

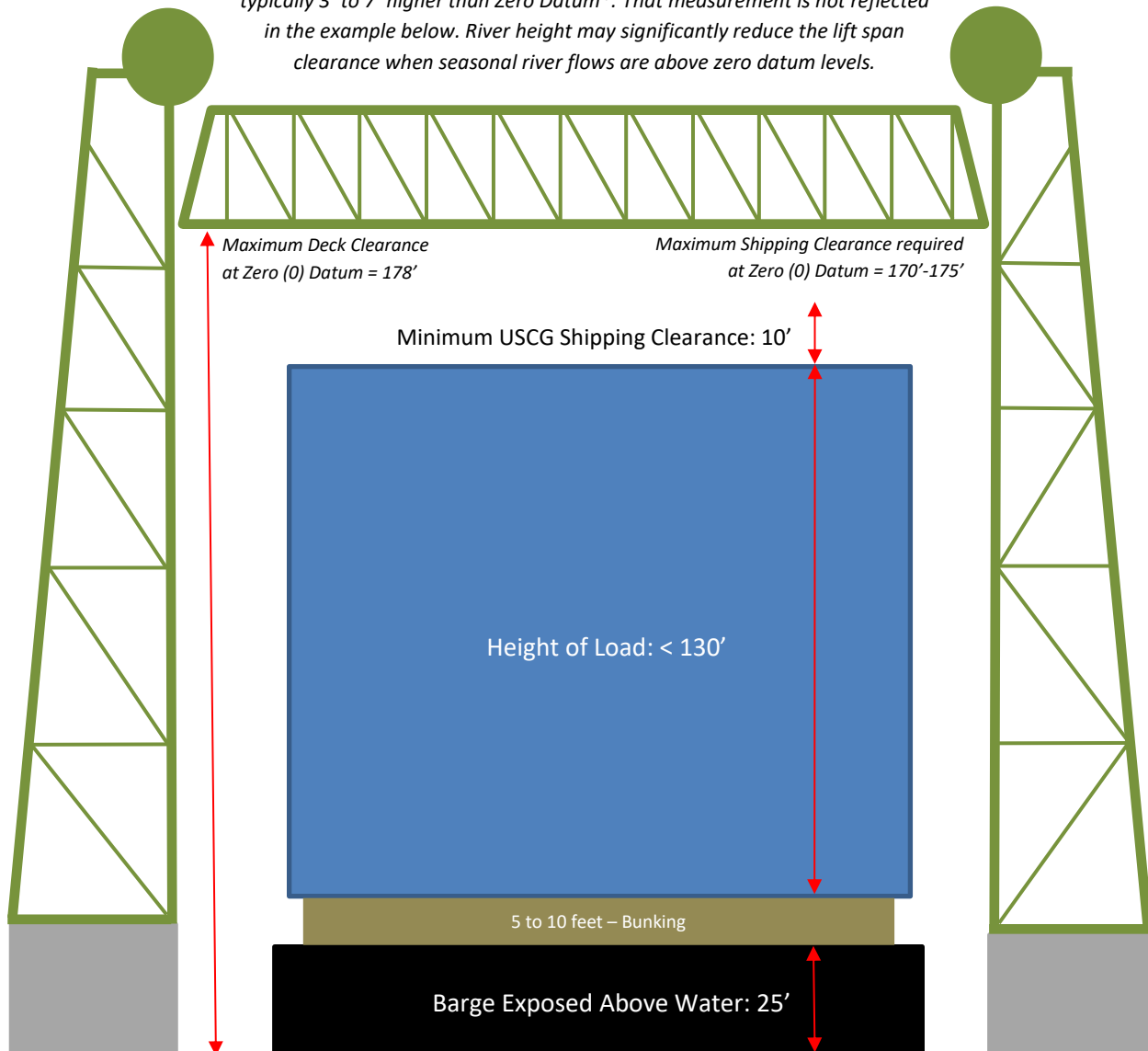
Sincerely,

A handwritten signature in black ink, appearing to read "JLR", with a stylized flourish at the end.

**John B. Rudi**  
Owner/President  
Thompson Metal Fab



Clearance information assumes Zero (0) Datum. The Columbia River is typically 3' to 7' higher than Zero Datum\*. That measurement is not reflected in the example below. River height may significantly reduce the lift span clearance when seasonal river flows are above zero datum levels.



\* <https://water.weather.gov/ahps2/hydrograph.php?wfo=pqr&gage=vapw1>



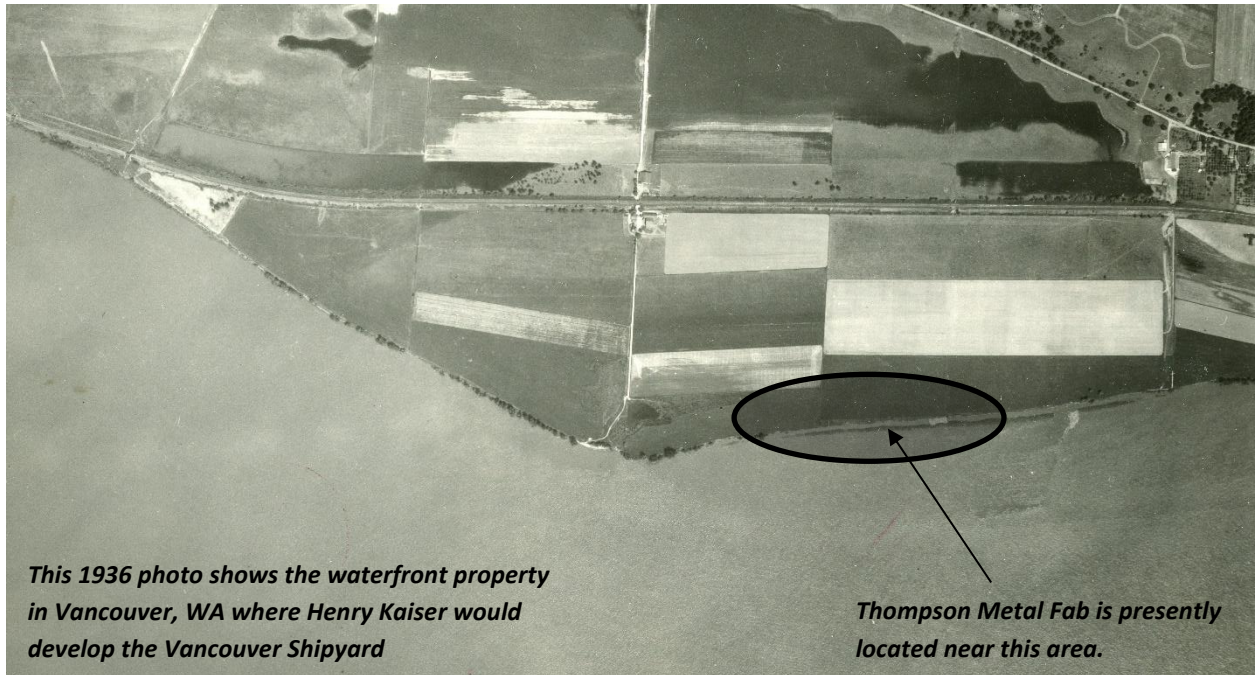


Thompson Metal Fab	Revision 0
Interstate Bridge Replacement Project	May 26, 2021
Appendix B - River Usage Data	Page 1 of 1

EXAMPLES OF THOMPSON METAL FAB PROJECTS WHICH REQUIRED BRIDGE LIFT									
Owner	Project Name	Shipping Date	Shipping Destination	Number of Barges	Barge List, FT (height exposed above waterline)	Dunnage/Blocking Height (ft)	Height of tallest structure (ft)	USGC Minimum Gap (ft)	Total Required Clearance, FT (Assumes Zero Datum)
AKDOT	Ward Cove Ferry Dock Expansion	2020	Ketchikan, AK	1	25	5	14	10	54
Intel	LARK E-Houses	2020	Hillsboro, OR	1	25	5	16	10	56
ASE	Wind Tunnel Retrofit	2019	Tongue Point, OR	1	25	5	18	10	58
Hillcorp	Innovation Rig	July 2016	North Slope, AK	1	25	10	50	10	95
Multnomah County	Sellwood Bridge	2015-2016	Portland, OR	7	25	5	20	10	60
Furie	Monopod Pile	July 2014	Cook Inlet, AK	1	25	0	126	10	161
Saxon Drilling	Rig 147	July 2013	Kenai, AK	1	25	10	40	10	85
Saxon Drilling	Rig 169	July 2013	Kenai, AK	1	25	10	40	10	85
Parker Drilling	Rig 272	July 2011	North Slope, Alaska	1	25	10	113	10	158
Parker Drilling	Rig 273	July 2011	North Slope, Alaska	1	25	10	113	10	158
Doyon Drilling	Rig 25	July 2010	North Slope, Alaska	2	25	10	70	10	115
British Petroleum (BP)	Liberty Rig	July 2009	North Slope, Alaska	2	25	10	100	10	145
CalTrans	East Tie-In	2008-09	Bay Area, CA	2	25	5	40	10	80
OHSU	Portland Aerial Tram	2006	Portland, OR	1	25	10	33	10	78
CalTrans	Bay Bridge Retrofit	2006	Portland, OR	3	25	5	60	10	100
US Army Corps of Engineers	Ice Harbor RSW	March 2005	Portland, OR (Swan Island) and then to Ice Harbor Dam	1	25	5	68	10	108
Samuel Engineering	Alaska Gold Mining	2005	Nome, AK	1	25	5	50	10	90
CalTrans	Richmond San Rafael Retrofit	2004	Bay Area, CA	1	25	5	40	10	80
Boeing	Delta IV Launch Table	2003	Vandenberg AFB, CA	1	25	10	33	10	78
US Army Corps of Engineers	Lower Granite RSW	March 2001	Portland, OR (Swan Island) and then to Lower Granite Dam	1	25	5	61	10	101
Pool Arctic	Rig 9	1999	North Slope Alaska	1	25	10	60	10	105
Cascade General	Esperanza Power Barge	1999	Portland, OR	1	25	10	30	10	75
Pool Arctic	Rig 6	1998	North Slope, AK	1	25	10	60	10	105
PGE	Trojan Decommissioning	1998	Hanford, WA	1	25	5	40	10	80
Nordic-Calista	Rig 3	July 1997	North Slope, Alaska	1	25	10	78	10	123
LaFarge Cement	Pre-Heater Tower	1997	Richmond, BC, Canada	1	25	5	60	10	100
Cascade General	Golmar Explorer Ship Conversion	1997	Portland, OR	1	25	5	30	10	70
TriMet	Terry Moore Pedestrian Bridge	1996	Portland, OR	1	25	5	30	10	70
WSDOT	Duwamish Bascule Bridge	1996	Seattle, WA	1	25	5	30	10	70
CalTrans	Nimitz Freeway	1995	Bay Area, CA	4	25	5	70	10	110
Port of Sacramento	Bulk Material Handling System	1993	Sacramento, CA	1	25	5	50	10	90
Powell River Paper Company	Chlorine Dioxide Module	November 1991	British Columbia, Canada	1	25	5	76	10	116
Parker Drilling	Rig 245	July 1990	North Slope, Alaska	1	25	10	78	10	123
Pacific Marine	SWATH Hull	1989	Honolulu, HI	1	25	10	60	10	105
Christensen Marine	Dry Dock	1987	Vancouver, WA	1	25	10	40	10	85
ConocoPhillips	Milne Point Modules	1987	North Slope, AK	3	25	10	30	10	75
	Newport Bay Floating Foundation	1986	Portland, OR	1	25	5	20	10	60
WSDOT	I-90 East Channel Bridge	1986	Seattle, WA	1	25	5	30	10	70
ARCO	Housing Expansion	July 1985	North Slope, Alaska	1	25	5	65	10	105
Georgia Pacific	Wood Chip Material Handling System	1973	Toledo, OR	1	25	5	60	10	100

Bridge to be opened at Captain's discretion for loads under 72' high.





*This 1936 photo shows the waterfront property in Vancouver, WA where Henry Kaiser would develop the Vancouver Shipyard*

*Thompson Metal Fab is presently located near this area.*



*In just a few years nearly 200-acres was redeveloped, providing Vancouver a major industrial waterfront facility. An active Kaiser Shipyard is shown here in 1943*



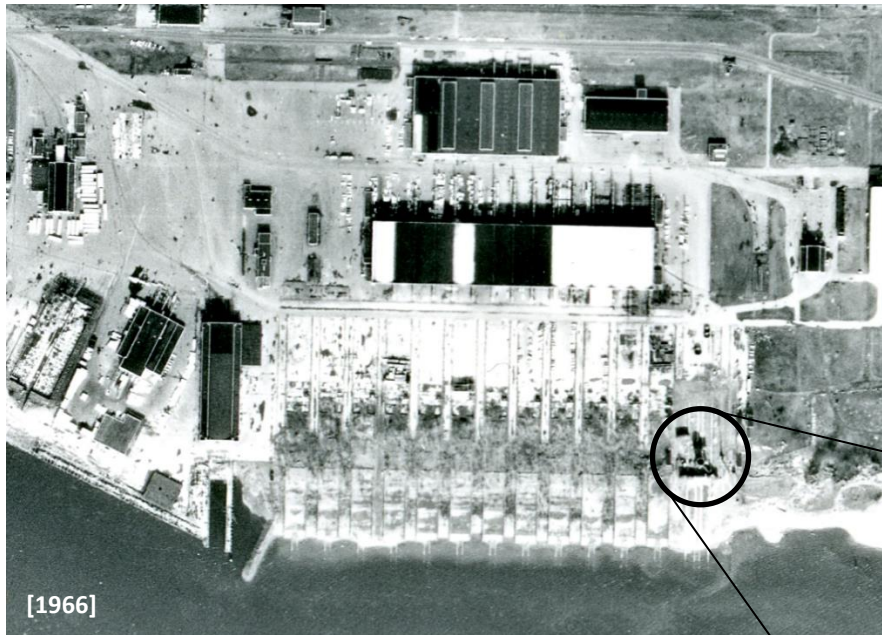


*In 1948, three years after WWII ended, the Vanport flood not only wiped out Oregon's second largest city, but it left the Kaiser Shipyard completely barren.*



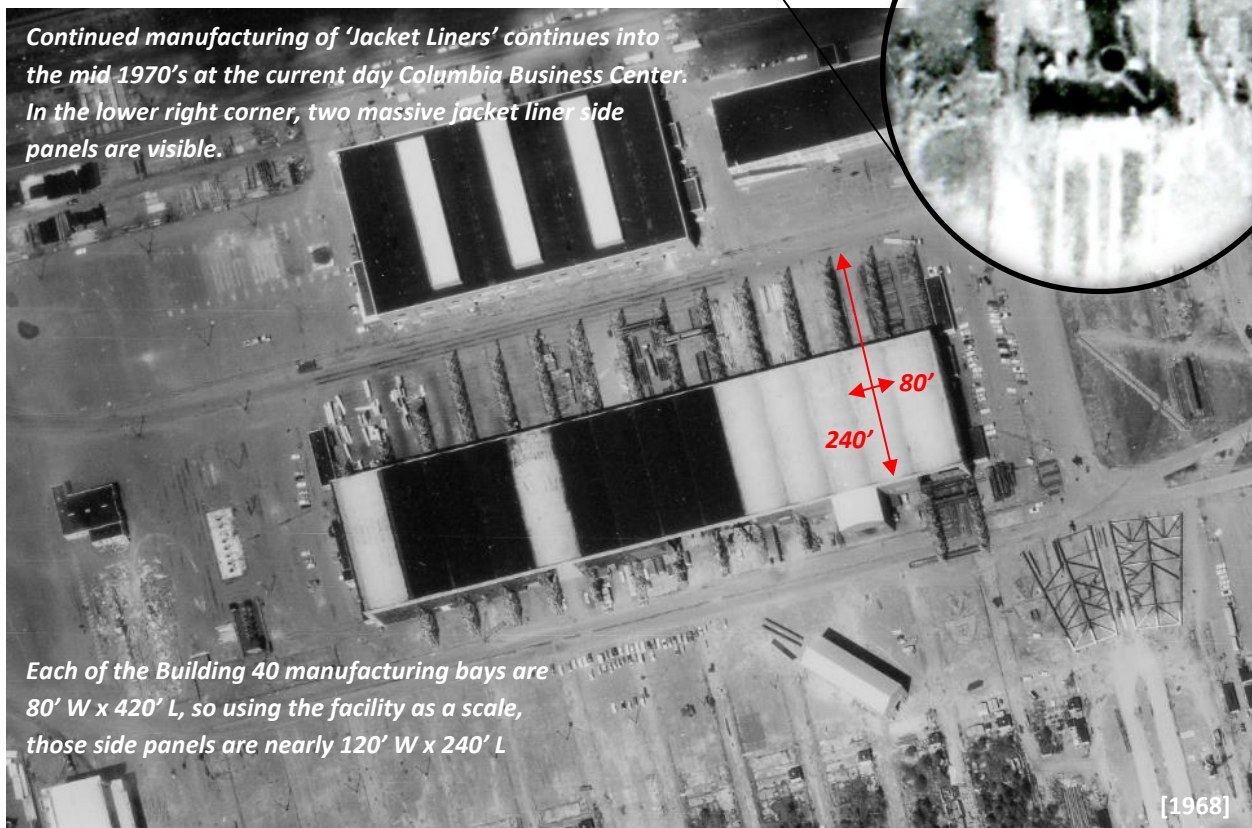
*By 1956, the facilities at the current Columbia Business Center are in full operation once more, leveraging the capacity to support the industrial needs of the time.*





[1966]

The development of offshore oil in California required the fabrication of massive infrastructure. Typically, offshore oil fabrication is done in the Gulf states, but with major oil production now on the West Coast those Gulf state areas could not lend support and a West Coast facility was required.



Continued manufacturing of 'Jacket Liners' continues into the mid 1970's at the current day Columbia Business Center. In the lower right corner, two massive jacket liner side panels are visible.

Each of the Building 40 manufacturing bays are 80' W x 420' L, so using the facility as a scale, those side panels are nearly 120' W x 240' L

[1968]



*A completed Jacket Liner segment being prepared for loadout. The slip shown here is not the one used currently by Thompson Metal Fab and the Columbia Business Center, but it served the same purpose – to load massive structures onto barges.*

[1971]

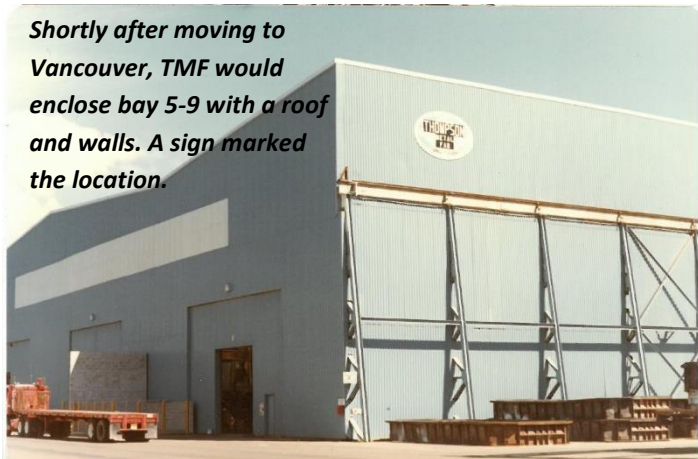
*In this configuration, the jacket liner is estimated to be 120' tall, nearly double the size of the facility and similar in size to structures manufactured by Thompson Metal Fab still to this day*

**Roofing being extended to Building 40, Bay 10-12 (current Thompson Metal Fab).**

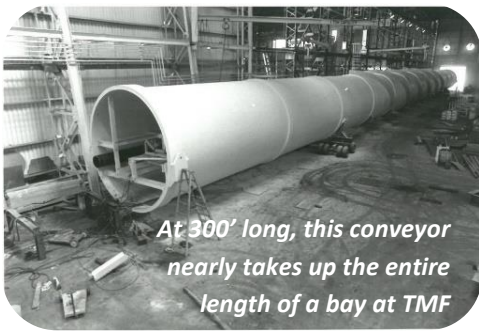


*TMF Project Managers, early 1970's*

**Shortly after moving to Vancouver, TMF would enclose bay 5-9 with a roof and walls. A sign marked the location.**







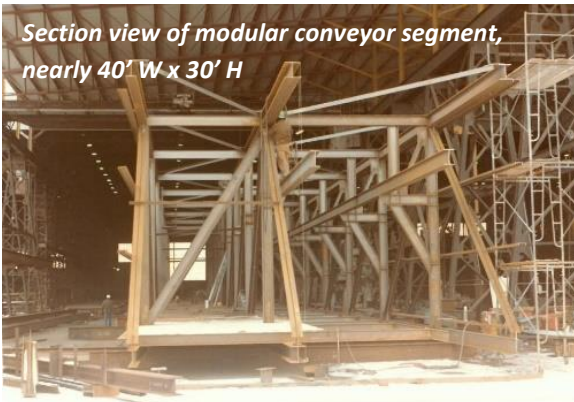
*Conveyor systems and support towers were a major part of Thompson's first few decades at the Columbia Business Center. TMF's barge slip allowed for massive, modular deliveries to Ports, pulp & paper factories, and other industrial areas.*



*Completed conveyor project at the Port of Longview.  
Thompson fabricated the conveyors and support towers.*



*Section view of modular conveyor segment,  
nearly 40' W x 30' H*



*There are numerous Ports on the Columbia River with large, developed properties and robust industrial activity. These Ports are critical to our region and are the hub for most incoming goods.*

*Conveyor systems are often used at Ports to quickly handle and transfer bulk materials. Thompson Metal Fab manufactured and delivered the massive conveyor system and support towers shown here and delivered to the Port of Longview.*

*Modular structures were loaded on a barge and erected in the field. Delivering modular units allows for quicker assembly in the field and easier integration of all mechanical components.*

*Conveyor being loaded on barge at  
Thompson Metal Fab.*



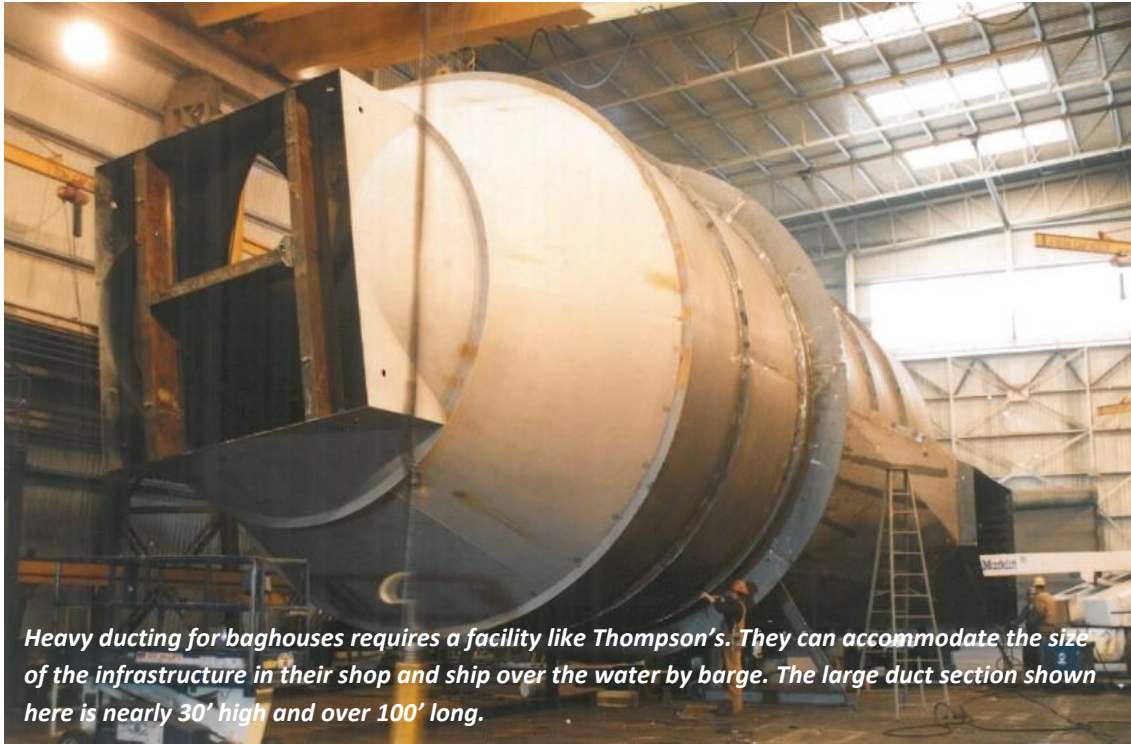




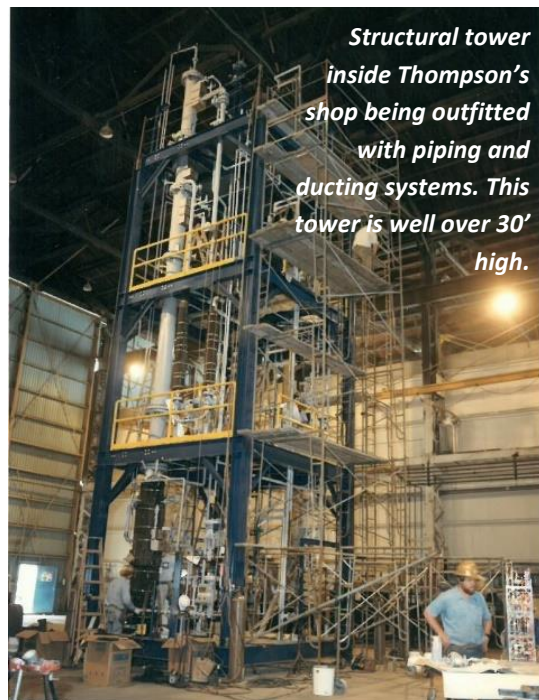
***Conveyors come in many shapes and sizes, depending on the intended use. Shipping the structures pre-assembled saves on time and money in the long-run and is a value-add for Owners and other stakeholders. Shown here are additional examples of projects that were manufactured by Thompson and delivered all over the West Coast, from Toledo, OR to Sacramento, CA.***







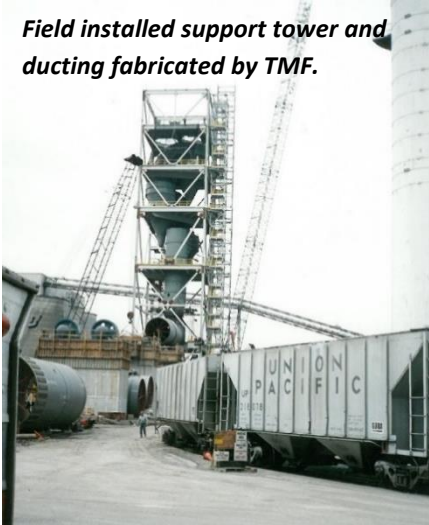
*Heavy ducting for baghouses requires a facility like Thompson's. They can accommodate the size of the infrastructure in their shop and ship over the water by barge. The large duct section shown here is nearly 30' high and over 100' long.*



*Structural tower inside Thompson's shop being outfitted with piping and ducting systems. This tower is well over 30' high.*



*Field installed support tower and ducting fabricated by TMF.*



*Baghouse components being loaded on a barge from Thompson Metal Fab's facility*



*Nearly touching the rafters, this giant structural building will soon be outfitted with mechanical items prior to load out on the barge. The size of Thompson's facility provides value to project owners who seek out modular, turn-key solutions for their infrastructure needs.*





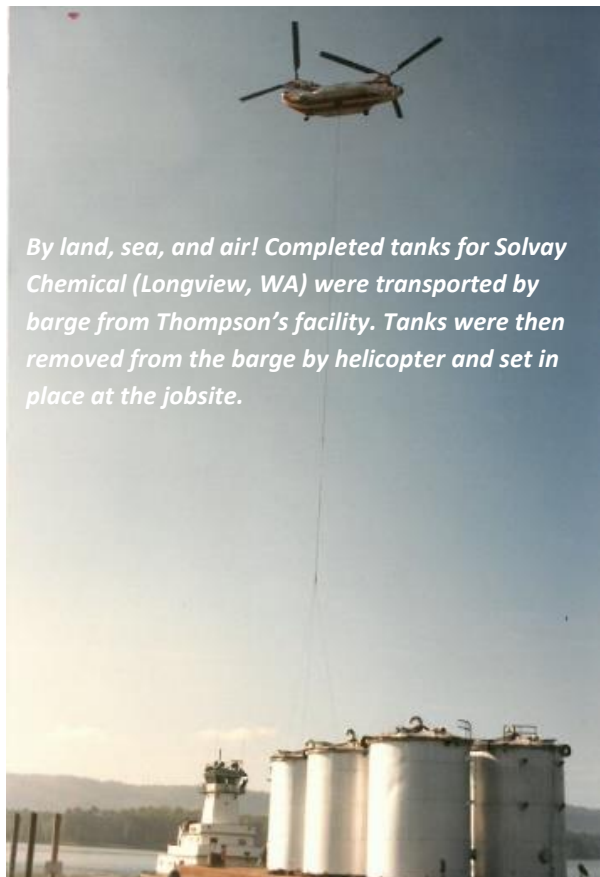


*Refineries on the West Coast are typically located on coastal properties or are otherwise accessible by deep water ports. In addition to capacity expansion and improvements, these facilities have processing vessels and other equipment that wear out over time and need to be replaced.*

*Shown here at the Phillips 66 facility in Rodeo, CA, Thompson Metal Fab fabricated a "prefractioner" tower which was 17' diameter x 126' L. Too large and heavy to ship over the road, this vessel was delivered by barge and direct to the jobsite.*







*By land, sea, and air! Completed tanks for Solvay Chemical (Longview, WA) were transported by barge from Thompson's facility. Tanks were then removed from the barge by helicopter and set in place at the jobsite.*



*Process vessels and skids are being loaded on a barge from Thompson Metal Fab's facility. This load will be delivered to Alaska and used on the North Slope. These units are well over 20' and 40' long.*



*Large tanks for Amalgamated Sugar in Portland, OR. The tanks are used as part of their manufacturing process. Due to the size of the tanks, they were shipped by barge and then transloaded to a truck for final delivery.*





*Trunnions for the Interstate Bridge shown above in Thompson's shop. Their proximity to the bridge made TMF an ideal location when repairs were needed. Shown below are two Seattle area bridge projects that were completed at the Columbia Business Center, painted by TMF, and delivered to the jobsite by barge.*











*Shown above and below is a modular segment of the Power Barge fabricated by TMF. Segments were pre-fabricated in the shop before being assembled in Thompson's yard. The final assembly was 105' W x 30' H x 284' L*



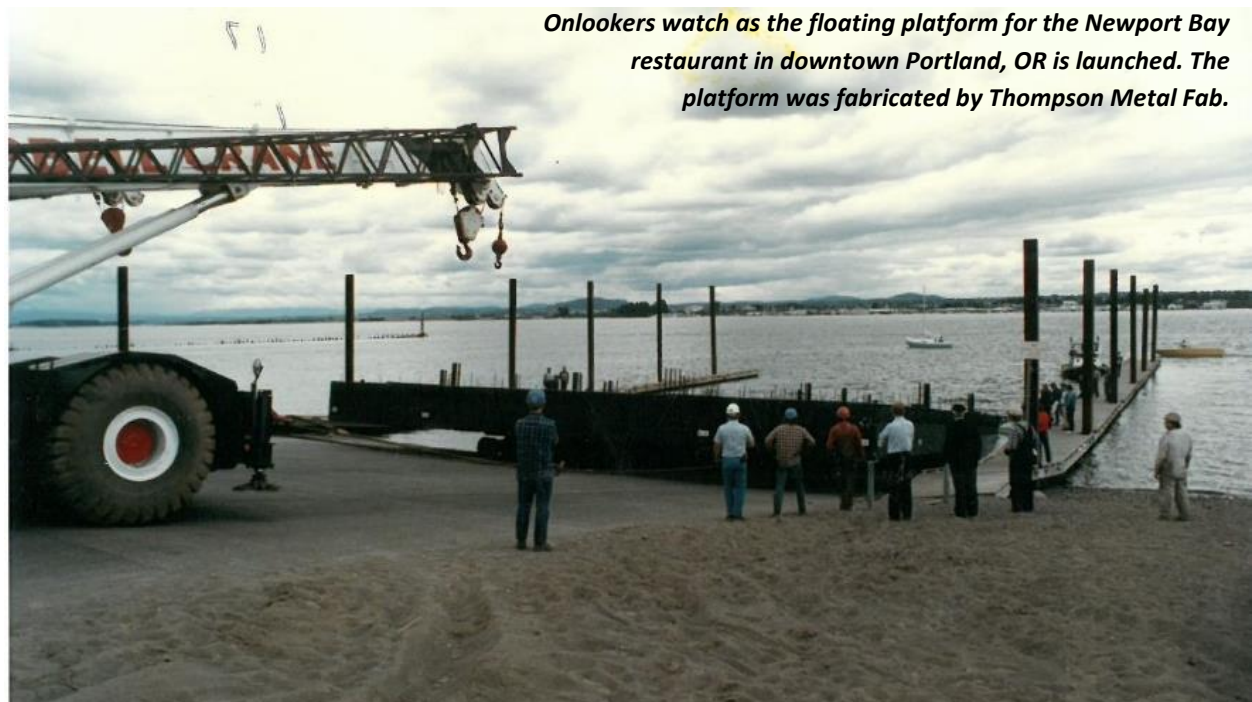




*At left, large platform is being flipped inside Thompson Metal Fab's shop.*

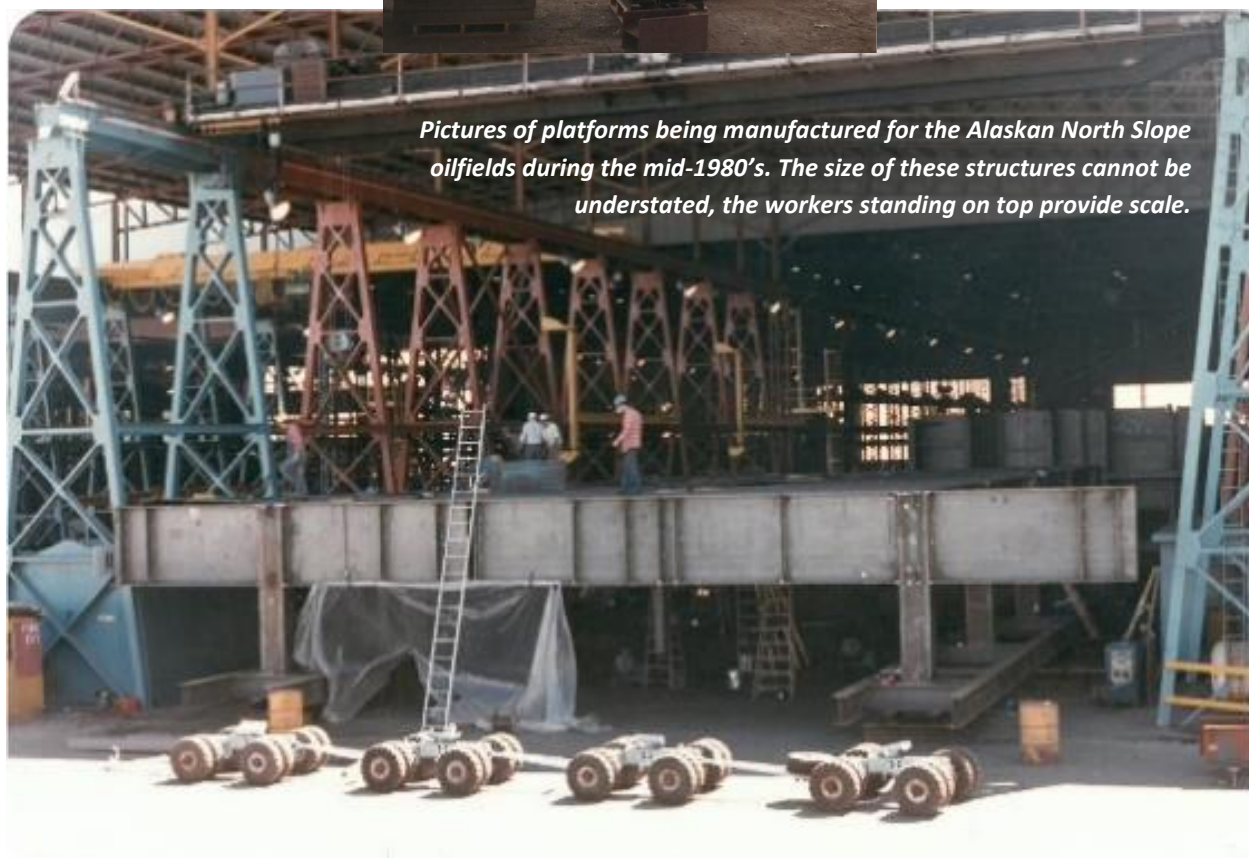


*Thompson Metal Fab has a legacy of fabricating unique, complex, and often massive structures which require delivery by water.*



*Onlookers watch as the floating platform for the Newport Bay restaurant in downtown Portland, OR is launched. The platform was fabricated by Thompson Metal Fab.*

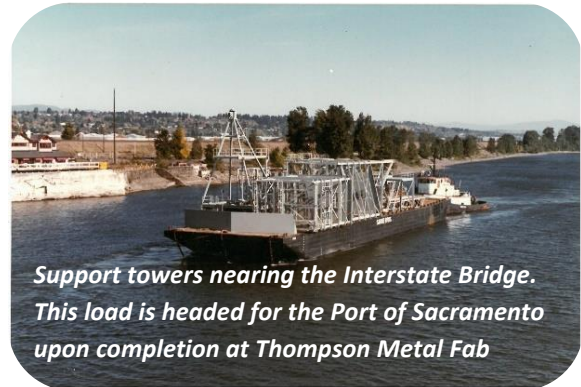




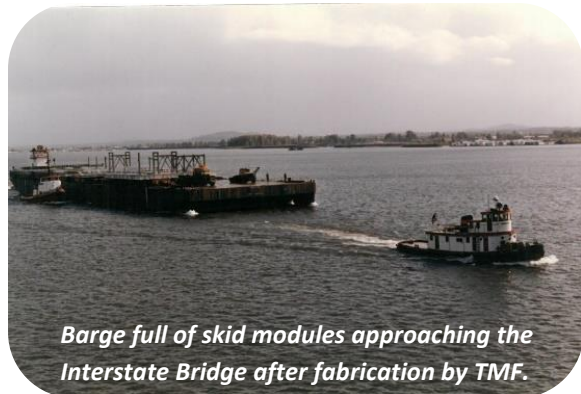
*Pictures of platforms being manufactured for the Alaskan North Slope oilfields during the mid-1980's. The size of these structures cannot be understated, the workers standing on top provide scale.*



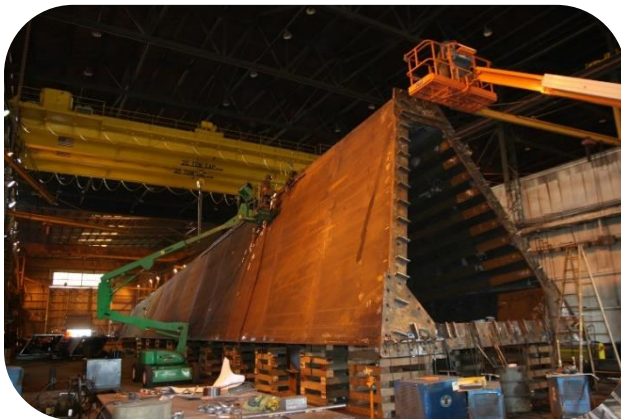
*Shown below, load out of the cradle base that would carry PGE's Trojan nuclear reactor. TMF fabricated the base and the shielding enclosures.*



*Support towers nearing the Interstate Bridge. This load is headed for the Port of Sacramento upon completion at Thompson Metal Fab*



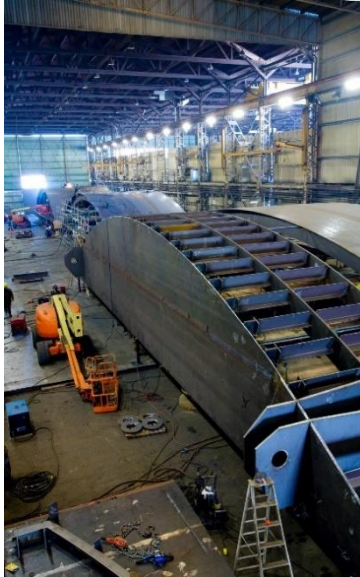
*Barge full of skid modules approaching the Interstate Bridge after fabrication by TMF.*



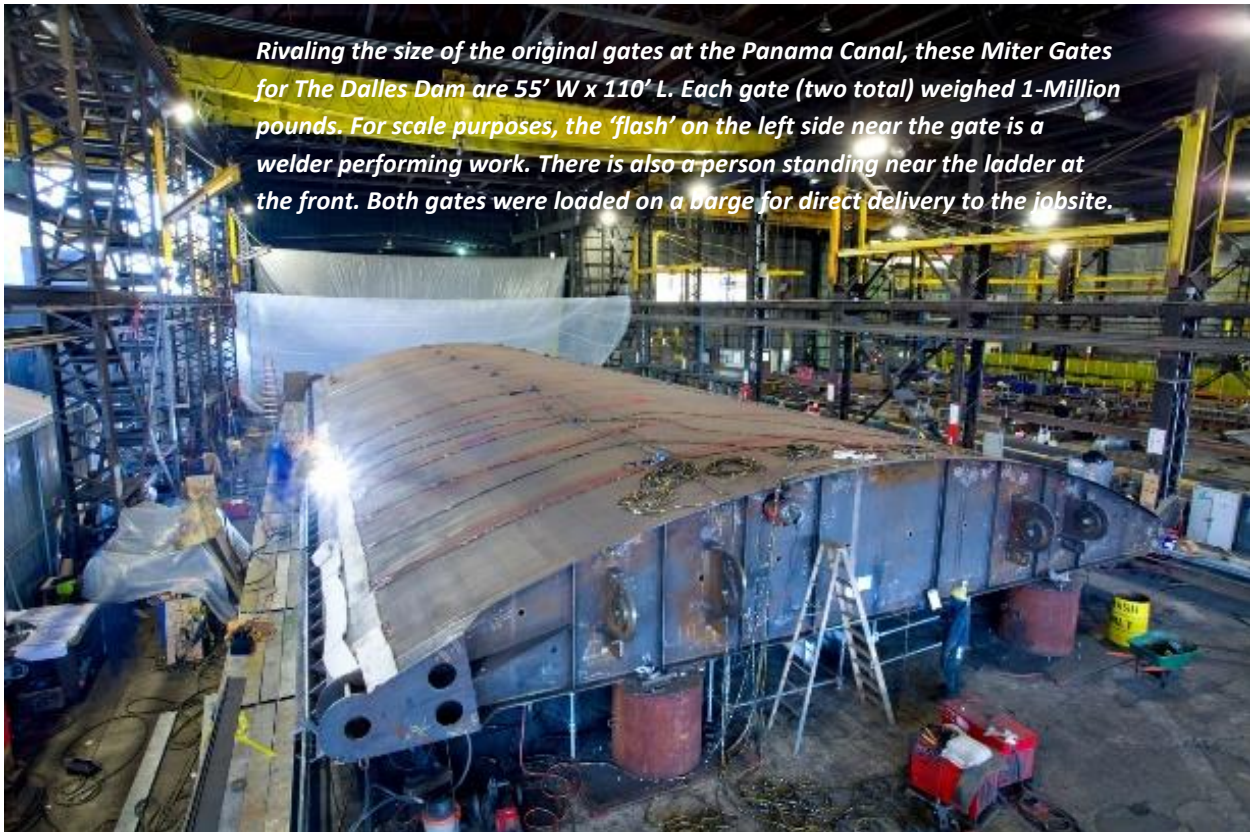
*The lower segment of the iconic Portland Aerial Tram's tower is shown inside Thompson Metal Fab's shop. Including the bunking underneath, the tower is nearly 40' high and 30' wide. The completed tower can be seen at OHSU, spanning over I-405.*







*Fabrication of the Lower Monumental Dam Lift Gate is shown at left inside Thompson's shop. Due to its size (nearly 1.5-Million pounds) the gate was fabricated in three segments, loaded on a barge, and finished in the field by the General Contractor. The picture here shows the three segments be aligned for fit verification at TMF's yard. Final dimensions are 88' W x 84' H*

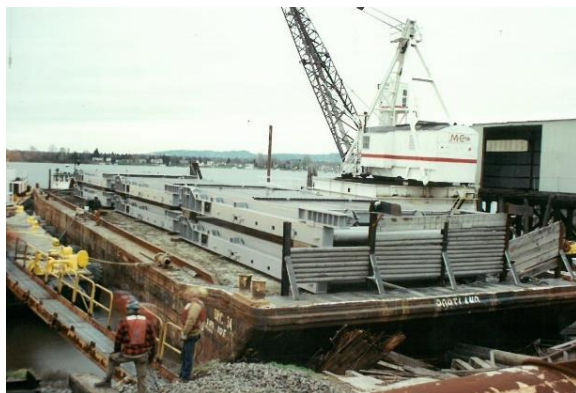


*Rivalling the size of the original gates at the Panama Canal, these Miter Gates for The Dalles Dam are 55' W x 110' L. Each gate (two total) weighed 1-Million pounds. For scale purposes, the 'flash' on the left side near the gate is a welder performing work. There is also a person standing near the ladder at the front. Both gates were loaded on a barge for direct delivery to the jobsite.*







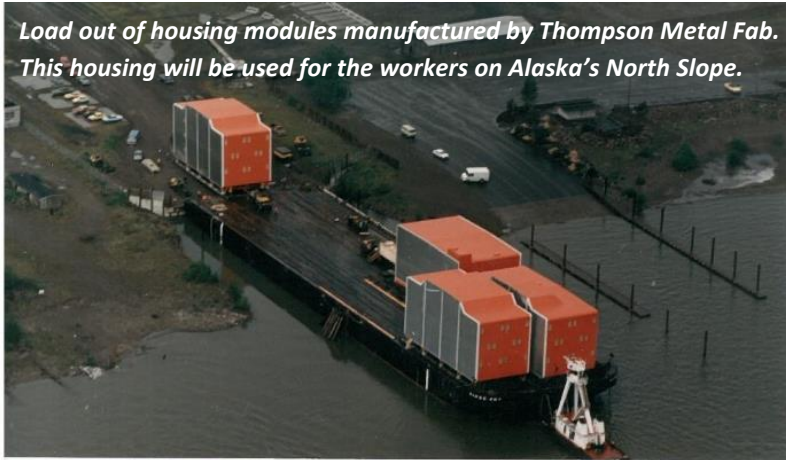


*Shown above and below are multiple barge loadings for a massive project at Lower Granite Dam in the mid-1990's. All structures were fabricated by Thompson Metal Fab and loaded out at the Columbia Business Center.*

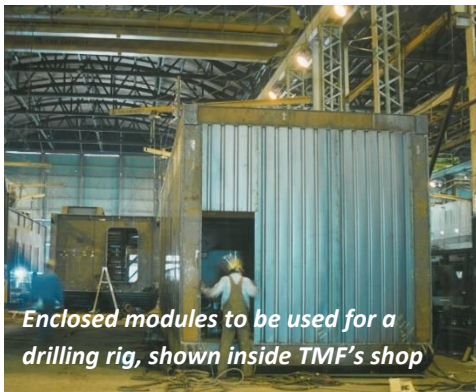




*Load out of housing modules manufactured by Thompson Metal Fab. This housing will be used for the workers on Alaska's North Slope.*



*Enclosed modules to be used for a drilling rig, shown inside TMF's shop*



*Modular fabrication has long been a part of Thompson's history and success. The size of their facility at the Columbia Business Center allows TMF to offer large, turn-key, fully-operational modular systems which get used for housing, data centers, oil production/drilling, crude oil processing, technology, electrification, water treatment, chemical processing, fuel storage, pipe handling, and conveyor systems – among other uses. Remote jobsite locations and size of many of these structure require use of the barge slip, adjacent to Thompson's facility.*



*Example of processing modules being manufactured inside Thompson Metal Fab*





*Walls, roof, and equipment being installed on 44' x 97' skid shown below*

*Thompson's extensive experience with turn-key modular systems made it a valuable partner as a new market emerged for these products. Increase demand for technology pushed groups, like Intel, to expand their facilities. 'Cloud based' data storage requires facilities on the ground that can house servers. Increased online shopping (i.e. Amazon) requires warehouses and data centers. As the world becomes dependent on technology the demand for these custom, modular buildings has significantly increased.*



*Shown below in late 2019, this skid represents the largest non-oil related module manufactured by TMF. At 44' W x 97' L, this module is too large to ship over the road, and too big to be handled in the field.*

*To accommodate field conditions, a shipping 'split' was engineered in the middle of the floor (shown) and in the roof trusses. The 44-ft mega module would ship via barge, and completely outfitted in two segments.*



*Two 44' x 97' modules were manufactured by TMF, each with a shipping split described above. Shown in the middle of this picture are two of the four total segments prior to barge loading.*

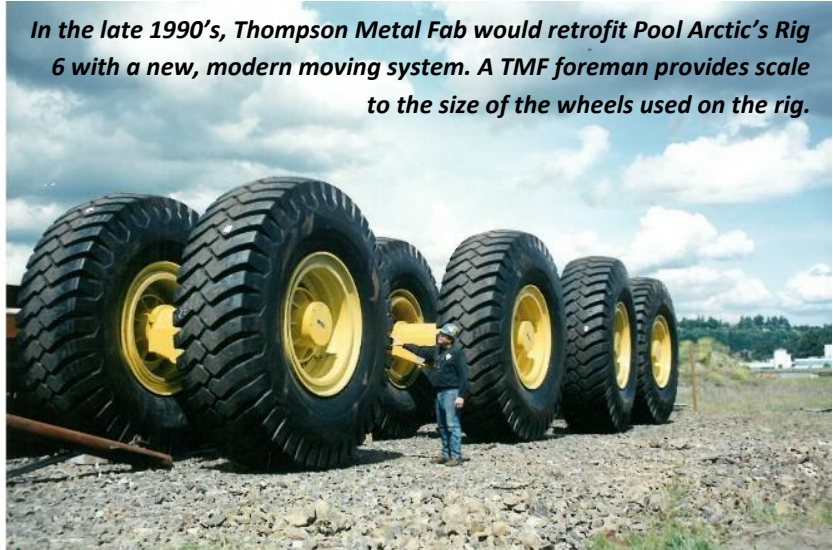
*Also shown is the BNSF Wind River Bridge. This was manufactured at the Columbia Business Center and would ship via barge completely assembled and installed in one-piece.*



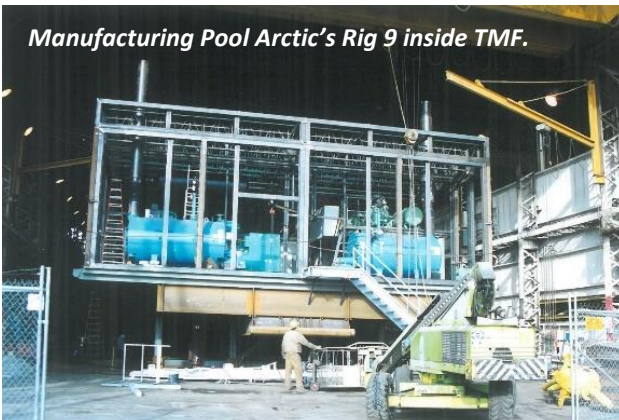
*Pool Arctic Rig 3 Retrofit,  
performed by TMF*



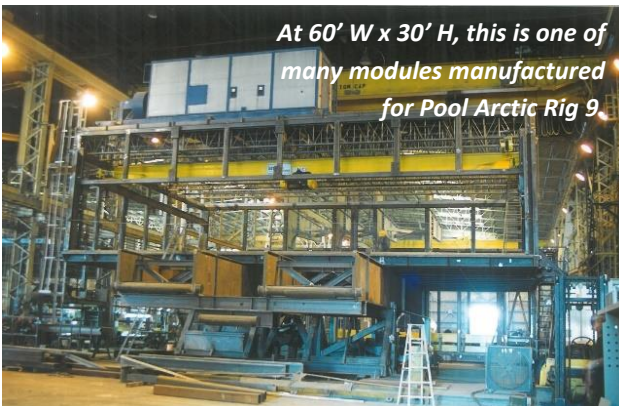
*In the late 1990's, Thompson Metal Fab would retrofit Pool Arctic's Rig 6 with a new, modern moving system. A TMF foreman provides scale to the size of the wheels used on the rig.*



*Manufacturing Pool Arctic's Rig 9 inside TMF.*



*At 60' W x 30' H, this is one of  
many modules manufactured  
for Pool Arctic Rig 9*

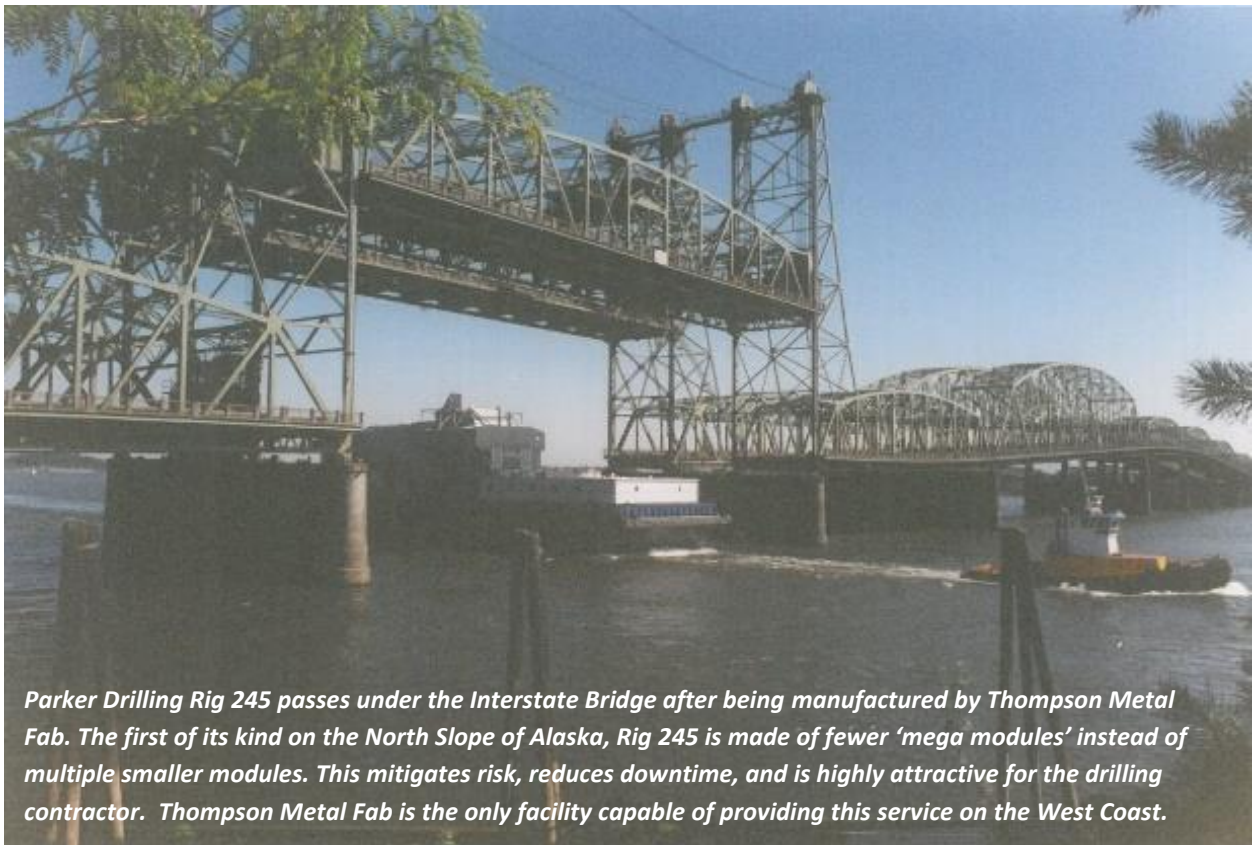


*Following some of its recent predecessors (i.e.  
Rig 245), Rig 9 would use the 'mega module'  
concept to reduce downtime on the North Slope*



*Over the last 30-years, 15 rig projects have been awarded to Thompson Metal Fab. Nearly 1/3<sup>rd</sup> of the rigs in Alaska have some connection to TMF.*

*Shown at right, Nordic-Calista's Rig 3 being 'rigged up' in Thompson's yard in 1997. This workover rig is used to restore production on exiting wells.*



*Parker Drilling Rig 245 passes under the Interstate Bridge after being manufactured by Thompson Metal Fab. The first of its kind on the North Slope of Alaska, Rig 245 is made of fewer 'mega modules' instead of multiple smaller modules. This mitigates risk, reduces downtime, and is highly attractive for the drilling contractor. Thompson Metal Fab is the only facility capable of providing this service on the West Coast.*





*No, the picture to the right is not the inside of a 'big box' store, but it is the size of one! This is the inside of the Liberty Rig's Pipe Module (see above) and is where all production drill pipe is stored.*



*At the time it was manufactured, the Liberty Rig was the world's largest land-based drilling rig. Everything about this rig was supersized, including the mast shown here inside Thompson Metal Fab. Drill structures, like the one shown here, require special certification for manufacturing, and TMF is the only facility on the West Coast who holds that certification while also boasting a facility/yard of its size, in addition to roll-on/roll-off barge capabilities.*





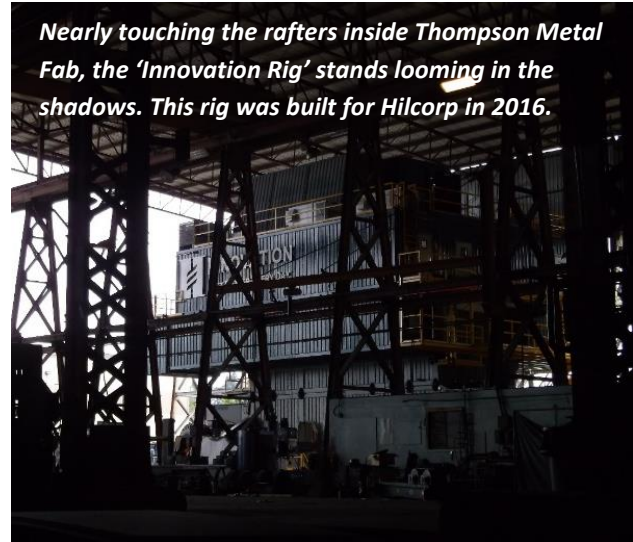
*For new rig builds, drilling contractors traditionally manage the design and hire their own sub-contractors (structural, electrical, mechanical, etc.) For Doyon Drilling's Rig 25, TME was hired as the General Contractor and managed all rig-build efforts on behalf of Doyon. As a result, Rig 25 becomes the rig built by Thompson as General Contractor.*

*Rig 25 is a sought after work-horse on Alaska's North Slope and is a dependable rig in Doyon's fleet. This picture shows a very proud Thompson team at the end of the project.*





*Shown above is the part of the substructure base for Rig 272. Its twin (Rig 273) was manufactured at the same time at TMF. Picture below shows the yard assembly of Rig 272, Rig 273, and Rig 25.*



*Nearly touching the rafters inside Thompson Metal Fab, the 'Innovation Rig' stands looming in the shadows. This rig was built for Hilcorp in 2016.*



*The Interstate Bridge looks on in the distance as Thompson Metal Fab manufactures three rig projects from their Columbia Business Center facility. Shipping clearance on Rig 272 & 273 (blue) would be nearly 160'.*



## Marine Industries and Fabricators

Company: Vigor

Company provided the following information to the IBR Program.



Vigor Works, LLC. is a Heavy Industrial Fabrication Company that serves the Marine, Hydro-Electric, Nuclear, Oil & Gas and Steel Bridge Industries. The wide variety of products produced by Vigor Works support private industry as well as Government Agencies (local, state, federal). Past and present projects completed from the Columbia Industrial Park include fully assembled final products: Bridges, Oil Field Modules/Platforms, Marine Vessels and other extremely large infrastructure type goods which have limited areas for fabrication due to water loadout/shipping and air draft restrictions.

Vigor Works (in and adjacent to the Columbia Industrial Park) are uniquely qualified and situated to support strategic and industrial needs, particularly our national infrastructure of dams, locks and bridges and marine vessels. The living wage trade jobs created by this work are critical to the health of the Vancouver/Portland area. Vigor currently supports ~1500 trade related jobs in the Portland Metro area which includes three separate locations in and around the Columbia Industrial Park.

Heavy investment in capital and people has occurred in all three Vancouver locations upriver of the I-5 bridge. By maintaining flexibility to pursue and provide ultra large product for customers, we can continue to pursue this type of work to support the jobs and economy of Vancouver. Our sites are unique due to their access to a large metro area with truck, rail and marine access.

The current bridge height has been important for commerce and shipments along the Columbia River for nearly a century and even more critically important since the war effort in the 1940s. In the late sixties and early seventies, offshore drilling rigs were constructed at this location and had to transit under the bridge. These offshore platforms required the bridge to be raised to its full height of 174 feet to allow them to pass under the raised span. More recently we have watched drilling equipment destined for Alaska being assembled in the Columbia Industrial Park that required 150 feet of clearance to be shipped down the river. Vigor consistently evaluates opportunities for product up to 110 feet in height. The additional height of blocking, transport barge freeboard and clearance margin, easily results in an air draft requirement of 130' for these projects. Ideally, we recommend a height of 150 feet air draft.

Our other Portland facility located on Swan Island (Portland Shipyard) also engages in large fabrications and we have in the past, barged components to/from the Vancouver facilities. Our Marine Fabrication work has also resulted in portions of vessels being shipped via barge to Ketchikan and we are currently evaluating shipping product components to our Seattle Shipyard- the exact size of those products have not yet been determined. In the future, we would expect to ship product both upriver and down river.

The lower height of the bridge will limit Vigor Works' ability to compete on some projects. The ability and direct access to shipping on the Pacific Ocean and subsequent trade routes to Alaska or the gulf coast and Mississippi River system (via the Panama Canal) is critical for our full and sustained operation. One recent project was delivered to New Jersey.

In summary:

The Bridge Height is now is 174 feet; this height has been needed as follows:

- 1960 to 1975 Drilling Platforms for the California Offshore Field.
- 1980 to 1995 Various loads from the Industrial Park to locations in Alaska and elsewhere.



- 2000 to 2012 Drilling Equipment for Parker Drilling assembled in the Park and shipped to Alaska.

Current:

- We are evaluating Vancouver for long term production related to partial or all construction for upcoming work. The final bridge height could impact the amount of work completed in Vancouver.
- We anticipate there will be some opportunity for future module or drill platform work associated with Alaska as equipment requires replacement.
- We expect, although do not know what the development of offshore wind will need for industrial shore side support.

Conclusion:

This Marine Highway is used by a multitude of users with traffic going both upstream and down. We ship goods from the industrial park upstream of the bridge to Swan Island Ship Yard and from the Swan Island Ship Yard to the industrial park. The I-205 Bridge upstream of the bridge has a clearance of 144 feet and downstream of the bridge we have clearance limited only at Astoria and that is 196 feet with the Lewis and Clark (Longview) bridge over 200 feet. We believe it is critical to our business and the viability of the river system used for commerce to keep the height of this bridge at least 150 feet.



## Marine Industries and Fabricators

Company: Schnitzer Steel

Company provided the following information to the IBR Program.



**From:** [Tony Belot](#)  
**To:** [Brian Carrico](#)  
**Cc:** [Nicole McDermott](#)  
**Subject:** RE: Interstate Bridge Program - Vessels  
**Date:** Thursday, August 5, 2021 10:59:03 AM  
**Attachments:** [image001.png](#)  
[image002.png](#)  
[image003.png](#)  
[image004.png](#)

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Brian,

Thank you for your patience, Brian. Here is our updated information you requested:

*Schnitzer Steel owns two vessels—MAX 111 (flat deck barge with bin walls) and CHIPPY 002 (flat deck barge with bin walls)—and uses a third—B5 (flat deck barge with bin walls)—which is owned by Bernert Barge Lines. Schnitzer Steel uses Bernert Barge Lines as its tug company. The information provided by Bernert Barge Lines for air draft and air gap would apply to Schnitzer Steel since none of the Schnitzer Steel vessels is taller than the tugs. The vessels average two trips in March and four to six trips per month during all other months of the year.*

---

**From:** Brian Carrico <Brian.Carrico@interstatebridge.org>  
**Sent:** Wednesday, July 14, 2021 5:02 PM  
**To:** Tony Belot <abelot@sch.n.com>  
**Cc:** Nicole McDermott <Nicole.McDermott@interstatebridge.org>  
**Subject:** [EXTERNAL] Interstate Bridge Program - Vessels

Tony - Thanks for looking into this. Attached is the data previously provided by Schnitzer in 2012. We are looking to confirm or update this information. This is how it was described in our report.

*Schnitzer Steel owns two vessels—MAX 111 (flat deck barge with bin walls) and CHIPPY 002 (flat deck barge with bin walls)—and uses a third—Inland Conveyor (flat deck self-unloading barge with bin walls)—which is owned by Cemex and chartered to Bernert Barge Lines. Schnitzer Steel uses Bernert Barge Lines as its tug company. The information provided by Bernert Barge Lines for air draft and air gap would apply to Schnitzer Steel since none of the Schnitzer Steel vessels is taller than the tugs. The vessels average two trips in March and four trips per month during all other months of the year.*

Information on the project can be found at the website below.

Regards,



Brian

**Brian Carrico**

**Interstate Bridge Replacement Program  
Environmental Program**

**O:** 360-823-6122 | **C:** 360-433-7775

**E:** [brian.carrico@interstatebridge.org](mailto:brian.carrico@interstatebridge.org)

[interstatebridge.org](http://interstatebridge.org)





## Federal Government

Agency: Port of Portland

Vessel:

- Dredge Oregon

The Port of Portland provided the following information to the IBR Program.



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**From:** Myer, Fred <Fred.Myer@portofportland.com>  
**Sent:** Tuesday, August 31, 2021 9:33 AM  
**To:** Brian Carrico <Brian.Carrico@interstatebridge.org>  
**Subject:** FW: Dredge Oregon and North Portland Harbor

As requested Brian – updated data for Dredge Oregon, and vessel call numbers for T-6, below. For berths 603-605, moving forward: those numbers will increase significantly. We’ve just added a second weekly container service, and have 2 charter operations that extend for at least a year.

Regs, Fred  
**Fred Myer**  
Manager, T6 Ops and Waterways  
Marine Ops  
T: 503.415.6542  
C: 503.784.6564  
[Fred.Myer@portofportland.com](mailto:Fred.Myer@portofportland.com)



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**From:** Fischer, Randy <Randy.Fischer@portofportland.com>  
**Sent:** Friday, August 27, 2021 3:55 PM  
**To:** Myer, Fred <Fred.Myer@portofportland.com>; Tjostolvson, Don <Don.Tjostolvson@portofportland.com>; DeRosier, Neil <Neil.Derosier@portofportland.com>  
**Subject:** RE: Dredge Oregon and North Portland Harbor

Fred,  
Here’s the vessel calls by berth for the last five years. I wouldn’t call this entirely accurate, but it’s pretty close. Needed to use three different data sets to assemble this, with all three having slightly different numbers due to some duplicate entries, and lay berth vessel calls. Data sources included my own, marine security logs, and the Columbia River Pilots. If Brian needs fully accurate numbers, this will take more time, but the counts below are likely fairly close to accurate. In short, 601 and 605 are the busiest berths, while 603 and 604 are rarely used. Berth 607 is in a state of transition currently with Hondas departure so uncertain what level of vessel call forecast to apply to 607



looking forward.

		Year				
		2016	2017	2018	2019	2020
601		64	60	57	68	66
603		0	2	1	3	1
604		0	1	5	4	0
605		0	5	23	10	49
Berth	607	71	45	71	39	12

Let me know if you have any questions.

Thanks,

Randy

---

**From:** Brian Carrico <[Brian.Carrico@interstatebridge.org](mailto:Brian.Carrico@interstatebridge.org)>

**Sent:** Tuesday, August 10, 2021 6:29 PM

**To:** Myer, Fred <[Fred.Myer@portofportland.com](mailto:Fred.Myer@portofportland.com)>

**Subject:** Dredge Oregon and North Portland Harbor

**EXTERNAL EMAIL:**

Fred - I don't think I followed up with you after our call a couple weeks ago. As discussed, I am looking to confirm vessel specifics for Dredge Oregon and information on vessel use of Port berths on the Columbia River.

In regard to the dredge, attached is the information provided for the CRC effort. If you could review this information and confirm that it is accurate or provide updates, we can make sure our information is up to date.

For vessel use I am looking for is the number of calls per year for Berths 601, 603, 604, 605 and 607. It would be good to provide data for the last 5 years. You can provide the data in whatever format is easiest.

Thanks, and let me know if you have any questions. I would appreciate information by the end of August.

**Brian Carrico**  
**Interstate Bridge Replacement Program**  
**Environmental Program**

**O:** 360-823-6122 | **C:** 360-433-7775

**E:** [brian.carrico@interstatebridge.org](mailto:brian.carrico@interstatebridge.org)  
[interstatebridge.org](http://interstatebridge.org)





## Marine Contractors

**Owner:** Port of Portland

**Vessel:** Dredge OREGON





1. Company Name and/or Owner of Vessel and Contact Information
  - a. Name of Company: Port of Portland
  - b. Name of Contact: Captain Mark Wright
  - c. Office Phone Number: 503-240-2203
  - d. Cell Phone Number: 503-679-9794
  - e. E-mail: [mark.wright@portofportland.com](mailto:mark.wright@portofportland.com)
  - f. Address: 6208 N Ensign Street  
Portland, OR – 97217
  - g. Vessel Name: Dredge OREGON
  - h. Vessel Type: Cutter Suction Dredge
  - i. USCG Official Number: 244814
  - j. Hull Length Overall: 178 ft.
  - k. Length Overall (Hull + Ladder): 265 ft.
  - l. Draft (depth of hull below WL): 11 ft.
  - m. Air Draft (highest point above WL): 63 ft.
  - n. Desired Air Gap: 5 ft.
  - o. Frequency of Passages Under I-5 Bridge: 0 times per month
  - p. Historic Passages Under I-5 Bridge: 6
  - q. Frequency of Passages through N PDX Harbor: 0 times per month
  - r. Historic Passages through N PDX Harbor: 0
  - s. Do you have a Business Plan? No plans currently. Defer to USACE.
  - t. Other Miscellaneous:
    - i. The Dredge utilizes 'spuds' to hold itself on position and navigate within the channel. When in the stowed position for transit, the spuds are the highest point on the dredge at approximately 75' above the waterline. If the Dredge were required to transit upriver from the I-5 bridge, based on the frequency of historical requirements, it would be reasonable to hire a derrick barge and crane to remove the spuds at the Port's facility in the Swan Island harbor and place them on a barge, and then re-install the spuds after the Dredge has been towed upriver from the I-5 bridge. The air draft of the spuds stowed for transit should not govern the height of the CRC.



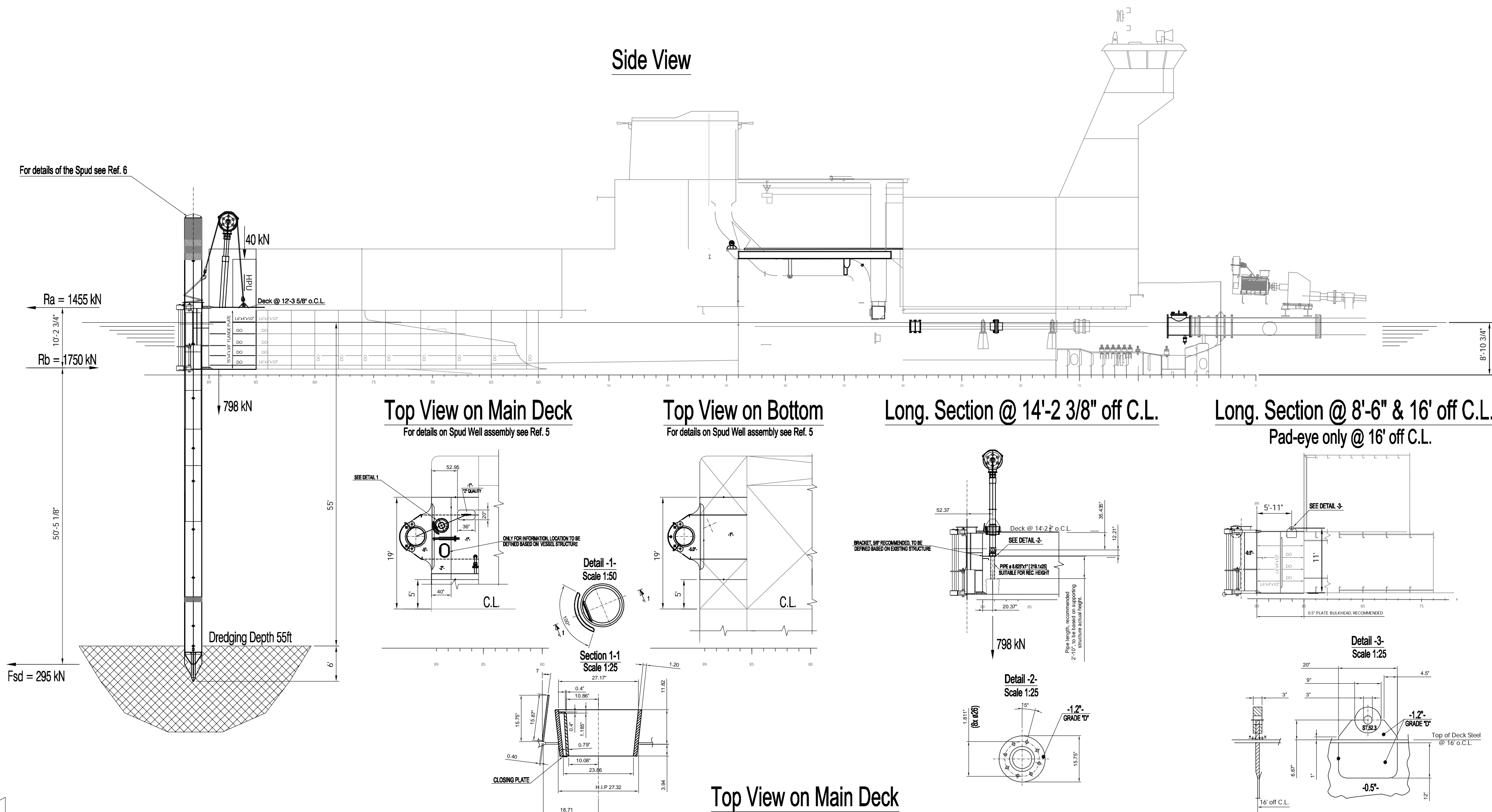


<b>Vessel Name: Dredge OREGON</b>	
<b>Owner: Port of Portland</b>	
<b>Point on Vessel</b>	<b>Height Above Water:</b>
Top of A-Frame	45 feet
A-Frame Railing	47 feet
Top of Wheelhouse	47 feet
Highest Antenna	61 feet

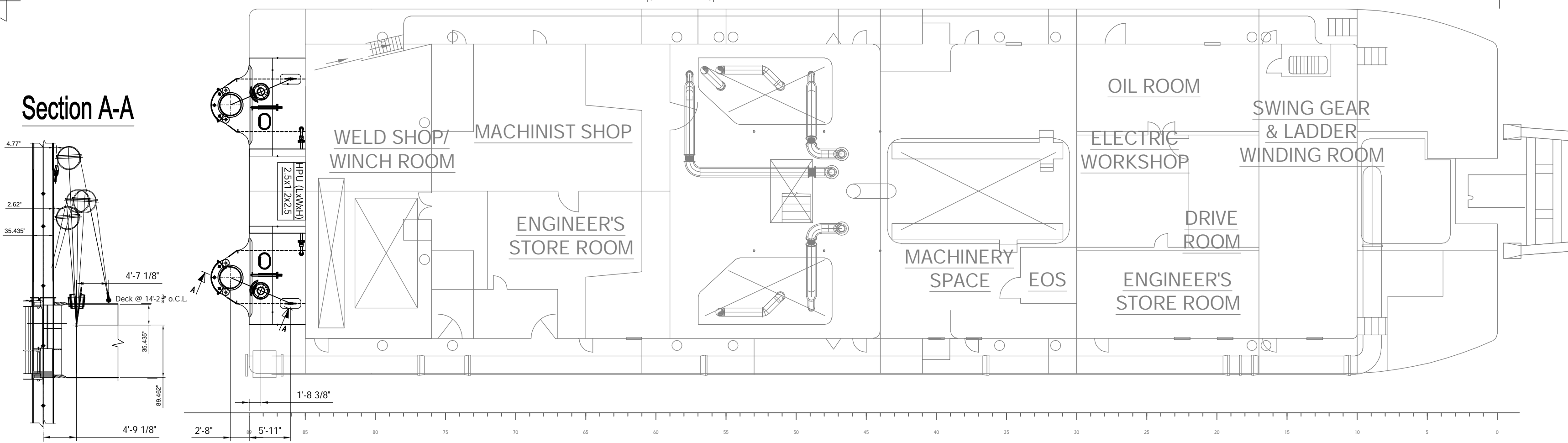


Revisions					
Rev.	Description	Constr.	Checked	Mat. check	Date
A	Correction on reaction forces	EG	DV		19-09-2019
B	General update base on latest information and 900mm IHC Spud	EG			14-03-2020
C	Deck & Bottom Insert plates thickness specified	EG			23-03-2020

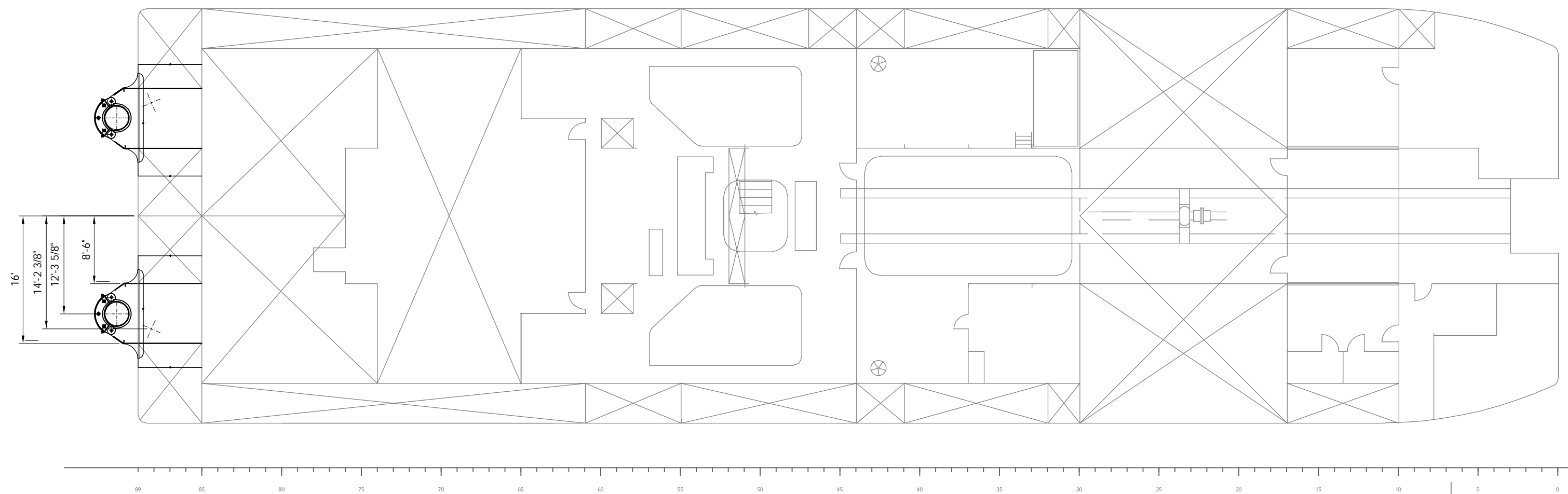
### Side View



## Section A-A



### Top View on Bottom



**GENERAL NOTES:**

The present drawing constitutes a General Lay-Out drawing. Its purpose is to evidence the location of the main items related to the installation of the IHC Spud Lifting System. Consequently the information contained is generally not to be used for fabrication purposes.

However, Details 1, 2 & 3 as described in this drawing may be considered valid for fabrication subject to the following note:

All structural elements shown, and relevant information, are based on IHC standards and should be verified as required, against:

- U.S. standards;
- ABS rules (steel grade selection, strength calculations etc);

NOTES ON STRUCTURAL INDICATIONS:

- All dimensions are based on metric units converted to imperial units (inches, unless otherwise indicated). These should be checked and confirmed with imperial units during engineering;
- Mild Steel unless otherwise specified;
- Cylinder and cylinder tub support details to be further developed based on adjacent structures;
- Materials (e.g. steel grade vs. plate thickness) to be in accordance with ABS rules and U.S. standards;
- Tapering of plates to be in accordance with ABS rules.

**NOTES ON LOADS ACTING ON THE VESSEL:**

- The loads on the Spud base and on the Spud Gates have been determined for a dredging depth of 55', based on the bending capacity of the Original Spuds of the Oregon [Ref.2]. Therefore, it must be ensured that the actual force on the Spud, as resulting from actual operation of the Vessel (thus based on dredging force, swing winch force, current, wind etc.), always remains below 295 kN.
- The load associated to the Cylinder operation (798kN) is calculated based on the standard configuration of the Cylinder for use on the IHC B65.
- The load associated to the HPU (40kn) corresponds to the supply as described in [Ref.4] and is to be considered as approximate.

NOTES ON IHC SPUD LIFTING SYSTEM COMPONENTS:

- The Spud Gates and Spud keeps shown in the present drawing, deviate from the standard IHC design for B65 [Ref.3], as follows:
  - Both have been modified in height in order to fit the Oregon deck height;
  - A radius has been introduced on top and bottom gates for a smoother load introduction;
  - Longitudinal plating of Spud gates have been slightly adjusted in order to fit Oregon's transversal spacing;
  - For a detailed description of the Spud Well Gate see Ref. 5
- The HPU as per [Ref.4] has an estimated envelope size of 2500x1200x2500mm (LxWxH) and will be mounted on a painted carbon steel skid frame, the lay-out of which is unknown at the moment. The HPU will need to be hosted in a Technical Space. The latter has been drawn, for reference, on main deck but should be treated as preliminary since pending exact arrangement.

REFERENCES:

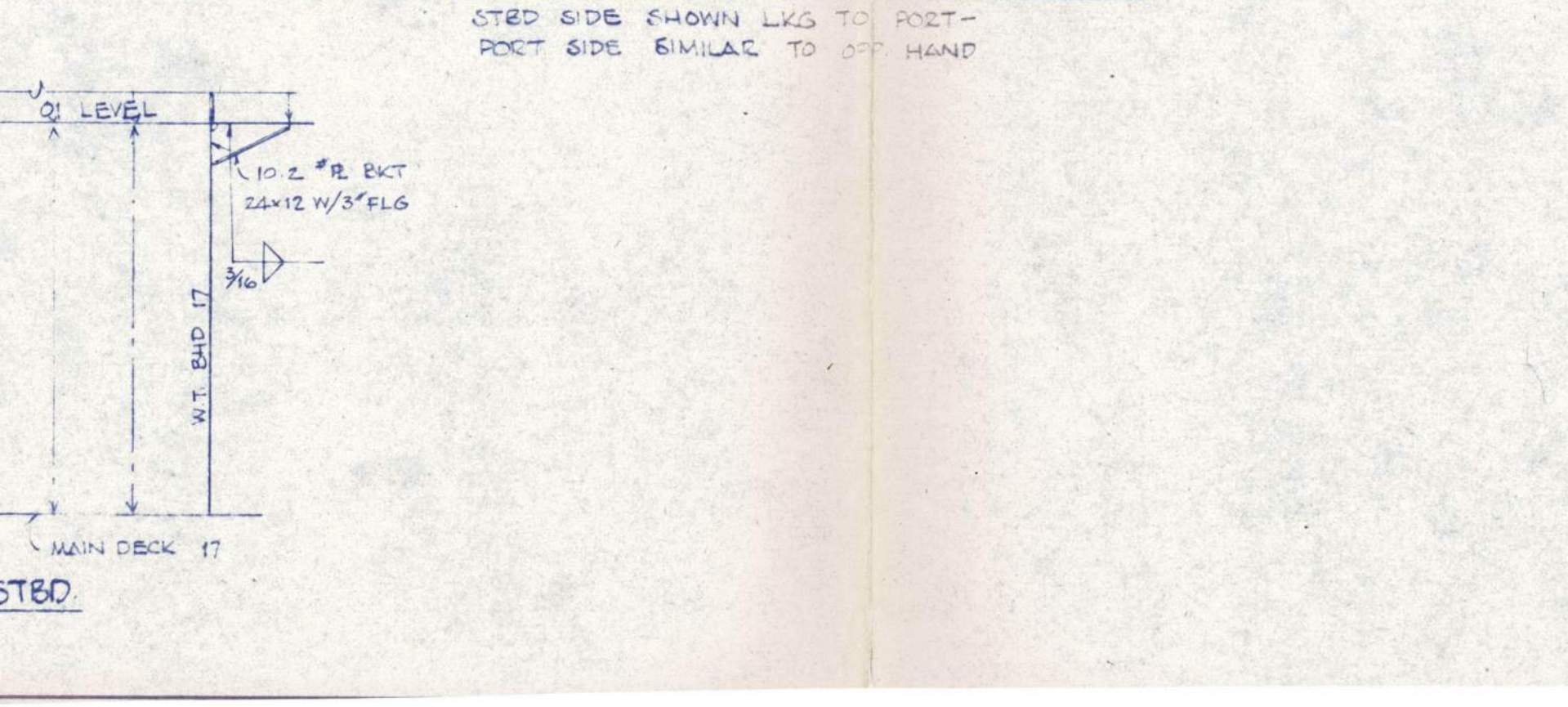
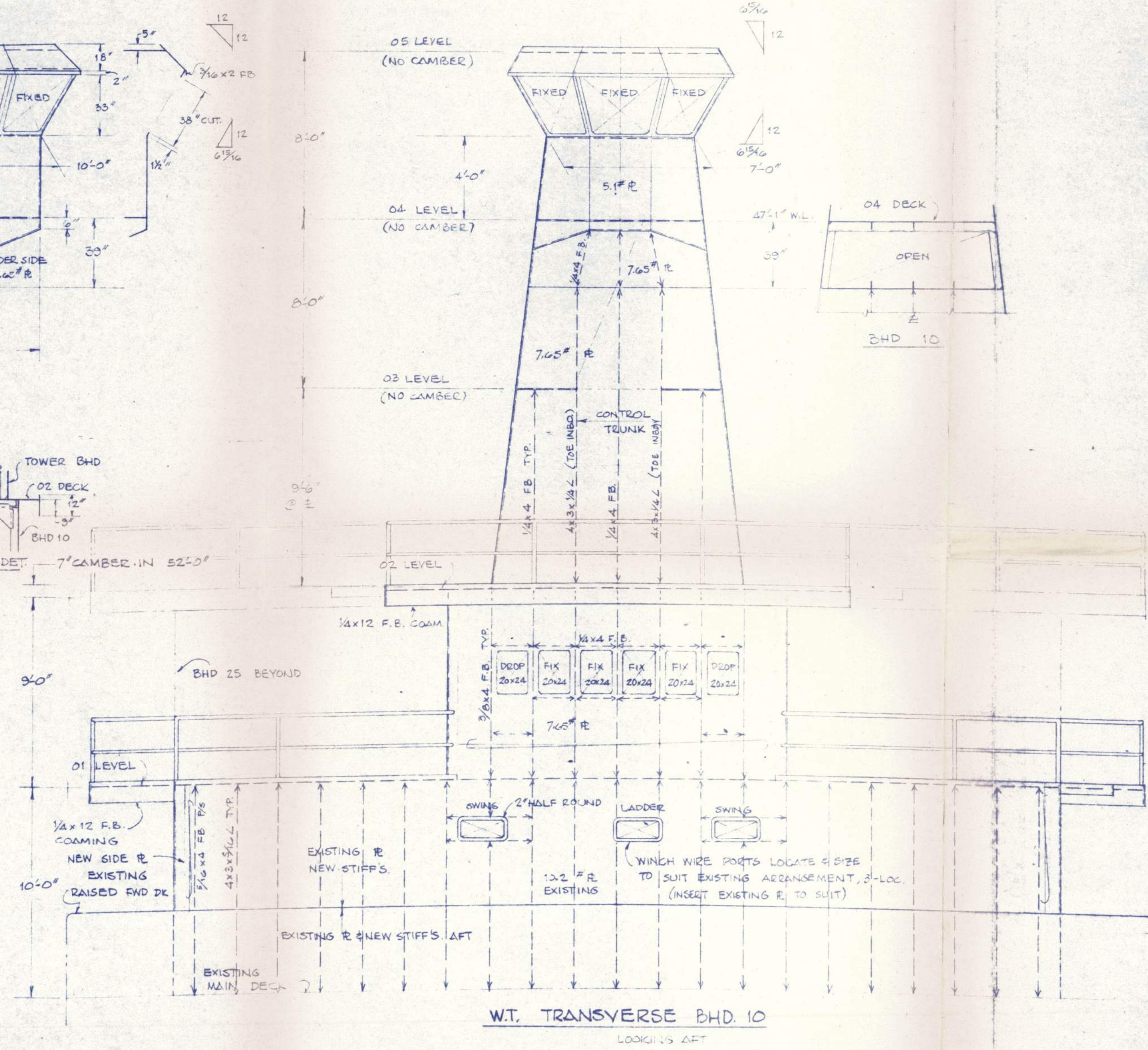
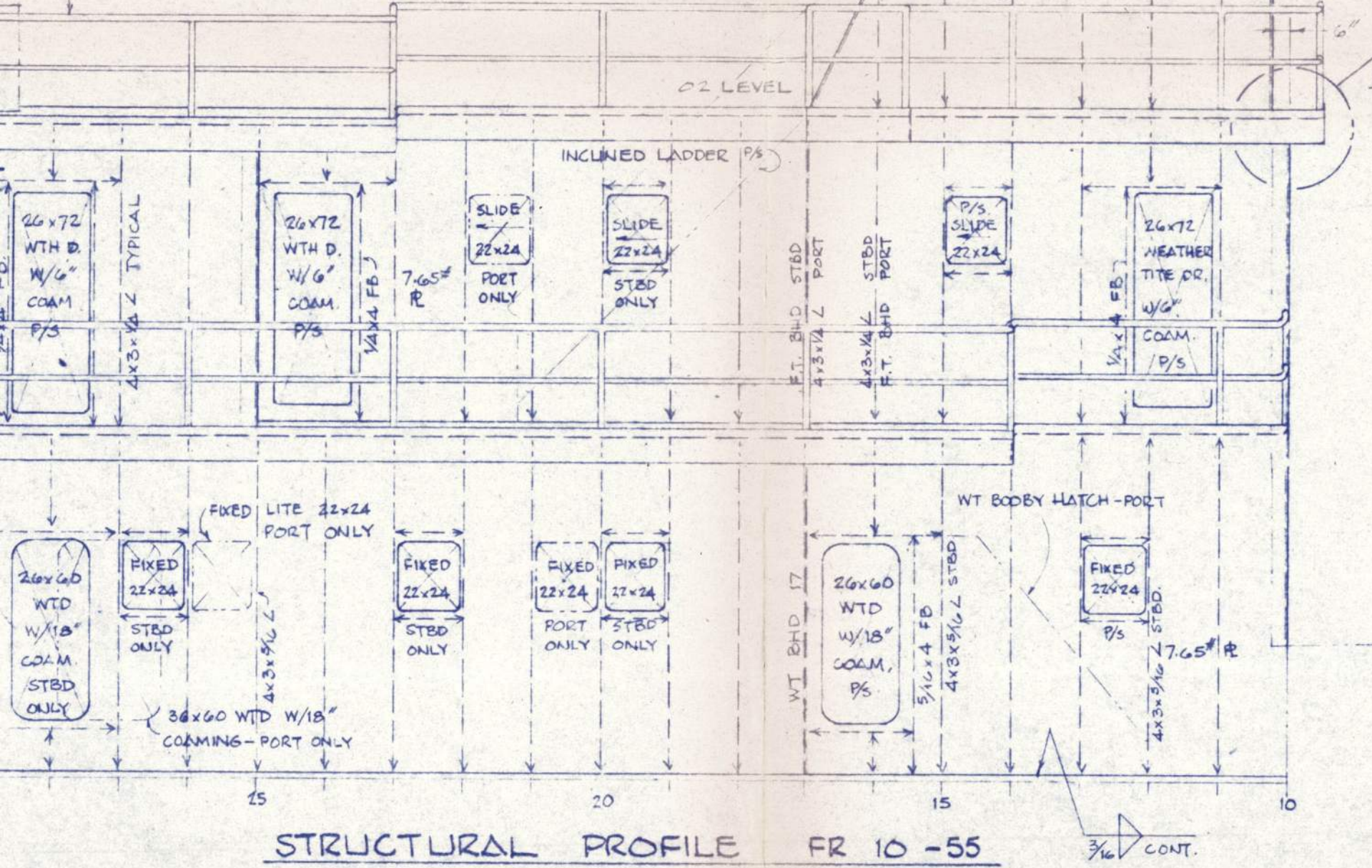
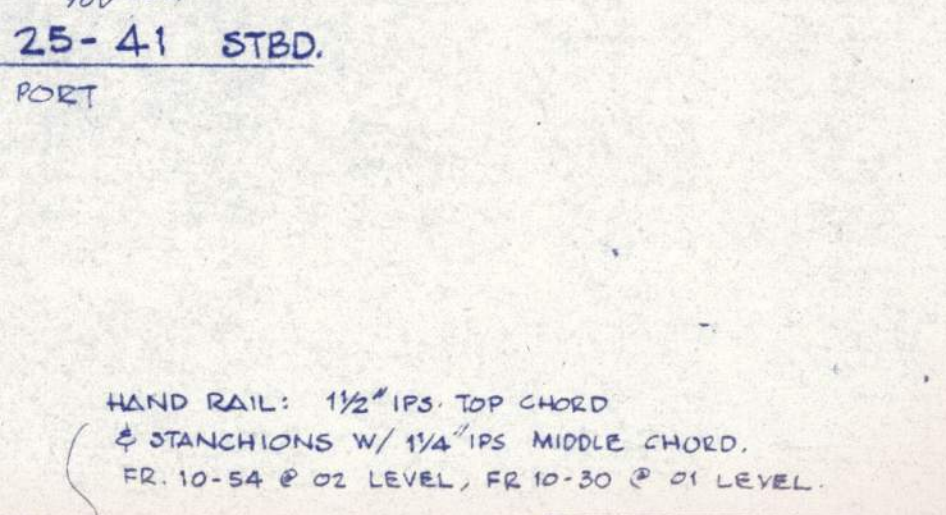
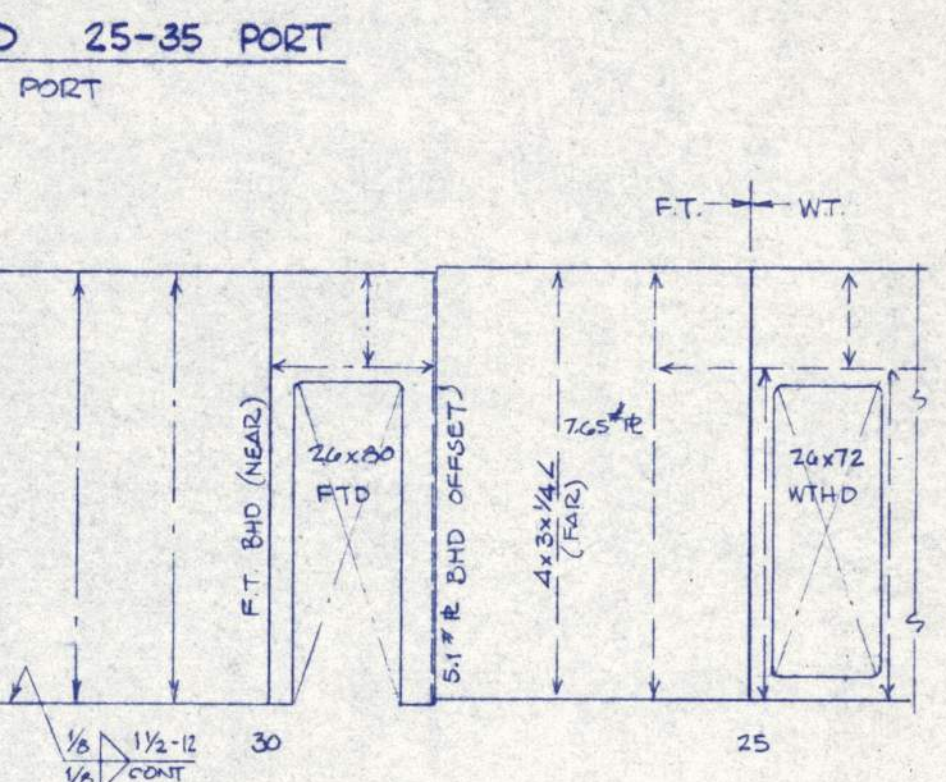
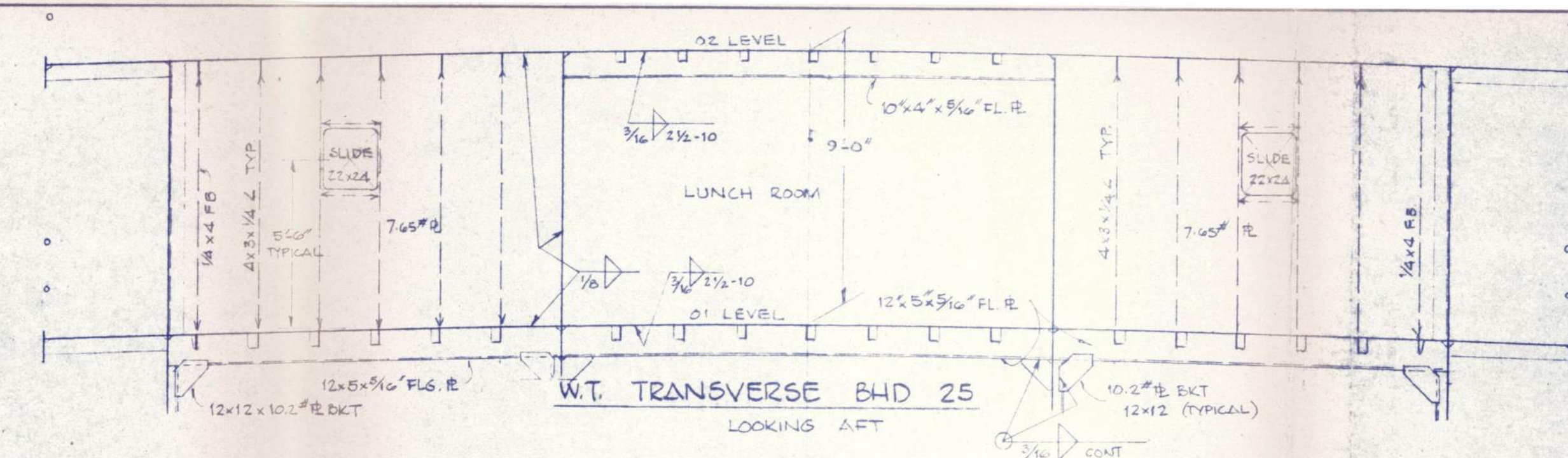
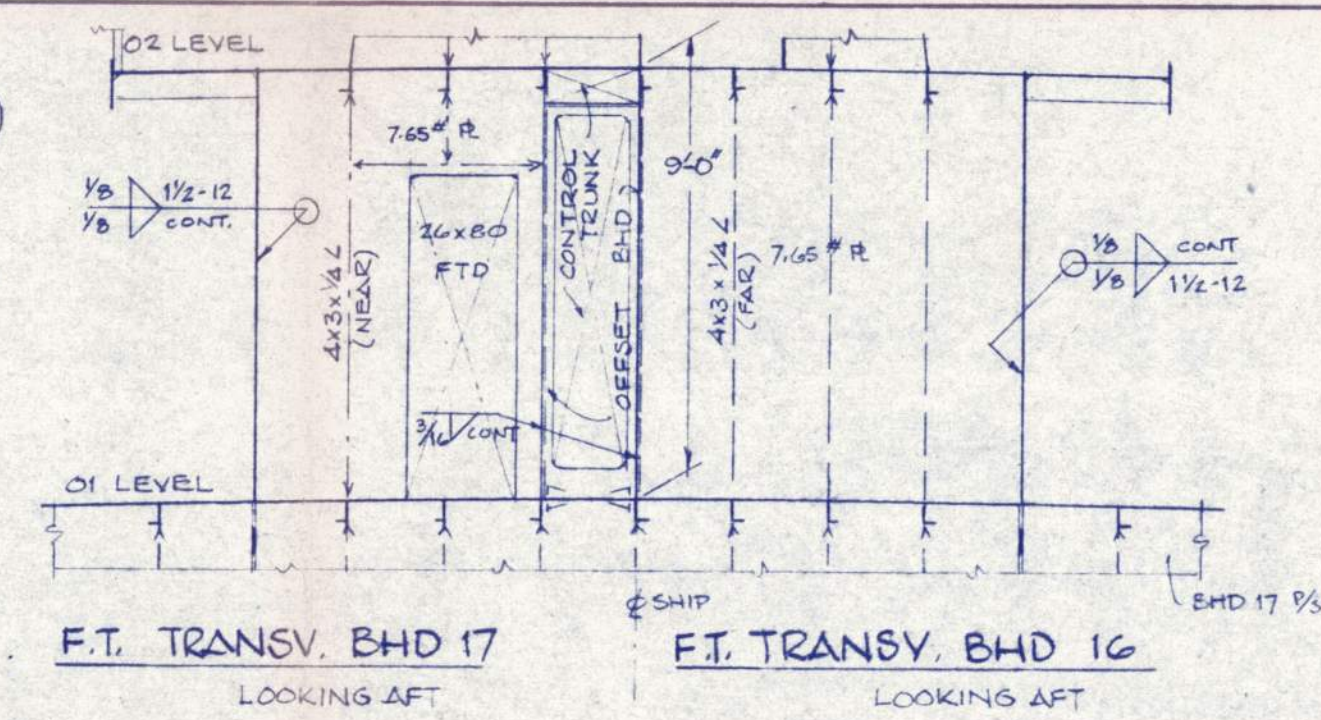
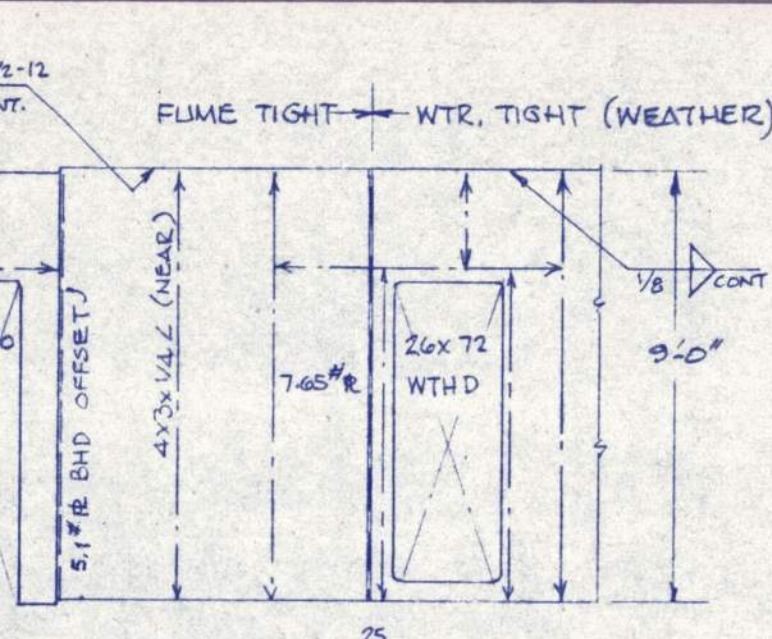
1. General Arrangement drawing of the modified Vessel - Received by IHC America, via email, on 03/09/2019.
2. Drw. CD DO 2002-01 Rev.C "SPUD PILE REPLACEMENT"
3. IHC B65 Spud Lifting System installation
4. IHC SAS-Hytop B.V. quotation Q44371-R0 for HPU & Manifolds for Spud system
5. 62408-0323-001 IHC Spud Gate Structural Drawing
6. 62408-2860-100 Spud Ø 900mm - 18m
7. NAVD 2019-502 As Negotiated ET 20191119 by GLOSTEN N.A.

[illegible]









- GENERAL NOTES
1. ALL STEEL TO BE ASTM A-36 PLATES & SHAPES WITH WHEEL-ABRATED SURFACE - ONE COAT SHOP PRIME BOTH SIDES.
  2. ENDS OF ALL BEAMS & STIFFS TO BE WELDED DOUBLE CONTINUOUS FOR 3'.
  3. WELDING OF INTERNAL STIFFS TO BE STAGGERED 1/2-12 FILLETS 1/4" LESS THAN THE THINNESS MEMBER OF THE CONNECTION (NOT LESS THAN 1/8").
  4. BHDS & DECKS EXPOSED TO WEATHER SHALL BE WELDED DOUBLE CONTINUOUS.
  5. FUME TIGHT BHDS TO BE CONT. WELDED ONE SIDE, INTERMITTENT WELDED ON THE OTHER ALL AROUND (1/2-12).
  6. BEAMS & STIFFENERS TO BE COPED IN WAY OF ATTACHED PLATE SEAMS.
  7. PLATE SEAMS & BUTTS TO BE LOCATED TO SUIT WITH NO BUTT OR SEAM DIRECTLY ON A FRAME, BEAM OR BHD.
  8. CUT-OUTS SHALL BE ADEQUATELY COMPENSATED WITH COAMINGS, INSERTS OR DOUBLERS.
  9. PERIMETER OF WASHROOMS TO BE WELDED DOUBLE CONTINUOUS TO 18" ABOVE DECK.
  10. LONG'S ARE TO HAVE MATCHED PAIR OF WELDS ON BOTH SIDES OF PENETRATIONS THROUGH GIRDERS.
  11. LONG'L BHDS SIMILAR IN CONSTRUCTION TO THAT SHOWN FOR INTERIOR LONG'L BHD 25-41 (01-02 LEVEL) ARE TO BE INSTALLED AT FR. 58-76 @ E AND FR. 67-76 @ 15' TO STD OF E, BETWEEN THE MAIN DECK AND 01 LEVEL (10').
- TRANSVERSE BHDS SIMILAR IN CONSTRUCTION TO THAT SHOWN FOR INTERIOR TRANSVERSE BHD 40 (01-02 LEVEL) ARE TO BE INSTALLED AT FR. 67 FROM 15' TO 21' STD OF E AND AT FR. 72 FROM 21' PORT OF E TO 15' STD OF E.

F	REVISED 03 LEVEL BHDS TO SHOW AS BUILT CONDITION	6-5-79
E	ADD HANDRAIL NOTE, ALT'D BHD 25 VIEW, CONTR. TK PIC, LEV. RM. WINDOW CUT	1/4/79
D	LEV. RM. WINDOW HEIGHT.	11-9-78
C	MOD. TO BHD 10 - KEEP EXIST'G R, DEL. BHD 25(S) MM, LEV. RM. WINDOW HEIGHT.	10-2-78
B	ADDED BOOBY HATCH BHDS @ MN. DK.	
A	ALT'D HAND RAILS & WELD DET. ADDED	9-22-78
SYMBOL	REVISION	DATE

**FREDDRYCK M. BARFUET**  
NAVAL ARCHITECT & MARINE ENGINEER  
6211 NORTH ENSIGN PORTLAND, OREGON 97217

PORT OF PORTLAND DREDGE OREGON DECK HOUSE		
TITLE <b>STRUCTURAL PROFILE &amp; BULKHEADS</b>		
DESIGNED EAB	APPROVED ABS LTR. OF 11-21-78	DATE
DRAWN	SCALE 1/4" = 1'-0"	REVISION
CHECKED		
DRAWING NO. 1111-2		Page 467 of 726



## Federal Government

Agency: Puget Sound Naval Shipyard

Vessels:

- Barge 40
- Barge 60
- Beluga
- Edgecumbe
- Future Barge 1
- Future Barge 2

Puget Sound Naval Shipyard provided data sheets to the IBR Program. The CRC NIR did not include additional vessel survey information or images.



**From:** [Preisinger, Rachel A CIV USN NAVSHIPYDIMF PGS WA \(USA\)](#)  
**To:** [Brian Carrico](#)  
**Cc:** [Nicole McDermott](#)  
**Subject:** RE: Interstate Bridge Replacement Project - PSNS Vessel Use Columbia River  
**Date:** Wednesday, June 16, 2021 2:56:28 PM  
**Attachments:** [IBRP Vessel Data Sheets Puget Sound Naval Shipyard 2021.pdf](#)

---

Hello Brian,

Attached are the updated vessel data sheets.

Please note that the YP 701 and YTT 10 previously listed in 2012 are no longer expected.

Thank you for giving us the opportunity to provide input on the I-5 Bridge replacement.

Rachel Preisinger  
Reactor Compartment  
Disposal Division  
Puget Sound Naval Shipyard &  
Intermediate Maintenance Facility

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**From:** Brian Carrico <Brian.Carrico@interstatebridge.org>  
**Sent:** Tuesday, June 08, 2021 8:10 AM  
**To:** Preisinger, Rachel A CIV USN NAVSHIPYDIMF PGS WA (USA) <rachel.preisinger@navy.mil>  
**Cc:** Nicole McDermott <Nicole.McDermott@interstatebridge.org>  
**Subject:** [Non-DoD Source] Re: Interstate Bridge Replacement Project - PSNS Vessel Use Columbia River

Hi Rachel, it has been a little while since I sent this. I wanted to check in to see if you have been able to review and confirm this information or if you need anything else from us to complete the effort.

Let me know if I can be of further assistance.

Brian

---

**From:** Brian Carrico  
**Sent:** Wednesday, May 12, 2021 2:24 PM  
**To:** Preisinger, Rachel A CIV USN NAVSHIPYDIMF PGS WA (USA) <rachel.preisinger@navy.mil>  
**Cc:** Nicole McDermott <Nicole.McDermott@interstatebridge.org>  
**Subject:** Re: Interstate Bridge Replacement Project - PSNS Vessel Use Columbia River

Thanks for getting back to me so quickly. Attached are a few things. The PDF files are the actual data used in the 2012 effort. We translated this into a new Word document (also



attached) that you could use to update information. Alternatively, you could access our online survey to input the information (at the link in the prior email).

Brian

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**From:** Preisinger, Rachel A CIV USN NAVSHIPYDIMF PGS WA (USA)

**Sent:** Wednesday, May 12, 2021 12:13 PM

**To:** Brian Carrico

**Subject:** RE: Interstate Bridge Replacement Project - PSNS Vessel Use Columbia River

Hello Brian,

Thank you for contacting us about navigation needs for our shipments on the Columbia River. Please send me the prior information you need reviewed and verified, and myself or someone from my office will get back to you.

Thank you.

Rachel Preisinger

Reactor Compartment

Disposal Division

Puget Sound Naval Shipyard &

Intermediate Maintenance Facility

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**From:** Brian Carrico <Brian.Carrico@interstatebridge.org>

**Sent:** Tuesday, May 11, 2021 1:11 PM

**To:** Preisinger, Rachel A CIV USN NAVSHIPYDIMF PGS WA (USA) <rachel.preisinger@navy.mil>

**Subject:** [Non-DoD Source] Interstate Bridge Replacement Project - PSNS Vessel Use Columbia River

Rachel,

I am part of the team working on the Interstate Bridge (IBR) Program for ODOT and WSDOT (<https://www.interstatebridge.org/rivernavigation/>). I am reaching to you as part of the projects efforts to complete a Navigation impact Report as part of the USCG permitting process for the new bridge. We are collecting information on vessel use of the Columbia River and you provided information for PSNS for the prior Columbia River Crossing Project. We are seeking to validate and update the previously provided information. Are you the correct person to do this? If so can I send you the prior information to review and confirm? Thanks in advance for your time and feel free to reach out if you have any questions specific to this



request or the program in general.

**Brian Carrico**

**Interstate Bridge Replacement Program**

**Environmental Program**

**O:** 360-823-6122 | **C:** 360-433-7775

**E:** [brian.carrico@interstatebridge.org](mailto:brian.carrico@interstatebridge.org)

[interstatebridge.org](http://interstatebridge.org)





### EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** Puget Sound Naval Shipyard

**Vessel Name:**

Barge 40

**Vessel Type:**

Freight Barge

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): No

**Vessel Category:** National Defense

**USCG Document Number:**

1035597

**Primary Mooring Location** (*waterway milepoint, if known*):

Bremerton, WA

**Type and quantity of cargo, if applicable:**

1 Package

**Length (overall; ft):**

250

**Beam (width; ft):**

68



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - *depth of hull below waterline, fully laden:*

14.75, worst case

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

50 (combined barge and package above waterline)

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

15

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

100

**Transit speed under Interstate Bridge and Load Configuration:**

10 knots

Full Load Displacement: 3302 long tons

**Time of Year of Passage:**

Shipments typically occur during mid-March to mid-April and September through October.

Shipment time and frequency can vary but averages two per year.

**Tug Assistance Required:**Yes

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar   X   Apr   X   May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep   X   Oct   X   Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



### EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** Puget Sound Naval Shipyard

**Vessel Name:**

Barge 60

**Vessel Type:**

Freight Barge

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): No

**Vessel Category:** National Defense

**USCG Document Number:**

630028

**Primary Mooring Location** (*waterway milepoint, if known*):

Bremerton, WA

**Type and quantity of cargo, if applicable:**

1 Package

**Length (overall; ft):**

230

**Beam (width; ft):**

60



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - *depth of hull below waterline, fully laden:*

14.75, worst case

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

43 (combined barge and package above waterline)

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

15

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

100

**Transit speed under Interstate Bridge and Load Configuration:**

10 knots

Full Load Displacement: 2385 long tons

**Time of Year of Passage:**

Shipments typically occur during mid-March to mid-April and September through October.

Shipment time and frequency can vary but averages two per year.

**Tug Assistance Required:**Yes

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar   X   Apr   X   May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep   X   Oct   X   Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



### EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** Puget Sound Naval Shipyard

**Vessel Name:**

Beluga

**Vessel Type:**

Freight Barge

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): No

**Vessel Category:** National Defense

**USCG Document Number:**

586036

**Primary Mooring Location** (*waterway milepoint, if known*):

Bremerton, WA

**Type and quantity of cargo, if applicable:**

1 Package

**Length (overall; ft):**

240

**Beam (width; ft):**

60



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - *depth of hull below waterline, fully laden:*

14.75, worst case

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

43 (combined barge and package above waterline)

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

15

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

100

**Transit speed under Interstate Bridge and Load Configuration:**

10 knots

Full Load Displacement: 2509 long tons

**Time of Year of Passage:**

Shipments typically occur during mid-March to mid-April and September through October.

Shipment time and frequency can vary but averages two per year.

**Tug Assistance Required:**Yes

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar   X   Apr   X   May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep   X   Oct   X   Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



### EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** Puget Sound Naval Shipyard

**Vessel Name:**

Edgumbe

**Vessel Type:**

Freight Barge

**Specialized Vessel** (e.g. limited maneuverability due to design or mode of operation. If yes, please describe): No

**Vessel Category:** National Defense

**USCG Document Number:**

591009

**Primary Mooring Location** (waterway milepoint, if known):

Bremerton, WA

**Type and quantity of cargo, if applicable:**

1 Package

**Length (overall; ft):**

240

**Beam (width; ft):**

60



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - *depth of hull below waterline, fully laden:*

14.75, worst case

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

43 (combined barge and package above waterline)

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

15

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

100

**Transit speed under Interstate Bridge and Load Configuration:**

10 knots

Full Load Displacement: 2439 long tons

**Time of Year of Passage:**

Shipments typically occur during mid-March to mid-April and September through October.

Shipment time and frequency can vary but averages two per year.

**Tug Assistance Required:**Yes

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar   X   Apr   X   May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep   X   Oct   X   Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



### EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** Puget Sound Naval Shipyard

**Vessel Name:**

Future Barge 1

**Vessel Type:**

Freight Barge

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): No

**Vessel Category:** National Defense

**USCG Document Number:**

NA

**Primary Mooring Location** (*waterway milepoint, if known*):

Bremerton, WA

**Type and quantity of cargo, if applicable:**

1 Package

**Length (overall; ft):**

355

**Beam (width; ft):**

80



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - *depth of hull below waterline, fully laden:*

17.75, worst case

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

53 (combined barge and package above waterline)

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

15

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

100

**Transit speed under Interstate Bridge and Load Configuration:**

10 knots

Full Load Displacement: 8398 long tons

**Time of Year of Passage:**

Shipments typically occur during mid-March to mid-April and September through October.

Shipment time and frequency would vary, but could average two per year.

**Tug Assistance Required:** Yes

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar   X   Apr   X   May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep   X   Oct   X   Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



### EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** Puget Sound Naval Shipyard

**Vessel Name:**

Future Barge 2

**Vessel Type:**

Freight Barge

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): No

**Vessel Category:** National Defense

**USCG Document Number:**

NA

**Primary Mooring Location** (*waterway milepoint, if known*):

Bremerton, WA

**Type and quantity of cargo, if applicable:**

1 Package

**Length (overall; ft):**

276

**Beam (width; ft):**

78



### EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Draft (ft)** - *depth of hull below waterline, fully laden:*

14.75, worst case

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

54 (combined barge and package above waterline)

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

15

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

100

**Transit speed under Interstate Bridge and Load Configuration:**

10 knots

Full Load Displacement: 4447 long tons

**Time of Year of Passage:**

Shipments typically occur during mid-March to mid-April and September through October.

Shipment time and frequency would vary, but could average two per year.

**Tug Assistance Required:** Yes

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar X Apr X May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep X Oct X Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



## Federal Government

Agency: Tongue Point Job Corps (Maritime Training Program)

Vessel:

- USCG M/V Ironwood buoy tender

Tongue Point did not respond to IBR request. Information below was included in CRC NIR.



Federal Government

Owner: Tongue Point Job Corps Maritime Training Program

Vessel: M/V Ironwood





# Columbia River CROSSING



## River User Data Sheet

By: TIM PUGH

Date: 5/10/2012

### 1. Company name and/or owner of vessel and contact information

Name of company: TONGUE POINT JOB CORPS MARITIME TRNG PROGRAM

Name of contact: CAPT JAMES VANWORMER

Phone number (Office): 503-338-4977 (Cell): \_\_\_\_\_

Email: VANWORMER.JAMES@JOBCORPS.ORG

Address: 37573 OLD HWY 30

City: ASTORIA State: OR Zip code: 97146

3a. Vessel name: M/V IRONWOOD 3b. Vessel type: TRAINING SHIP

3c. U.S. Coast Guard Document Number: WLB 297 (EX USCG B401 TENDER)

4a. Length Overall (LOA), feet: 180' 4b. Beam (width), feet: 37'

5. Draft (depth of hull below waterline, fully laden), feet: 14'

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 82'

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 6'

### 8. Frequency of one-way passage underneath I-5 main channel (typical per month):

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May ☒ Jun ☒ Jul ☒ Aug ☒ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

9. Frequency of one-way passage underneath I-5 main channel (other historic events): N/A

### 10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month):

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May ☒ Jun ☒ Jul ☒ Aug ☒ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): \_\_\_\_\_

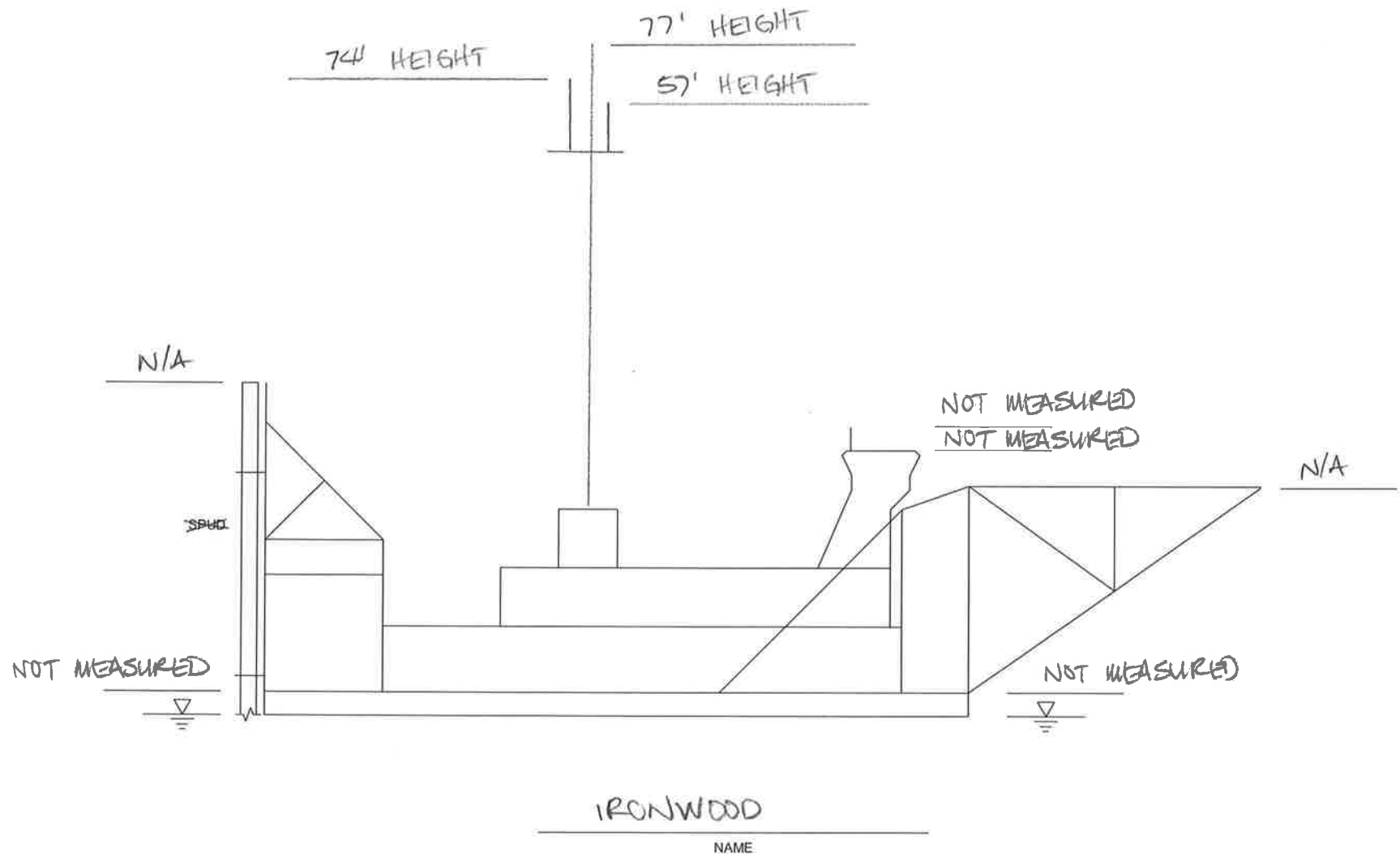
12. Do you have a business plan (e.g. 10 or 20 year plan)? N/A

What does it say related to vessels traveling under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? \_\_\_\_\_

May we have a copy? \_\_\_\_\_

13. Other (additional sheets may be attached.) \_\_\_\_\_





TONGUE POINT, ASTORIA, OR  
LOCATION

07-10-12  
DATE



Page 488 of 726  
7/16/2012



## Vessel Height Verification Sheet

By: Karl Krcma Date: 10 July 2012

1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: Tongue Point Job Corps
- b. Name of contact: Captain James VanWormer
- c. Phone number (Office): 503.338.4977 (Cell): 206.715.8174
- d. Email: vanwormer.james@jobcorps.org
- e. Address: 37573 Old Hwy 30 City: Astoria
- State: OR Zip code: 97146

2. Vessel

- a. ID: \_\_\_\_\_ b. Name: M/V Ironwood
- c. Type: ex USCG Buoy tender d. USCG Document Number: WLB297

3. Vessel Configuration

- a. Identify vessel configuration: \_\_\_\_\_
- Is a vessel specification sheet available? No
  - Configuration shown on the sheet: not shown, photo only
  - What is the lowest height configuration for transport? 77' (74' without antenna)
- b. What is the gantry configuration? N/A Estimated gantry height: N/A
- c. Does the barge have spuds? N/A
- Height above waterline for travel? N/A
  - Can the spuds be removed for travel? N/A
  - Work and cost involved in removing spuds? N/A

4. Vessel Location

- a. Where is the vessel currently located? Tongue Point, Columbia River
- b. Is it working on a job? N/A Is it tied up to shore? Yes



- c. What is the best time to make a trip to the vessel? Priot to end of July, Just need a few  
days advance notice.

5. Surveyed Measurements (all measurements NAVD 88)

Gantry Height:	N/A
Water Level:	N/A
Top of Boom:	N/A
Height of Boom Hinge Pin:	N/A
Boom Cradle:	N/A
Top of Spud:	N/A
Top of Deck:	N/A

6. Vessel Height

Self-Reported		Surveyed	
Air Draft:	82 feet	Air Draft:	77 feet
Air Gap:	10 feet	Air Gap:	10 feet
Water Level:	16 feet (CRD)	Water Level:	16 feet (CRD)
Total Height:	108 feet	Total Height:	103 feet

7. History Notes

Date	Item
5/10/2012	Contacted by Karl Krcma
5/10/2012	Data sheet submitted
6/28/2012	Contacted by Karl Krcma for field measurement
7/10/2012	Field measured
7/17/2012	New data sheet submitted



## Federal Government

Agency: USACE

Vessel: Yaquina

USACE confirmed the information provided during the CRC NIR is still accurate (email confirmation included below). Vessel details that follow were included in the CRC NIR.



**From:** [Hicks, Jeffrey T CIV USARMY CENWP \(USA\)](#)  
**To:** [Brian Carrico](#)  
**Cc:** [Nicole McDermott](#); [Darlene Siegel](#)  
**Subject:** RE: Interstate Bridge Replacement Project - USACE vessels/Navigation needs  
**Date:** Tuesday, June 8, 2021 8:43:19 AM  
**Attachments:** [image001.png](#)  
[image002.png](#)  
[image003.png](#)  
[image004.png](#)

---

Brian,

I did just get a response on the upcoming planned activities from our Operating Project Managers.

The Yaquina looks to be the tallest USACE vessel that we expect to transit through the area. Annual O&M dredging's in water work window is 1 August to 30 September but we need to have the ability to address shoals at any time of year. I believe that's how we landed on the river level + Yaq height clearance in our formal letter to the CRC.

As far as future work goes, our contractors often move equipment and materials via barge to construction projects. For example recent gate replacements, JD AWS electrical building, etc along with the large cranes mobilized to handle these. The largest crane I've heard coming up river was "The General" which I think Kiewit now owns.

I am trying to verify the dimensions of "the General" as well as the largest items we've moved under contract (likely The Dalles or John Day Gates). Otherwise there is nothing planned that would be impacted by the bridge height.

Thanks, Jeff

Jeff Hicks | Portland District Project Manager  
☎: 503.710.8256 | [Jeffrey.T.Hicks@usace.army.mil](mailto:Jeffrey.T.Hicks@usace.army.mil)

---

**From:** Brian Carrico <Brian.Carrico@interstatebridge.org>  
**Sent:** Tuesday, June 8, 2021 8:14 AM  
**To:** Hicks, Jeffrey T CIV USARMY CENWP (USA) <Jeffrey.T.Hicks@usace.army.mil>  
**Cc:** Nicole McDermott <Nicole.McDermott@interstatebridge.org>; Darlene Siegel <Darlene.Siegel@interstatebridge.org>  
**Subject:** [Non-DoD Source] Re: Interstate Bridge Replacement Project - USACE vessels/Navigation needs

Jeff, it has been a few weeks since sending this. I wanted to check in with you to see if you need further information from the team in order to complete this request and/or if you have



an estimate for when we may get the information. Thanks in advance.

Brian

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**From:** Brian Carrico <[Brian.Carrico@interstatebridge.org](mailto:Brian.Carrico@interstatebridge.org)>  
**Sent:** Thursday, May 13, 2021 10:22 AM  
**To:** Hicks, Jeffrey T CIV USARMY CENWP (USA) <[Jeffrey.T.Hicks@usace.army.mil](mailto:Jeffrey.T.Hicks@usace.army.mil)>  
**Cc:** Nicole McDermott <[Nicole.McDermott@interstatebridge.org](mailto:Nicole.McDermott@interstatebridge.org)>; Darlene Siegel <[Darlene.Siegel@interstatebridge.org](mailto:Darlene.Siegel@interstatebridge.org)>  
**Subject:** Re: Interstate Bridge Replacement Project - USACE vessels/Navigation needs

Jeff - attached is the information provided for CRC.

Brian

---

**From:** Hicks, Jeffrey T CIV USARMY CENWP (USA) <[Jeffrey.T.Hicks@usace.army.mil](mailto:Jeffrey.T.Hicks@usace.army.mil)>  
**Sent:** Thursday, May 13, 2021 10:16 AM  
**To:** Brian Carrico <[Brian.Carrico@interstatebridge.org](mailto:Brian.Carrico@interstatebridge.org)>  
**Cc:** Nicole McDermott <[Nicole.McDermott@interstatebridge.org](mailto:Nicole.McDermott@interstatebridge.org)>; Darlene Siegel <[Darlene.Siegel@interstatebridge.org](mailto:Darlene.Siegel@interstatebridge.org)>  
**Subject:** RE: Interstate Bridge Replacement Project - USACE vessels/Navigation needs

Hey Brian,

Sorry for the slow response. I would be the correct contact to validate this information. I am working with our Navigation team to answer this question but as far as I'm tracking it was just the Yaquina. Hoping I can get you a formal response by tomorrow.

Thanks, Jeff

---

**From:** Brian Carrico <[Brian.Carrico@interstatebridge.org](mailto:Brian.Carrico@interstatebridge.org)>  
**Sent:** Wednesday, May 12, 2021 8:01 AM  
**To:** Hicks, Jeffrey T CIV USARMY CENWP (USA) <[Jeffrey.T.Hicks@usace.army.mil](mailto:Jeffrey.T.Hicks@usace.army.mil)>  
**Cc:** Nicole McDermott <[Nicole.McDermott@interstatebridge.org](mailto:Nicole.McDermott@interstatebridge.org)>; Darlene Siegel <[Darlene.Siegel@interstatebridge.org](mailto:Darlene.Siegel@interstatebridge.org)>  
**Subject:** [Non-DoD Source] Interstate Bridge Replacement Project - USACE vessels/Navigation needs

Jeff,

I am part of the team working on the Interstate Bridge (IBR) Program addressing the USCG permit. We are collecting information on vessel use of the Columbia River and are validating and updating the data provided by the USACE for the prior Columbia River Crossing Project.



The information at that time was provided by Marci Johnson. Would you be the best contact for validating the information? Specifically, I am looking to confirm information on the Yaquina, whether any other USACE vessels would be expected to transit through the area (either North Portland Harbor or the main channel) and whether there are any planned activities at upstream dams would require specific shipments under the bridge in the future.

Thanks in advance. Feel free to call or email if you have questions or need additional information.

Brian

**Brian Carrico**

**Interstate Bridge Replacement Program  
Environmental Program**

**O:** 360-823-6122 | **C:** 360-433-7775

**E:** [brian.carrico@interstatebridge.org](mailto:brian.carrico@interstatebridge.org)

[interstatebridge.org](http://interstatebridge.org)





## **Federal Government**

**Owner:** US Army Corps of Engineers

**Vessel:** Yaquina

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## River User Data Sheet

By: NWP Dredge OPS

Date: Feb 27, 2012

### 1. Company Name and/or Owner of Vessel and contact information

Name of company: US Army Corps of Engineers, Portland District

Name of contact: Marci Johnson

Phone number (Office): (503) 808-4765

(Cell): \_\_\_\_\_

Email: Marci.E.Johnson@usace.army.mil

Address: 333 SW 1st Avenue, P.O. Box 2946

City: Portland

State: OR

Zip code: 97204

3a. Vessel Name: Yaquina

3b. Vessel Type: Hopper Dredge

3c. US Coast Guard Document Number: CG000073

4a. Length Overall (LOA), feet: 200

4b. Beam (width), feet: 58

5. Draft (depth of hull below waterline, fully laden), feet: 16

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 92

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 8

8. Frequency of one-way passage underneath I-5 main channel (typical per month): based on historical

Jan 2 Feb 2 Mar 2 Apr 2 May 2 Jun 2 Jul 2 Aug 4 Sep 4 Oct 2 Nov 2 Dec 2

9. Frequency of one-way passage underneath I-5 main channel (other historic events): included in 8.

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month):

Jan 0 Feb 0 Mar 0 Apr 0 May 0 Jun 0 Jul 0 Aug 0 Sep 0 Oct 0 Nov 0 Dec 0

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): none

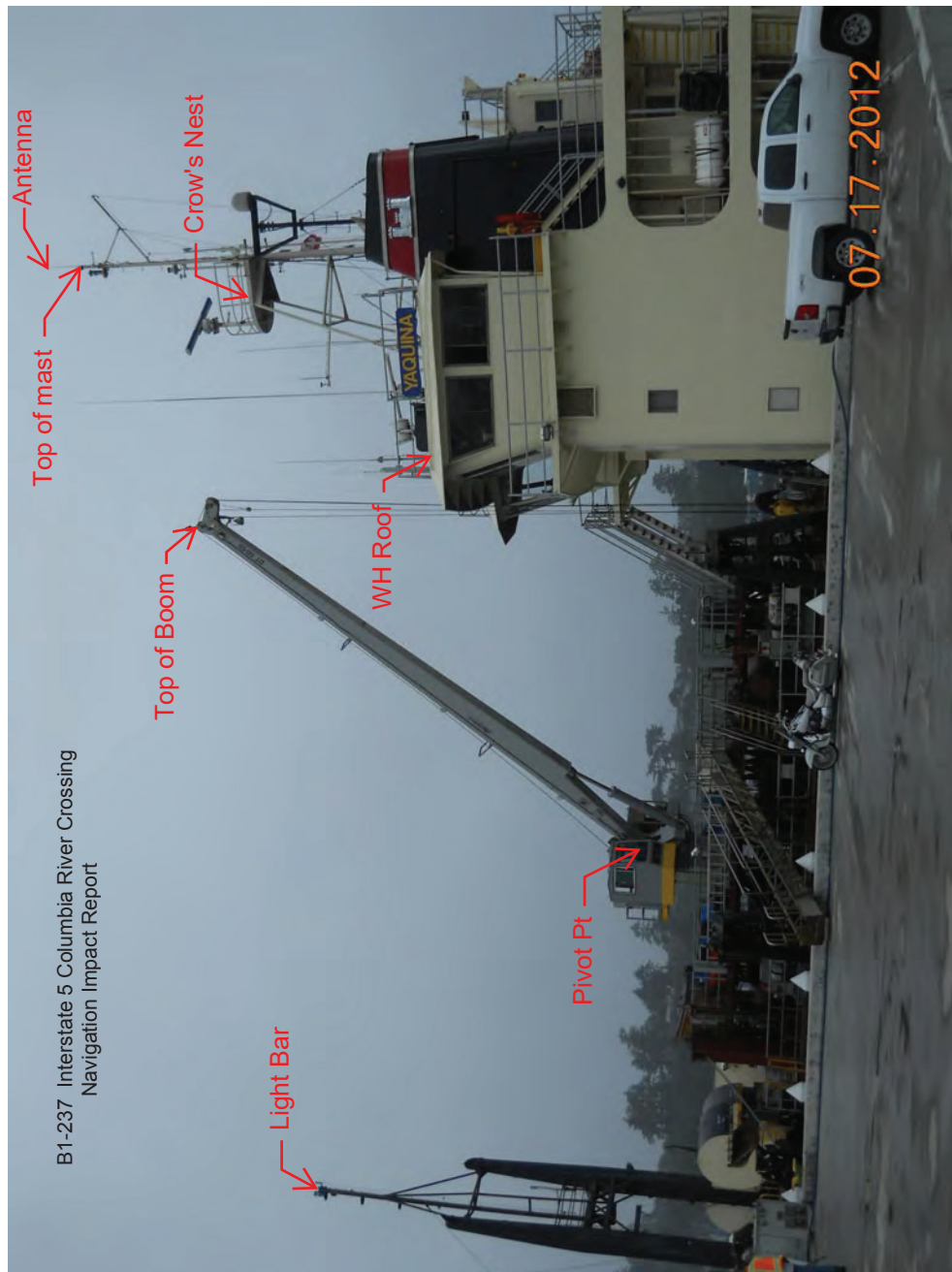
12. Do you have a Business Plan (e.g. 10 or 20 year plan)? provided by letter dated Feb 23, 2012

What does it say regarding vessels transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? \_\_\_\_\_

May we have a copy? \_\_\_\_\_

13. Other miscellaneous Historical information provided above does not represent future needs. Future needs were provided to CRC by letter dated Feb, 23 2012. As stated in Feb 23, 2012 letter, to ensure safe passage of the dredge Yaquina, the minimum bridge height required for current and future operational needs is 116 feet CRD.







Task AH802DE CRC Vessel Verification\_071712.xlsx  
1 of 1  
7/20/2012



## Vessel Height Verification Sheet

By: Karl Krcma Date: July 26, 2012

### 1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: US Army Corps of Engineers
- b. Name of contact: Marci Johnson
- c. Phone number (Office): (503) 808-4765 (Cell):
- d. Email: Marci.E.Johnson@usace.army.mil
- e. Address: 333 SW 1<sup>st</sup> Ave, PO Box 2946 City: Portland
- State: OR Zip code: 97204

### 2. Vessel

- a. ID:  b. Name: Yaquina
- c. Type: Hopper Dredge d. USCG Document Number: CG000073

### 3. Vessel Configuration

- a. Identify vessel configuration: Self propelled hopper dredge
- Is a vessel specification sheet available? No
  - Configuration shown on the sheet: N/A
  - What is the lowest height configuration for transport? 92 feet
- b. What is the gantry configuration? N/A Estimated gantry height: N/A
- c. Does the barge have spuds? N/A
- Height above waterline for travel? N/A
  - Can the spuds be removed for travel? N/A
  - Work and cost involved in removing spuds? N/A

### 4. Vessel Location

- a. Where is the vessel currently located? N/A
- b. Is it working on a job? N/A Is it tied up to shore? N/A
- c. What is the best time to make a trip to the vessel? N/A



## 5. Measurements from Spec Sheet

Gantry Height:	N/A
Water Level:	N/A
Top of Boom:	N/A
Height of Boom Hinge Pin:	N/A
Boom Cradle:	N/A
Top of Spud:	N/A

## 6. Vessel Height

Self-Reported		Surveyed	
Air Draft:	92	Air Draft:	90 (draft at bow 12-12.5 and draft stern 11-11.5)
Air Gap:	10	Air Gap:	10
Water Level:	16	Water Level:	16
<b>Total Height:</b>	<b>118 feet</b>	<b>Total Height:</b>	<b>116 feet</b>

## 7. History Notes

Date	Item
2/14/2012	Contacted by Karl Krcma
2/27/2012	River user data sheet submitted
7/17/2012	Surveyed









REPLY TO  
ATTENTION OF

Planning, Programs and Project  
Management Division

**DEPARTMENT OF THE ARMY**  
CORPS OF ENGINEERS, PORTLAND DISTRICT  
PO BOX 2946  
PORTLAND OR 97208-2946

**FEB 23 2012**

Ms. Heather Wills  
Columbia River Crossing  
700 Washington Street, Suite 300  
Vancouver, Washington 98660

Dear Ms. Wills,

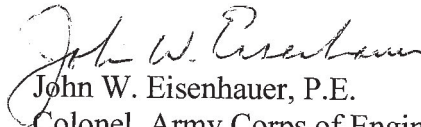
This letter is in response to the Columbia River Crossing (CRC), Interstate 5 (I-5) Project boat survey request for information regarding the Corps Dredges Yaquina and Essayons and our navigational needs upstream of the proposed new I-5 bridge project.

We determined that the proposed bridge height outlined in the Record of Decision would have serious impacts on our federal missions to maintain the navigation channel and provide emergency dredging upstream of the new bridge. After considering dredging requirements and potential future water release impacts to the Columbia River, we determined that the minimum prism needed for the new bridge is a height of 116 feet Columbia River Datum (121.4 NAVD88) for a width of 400 feet. A more detailed explanation of our requirements is enclosed.

We will forward a copy of this letter to Rear Admiral Keith Taylor, Commander 13<sup>th</sup> District United States Coast Guard, Jackson Federal Building, 915 Second Avenue, Seattle, WA 98174-1067, John McAvoy, FHWA, 610 East 10<sup>th</sup> Street, Vancouver, WA 98661; and Dave Hendricks, Multnomah County Drainage District No. 1, 1880 NE Elrod Dr., Portland, Oregon 97211.

We look forward to resolving these navigation concerns to ensure the CRC project does not have any unacceptable impacts to our federal projects. Please feel free to contact me at (503) 808-4500 or Ms. Marci Johnson of my staff at (503) 808-4765 or via e-mail at [marci.e.johnson@usace.army.mil](mailto:marci.e.johnson@usace.army.mil).

Sincerely,

  
John W. Eisenhower, P.E.  
Colonel, Army Corps of Engineers  
District Commander

Enclosure





**US Army Corps  
of Engineers®**  
Portland District

**U. S. Army Corps of Engineers Federal Navigation Channel Maintenance Needs  
Columbia River Crossing (I-5 Interstate Bridge at Vancouver, WA)  
February 2012**

**Summary:**

**Minimum prism needed for new bridge is height 116 feet Columbia River Datum (CRD) (equal to 121.4 feet NAVD88) for width 400 feet (channel width of 300 feet plus 50 feet on each side of the channel).**

Authorized project:

- The federal Navigation Channel immediately upstream of the Columbia River Crossing is authorized to 27 feet deep and 300 feet wide from Vancouver, WA, to The Dalles, OR. This channel supports the Columbia-Snake river system and transportation of 10 million tons of cargo annually. It is the largest wheat/barley export gateway in the U.S. and the third largest grain export gateway in the world.

Minimum bridge prism reasoning:

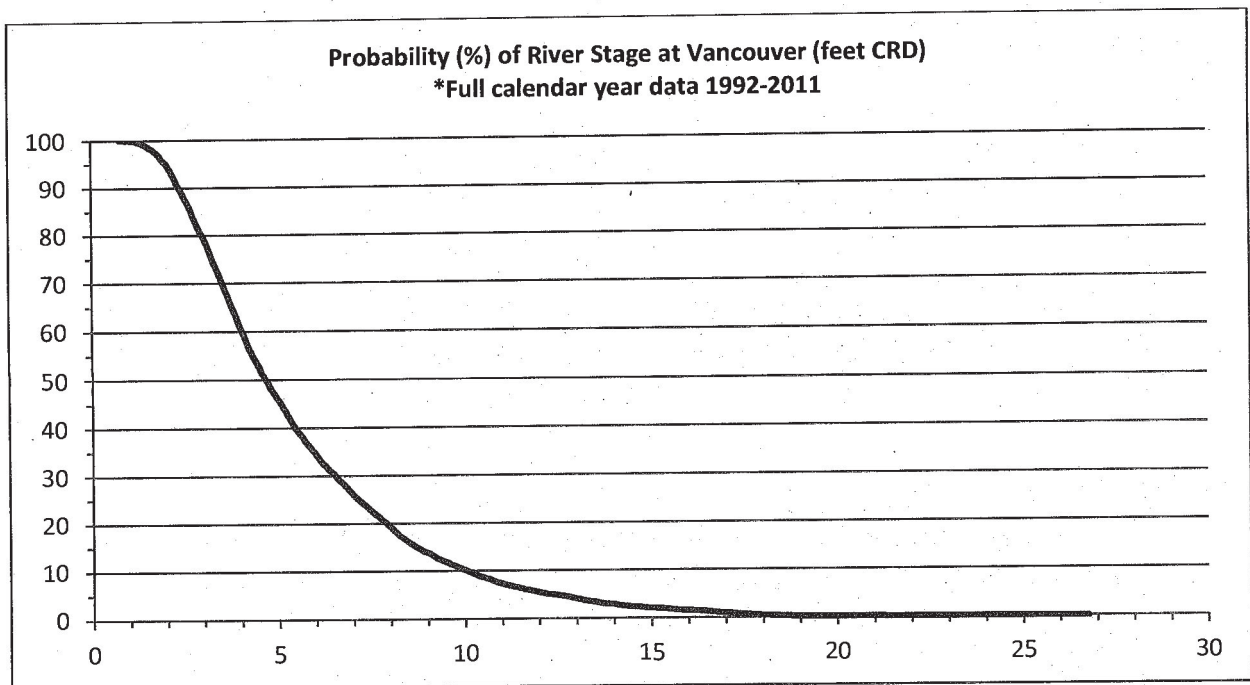
- The Corps' Dredge *Yaquina* performs annual channel maintenance dredging. The minimum prism needed for the new bridge is the vertical clearance required for this dredge to pass safely under the bridge at a specified river water level above CRD, and the horizontal clearance required for maintenance of the channel under the bridge.

---

Vertical clearance discussion:

- According to the USCG-licensed captains of the Dredge *Yaquina*, a 100-foot minimum vertical clearance from top of water to bottom of bridge is required (draft of 9 feet below the waterline gives a height of 92 feet above the waterline, plus an 8-foot minimum safety gap).
- The environmentally protective in-water work period as established by Federal and State agencies has changed in the past, and could continue to change as new species are listed, requiring work to be done during periods of higher river flow and stage.
- Year-round river flow levels must be considered as emergency operations could be required at any time. The probability of a river stage is shown below, using available data from the past 20 years.





- The uncertainty of future water levels must be considered. As part of the Columbia River Treaty Review, the Corps is collecting new data and performing studies to evaluate maintaining or potentially changing current levels of regulation for flood risk protection in this region of the Columbia River basin. The National Marine Fisheries Biological Opinion for the Federal Columbia River Power System also requires the Corps to spill water at its Columbia River dams to support salmon survival. These factors may lead to future operations resulting in elevated river levels (closer to ordinary high water) for longer durations compared with the past 20 years. Current Regulatory ordinary high water level at the Columbia River Crossing is 16 feet CRD (equivalent to 21.4 feet NAVD88).
- Bridge lift records show the lift height in feet above zero at the bridge pier elevation (39 feet CRD). Recent records show that the median lift for the Dredge *Yaquina* is 100 feet (equal to 139 feet CRD). The maximum lift shown was 136 feet (175 feet CRD). The minimum lift shown was 90 feet (129 feet CRD). Water levels shown on bridge records corresponding to these lifts ranged from 1 to 12 feet CRD.

Vertical clearance conclusion: A minimum vertical height of 116 feet CRD (121.4 feet NAVD88) is required. Year-round river level data from the past 20 years indicate that river levels were at or below 16 feet CRD approximately 98 percent of the time. Future river operations will likely increase river levels up to ordinary high water (16 feet CRD) for longer periods. Adding the 100-foot vertical clearance from waterline to bridge required for the Dredge *Yaquina* to 16 feet CRD yields a minimum vertical bridge height requirement of 116 feet CRD (121.4 NAVD88).



Horizontal clearance discussion:

- The Corps practices advanced width maintenance dredging (dredging up to 50-100 feet outside the channel width) to provide an area outside the channel for unstable side slope sloughing so that the full channel width remains clean.

Horizontal clearance conclusion: A horizontal width of 400 feet CRD is required at the vertical height specified above. This width includes the channel width (300 feet) plus 50 feet additional width on each side of the channel for advanced width maintenance dredging.



## Federal Government

Agency: USCG, Marine Safety Unit

Vessel:

- Juniper-class buoy tender

USCG confirmed the information provided during the Hood River-White Salmon Bridge Replacement NIR is still accurate (email confirmation included below). Data sheets from the Hood River-White Salmon Bridge Replacement NIR are also included.



**From:** [Brian Carrico](#)  
**To:** [Nicole McDermott](#); [River Navigation](#)  
**Subject:** Fw: Interstate Bridge Replacement Program  
**Date:** Tuesday, May 11, 2021 9:40:31 AM  
**Attachments:** [image001.png](#)  
[image002.png](#)  
[image003.png](#)  
[image004.png](#)

---

---

**From:** Fischer, Steven M CIV <Steven.M.Fischer3@uscg.mil>  
**Sent:** Tuesday, May 4, 2021 5:41 PM  
**To:** Brian Carrico <Brian.Carrico@interstatebridge.org>  
**Cc:** McReynolds, Danny G CIV <Danny.G.McReynolds@uscg.mil>; Garneau, Allen M CIV <Allen.M.Garneau@uscg.mil>; Smith, Carl F CTR <Carl.F.Smith@uscg.mil>; Moriarty, John F CIV <John.F.Moriarty@uscg.mil>  
**Subject:** RE: Interstate Bridge Replacement Program

Brian,

Yes the Hood River USCG vessel data is correct and should be used in the IBP NIR.  
BNSF is required to have an opening log that would not day and time of opening and type of vessel(s) and possibly names of vessels they have opened for. Do you need this and are unable to get it?  
Good days for me are Tue, Thurs, Fri.

Thanks

Steve

---

**From:** Brian Carrico <Brian.Carrico@interstatebridge.org>  
**Sent:** Tuesday, May 4, 2021 3:53 PM  
**To:** Fischer, Steven M CIV <Steven.M.Fischer3@uscg.mil>  
**Cc:** McReynolds, Danny G CIV <Danny.G.McReynolds@uscg.mil>  
**Subject:** [Non-DoD Source] Interstate Bridge Replacement Program

Steve - I have a few requests for you associated with the IBR Program.

1. USCG vessel river use: The 2012 CRC report (from which we are starting) does not have any data for USCG vessel use related to the I-5 Bridge. For the recently completed Hood River Bridge Navigation Impact Report we included the Juniper Class Buoy Tender as a vessel that would be required to navigate under the bridge. Can you confirm that would also be the case and whether any other USCG vessels should be considered? The vessel



information used for Hood River Bridge is attached for your information. It is also includes a blank sheet for additional vessels if needed.

2. BNSF Bridge Data: We previously discussed obtaining information on BNSF bridge openings to get a better picture of overall river traffic (not just vessel traffic required a bridge opening. BNSF indicated that they did not have this data. You indicated previously that you may be able to assist in obtaining the data. Let me know if you have any thoughts on this.
3. Notice to Mariners: Do you anticipate getting the notice previously sent published in the Local Notice to Mariners soon or did i miss it in the recent publications?
4. Meeting: Can you let me know your availability for a coordination call with the IBR team this month? We want to keep you fully informed and have a few items to discuss as we move forward.

Thanks in advance for your time.

Regards,

Brian

**Brian Carrico**

**Interstate Bridge Replacement Program**

**Environmental Program**

**O:** 360-823-6122 | **C:** 360-433-7775

**E:** [brian.carrico@interstatebridge.org](mailto:brian.carrico@interstatebridge.org)

[interstatebridge.org](http://interstatebridge.org)





**VESSEL DATA SHEET**

Please fill out the data sheet below. Please complete a data sheet for each vessel in your fleet that transits under the Hood River – White Salmon Bridge. In addition, please note any future vessel or cargo plans that might require different vessels to transit under the bridge.

**Company Name:** United State Coast Guard

**Vessel Name:**

USCGC Elm

**Vessel Type:**

Juniper Class Buoy Tender

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*):No

**Vessel Category:** National Defense

Primary missions is buoy tender; , all Coast Guard buoy tenders can perform other Coast Guard missions that include Search and Rescue, Maritime Law Enforcement and Marine Environmental Protection.

**USCG Document Number:** N/A

**Primary Mooring Location** (*waterway milepoint, if known*):

Astoria (Tongue Point)

**Type and quantity of cargo, if applicable:**

N/A

**Length (overall; ft):**

225'

**Beam (width; ft):**

46'

**Draft (ft) - depth of hull below waterline, fully laden:**

13'



**VESSEL DATA SHEET, CONT.**

**Air Draft (ft)** - height of highest fixed point above waterline, unladen:

83'

**Air Gap (ft)** - desired clearance from highest fixed point to lowest part of bridge:

7'

**Safety Margin (ft)** horizontal clearance required by vessel to navigate through the bridge:

100'

**Frequency of passage under HR-WS Bridge:**

Dependent on operations and situations

**Transit speed under HR-WS Bridge and Load Configuration:**

8-10 knots

**Time of Year of Passage:**

Dependent on operations and situations. All weather capable vessel.

**Tug Assistance Required:**No

**Ability to Modify** (If yes, provide details including cost of modification and who pays cost):Choose an item.

No

Please identify any future vessel or cargo plans that might require different vessels to transit under the bridge. Attach additional pages as needed.



## Passenger Cruise

Company: American Cruise Lines

Vessels:

- American Pride
- Queen of the West
- American Song

Company provide information through the online survey. Survey response is included below.



#40

**COMPLETE**

**Collector:** Web Link 1 (Web Link)  
**Started:** Wednesday, August 25, 2021 5:22:18 PM  
**Last Modified:** Wednesday, August 25, 2021 5:53:37 PM  
**Time Spent:** 00:31:18  
**IP Address:** 76.28.124.51

---

Page 1: Introduction

**Q1**

Company Name

American Cruise Lines

**Q2**

Contact Information

Name	Eric Dussault
Email	eric.dussault@americancruiselines.com
Phone number	2034536800

---

**Q3**

Vessel Name (please complete one survey per vessel)

American Pride

**Q4****Cruise**

Vessel Type

**Q5****No**

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

---

**Q6****Commercial**

Vessel Category



**Q7**

USCG Document Number

1236505

---

**Q8**

Primary Mooring Location (waterway milepoint, if known)

Red Lion Portland, OR

---

**Q9**

Type and quantity of cargo, if applicable

Passengers

---

**Q10**

Length (total feet)

250

---

**Q11**

Beam (width in feet)

50

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

9

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

63

---

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

10

---



**Q15**

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

150

---

**Q16**

Frequency of passage under Interstate Bridge (main channel)

January	0
February	0
March	0
April	16
May	16
June	16
July	16
August	16
September	16
October	16
November	16

---

**Q17**

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

January	0
February	0
March	0
April	0
May	0
June	0
July	0
August	0
September	0
October	0
November	0
December	0

---



**Q18**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

8kts

**Q19****No**

Tug Assistance Required

**Q20**

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

N/A

**Q21****Respondent skipped this question**

Is there anything else you would like to add about your vessel or business plans?

**Q22****Yes**

Do you have another vessel?

Page 2: Additional Vessel (1)

**Q23**

Vessel Name (please complete one survey per vessel)

Queen of the West

**Q24****Cruise**

Vessel Type

**Q25****No**

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

**Q26****Passenger Cruise**

Vessel Category



**Q27**

USCG Document Number

1033572

---

**Q28**

Primary Mooring Location (waterway milepoint, if known)

Red Lion Portland, OR

---

**Q29**

Type and quantity of cargo, if applicable

Passenger

---

**Q30**

Length (overall feet)

225

---

**Q31**

Beam (width in feet)

43

---

**Q32**

Draft (feet) - depth of hull below waterline, fully laden

9

---

**Q33**

Air Draft (feet) - height of highest fixed point above waterline, unladen

63

---

**Q34**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

10

---



**Q35**

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

150

---

**Q36**

Frequency of passage under Interstate Bridge (main channel)

January	0
February	0
March	0
April	16
May	16
June	16
July	16
August	16
September	16
October	16
November	16
December	0

---

**Q37**

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

January	0
February	0
March	0
April	0
May	0
June	0
July	0
August	0
September	0
October	0
November	0
December	0

---



**Q38**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

8

**Q39**

No

Tug Assistance Required

**Q40**

Respondent skipped this question

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

**Q41**

Respondent skipped this question

Is there anything else you would like to add about your vessel or business plans?

**Q42**

Yes

Do you have another vessel?

Page 3: Additional Vessel (2)

**Q43**

Vessel Name (please complete one survey per vessel)

American Song

**Q44**

Cruise

Vessel Type

**Q45**

No

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

**Q46**

Passenger Cruise

Vessel Category



**Q47**

USCG Document Number

1282656

---

**Q48**

Primary Mooring Location (waterway milepoint, if known)

Red Lion Portland OR

---

**Q49**

Type and quantity of cargo, if applicable

passengers

---

**Q50**

Length (overall; feet)

325

---

**Q51**

Beam (width; feet)

58

---

**Q52**

Draft (feet) - depth of hull below waterline, fully laden

9

---

**Q53**

Air Draft (feet) - height of highest fixed point above waterline, unladen

56

---

**Q54**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

10

---



**Q55**

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

150

---

**Q56**

Frequency of passage under Interstate Bridge (main channel)

January	0
February	0
March	0
April	16
May	16
June	16
July	16
August	16
September	16
October	16
November	16
December	0

---

**Q57**

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

January	0
February	0
March	0
April	0
May	0
June	0
July	0
August	0
September	0
October	0
November	0
December	0

---



**Q58**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

8

**Q59**

No

Tug Assistance Required

**Q60**

Respondent skipped this question

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

**Q61**

Respondent skipped this question

Is there anything else you would like to add about your vessel or business plans?

**Q62**

No

Do you have another vessel?



## Passenger Cruise

Company: American Queen Steamboat Company

Vessel:

- American Empress

Company did not respond to IBR request. Information was not included in the CRC NIR. Information included below was provided for the Hood River-White Salmon Bridge Replacement NIR.



**VESSEL DATA SHEET**

Please fill out the data sheet below. Please complete a data sheet for each vessel in your fleet that transits under the Hood River – White Salmon Bridge. In addition, please note any future vessel or cargo plans that might require different vessels to transit under the bridge.

Company Name: AMERICAN QUEEN STEAMBOAT CO.

Vessel Name:

AMERICAN EMPRESS

Vessel Type:

PASSENGER VESSEL (INSPECTED)

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe): Choose an item.

NONE

Vessel Category: Choose an item.

4000 HP DIESEL ELECTRIC  
OVERNIGHT CRUISES

USCG Document Number:

\* 1140867

Primary Mooring Location (waterway milepoint, if known):

TROUTDALE OR. @ SUNDIAL MARINE

Type and quantity of cargo, if applicable:

220 PASSENGERS  
84 CREW

Length (overall; ft):

364 FT.

Beam (width; ft):

60 FT.

Draft (ft) - depth of hull below waterline, fully laden:

12.5 FT



**VESSEL DATA SHEET, CONT.**

**Air Draft (ft)** - height of highest fixed point above waterline, unladen:

52 FT.

**Air Gap (ft)** - desired clearance from highest fixed point to lowest part of bridge:

10 FT

**Safety Margin (ft)** horizontal clearance required by vessel to navigate through the bridge:

200 FT.

**Frequency of passage under HR-WS Bridge:**

1-2 TIMES EVERY WEEK

**Transit speed under HR-WS Bridge and Load Configuration:**

10-13 MPH

**Time of Year of Passage:**

MARCH - DECEMBER

**Tug Assistance Required:** Choose an item.

NO

**Ability to Modify** (If yes, provide details including cost of modification and who pays cost): Choose an item.

NO

Please identify any future vessel or cargo plans that might require different vessels to transit under the bridge. Attach additional pages as needed.



## Passenger Cruise

Company: American Waterways, Inc.

Vessels:

- Portland Spirit
- Columbia Gorge Sternwheeler
- Willamette Star
- Crystal Dolphin
- Explorer

Company provided information for the Portland Spirit to the IBR Program. Additional information included in the CRC NIR is also included below.



**From:** [Dan Yates](#)  
**To:** [River Navigation](#)  
**Subject:** Re: FOLLOW UP: Interstate Bridge Replacement (IBR) Program Navigation Impact Report Vessel Information Request  
**Date:** Tuesday, May 18, 2021 7:14:19 AM  
**Attachments:** [image001.png](#)  
[image002.png](#)  
[image003.png](#)  
[image004.png](#)

---

Nicole...I see you have the information for our largest vessel the Portland Spirit. The Columbia Gorge is very similar in size and you can mirror the Spirit characteristics as hers too. We also operate other vessels..The Willamette Star, Crystal Dolphin and the Explorer, but they are much smaller...If the new bridge has enough clearance for the Portland Spirit the bridge will handle all our vessels..current and future...Thanks, Dan

----- Original Message -----

From: "River Navigation" <[rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org)>  
To: "[dan@portlandspirit.com](mailto:dan@portlandspirit.com)" <[dan@portlandspirit.com](mailto:dan@portlandspirit.com)>  
Sent: 5/17/2021 8:02:01 AM  
Subject: FOLLOW UP: Interstate Bridge Replacement (IBR) Program Navigation Impact Report Vessel Information Request

Dan,

I am following up on a request for information related to vessels that operate on the Columbia River and travel under the Interstate Bridge (RM 106.5). Please see the attached letter and data sheets (originally sent on April 15<sup>th</sup>).

Please don't hesitate to reach out should you have any questions regarding this request. Thank you in advance for your time.

Sincerely,  
Nicole McDermott

**Interstate Bridge Replacement Program**

**Environmental Program**

**O:** 360-859-0494 or 503-897-9218 or 711 (ADA)

**E:** [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org)

[interstatebridge.org](http://interstatebridge.org)





### EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** American Waterways, Inc.

**Vessel Name:**

Crystal Dolphin

**Vessel Type:**

Passenger cruise

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): Choose an item.

**Vessel Category:** Choose an item.

**USCG Document Number:**

**Primary Mooring Location** (*waterway milepoint, if known*):

**Type and quantity of cargo, if applicable:**

**Length (overall; ft):**

84

**Beam (width; ft):**

32



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - depth of hull below waterline, fully laden:

7

**Air Draft (ft)** - height of highest fixed point above waterline, unladen:

50

**Air Gap (ft)** - desired clearance from highest fixed point to lowest part of bridge:

4

**Safety Margin (ft)** horizontal clearance required by vessel to navigate through the bridge:

**Transit speed under Interstate Bridge and Load Configuration:**

**Time of Year of Passage:**

**Tug Assistance Required:** Choose an item.

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr 4 May 30 June 80  
Jul 80 Aug 80 Sep 80 Oct 40 Nov 4 Dec 4

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb 2 Mar 2 Apr 4 May 30 June 80  
Jul 80 Aug 80 Sep 80 Oct 40 Nov 4 Dec 4



### EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** American Waterways, Inc.

**Vessel Name:**

Portland Spirit

**Vessel Type:**

Passenger cruise

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): No

**Vessel Category:** Commercial

**USCG Document Number:**

903414

**Primary Mooring Location** (*waterway milepoint, if known*):

Portland, Oregon

**Type and quantity of cargo, if applicable:**

**Length (overall; ft):**

150

**Beam (width; ft):**

36



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - *depth of hull below waterline, fully laden:*

10

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

48

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

10

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

50

**Transit speed under Interstate Bridge and Load Configuration:**

**Time of Year of Passage:**

**Tug Assistance Required:** Choose an item.

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan 2 Feb 2 Mar 2 Apr 4 May 30 June 80  
Jul 80 Aug 80 Sep 80 Oct 40 Nov 4 Dec 4

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan 2 Feb 2 Mar 2 Apr 4 May 30 June 80  
Jul 80 Aug 80 Sep 80 Oct 40 Nov 4 Dec 4



## Passenger Cruise

---

Owner: American Waterways, Inc.

Vessels: Crystal Dolphin

Portland Spirit



## Vessel: Crystal Dolphin



## Vessel: Portland Spirit



From <http://www.portlandspirit.com>



River User Data Sheet

By: Ron Del Rosario Date: 2/22/2012

1. Company Name and/or Owner of Vessel and contact information

- a. Name of company: American Waterways, Inc (Portland Spirit)
- b. Name of contact: Dan Yates
- c. Phone number (Office): 503-224-3900 d. (Cell): \_\_\_\_\_
- e. Email: dan@portlandspirit.com
- f. Address: 111 Se Caruthers Street
- g. City: Portland
- h. State: Or i. Zip code: 97214

3a. Vessel Name: Crystal Dolphin 3b. Vessel Type: Passenger

3c. US Coast Guard Document Number: K Boats

4a. Length Overall (LOA), feet: 84 4b. Beam (width), feet: 32

5. Draft (depth of hull below waterline, fully laden), feet: 7

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 50

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 4

8. Frequency of one-way passage underneath I-5 main channel (typical per month): \_\_\_\_\_

Jan \_\_\_\_ Feb \_\_\_\_ Mar \_\_\_\_ Apr 4 May 30 Jun 80 Jul 80 Aug 80 Sep 80 Oct 40 Nov 4 Dec 4

9. Frequency of one-way passage underneath I-5 main channel (other historic events): \_\_\_\_\_

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month):

Jan \_\_\_\_ Feb 2 Mar 2 Apr 4 May 30 Jun 80 Jul 80 Aug 80 Sep 80 Oct 40 Nov 4 Dec 4

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): \_\_\_\_\_



12. Do you have a Business Plan (e.g. 10 or 20 year plan)? What does it say regarding vessels transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? May we have a copy?
13. Other miscellaneous



River User Data Sheet

By: Ron Del Rosario Date: 2/22/2012

1. Company Name and/or Owner of Vessel and contact information

- a. Name of company: American Waterways, Inc (Portland Spirit)
- b. Name of contact: Dan Yates
- c. Phone number (Office): 503-224-3900 d. (Cell): \_\_\_\_\_
- e. Email: dan@portlandspirit.com
- f. Address: 111 Se Caruthers Street
- g. City: Portland
- h. State: Or i. Zip code: 97214

3a. Vessel Name: Portland Spirit 3b. Vessel Type: Passenger

3c. US Coast Guard Document Number: K Boats

4a. Length Overall (LOA), feet: 150 4b. Beam (width), feet: 36

5. Draft (depth of hull below waterline, fully laden), feet: 8

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 54

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 4

8. Frequency of one-way passage underneath I-5 main channel (typical per month): \_\_\_\_\_

Jan 2 Feb 2 Mar 2 Apr 4 May 30 Jun 80 Jul 80 Aug 80 Sep 80 Oct 40 Nov 4 Dec 4

9. Frequency of one-way passage underneath I-5 main channel (other historic events): \_\_\_\_\_

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month):

Jan 2 Feb 2 Mar 2 Apr 4 May 30 Jun 80 Jul 80 Aug 80 Sep 80 Oct 40 Nov 4 Dec 4

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): \_\_\_\_\_



12. Do you have a Business Plan (e.g. 10 or 20 year plan)? What does it say regarding vessels transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? May we have a copy?
13. Other miscellaneous



## Passenger Cruise

Company: Grays Harbor Historical Seaport

Vessel:

- Lady Washington

Company did not respond to IBR request. Information below was included in the CRC NIR.



## Passenger Cruise

Owner: Grays Harbor Historical Seaport Authority

Vessel: The Lady Washington

---





River User Data Sheet

By: Les Bolton Date: 2/21/12

1. Company Name and/or Owner of Vessel and contact information

- a. Name of company: GRAYS HARBOR HISTORICAL SEAPORT
- b. Name of contact: LES BOLTON
- c. Phone number (Office): 800.200.5239 d. (Cell): 360.581.1488
- e. Email: les@historicalseaport.org
- f. Address: 712 HAGANA STREET
- g. City: ABERDEEN
- h. State: WA i. Zip code: 98520

3a. Vessel Name: LADY WASHINGTON 3b. Vessel Type: SAILING

3c. US Coast Guard Document Number: 944970

4a. Length Overall (LOA), feet: 112 4b. Beam (width), feet: 22

5. Draft (depth of hull below waterline, fully laden), feet: 11

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 90

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 15

8. Frequency of one-way passage underneath I-5 main channel (typical per month): \_\_\_\_\_

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May 1 Jun 1 Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct 2 Nov \_\_\_ Dec \_\_\_

9. Frequency of one-way passage underneath I-5 main channel (other historic events): 2x every 3 yrs

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month): 0

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): \_\_\_\_\_



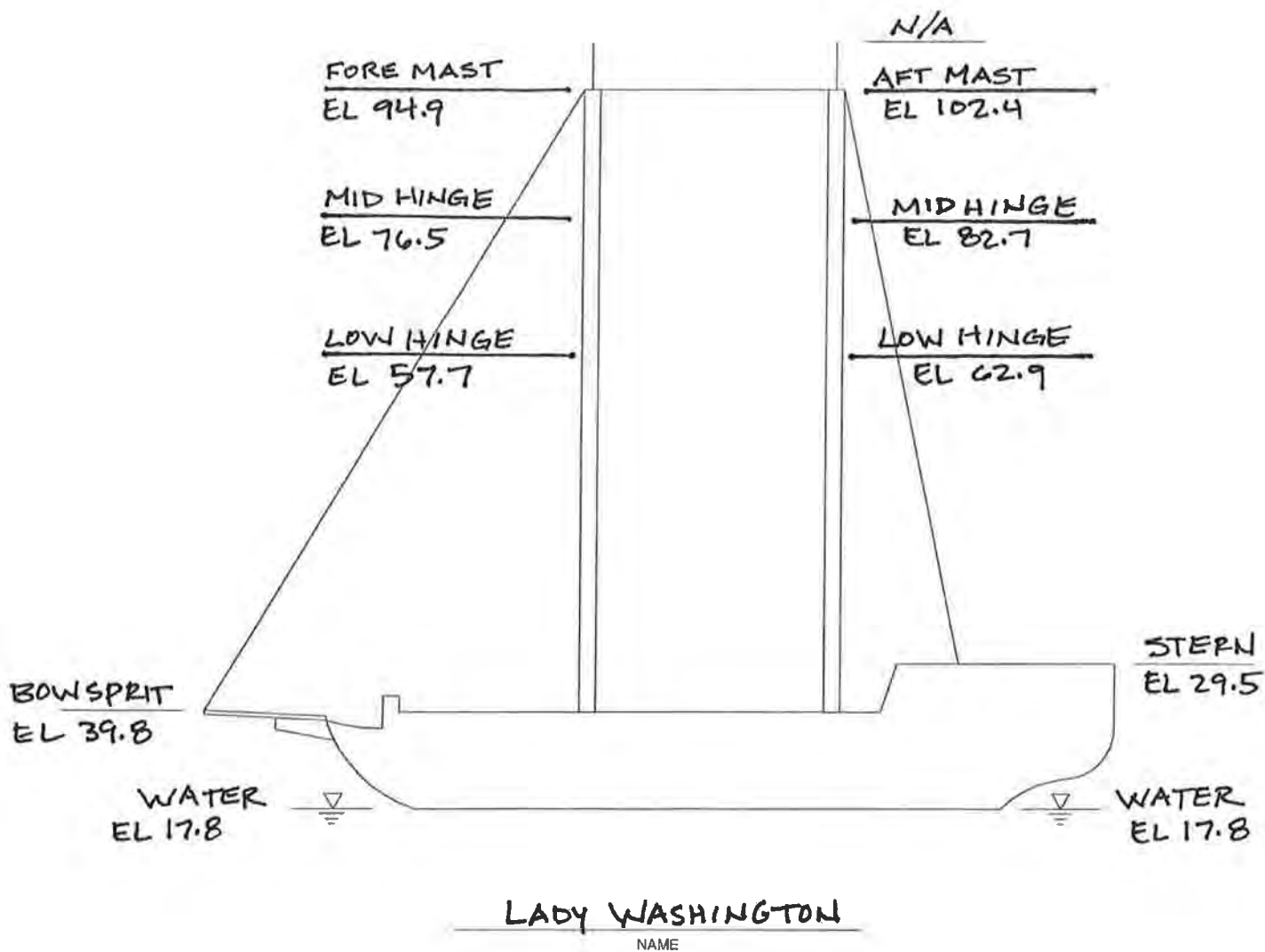
12. Do you have a Business Plan (e.g. 10 or 20 year plan)? What does it say regarding vessels

transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? May we have a copy?

13. Other miscellaneous

Our business plan refers to Columbia River Voyages. We sail up the Columbia 1-2X per year providing Education Programs for youth and the general Public. We sail all the way to the Dalles and on rare occasions down rig the ships to provide Access to the Tri Cities area.





KIRKLAND, WA  
LOCATION

8/31/2012  
DATE



## Passenger Cruise

Company: Lindblad/National Geographic Expeditions

Vessels:

- National Geographic Quest
- National Geographic Sea Lion
- National Geographic Sea Bird

Company provided data sheets to the IBR Program. Data sheets are included below, followed by the information included in the CRC NIR.



**EXISTING VESSEL DATA SHEET**

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** Lindblad/National Geographic Expeditions

**Vessel Name:**

National Geographic Quest

**Vessel Type:**

Small passenger

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): No

**Vessel Category:** Commercial

**USCG Document Number:**

1273675

**Primary Mooring Location** (*waterway milepoint, if known*):

Clarkston or Portland

**Type and quantity of cargo, if applicable:**

Passengers

**Length (overall; ft):**

240

**Beam (width; ft):**

45



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - *depth of hull below waterline, fully laden:*

12

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

62

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

10

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

120

**Transit speed under Interstate Bridge and Load Configuration:**

**Time of Year of Passage:**

**Tug Assistance Required:**No

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_  
Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep 1 Oct 3 Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_  
Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



**EXISTING VESSEL DATA SHEET**

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** Linblad/National Geographic Expeditions

**Vessel Name:**

National Geographic Sea Lion

**Vessel Type:**

Small Passenger

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): No

**Vessel Category:** Commercial

**USCG Document Number:**

648350

**Primary Mooring Location** (*waterway milepoint, if known*):

**Type and quantity of cargo, if applicable:**

**Length (overall; ft):**

152

**Beam (width; ft):**

35



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - *depth of hull below waterline, fully laden:*

9.5

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

59

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

6

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

**Transit speed under Interstate Bridge and Load Configuration:**

**Time of Year of Passage:**

**Tug Assistance Required:** Choose an item.

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_  
Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ 3 \_\_\_\_\_ Oct \_\_\_\_\_ 1 \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):** None

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_  
Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



### EXISTING VESSEL DATA SHEET

Please fill out the data sheet below. Note if the vessel is no longer in service or used on the waterway. If the vessel is still in service on the waterway, review and update vessel information and provide data where the field is blank. If you have new vessels that travel under the Interstate Bridge (main channel) and/or the North Portland Harbor Bridge (Oregon Slough), please use the following link to complete a waterway user survey:



<https://www.interstatebridge.org/rivernavigation>. In addition, through the survey link, please note any future vessel or cargo plans you know of that might require different vessels to transit under the bridge.

**Company/Owner Name:** Linblad/National Geographic Expeditions

**Vessel Name:**

National Geographic Sea Bird

**Vessel Type:**

Small passenger

**Specialized Vessel** (*e.g. limited maneuverability due to design or mode of operation. If yes, please describe*): Choose an item.

**Vessel Category:** Commercial

**USCG Document Number:**

644046

**Primary Mooring Location** (*waterway milepoint, if known*):

**Type and quantity of cargo, if applicable:**

**Length (overall; ft):**

152

**Beam (width; ft):**

35



**VESSEL DATA SHEET, CONT.**

**Draft (ft)** - *depth of hull below waterline, fully laden:*

9.5

**Air Draft (ft)** - *height of highest fixed point above waterline, unladen:*

59

**Air Gap (ft)** - *desired clearance from highest fixed point to lowest part of bridge:*

6

**Safety Margin (ft)** *horizontal clearance required by vessel to navigate through the bridge:*

**Transit speed under Interstate Bridge and Load Configuration:**

**Time of Year of Passage:**

**Tug Assistance Required:** Choose an item.

**Frequency of passage under Interstate Bridge main channel (typical per month):**

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep 3 Oct 4 Nov 1 Dec \_\_\_\_\_

**Frequency of passage under the North Portland Harbor Bridge (Oregon Slough):** Zero

Jan \_\_\_\_\_ Feb \_\_\_\_\_ Mar \_\_\_\_\_ Apr \_\_\_\_\_ May \_\_\_\_\_ June \_\_\_\_\_

Jul \_\_\_\_\_ Aug \_\_\_\_\_ Sep \_\_\_\_\_ Oct \_\_\_\_\_ Nov \_\_\_\_\_ Dec \_\_\_\_\_



## Passenger Cruise

---

Owner: Linblad Expeditions, Inc.

Vessels: National Geographic Sea Bird  
National Geographic Sea Lion



## Vessel: National Geographic Sea Bird



## Vessel: National Geographic Sea Lion



From <http://www.expeditions.com/>



River User Data Sheet

By: Michael Jones

Date: March 19, 2012

1. Company Name and/or Owner of Vessel and contact information

a. Name of company: Lindblad Expeditions, Inc.

b. Name of contact: Michael Jones

c. Phone number (Office): 206-403-1512

d. (Cell): 206-499-1154

e. Email: mikej@expeditions.com

f. Address: 1415 Western Avenue, Suite 700

g. City: Seattle

h. State: WA

i. Zip code: 98101

3a. Vessel Name: National Geographic Sea Bird

3b. Vessel Type: Small Passenger

3c. US Coast Guard Document Number: 644046

4a. Length Overall (LOA), feet: 152

4b. Beam (width), feet: 35

5. Draft (depth of hull below waterline, fully laden), feet: 9.5

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 59

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 6 feet

8. Frequency of one-way passage underneath I-5 main channel (typical per month):

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep 3 Oct 4 Nov 1 Dec \_\_\_

9. Frequency of one-way passage underneath I-5 main channel (other historic events): 7 or 8 one-way transits each Fall.

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month): Zero

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): Zero

12. Do you have a Business Plan (e.g. 10 or 20 year plan)? What does it say regarding vessels

transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? May we have a

copy? There is not a copy of a business plan; however, our intention is to transit under the I-5 Bridge 7 or 8 one-way transits each Fall for the next 10 years.

13. Other miscellaneous: NA



River User Data Sheet

By: **Michael Jones**

Date: **March 19, 2012**

1. Company Name and/or Owner of Vessel and contact information

a. Name of company: **Lindblad Expeditions, Inc.**

b. Name of contact: **Michael Jones**

c. Phone number (Office): **206-403-1512**

d. (Cell): **206-499-1154**

e. Email: **mikej@expeditions.com**

f. Address: **1415 Western Avenue, Suite 700**

g. City: **Seattle**

h. State: **WA**

i. Zip code: **98101**

3a. Vessel Name: **National Geographic Sea Lion**

3b. Vessel Type: **Small Passenger**

3c. US Coast Guard Document Number: **648350**

4a. Length Overall (LOA), feet: **152**

4b. Beam (width), feet: **35**

5. Draft (depth of hull below waterline, fully laden), feet: **9.5**

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: **59**

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): **6 feet**

8. Frequency of one-way passage underneath I-5 main channel (typical per month):

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep **3** Oct **1** Nov \_\_\_ Dec \_\_\_

9. Frequency of one-way passage underneath I-5 main channel (other historic events): **4 one-way transits each Fall.**

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month): **Zero**

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events): **Zero**

12. Do you have a Business Plan (e.g. 10 or 20 year plan)? What does it say regarding vessels

transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? May we have a

copy? **There is not a copy of a business plan; however, our intention is to transit under the I-5 Bridge 4 one-way transits each Fall for the next 10 years.**

13. Other miscellaneous: **NA**



## Recreational Sailboats and Powerboats

Owner: Keith Thomson

Vessel:

- Highlander II

Information was submitted through the online survey. Survey response follows.



#1

INCOMPLETE

**Collector:** Web Link 1 (Web Link)  
**Started:** Friday, April 23, 2021 2:54:08 PM  
**Last Modified:** Friday, April 23, 2021 3:03:21 PM  
**Time Spent:** 00:09:13  
**IP Address:** 50.39.105.111

---

Page 1: Introduction

Q1

Company Name

KEITH THOMSON

Q2

Contact Information

Name	KEITH THOMSON
Email	Keith_Thomson@msn.com
Phone number	5036452919

---

Q3

Vessel Name (please complete one survey per vessel)

Highlander II

Q4

Motor vessel

Vessel Type

Q5

No

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

---

Q6

Recreational

Vessel Category



**Q7**

USCG Document Number

1188212

---

**Q8**

Primary Mooring Location (waterway milepoint, if known)

Portland Yacht Club moorage mile 108

---

**Q9**

Respondent skipped this question

Type and quantity of cargo, if applicable

---

**Q10**

Length (total feet)

63

---

**Q11**

Beam (width in feet)

17

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

5

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

29

---

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

35

---



**Q15**

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

5

---

**Q16**

Frequency of passage under Interstate Bridge (main channel)

January	0
February	0
March	2
April	2
May	4
June	6
July	6
August	6
September	0
October	0
November	0
December	0

---

**Q17**

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

January	0
February	0
March	0
April	0
May	0
June	2
July	2
August	2
September	0
October	0
November	0
December	0

---



**Q18**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

10 kts

---

**Q19**

No

Tug Assistance Required

---

**Q20**

Respondent skipped this question

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

---

**Q21**

Respondent skipped this question

Is there anything else you would like to add about your vessel or business plans?

---

**Q22**

No

Do you have another vessel?

---



## Recreational Sailboats and Powerboats

Owner: Terence L Thatcher

Vessel:

- Adavida

Information was submitted through the online survey. Survey response follows.



## #2

**COMPLETE**

**Collector:** Web Link 1 (Web Link)  
**Started:** Tuesday, May 04, 2021 9:08:59 AM  
**Last Modified:** Tuesday, May 04, 2021 9:20:30 AM  
**Time Spent:** 00:11:30  
**IP Address:** 97.120.85.125

---

Page 1: Introduction

**Q1** Respondent skipped this question  
Company Name

---

**Q2**  
Contact Information

Name	Terence L Thatcher
Email	adavida38@hotmail.com
Phone number	5039393545

---

**Q3**  
Vessel Name (please complete one survey per vessel)  
Adavida

---

**Q4** Sailboat  
Vessel Type

---

**Q5** No  
Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

---

**Q6** Recreational  
Vessel Category

---

**Q7**  
USCG Document Number  
606350

---



**Q8**

Primary Mooring Location (waterway milepoint, if known)

Rose City Yacht Club, approx River Mile 105

---

**Q9**

Respondent skipped this question

Type and quantity of cargo, if applicable

---

**Q10**

Length (total feet)

38

---

**Q11**

Beam (width in feet)

12

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

6

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

52

---

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

5

---

**Q15**

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

57

---



**Q16**

Frequency of passage under Interstate Bridge (main channel)

January	0
February	0
March	2
April	2
May	2
June	4
July	4
August	4
September	4
October	0
November	0
December	0

---

**Q17**

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

January	0
February	0
March	0
April	0
May	0
June	0
July	0
August	0
September	0
October	0
November	0
December	0

---

**Q18**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

6 knots

---



**Q19**

Tug Assistance Required

**No**

**Q20**

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

Respondent skipped this question

**Q21**

Is there anything else you would like to add about your vessel or business plans?

Respondent skipped this question

**Q22**

Do you have another vessel?

**No**



## Recreational Sailboats and Powerboats

Owner: Loren Beach

Vessel:

- Fresh Air

Information was submitted through the online survey. Survey response follows.



#3

COMPLETE

**Collector:** Web Link 1 (Web Link)  
**Started:** Saturday, May 08, 2021 9:46:21 AM  
**Last Modified:** Saturday, May 08, 2021 9:50:47 AM  
**Time Spent:** 00:04:26  
**IP Address:** 73.37.0.251

---

Page 1: Introduction

**Q1** Respondent skipped this question  
Company Name

---

**Q2**  
Contact Information

Name	Loren Beach
Email	sailaway10@comcast.net
Phone number	5032440004

---

**Q3**  
Vessel Name (please complete one survey per vessel)  
Fresh Air

---

**Q4** Sailboat  
Vessel Type

---

**Q5** Yes,  
Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)  
If yes, please describe:  
Air Draft is approx 56 feet

---

**Q6** Recreational  
Vessel Category

---

**Q7**  
USCG Document Number  
none

---



**Q8**

Primary Mooring Location (waterway milepoint, if known)

RCYC 3737 NE Marine Drive,Portland

---

**Q9**

Type and quantity of cargo, if applicable

NA

---

**Q10**

Length (total feet)

34 feet

---

**Q11**

Beam (width in feet)

11 feet

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

6 feet

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

56 feet

---

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

4 feet

---

**Q15**

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

20 feet

---



**Q16**

Frequency of passage under Interstate Bridge (main channel)

May	1 time
June	2 times
July	4 times
August	3 times

---

**Q17**

Respondent skipped this question

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

**Q18**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

7 kts

---

**Q19**

No

Tug Assistance Required

---

**Q20**

Respondent skipped this question

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

---

**Q21**

Is there anything else you would like to add about your vessel or business plans?

no

---

**Q22**

No

Do you have another vessel?

---

---



## Recreational Sailboats and Powerboats

Owner: Sam Shogren

Vessel:

- SV FIKA

Information was submitted through the online survey. Survey response follows.



#6

**COMPLETE**

**Collector:** Web Link 1 (Web Link)  
**Started:** Friday, May 14, 2021 8:48:28 AM  
**Last Modified:** Friday, May 14, 2021 9:18:37 AM  
**Time Spent:** 00:30:09  
**IP Address:** 50.39.101.12

---

Page 1: Introduction

**Q1**

Company Name

Shogren Consulting Group, LLC

**Q2**

Contact Information

Name	Sam Shogren
Email	sam.shogren@gmail.com
Phone number	503-504-0770 (please lv. message)

---

**Q3**

Vessel Name (please complete one survey per vessel)

SV FIKA

**Q4****Sailboat**

Vessel Type

**Q5**

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

**Yes,**  
If yes, please describe:  
As a sailboat with aux. diesel the vessel does not back well and is limited its maneuverability between the bridges.

---

**Q6****Recreational**

Vessel Category



**Q7**

USCG Document Number

672015

---

**Q8**

Primary Mooring Location (waterway milepoint, if known)

Scappoose Bay Marine Park - Mile 89

---

**Q9**

Respondent skipped this question

Type and quantity of cargo, if applicable

---

**Q10**

Length (total feet)

35

---

**Q11**

Beam (width in feet)

12

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

6

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

53

---

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

65

---



**Q15**

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

20

---

**Q16**

Frequency of passage under Interstate Bridge (main channel)

May	1
June	1
July	2
August	2
September	2
October	1
November	1
December	2

---

**Q17**

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

January	I-5 bridge too low
February	I-5 bridge too low
March	I-5 bridge too low
April	I-5 bridge too low
May	I-5 bridge too low
June	I-5 bridge too low
July	I-5 bridge too low
August	I-5 bridge too low
September	I-5 bridge too low
October	I-5 bridge too low
November	I-5 bridge too low
December	I-5 bridge too low

---

**Q18**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

4 knots

---



Q19

No

Tug Assistance Required

---

Q20

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

none

---

Q21

Respondent skipped this question

Is there anything else you would like to add about your vessel or business plans?

---

Q22

No

Do you have another vessel?

---

---

---

---

---

---

---

---

---

---



## Recreational Sailboats and Powerboats

Owner: Thomas Keffer

Vessel:

- Velocity

Information was submitted through the online survey. Survey response follows.



#7

COMPLETE

**Collector:** Web Link 1 (Web Link)  
**Started:** Friday, May 14, 2021 12:19:14 PM  
**Last Modified:** Friday, May 14, 2021 1:27:15 PM  
**Time Spent:** 01:08:00  
**IP Address:** 67.42.13.47

---

Page 1: Introduction

**Q1** Respondent skipped this question  
Company Name

---

**Q2**  
Contact Information

Name	Thomas Keffer
Email	tkeffer@gmail.com
Phone number	5414909507

---

**Q3**  
Vessel Name (please complete one survey per vessel)  
Velocity

---

**Q4** Sailboat  
Vessel Type

---

**Q5** No  
Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

---

**Q6** Recreational  
Vessel Category

---

**Q7**  
USCG Document Number  
1093439

---



**Q8**

Primary Mooring Location (waterway milepoint, if known)

Portland Yacht Club

---

**Q9**

Respondent skipped this question

Type and quantity of cargo, if applicable

---

**Q10**

Length (total feet)

42

---

**Q11**

Beam (width in feet)

13

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

7

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

58

---

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

4

---

**Q15**

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

25

---



**Q16**

Frequency of passage under Interstate Bridge (main channel)

January	0
February	0
March	0
April	1
May	1
June	1
July	1
August	1
September	1
October	0
November	0
December	0

---

**Q17**

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

January	0
February	0
March	0
April	0
May	0
June	0
July	0
August	0
September	0
October	0
November	0
December	0

---

**Q18**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

6kn

---



**Q19**

Tug Assistance Required

No

**Q20**

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

Respondent skipped this question

**Q21**

Is there anything else you would like to add about your vessel or business plans?

Respondent skipped this question

**Q22**

Do you have another vessel?

No



## Recreational Sailboats and Powerboats

Owner: Roger Rosenquist

Vessels:

- Calypso
- Peanut

Information was submitted through the online survey. Survey response follows.



#9

**COMPLETE**

**Collector:** Web Link 1 (Web Link)  
**Started:** Saturday, May 15, 2021 6:06:22 AM  
**Last Modified:** Saturday, May 15, 2021 6:23:56 AM  
**Time Spent:** 00:17:34  
**IP Address:** 24.22.60.175

---

Page 1: Introduction

**Q1** Respondent skipped this question

Company Name

**Q2**

Contact Information

Name	Roger Rosenquist
Email	r.rosenquist@comcast.net
Phone number	5032831919

---

**Q3**

Vessel Name (please complete one survey per vessel)

Calypso

**Q4** Motor vessel

Vessel Type

**Q5** No

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

**Q6** Recreational

Vessel Category

**Q7** Respondent skipped this question

USCG Document Number



**Q8**

Primary Mooring Location (waterway milepoint, if known)

North Portland Harbor mile 3.6

---

**Q9**

Respondent skipped this question

Type and quantity of cargo, if applicable

---

**Q10**

Length (total feet)

26 ft

---

**Q11**

Beam (width in feet)

8

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

2

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

8

---

**Q14**

Respondent skipped this question

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

---

**Q15**

Respondent skipped this question

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

---



**Q16**

Frequency of passage under Interstate Bridge (main channel)

January	0
February	0
March	1
April	1
May	1
June	5
July	4
August	53
September	2
October	1
November	0
December	0

---

**Q17**

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

January	0
February	0
March	1
April	2
May	3
June	6
July	10
August	10
September	5
October	1
November	0
December	0

---

**Q18**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

30 mph



**Q19****No**Tug Assistance Required

---

**Q20**

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

No change

---

**Q21**

Is there anything else you would like to add about your vessel or business plans?

No

---

**Q22****Yes**Do you have another vessel?

---

Page 2: Additional Vessel (1)

**Q23**

Vessel Name (please complete one survey per vessel)

Peanut

---

**Q24**

Other (please specify):

Vessel Type

RIB

---

**Q25****No**

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

**Q26****Recreational**Vessel Category

---

**Q27****Respondent skipped this question**USCG Document Number

---



**Q28**

Primary Mooring Location (waterway milepoint, if known)

NPH mile 3.6

---

**Q29**

Respondent skipped this question

Type and quantity of cargo, if applicable

---

**Q30**

Length (overall feet)

11

---

**Q31**

Beam (width in feet)

4

---

**Q32**

Draft (feet) - depth of hull below waterline, fully laden

1

---

**Q33**

Air Draft (feet) - height of highest fixed point above waterline, unladen

3

---

**Q34**

Respondent skipped this question

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

---

**Q35**

Respondent skipped this question

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

---



**Q36**

Frequency of passage under Interstate Bridge (main channel)

January	0
February	0
March	0
April	0
May	0
June	0
July	1
August	1
September	0
October	0
November	0
December	0

---

**Q37**

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

January	0
February	0
March	0
April	0
May	0
June	0
July	4
August	4
September	0
October	0
November	0
December	0

---

**Q38**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

30

---



**Q39**

Tug Assistance Required

No

**Q40**

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

Respondent skipped this question

**Q41**

Is there anything else you would like to add about your vessel or business plans?

Respondent skipped this question

**Q42**

Do you have another vessel?

No



## Recreational Sailboats and Powerboats

Owner: Richard Sandefur

Vessel:

- Moonshadow

Information was submitted through the online survey. Survey response follows.



#11

COMPLETE

**Collector:** Web Link 1 (Web Link)  
**Started:** Wednesday, May 19, 2021 5:56:34 AM  
**Last Modified:** Wednesday, May 19, 2021 6:11:02 AM  
**Time Spent:** 00:14:27  
**IP Address:** 71.237.197.94

---

Page 1: Introduction

Q1

Company Name

Mazamas

Q2

Contact Information

Name	Richard Sandefur
Email	sailmoonshadow@hotmail.com
Phone number	9712638469

---

Q3

Vessel Name (please complete one survey per vessel)

Moonshadow

Q4

Sailboat

Vessel Type

Q5

No

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

---

Q6

Recreational

Vessel Category



**Q7**

USCG Document Number

579252

---

**Q8**

Primary Mooring Location (waterway milepoint, if known)

109

---

**Q9**

Respondent skipped this question

Type and quantity of cargo, if applicable

---

**Q10**

Length (total feet)

44

---

**Q11**

Beam (width in feet)

12

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

6

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

58

---

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

5

---

**Q15**

Respondent skipped this question

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

---



**Q16**

Frequency of passage under Interstate Bridge (main channel)

January	4
February	4
March	4
April	4
May	4
June	6
July	8
August	8
September	6
October	6
November	4
December	4

**Q17**

Respondent skipped this question

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

**Q18**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

3

**Q19**

No

Tug Assistance Required

**Q20**

Respondent skipped this question

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

**Q21**

Respondent skipped this question

Is there anything else you would like to add about your vessel or business plans?



**Q22**

**No**

Do you have another vessel?



## Recreational Sailboats and Powerboats

Owner: Mike Jensen

Vessel:

- Motor vessel (no name provided)

Information was submitted through the online survey. Survey response follows.



## #12

COMPLETE

**Collector:** Web Link 1 (Web Link)  
**Started:** Wednesday, May 19, 2021 12:59:39 PM  
**Last Modified:** Wednesday, May 19, 2021 1:01:45 PM  
**Time Spent:** 00:02:06  
**IP Address:** 73.240.7.38

---

Page 1: Introduction

**Q1** Respondent skipped this question  
Company Name

---

**Q2**  
Contact Information

Name	mike jensen
Email	drmike@millplaindc.com
Phone number	3607988587

---

**Q3** Respondent skipped this question  
Vessel Name (please complete one survey per vessel)

---

**Q4** Motor vessel  
Vessel Type

---

**Q5** No  
Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

---

**Q6** Recreational  
Vessel Category

---

**Q7** Respondent skipped this question  
USCG Document Number

---

**Q8** Respondent skipped this question  
Primary Mooring Location (waterway milepoint, if known)

---



**Q9**

Respondent skipped this question

Type and quantity of cargo, if applicable

**Q10**

Length (total feet)

16

**Q11**

Beam (width in feet)

6

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

2

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

6

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

10

**Q15**

Respondent skipped this question

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

**Q16**

Frequency of passage under Interstate Bridge (main channel)

June	1
July	1
August	3
September	2
October	1



Q17

Respondent skipped this question

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

---

Q18

Transit speed under Interstate Bridge and Load Configuration (if applicable)

Washington

---

Q19

No

Tug Assistance Required

---

Q20

Respondent skipped this question

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

---

Q21

Respondent skipped this question

Is there anything else you would like to add about your vessel or business plans?

---

Q22

No

Do you have another vessel?

---

---

---

---

---



## Recreational Sailboats and Powerboats

Owner: Paul Floreck

Vessel:

- Meridian

Information was submitted through the online survey. Survey response follows.



#13

**COMPLETE**

**Collector:** Web Link 1 (Web Link)  
**Started:** Wednesday, May 19, 2021 1:33:41 PM  
**Last Modified:** Wednesday, May 19, 2021 1:42:01 PM  
**Time Spent:** 00:08:19  
**IP Address:** 24.22.96.233

---

Page 1: Introduction

**Q1**

Company Name

N/A

**Q2**

Contact Information

Name	Paul Floreck
Email	Paulie@easystreet.net
Phone number	503-708-5601

---

**Q3**

Vessel Name (please complete one survey per vessel)

Meridian

**Q4****Cruise**

Vessel Type

**Q5****No**

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

---

**Q6****Recreational**

Vessel Category



**Q7**

USCG Document Number

N/A

---

**Q8**

Primary Mooring Location (waterway milepoint, if known)

Salpare Bay Marina

---

**Q9**

Type and quantity of cargo, if applicable

Humans X 6

---

**Q10**

Length (total feet)

36

---

**Q11**

Beam (width in feet)

12.5

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

3.5

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

28

---

**Q14**

Respondent skipped this question

Air Gap (feet) - desired clearance from highest fixed point  
to lowest part of bridge

---



**Q15**

Respondent skipped this question

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

---

**Q16**

Frequency of passage under Interstate Bridge (main channel)

January	0
February	2
March	2
April	4
May	4
June	4
July	6
August	6
September	4
October	2
November	0
December	0

---

**Q17**

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

January	0
February	0
March	0
April	0
May	0
June	0
July	2
August	2
September	2
October	0
November	0
December	0

---



Q18

Transit speed under Interstate Bridge and Load Configuration (if applicable)

18-24

Q19

No

Tug Assistance Required

Q20

Respondent skipped this question

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

Q21

Respondent skipped this question

Is there anything else you would like to add about your vessel or business plans?

Q22

No

Do you have another vessel?



## Recreational Sailboats and Powerboats

Owner: Sean Kearns

Vessel:

- Our Tern

Information was submitted through the online survey. Survey response follows.



#14

COMPLETE

**Collector:** Web Link 1 (Web Link)  
**Started:** Thursday, May 20, 2021 5:28:06 AM  
**Last Modified:** Thursday, May 20, 2021 5:33:25 AM  
**Time Spent:** 00:05:18  
**IP Address:** 209.180.174.92

---

Page 1: Introduction

**Q1** Respondent skipped this question  
Company Name

---

**Q2**  
Contact Information

Name	Sean Kearns
Email	puravida2dia@gmail.com
Phone number	3606087235

---

**Q3**  
Vessel Name (please complete one survey per vessel)  
Our Tern

---

**Q4** Motor vessel  
Vessel Type

---

**Q5** No  
Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

---

**Q6** Recreational  
Vessel Category

---

**Q7**  
USCG Document Number  
966601

---



**Q8**

Primary Mooring Location (waterway milepoint, if known)

Tidewater cove marina

---

**Q9**

Respondent skipped this question

Type and quantity of cargo, if applicable

---

**Q10**

Length (total feet)

42'

---

**Q11**

Beam (width in feet)

16'

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

5'

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

25'

---

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

5'

---

**Q15**

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

30'

---



**Q16**

Frequency of passage under Interstate Bridge (main channel)

January	2
February	2
March	4
April	4
May	4
June	4
July	6
August	6
September	4
October	2
November	2
December	2

---

**Q17**

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

January	0
February	0
March	0
April	0
May	0
June	1
July	1
August	1
September	0
October	0
November	0
December	0

---

**Q18**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

8 knots

---



**Q19**

Tug Assistance Required

**No**

**Q20**

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

Respondent skipped this question

**Q21**

Is there anything else you would like to add about your vessel or business plans?

Respondent skipped this question

**Q22**

Do you have another vessel?

**No**



## Recreational Sailboats and Powerboats

Owner: Elizabeth Harris

Vessel:

- Wilderness kayak

Information was submitted through the online survey. Survey response follows.



#16

COMPLETE

**Collector:** Web Link 1 (Web Link)  
**Started:** Tuesday, May 25, 2021 10:15:22 PM  
**Last Modified:** Tuesday, May 25, 2021 10:21:36 PM  
**Time Spent:** 00:06:14  
**IP Address:** 71.193.157.237

---

Page 1: Introduction

Q1

Company Name

None

Q2

Contact Information

Name	Elizabeth harris
Email	Lizabeth.harris@gmail.com
Phone number	360-518-7377

---

Q3

Vessel Name (please complete one survey per vessel)

Wilderness kayak

Q4

Vessel Type

Other (please specify):  
Kayak

---

Q5

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

Yes,  
If yes, please describe:  
Paddle only

---

Q6

Vessel Category

Recreational



**Q7**

USCG Document Number

None

---

**Q8**

Primary Mooring Location (waterway milepoint, if known)

Portable, launch anywhere with access

---

**Q9**

Type and quantity of cargo, if applicable

One human

---

**Q10**

Length (total feet)

14'

---

**Q11**

Beam (width in feet)

3'

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

6"

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

5'

---

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

Unknown

---



**Q15**

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

None

---

**Q16**

Frequency of passage under Interstate Bridge (main channel)

May	3
June	5
July	10
August	10
September	10
October	8

---

**Q17**

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

April	4
May	7
June	12
July	15
August	16
September	18
October	6

---

**Q18**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

2 knots

---

**Q19**

No

Tug Assistance Required

---

**Q20**

Respondent skipped this question

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

---



Q21

Respondent skipped this question

Is there anything else you would like to add about your vessel or business plans?

---

Q22

No

Do you have another vessel?

---

---

---

---

---

---

---

---

---

---



## Recreational Sailboats and Powerboats

Owner: Greg Kelly

Vessel:

- Cranberry li

Information was submitted through the online survey. Survey response follows.



#17

COMPLETE

**Collector:** Web Link 1 (Web Link)  
**Started:** Thursday, May 27, 2021 6:17:28 AM  
**Last Modified:** Thursday, May 27, 2021 6:24:47 AM  
**Time Spent:** 00:07:18  
**IP Address:** 24.20.22.136

---

Page 1: Introduction

**Q1** Respondent skipped this question  
Company Name

---

**Q2**  
Contact Information

Name	Greg Kelly
Email	gkelly15363@gmail.com
Phone number	4434725706

---

**Q3**  
Vessel Name (please complete one survey per vessel)  
Cranberry II

---

**Q4** Sailboat  
Vessel Type

---

**Q5** No  
Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

---

**Q6** Recreational  
Vessel Category

---

**Q7**  
USCG Document Number  
1245285

---



**Q8**

Primary Mooring Location (waterway milepoint, if known)

Portland yacht club

---

**Q9**

Respondent skipped this question

Type and quantity of cargo, if applicable

---

**Q10**

Length (total feet)

34

---

**Q11**

Beam (width in feet)

12

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

5

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

55

---

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

5

---

**Q15**

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

25

---



**Q16**

Frequency of passage under Interstate Bridge (main channel)

May	4
June	8
July	8
August	6
September	6
October	4
November	2

**Q17**

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

January	0
February	0
March	0
April	0
May	0
June	0
July	0
August	0
September	0
October	0
November	0
December	0

**Q18**

Respondent skipped this question

Transit speed under Interstate Bridge and Load Configuration (if applicable)

**Q19**

No

Tug Assistance Required



<b>Q20</b>	<b>Respondent skipped this question</b>
Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to <a href="mailto:rivernav@interstatebridge.org">rivernav@interstatebridge.org</a> .	

<b>Q21</b>	<b>Respondent skipped this question</b>
Is there anything else you would like to add about your vessel or business plans?	

<b>Q22</b>	<b>No</b>
Do you have another vessel?	



## Recreational Sailboats and Powerboats

Owner: Rick Zimmer

Vessels:

- SV Hector J
- RatPick

Information was submitted through the online survey. Survey response follows.



#18

INCOMPLETE

**Collector:** Web Link 1 (Web Link)  
**Started:** Saturday, May 29, 2021 6:44:14 AM  
**Last Modified:** Saturday, May 29, 2021 6:50:31 AM  
**Time Spent:** 00:06:16  
**IP Address:** 71.238.68.165

---

Page 1: Introduction

**Q1** Respondent skipped this question  
Company Name

---

**Q2**  
Contact Information

Name	Rick Zimmer
Email	rickpatzimmer@comcast.net
Phone number	5033417914

---

**Q3**  
Vessel Name (please complete one survey per vessel)  
SV Hector J

---

**Q4** Sailboat  
Vessel Type

---

**Q5** No  
Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

---

**Q6** Recreational  
Vessel Category

---

**Q7** Respondent skipped this question  
USCG Document Number

---



**Q8**

Primary Mooring Location (waterway milepoint, if known)

Hayden Bay

---

**Q9**

Respondent skipped this question

Type and quantity of cargo, if applicable

---

**Q10**

Length (total feet)

35'

---

**Q11**

Beam (width in feet)

9

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

6.5

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

50'

---

**Q14**

Respondent skipped this question

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

---

**Q15**

Respondent skipped this question

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

---



**Q16**

Frequency of passage under Interstate Bridge (main channel)

March	1
May	1
June	5
July	5
August	5
September	2

**Q17**

Respondent skipped this question

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

**Q18**

Respondent skipped this question

Transit speed under Interstate Bridge and Load Configuration (if applicable)

**Q19**

No

Tug Assistance Required

**Q20**

Respondent skipped this question

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

**Q21**

Respondent skipped this question

Is there anything else you would like to add about your vessel or business plans?

**Q22**

Yes

Do you have another vessel?

Page 2: Additional Vessel (1)



Q23

Vessel Name (please complete one survey per vessel)

RatPick

Q24

Motor vessel

Vessel Type

Q25

No

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

Q26

Recreational

Vessel Category

Q27

Respondent skipped this question

USCG Document Number

Q28

Primary Mooring Location (waterway milepoint, if known)

Hayden Bay

Q29

Respondent skipped this question

Type and quantity of cargo, if applicable

Q30

Length (overall feet)

14

Q31

Beam (width in feet)

5

Q32

Draft (feet) - depth of hull below waterline, fully laden

2



**Q33** Respondent skipped this question

Air Draft (feet) - height of highest fixed point above waterline, unladen

**Q34** Respondent skipped this question

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

**Q35** Respondent skipped this question

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

**Q36**

Frequency of passage under Interstate Bridge (main channel)

May	3
June	6
July	6
August	6
September	2

**Q37** Respondent skipped this question

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

**Q38** Respondent skipped this question

Transit speed under Interstate Bridge and Load Configuration (if applicable)

**Q39** No

Tug Assistance Required

**Q40** Respondent skipped this question

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).



Q41

Respondent skipped this question

Is there anything else you would like to add about your vessel or business plans?

---

Q42

No

Do you have another vessel?

---



## Recreational Sailboats and Powerboats

Owner: Jim Sinclair

Vessel:

- Encore

Information was submitted through the online survey. Survey response follows.



#19

**COMPLETE**

**Collector:** Web Link 1 (Web Link)  
**Started:** Tuesday, June 01, 2021 2:36:23 PM  
**Last Modified:** Tuesday, June 01, 2021 2:49:28 PM  
**Time Spent:** 00:13:04  
**IP Address:** 67.171.148.210

---

Page 1: Introduction

**Q1**

Company Name

NA

**Q2**

Contact Information

Name	<b>Jim Sinclair</b>
Email	<b>sinclair5171@gmail.com</b>
Phone number	<b>5037476611</b>

---

**Q3**

Vessel Name (please complete one survey per vessel)

Encore

**Q4****Motor vessel**

Vessel Type

**Q5****No**

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

**Q6****Recreational**

Vessel Category



**Q7**

USCG Document Number

NA

---

**Q8**

Primary Mooring Location (waterway milepoint, if known)

Portland Yacht Club

---

**Q9**

Respondent skipped this question

Type and quantity of cargo, if applicable

---

**Q10**

Length (total feet)

32'

---

**Q11**

Beam (width in feet)

11'6"

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

3'9"

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

21'

---

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

4'

---



**Q15**

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

25'

---

**Q16**

Frequency of passage under Interstate Bridge (main channel)

March	1
April	2
May	2
June	2
July	3
August	3
September	2
October	1
November	1
December	1

---

**Q17**

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

March	1
May	1
September	1

---

**Q18**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

6-9 knots

---

**Q19**

No

Tug Assistance Required

---

**Q20**

Respondent skipped this question

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

---



Q21

Respondent skipped this question

Is there anything else you would like to add about your vessel or business plans?

---

Q22

No

Do you have another vessel?

---



## Recreational Sailboats and Powerboats

Owner: Sewall Dana

Vessel:

- Rascal

Information was submitted through the online survey. Survey response follows.



#20

COMPLETE

**Collector:** Web Link 1 (Web Link)  
**Started:** Saturday, June 05, 2021 11:11:58 PM  
**Last Modified:** Saturday, June 05, 2021 11:19:40 PM  
**Time Spent:** 00:07:42  
**IP Address:** 73.11.110.217

---

Page 1: Introduction

**Q1** Respondent skipped this question  
Company Name

---

**Q2**  
Contact Information

Name	Sewall Dana
Email	dlsewall@comcast.net
Phone number	5036668696

---

**Q3**  
Vessel Name (please complete one survey per vessel)  
Rascal

---

**Q4** Sailboat  
Vessel Type

---

**Q5** Respondent skipped this question  
Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

---

**Q6** Recreational  
Vessel Category

---

**Q7** Respondent skipped this question  
USCG Document Number

---



**Q8**

Primary Mooring Location (waterway milepoint, if known)

Heyden Bay marina

---

**Q9**

Type and quantity of cargo, if applicable

People

---

**Q10**

Length (total feet)

30

---

**Q11**

Beam (width in feet)

9'4"

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

4'3"

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

43'

---

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

10 feet

---

**Q15**

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

50 feet

---



**Q16**

Frequency of passage under Interstate Bridge (main channel)

January	0
February	0
March	1
April	2
May	2
June	5
July	5
August	8
September	8
October	3
November	1
December	1

---

**Q17**

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

January	0
February	0
March	0
April	0
May	0
June	0
July	0
August	0
September	0
October	0
November	0
December	0

---

**Q18**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

4 mph

---



<b>Q19</b>	<b>No</b>
Tug Assistance Required	

---

<b>Q20</b>	
Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to <a href="mailto:rivernav@interstatebridge.org">rivernav@interstatebridge.org</a> .	
<a href="mailto:dlsewall@comcast.net">dlsewall@comcast.net</a>	

---

<b>Q21</b>	<b>Respondent skipped this question</b>
Is there anything else you would like to add about your vessel or business plans?	

---

<b>Q22</b>	<b>No</b>
Do you have another vessel?	

---



## Recreational Sailboats and Powerboats

Owner: Fred Hazzard

Vessel:

- No name provided

Information was submitted through the online survey. Survey response follows.



#21

COMPLETE

**Collector:** Web Link 1 (Web Link)  
**Started:** Sunday, June 06, 2021 7:54:38 AM  
**Last Modified:** Sunday, June 06, 2021 8:11:42 AM  
**Time Spent:** 00:17:03  
**IP Address:** 73.240.29.113

---

Page 1: Introduction

<b>Q1</b>	<b>Respondent skipped this question</b>
Company Name	

---

<b>Q2</b>	
Contact Information	
Name	<b>Fred Hazzard</b>
Email	<b>fshazzard@gmail.com</b>
Phone number	<b>503 758 5117</b>

---

<b>Q3</b>	<b>Respondent skipped this question</b>
Vessel Name (please complete one survey per vessel)	

---

<b>Q4</b>	Other (please specify):
Vessel Type	Fury

---

<b>Q5</b>	<b>No</b>
Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)	

---

<b>Q6</b>	<b>Recreational</b>
Vessel Category	

---

<b>Q7</b>	<b>Respondent skipped this question</b>
USCG Document Number	

---



**Q8**

Primary Mooring Location (waterway milepoint, if known)

Portland Yacht Club

---

**Q9**

Respondent skipped this question

Type and quantity of cargo, if applicable

---

**Q10**

Length (total feet)

44

---

**Q11**

Beam (width in feet)

13.5

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

8'6"

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

65'

---

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

67'

---

**Q15**

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

30'

---



**Q16**

Frequency of passage under Interstate Bridge (main channel)

April	2
May	2
June	2
July	2
August	2
September	2

---

**Q17**

Respondent skipped this question

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

---

**Q18**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

Or

---

**Q19**

Respondent skipped this question

Tug Assistance Required

---

**Q20**

Respondent skipped this question

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

---

**Q21**

Respondent skipped this question

Is there anything else you would like to add about your vessel or business plans?

---

**Q22**

No

Do you have another vessel?

---



## Recreational Sailboats and Powerboats

Owner: Gary Brown

Vessel:

- Get Set Go

Information was submitted through the online survey. Survey response follows.



#22

COMPLETE

Collector: Web Link 1 (Web Link)  
Started: Sunday, June 06, 2021 8:24:49 AM  
Last Modified: Sunday, June 06, 2021 8:32:08 AM  
Time Spent: 00:07:18  
IP Address: 73.96.2.190

Page 1: Introduction

Q1 Respondent skipped this question

Company Name

Q2  
Contact Information

Name Gary Brown  
Email gary@brownz.com  
Phone number 503-201-4583

Q3  
Vessel Name (please complete one survey per vessel)  
Get Set Go

Q4 Sailboat  
Vessel Type

Q5 No  
Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

Q6 Recreational  
Vessel Category

Q7  
USCG Document Number  
1232093



**Q8**

Primary Mooring Location (waterway milepoint, if known)

Rose City Yacht Club, mile 109.1

---

**Q9**

Respondent skipped this question

Type and quantity of cargo, if applicable

---

**Q10**

Length (total feet)

36

---

**Q11**

Beam (width in feet)

12

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

7.5

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

60

---

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

66

---

**Q15**

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

50

---



**Q16**

Frequency of passage under Interstate Bridge (main channel)

January	0
February	0
March	2
April	2
May	4
June	4
July	4
August	4
September	4
October	2
November	0
December	0

---

**Q17**

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

January	0
February	0
March	0
April	0
May	0
June	0
July	0
August	0
September	0
October	0
November	0
December	0

---

**Q18**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

5

---



**Q19**

Tug Assistance Required

No

**Q20**

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

Respondent skipped this question

**Q21**

Is there anything else you would like to add about your vessel or business plans?

Respondent skipped this question

**Q22**

Do you have another vessel?

No



## Recreational Sailboats and Powerboats

Owner: No name provided

Vessel:

- Motor vessel (no name provided)

Information was submitted through the online survey. Survey response follows.



#23

INCOMPLETE

**Collector:** Web Link 1 (Web Link)  
**Started:** Thursday, June 10, 2021 3:42:06 PM  
**Last Modified:** Thursday, June 10, 2021 3:45:21 PM  
**Time Spent:** 00:03:14  
**IP Address:** 174.204.203.208

---

Page 1: Introduction

**Q1** Respondent skipped this question

Company Name

**Q2** Respondent skipped this question

Contact Information

**Q3** Respondent skipped this question

Vessel Name (please complete one survey per vessel)

**Q4** Motor vessel

Vessel Type

**Q5** No

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

**Q6** Recreational

Vessel Category

**Q7** Respondent skipped this question

USCG Document Number

**Q8**

Primary Mooring Location (waterway milepoint, if known)

Washougal



<b>Q9</b>	Respondent skipped this question
Type and quantity of cargo, if applicable	
<b>Q10</b>	
Length (total feet)	
25	
<b>Q11</b>	Respondent skipped this question
Beam (width in feet)	
<b>Q12</b>	Respondent skipped this question
Draft (feet) - depth of hull below waterline, fully laden	
<b>Q13</b>	Respondent skipped this question
Air Draft (feet) - height of highest fixed point above waterline, unladen	
<b>Q14</b>	Respondent skipped this question
Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge	
<b>Q15</b>	Respondent skipped this question
Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge	
<b>Q16</b>	Respondent skipped this question
Frequency of passage under Interstate Bridge (main channel)	
<b>Q17</b>	Respondent skipped this question
Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)	
<b>Q18</b>	Respondent skipped this question
Transit speed under Interstate Bridge and Load Configuration (if applicable)	



<b>Q19</b>	<b>Respondent skipped this question</b>
Tug Assistance Required	

<b>Q20</b>	<b>Respondent skipped this question</b>
Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to <a href="mailto:rivernav@interstatebridge.org">rivernav@interstatebridge.org</a> .	

<b>Q21</b>	<b>Respondent skipped this question</b>
Is there anything else you would like to add about your vessel or business plans?	

<b>Q22</b>	<b>Respondent skipped this question</b>
Do you have another vessel?	



## Recreational Sailboats and Powerboats

Owner: Alan Boguslawski

Vessel:

- Summer Wind

Information was submitted through the online survey. Survey response follows.



#24

COMPLETE

**Collector:** Web Link 1 (Web Link)  
**Started:** Sunday, June 13, 2021 11:29:19 AM  
**Last Modified:** Sunday, June 13, 2021 11:38:38 AM  
**Time Spent:** 00:09:18  
**IP Address:** 73.25.82.142

---

Page 1: Introduction

**Q1** Respondent skipped this question  
Company Name

---

**Q2**  
Contact Information

Name	ALAN BOGUSLAWSKI
Email	bogey@pacifier.com
Phone number	360-737-2689

---

**Q3**  
Vessel Name (please complete one survey per vessel)  
Summer Wind

---

**Q4** Sailboat  
Vessel Type

---

**Q5** No  
Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

---

**Q6** Recreational  
Vessel Category

---

**Q7**  
USCG Document Number  
576416

---



**Q8**

Primary Mooring Location (waterway milepoint, if known)

River mile 110

---

**Q9**

Type and quantity of cargo, if applicable

NA

---

**Q10**

Length (total feet)

43

---

**Q11**

Beam (width in feet)

11

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

6.5

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

63

---

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

2

---

**Q15**

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

20

---



**Q16**

Frequency of passage under Interstate Bridge (main channel)

April	1
May	3
June	6
July	7
August	8
September	7
October	1

**Q17**

Respondent skipped this question

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

**Q18**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

WA

**Q19**

No

Tug Assistance Required

**Q20**

Respondent skipped this question

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

**Q21**

Respondent skipped this question

Is there anything else you would like to add about your vessel or business plans?

**Q22**

No

Do you have another vessel?



## Recreational Sailboats and Powerboats

Owner: Richard Samuels

Vessel:

- Sailboat (No name provided)

Information was submitted through the online survey. Survey response follows.



#25

COMPLETE

Collector: Web Link 1 (Web Link)  
Started: Saturday, June 26, 2021 7:38:39 AM  
Last Modified: Saturday, June 26, 2021 7:43:28 AM  
Time Spent: 00:04:48  
IP Address: 76.115.3.152

Page 1: Introduction

Q1

Company Name

Richard Samuels

Q2

Contact Information

Name	Richard Samuels
Email	rick@samuels.com
Phone number	503-799-4255

Q3

Respondent skipped this question

Vessel Name (please complete one survey per vessel)

Q4

Sailboat

Vessel Type

Q5

No

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

Q6

Recreational

Vessel Category

Q7

USCG Document Number

655273



**Q8**

Primary Mooring Location (waterway milepoint, if known)

109.8

---

**Q9**

Respondent skipped this question

Type and quantity of cargo, if applicable

---

**Q10**

Length (total feet)

33

---

**Q11**

Beam (width in feet)

11

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

6' 3"

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

50'

---

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

5'

---

**Q15**

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

10'

---



**Q16**

Frequency of passage under Interstate Bridge (main channel)

March	2
May	2
July	2
September	2

---

**Q17**

Respondent skipped this question

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

**Q18**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

6 knots

**Q19**

No

Tug Assistance Required

**Q20**

Respondent skipped this question

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

---

**Q21**

Respondent skipped this question

Is there anything else you would like to add about your vessel or business plans?

**Q22**

No

Do you have another vessel?



## Recreational Sailboats and Powerboats

Owner: Gary Whitney

Vessel:

- KA-SL

Information was submitted through the online survey. Survey response follows.



#26

COMPLETE

Collector: Web Link 1 (Web Link)  
Started: Saturday, June 26, 2021 8:48:10 AM  
Last Modified: Saturday, June 26, 2021 8:57:28 AM  
Time Spent: 00:09:17  
IP Address: 97.120.125.121

Page 1: Introduction

Q1

Company Name

Gary Whitney

Q2

Contact Information

Name	gary whitney
Email	ka_sl28@ymail.com
Phone number	3602532427

Q3

Vessel Name (please complete one survey per vessel)

KA-SL

Q4

Sailboat

Vessel Type

Q5

No

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

Q6

Recreational

Vessel Category

Q7

Respondent skipped this question

USCG Document Number



**Q8**

Primary Mooring Location (waterway milepoint, if known)

Rose City Yacht Club

---

**Q9**

Respondent skipped this question

Type and quantity of cargo, if applicable

---

**Q10**

Length (total feet)

28

---

**Q11**

Beam (width in feet)

11

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

6

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

42

---

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

10

---

**Q15**

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

10

---



**Q16**

Frequency of passage under Interstate Bridge (main channel)

June	2
July	2
August	2

---

**Q17**

Respondent skipped this question

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

---

**Q18**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

3 kn

---

**Q19**

No

Tug Assistance Required

---

**Q20**

Respondent skipped this question

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

---

**Q21**

Respondent skipped this question

Is there anything else you would like to add about your vessel or business plans?

---

**Q22**

No

Do you have another vessel?

---

---



## Recreational Sailboats and Powerboats

Owner: Jerry E Barnes

Vessel:

- Desperado

Information was submitted through the online survey. Survey response follows.



#27

**COMPLETE**

**Collector:** Web Link 1 (Web Link)  
**Started:** Saturday, June 26, 2021 10:37:17 AM  
**Last Modified:** Saturday, June 26, 2021 10:43:20 AM  
**Time Spent:** 00:06:02  
**IP Address:** 67.42.158.118

---

Page 1: Introduction

**Q1**

Company Name

Jerry Barnes

**Q2**

Contact Information

Name	Jerry E Barnes
Email	desperado.jerry@gmail.com
Phone number	5033603989

---

**Q3**

Vessel Name (please complete one survey per vessel)

Desperado

**Q4****Sailboat**

Vessel Type

**Q5****No**

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

---

**Q6****Recreational**

Vessel Category



**Q7**

USCG Document Number

647241

---

**Q8**

Primary Mooring Location (waterway milepoint, if known)

Tomahawk Bay , buoy 2 just above I5

---

**Q9**

Respondent skipped this question

Type and quantity of cargo, if applicable

---

**Q10**

Length (total feet)

37

---

**Q11**

Beam (width in feet)

12

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

7

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

56

---

**Q14**

Respondent skipped this question

Air Gap (feet) - desired clearance from highest fixed point  
to lowest part of bridge

---

**Q15**

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

65

---



**Q16**

Frequency of passage under Interstate Bridge (main channel)

January	2
February	2
March	4
April	4
May	4
June	4
July	4
August	4
September	6
October	4
November	2
December	2

---

**Q17**

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

January	0
February	0
March	0
April	0
May	0
June	0
July	0
August	0
September	0
October	0
November	0
December	0

---

**Q18**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

5 knots

---



**Q19**

Tug Assistance Required

**No**

**Q20**

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

Respondent skipped this question

**Q21**

Is there anything else you would like to add about your vessel or business plans?

Respondent skipped this question

**Q22**

Do you have another vessel?

**No**



## Recreational Sailboats and Powerboats

Owner: James B Shaw

Vessel:

- JOSS

Information was submitted through the online survey. Survey response follows.



#28

COMPLETE

**Collector:** Web Link 1 (Web Link)  
**Started:** Saturday, June 26, 2021 11:41:42 AM  
**Last Modified:** Saturday, June 26, 2021 11:51:08 AM  
**Time Spent:** 00:09:25  
**IP Address:** 70.57.122.249

---

Page 1: Introduction

Q1

Company Name

Portland Yacht Club

Q2

Contact Information

Name	James B Shaw
Email	bruggie7@msn.com
Phone number	5033311552

---

Q3

Vessel Name (please complete one survey per vessel)

JOSS

Q4

Sailboat

Vessel Type

Q5

No

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

---

Q6

Recreational

Vessel Category



**Q7**

USCG Document Number

N/A

---

**Q8**

Primary Mooring Location (waterway milepoint, if known)

PYC

---

**Q9**

Respondent skipped this question

Type and quantity of cargo, if applicable

---

**Q10**

Length (total feet)

25

---

**Q11**

Beam (width in feet)

6

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

4

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

36

---

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

40

---



**Q15**

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

8

---

**Q16**

Frequency of passage under Interstate Bridge (main channel)

January	1
February	1
March	1
April	1
May	3
June	3
July	4
August	4
September	3
October	3
November	1
December	1

---

**Q17**

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

January	0
February	0
March	0
April	0
May	0
June	0
July	0
August	0
September	0
October	0
November	0
December	0

---



Q18

Transit speed under Interstate Bridge and Load Configuration (if applicable)

4knts

Q19

No

Tug Assistance Required

Q20

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

N/A

Q21

Respondent skipped this question

Is there anything else you would like to add about your vessel or business plans?

Q22

Respondent skipped this question

Do you have another vessel?



## Recreational Sailboats and Powerboats

Owner: Kenneth Stephens

Vessel:

- SV Aventura

Information was submitted through the online survey. Survey response follows.



#29

COMPLETE

Collector: Web Link 1 (Web Link)  
Started: Saturday, June 26, 2021 9:29:42 AM  
Last Modified: Saturday, June 26, 2021 12:56:25 PM  
Time Spent: 03:26:42  
IP Address: 97.120.139.229

Page 1: Introduction

Q1

Company Name

Recreational Sailor

Q2

Contact Information

Name	Kenneth Stephens
Email	kens@cad2cam.com
Phone number	5033294934

Q3

Vessel Name (please complete one survey per vessel)

SV Aventura

Q4

Sailboat

Vessel Type

Q5

No

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

Q6

Recreational

Vessel Category



**Q7**

USCG Document Number

Oregon OR 810 ABP

---

**Q8**

Primary Mooring Location (waterway milepoint, if known)

Rose City Yacht Club

---

**Q9**

Type and quantity of cargo, if applicable

N/A

---

**Q10**

Length (total feet)

28.8'

---

**Q11**

Beam (width in feet)

11

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

4.5'

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

45'

---

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

5'

---



**Q15**

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

10

---

**Q16**

Frequency of passage under Interstate Bridge (main channel)

January	0
February	0
March	2
April	0
May	0
June	2
July	4
August	4
September	2
October	0
November	0
December	0

---

**Q17**

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

January	0
February	0
March	0
April	0
May	0
June	0
July	0
August	0
September	0
October	0
November	0
December	0

---



**Q18**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

5 knots

---

**Q19**

No

Tug Assistance Required

---

**Q20**

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

N/A

---

**Q21**

Is there anything else you would like to add about your vessel or business plans?

No

---

**Q22**

No

Do you have another vessel?

---

---

---

---

---

---

---

---

---

---



## Recreational Sailboats and Powerboats

Owner: Alan (no last name provided)

Vessel:

- Buena Veda

Information was submitted through the online survey. Survey response follows.



#30

COMPLETE

**Collector:** Web Link 1 (Web Link)  
**Started:** Saturday, June 26, 2021 10:09:48 PM  
**Last Modified:** Saturday, June 26, 2021 10:17:04 PM  
**Time Spent:** 00:07:15  
**IP Address:** 24.21.193.6

---

Page 1: Introduction

**Q1** Respondent skipped this question  
Company Name

---

**Q2**  
Contact Information

Name	Alan
Email	alleyoop47@gmail.com
Phone number	5035028386

---

**Q3**  
Vessel Name (please complete one survey per vessel)  
Buena Veda

---

**Q4** Sailboat  
Vessel Type

---

**Q5** Yes,  
Specialized Vessel (e.g. limited maneuverability due to  
If yes, please describe:  
design or mode of operation. If yes, please describe) Keel depth of 6+ ft

---

**Q6** Recreational  
Vessel Category

---

**Q7** Respondent skipped this question  
USCG Document Number

---



**Q8**

Primary Mooring Location (waterway milepoint, if known)

Hayden Bay

---

**Q9**

Respondent skipped this question

Type and quantity of cargo, if applicable

---

**Q10**

Length (total feet)

41

---

**Q11**

Beam (width in feet)

10.5

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

6.5

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

63 ft

---

**Q14**

Respondent skipped this question

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

---

**Q15**

Respondent skipped this question

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

---



**Q16**

Frequency of passage under Interstate Bridge (main channel)

April	1
May	1
June	2
July	2
August	3
September	1
October	1

**Q17**

Respondent skipped this question

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

**Q18**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

4-5.5 knotsu

**Q19**

No

Tug Assistance Required

**Q20**

Respondent skipped this question

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

**Q21**

Respondent skipped this question

Is there anything else you would like to add about your vessel or business plans?

**Q22**

No

Do you have another vessel?



## Recreational Sailboats and Powerboats

Owner: Janet McCormick

Vessel:

- SV Wildheart

Information was submitted through the online survey. Survey response follows.



#31

COMPLETE

**Collector:** Web Link 1 (Web Link)  
**Started:** Sunday, June 27, 2021 8:07:47 AM  
**Last Modified:** Sunday, June 27, 2021 8:16:07 AM  
**Time Spent:** 00:08:19  
**IP Address:** 24.20.93.168

---

Page 1: Introduction

Q1

Company Name

CRSA

Q2

Contact Information

Name	Janet McCormick
Email	sunshade68@gmail.com
Phone number	9714091737

---

Q3

Vessel Name (please complete one survey per vessel)

SV Wildheart

Q4

Sailboat

Vessel Type

Q5

Yes

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

---

Q6

Recreational

Vessel Category

Q7

Respondent skipped this question

USCG Document Number



**Q8**

Primary Mooring Location (waterway milepoint, if known)

Tomahawk Bay Marina

---

**Q9**

Type and quantity of cargo, if applicable

NA

---

**Q10**

Length (total feet)

30

---

**Q11**

Beam (width in feet)

11

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

5

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

55

---

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

10

---

**Q15**

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

10

---



**Q16**

Frequency of passage under Interstate Bridge (main channel)

January	0
February	0
March	0
April	0
May	2
June	2
July	2
August	2
September	2
October	2
November	0
December	0

---

**Q17**

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

January	0
February	0
March	0
April	0
May	0
June	0
July	0
August	0
September	0
October	0
November	0
December	0

---

**Q18**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

WA

---



Q19

No

Tug Assistance Required

---

Q20

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

NA

---

Q21

Respondent skipped this question

Is there anything else you would like to add about your vessel or business plans?

---

Q22

No

Do you have another vessel?

---

---

---

---

---

---

---

---

---

---



## Recreational Sailboats and Powerboats

Owner: Gilbert Colistro

Vessel:

- BOAT

Information was submitted through the online survey. Survey response follows.



#32

COMPLETE

**Collector:** Web Link 1 (Web Link)  
**Started:** Saturday, June 26, 2021 5:01:25 PM  
**Last Modified:** Sunday, June 27, 2021 11:02:53 AM  
**Time Spent:** 18:01:28  
**IP Address:** 67.189.10.11

---

Page 1: Introduction

**Q1** Respondent skipped this question  
Company Name

---

**Q2**  
Contact Information  
Name Gilbert Colistro  
Email palmerjoe36@hotmail.com  
Phone number 5033491174

---

**Q3**  
Vessel Name (please complete one survey per vessel)  
BOAT

---

**Q4** Cruise  
Vessel Type

---

**Q5** No  
Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

---

**Q6** Recreational  
Vessel Category

---

**Q7**  
USCG Document Number  
688264

---



**Q8**

Primary Mooring Location (waterway milepoint, if known)

Scappoose OR Multnomah Channel

---

**Q9**

Respondent skipped this question

Type and quantity of cargo, if applicable

---

**Q10**

Length (total feet)

49'

---

**Q11**

Beam (width in feet)

14'

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

5'

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

15'

---

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

5'

---

**Q15**

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

1'

---



**Q16**

Frequency of passage under Interstate Bridge (main channel)

May	2
June	2
July	2
August	2
September	2

**Q17**

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

January	2
June	2
July	2

**Q18**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

Washington

**Q19**

No

Tug Assistance Required

**Q20**

Respondent skipped this question

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

**Q21**

Respondent skipped this question

Is there anything else you would like to add about your vessel or business plans?

**Q22**

No

Do you have another vessel?



## Recreational Sailboats and Powerboats

Owner: Julie Schumann

Vessel:

- Blue Heron

Information was submitted through the online survey. Survey response follows.



#33

COMPLETE

**Collector:** Web Link 1 (Web Link)  
**Started:** Sunday, June 27, 2021 11:49:01 AM  
**Last Modified:** Sunday, June 27, 2021 11:51:53 AM  
**Time Spent:** 00:02:52  
**IP Address:** 24.20.45.229

---

Page 1: Introduction

Q1

Company Name

Julie Schumann, private resident

Q2

Contact Information

Name	Julie A Schumann
Email	jamwschum@gmail.com
Phone number	5033174028

---

Q3

Vessel Name (please complete one survey per vessel)

Blue Heron

Q4

Sailboat

Vessel Type

Q5

No

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

---

Q6

Recreational

Vessel Category

Q7

Respondent skipped this question

USCG Document Number



**Q8** Respondent skipped this question

Primary Mooring Location (waterway milepoint, if known)

---

**Q9** Respondent skipped this question

Type and quantity of cargo, if applicable

---

**Q10**

Length (total feet)

30'

---

**Q11**

Beam (width in feet)

11'

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

5.5'

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

58

---

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

65

---

**Q15** Respondent skipped this question

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

---



**Q16**

Frequency of passage under Interstate Bridge (main channel)

January	2
February	2
March	2
April	2
May	2
June	6
July	6
August	6
September	6
October	2
November	2
December	2

**Q17**

Respondent skipped this question

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

**Q18**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

OR

**Q19**

No

Tug Assistance Required

**Q20**

Respondent skipped this question

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

**Q21**

Respondent skipped this question

Is there anything else you would like to add about your vessel or business plans?



**Q22**

**No**

Do you have another vessel?



## Recreational Sailboats and Powerboats

Owner: Roger Jorgensen

Vessel:

- Make It So

Information was submitted through the online survey. Survey response follows. Information included in the CRC NIR is also included below.



#34

COMPLETE

Collector: Web Link 1 (Web Link)  
Started: Sunday, June 27, 2021 4:58:12 PM  
Last Modified: Sunday, June 27, 2021 5:13:51 PM  
Time Spent: 00:15:39  
IP Address: 98.246.88.71

Page 1: Introduction

Q1 Respondent skipped this question  
Company Name

Q2  
Contact Information  
Name ROGER JORGENSEN  
Email rogerpdx@gmail.com  
Phone number 5037805939

Q3  
Vessel Name (please complete one survey per vessel)  
Make It So

Q4 Sailboat  
Vessel Type

Q5 No  
Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

Q6 Recreational  
Vessel Category

Q7  
USCG Document Number  
672216



**Q8**

Primary Mooring Location (waterway milepoint, if known)

Salpare Bay Marina

---

**Q9**

Respondent skipped this question

Type and quantity of cargo, if applicable

---

**Q10**

Length (total feet)

65

---

**Q11**

Beam (width in feet)

18

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

7

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

87

---

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

10

---

**Q15**

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

10

---



**Q16**

Frequency of passage under Interstate Bridge (main channel)

January	0
February	0
March	1
April	1
May	1
June	2
July	2
August	2
September	1
October	0
November	0
December	0

---

**Q17**

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

January	0
February	0
March	0
April	0
May	0
June	0
July	0
August	0
September	0
October	0
November	0
December	0

---

**Q18**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

Washington 6 KTS

---



**Q19**

No

Tug Assistance Required

**Q20**

Respondent skipped this question

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

**Q21**

Is there anything else you would like to add about your vessel or business plans?

no

**Q22**

No

Do you have another vessel?



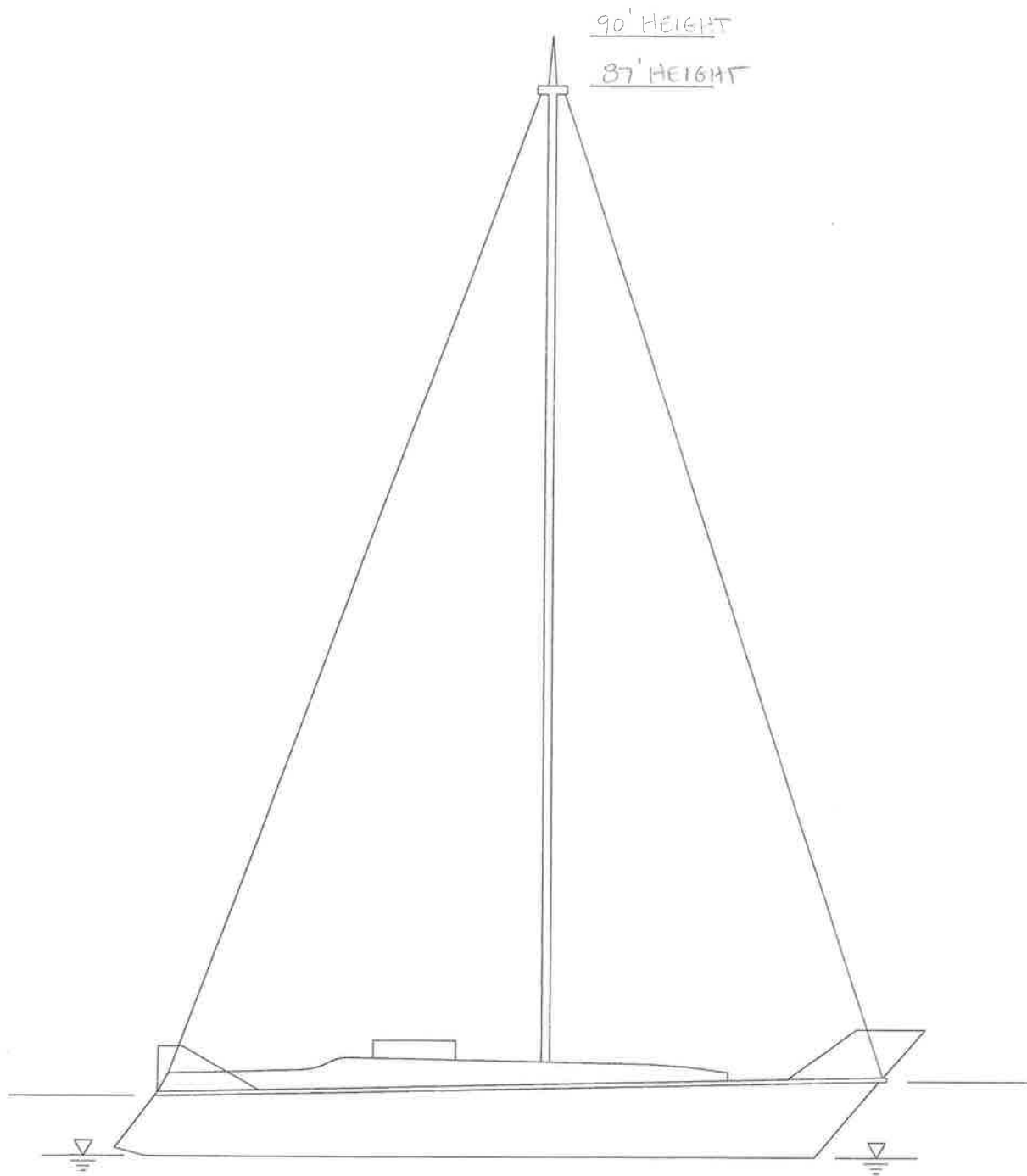
## Recreational Sailboats and Powerboats

Owner: Unknown

Vessel: Make It So







MAKE IT SO

NAME

SALPARE BAY MARINA

LOCATION

6-28-2012

DATE



## Recreational Sailboats and Powerboats

Owner: Pam Corey

Vessel:

- ExTerra

Information was submitted through the online survey. Survey response follows.



#35

**COMPLETE**

**Collector:** Web Link 1 (Web Link)  
**Started:** Sunday, June 27, 2021 7:28:32 PM  
**Last Modified:** Sunday, June 27, 2021 8:16:46 PM  
**Time Spent:** 00:48:13  
**IP Address:** 76.115.3.152

---

Page 1: Introduction

**Q1**

Company Name

n/a

**Q2**

Contact Information

Name	<b>Pam Corey</b>
Email	<b>cpcorey@gmail.com</b>
Phone number	<b>5036688524</b>

---

**Q3**

Vessel Name (please complete one survey per vessel)

ExTerra

**Q4****Sailboat**

Vessel Type

**Q5****No**

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

**Q6****Recreational**

Vessel Category



**Q7**

USCG Document Number

679948

---

**Q8**

Primary Mooring Location (waterway milepoint, if known)

Rose City Yacht Club roughly rm 107

---

**Q9**

Type and quantity of cargo, if applicable

n/a

---

**Q10**

Respondent skipped this question

Length (total feet)

---

**Q11**

Beam (width in feet)

38

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

5

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

56

---

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

5

---

**Q15**

Respondent skipped this question

Safety Margin (feet) - horizontal clearance required by  
vessel to navigate through the bridge

---



**Q16**

Frequency of passage under Interstate Bridge (main channel)

July	2
August	2

**Q17**

Respondent skipped this question

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

**Q18**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

5-6 NM

**Q19**

No

Tug Assistance Required

**Q20**

Respondent skipped this question

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

**Q21**

Is there anything else you would like to add about your vessel or business plans?

while recreational use is secondary to commercial traffic it is of importance to the Portland/Vancouver metropolitan area

**Q22**

No

Do you have another vessel?



## Recreational Sailboats and Powerboats

Owner: Liv D Ormond

Vessel:

- Mischief

Information was submitted through the online survey. Survey response follows.



#36

**COMPLETE**

**Collector:** Web Link 1 (Web Link)  
**Started:** Sunday, June 27, 2021 8:29:53 PM  
**Last Modified:** Sunday, June 27, 2021 8:37:51 PM  
**Time Spent:** 00:07:58  
**IP Address:** 107.77.211.165

---

Page 1: Introduction

**Q1**

Company Name

Private member of Rose City Yacht Club

**Q2**

Contact Information

Name	Liv D Ormond
Email	Livsailor@gmail.com
Phone number	714-305-5285

---

**Q3**

Vessel Name (please complete one survey per vessel)

Mischief

**Q4****Sailboat**

Vessel Type

**Q5****No**

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

**Q6****Recreational**

Vessel Category



**Q7**

USCG Document Number

1048408

---

**Q8**

Primary Mooring Location (waterway milepoint, if known)

Rose city yacht club

---

**Q9**

Type and quantity of cargo, if applicable

NA

---

**Q10**

Length (total feet)

37.6

---

**Q11**

Beam (width in feet)

12.6

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

5.5

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

64

---

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

5

---



**Q15**

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

20

---

**Q16**

Frequency of passage under Interstate Bridge (main channel)

January	1
February	0
March	0
April	1
May	2
June	1
July	0
August	2
September	1
October	1
November	0
December	0

---

**Q17**

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

January	0
February	0
March	0
April	0
May	0
June	0
July	0
August	0
September	0
October	0
November	0
December	0

---



**Q18**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

NA

---

**Q19**

**No**

Tug Assistance Required

---

**Q20**

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

NA

---

**Q21**

Is there anything else you would like to add about your vessel or business plans?

Yes please provide 70ft of clearance year round so we don't need to request an opening in May or earlier

---

**Q22**

**No**

Do you have another vessel?

---

---

---

---

---

---

---

---

---

---



## Recreational Sailboats and Powerboats

Owner: Kevin Flanigan/Schooner Creek Boat Works

Vessel:

- Rage

Information was submitted through the online survey. Survey response follows.



#39

COMPLETE

**Collector:** Web Link 1 (Web Link)  
**Started:** Monday, July 12, 2021 2:05:18 PM  
**Last Modified:** Monday, July 12, 2021 2:12:14 PM  
**Time Spent:** 00:06:56  
**IP Address:** 96.85.131.1

---

Page 1: Introduction

Q1

Company Name

schooner creek boat works

Q2

Contact Information

Name	Kevin Flanigan
Email	kevinf@schoonercreek.com
Phone number	503-735-0569

---

Q3

Vessel Name (please complete one survey per vessel)

Rage

Q4

Sailboat

Vessel Type

Q5

Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

Yes,  
If yes, please describe:  
10' drat

Q6

Recreational

Vessel Category

Q7

Respondent skipped this question

USCG Document Number



**Q8**

Primary Mooring Location (waterway milepoint, if known)

105

---

**Q9**

Type and quantity of cargo, if applicable

people

---

**Q10**

Length (total feet)

70

---

**Q11**

Beam (width in feet)

13

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

10

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

90

---

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

10

---

**Q15**

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

100

---



**Q16**

Frequency of passage under Interstate Bridge (main channel)

January	1
February	1
March	5
April	7
May	10
June	10
July	10
August	7
September	5
October	1
November	1
December	1

---

**Q17**

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

January	0
February	0
March	0
April	0
May	0
June	0
July	0
August	0
September	0
October	0
November	0
December	0

---

**Q18**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

OR

---



**Q19**

Tug Assistance Required

**No**

**Q20**

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

Respondent skipped this question

**Q21**

Is there anything else you would like to add about your vessel or business plans?

Respondent skipped this question

**Q22**

Do you have another vessel?

**No**



## Recreational Sailboats and Powerboats

Owner: Steve Tidwell

Vessel:

- Easygoing

Information was submitted through the online survey. Survey response follows.



#41

COMPLETE

**Collector:** Web Link 1 (Web Link)  
**Started:** Sunday, September 19, 2021 5:25:21 PM  
**Last Modified:** Sunday, September 19, 2021 5:42:18 PM  
**Time Spent:** 00:16:56  
**IP Address:** 216.87.232.218

---

Page 1: Introduction

**Q1** Respondent skipped this question  
Company Name

---

**Q2**  
Contact Information

Name	Steve Tidwell
Email	stidwell@centurytel.net
Phone number	5419793143

---

**Q3**  
Vessel Name (please complete one survey per vessel)  
Easygoing

---

**Q4** Sailboat  
Vessel Type

---

**Q5** Respondent skipped this question  
Specialized Vessel (e.g. limited maneuverability due to design or mode of operation. If yes, please describe)

---

**Q6** Recreational  
Vessel Category

---

**Q7**  
USCG Document Number  
1240772

---



**Q8**

Primary Mooring Location (waterway milepoint, if known)

107

---

**Q9**

Respondent skipped this question

Type and quantity of cargo, if applicable

---

**Q10**

Length (total feet)

48.75

---

**Q11**

Beam (width in feet)

14.33

---

**Q12**

Draft (feet) - depth of hull below waterline, fully laden

5

---

**Q13**

Air Draft (feet) - height of highest fixed point above waterline, unladen

66

---

**Q14**

Air Gap (feet) - desired clearance from highest fixed point to lowest part of bridge

68

---

**Q15**

Safety Margin (feet) - horizontal clearance required by vessel to navigate through the bridge

35

---



**Q16**

Frequency of passage under Interstate Bridge (main channel)

January	0
February	0
March	0
April	2
May	2
June	4
July	4
August	6
September	4
October	2
November	0
December	0

---

**Q17**

Frequency of passage under the North Portland Harbor Bridge (Oregon Slough)

January	0
February	0
March	0
April	0
May	0
June	0
July	0
August	0
September	0
October	0
November	0
December	0

---

**Q18**

Transit speed under Interstate Bridge and Load Configuration (if applicable)

n/a

---



**Q19**

Tug Assistance Required

**No**

**Q20**

Please identify any future vessel, cargo, and/or business plans that might require different vessels to transit under the bridge. If plans are available online, please provide a link to the online source or email the plans to [rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org).

Respondent skipped this question

**Q21**

Is there anything else you would like to add about your vessel or business plans?

Respondent skipped this question

**Q22**

Do you have another vessel?

**No**



## Recreational Sailboats and Powerboats

Owner: Legendary Yachts

Vessel:

- Radiance

Confirmation was submitted via email to the IBR Program. Vessel characteristics were provided in the CRC NIR. Email confirmation and CRC NIR information are included below.



From: Will Pollard  
To: Brian  
Cc: Brian  
Subject: Re: Interstate Bridge Replacement Project  
Date: Tuesday, September 21, 2010 11:22:29 AM

Hi Brian,

My apologies.

I've written notes on your email and attached below

Subject: Re: Interstate Bridge Replacement Project

Thanks Will,

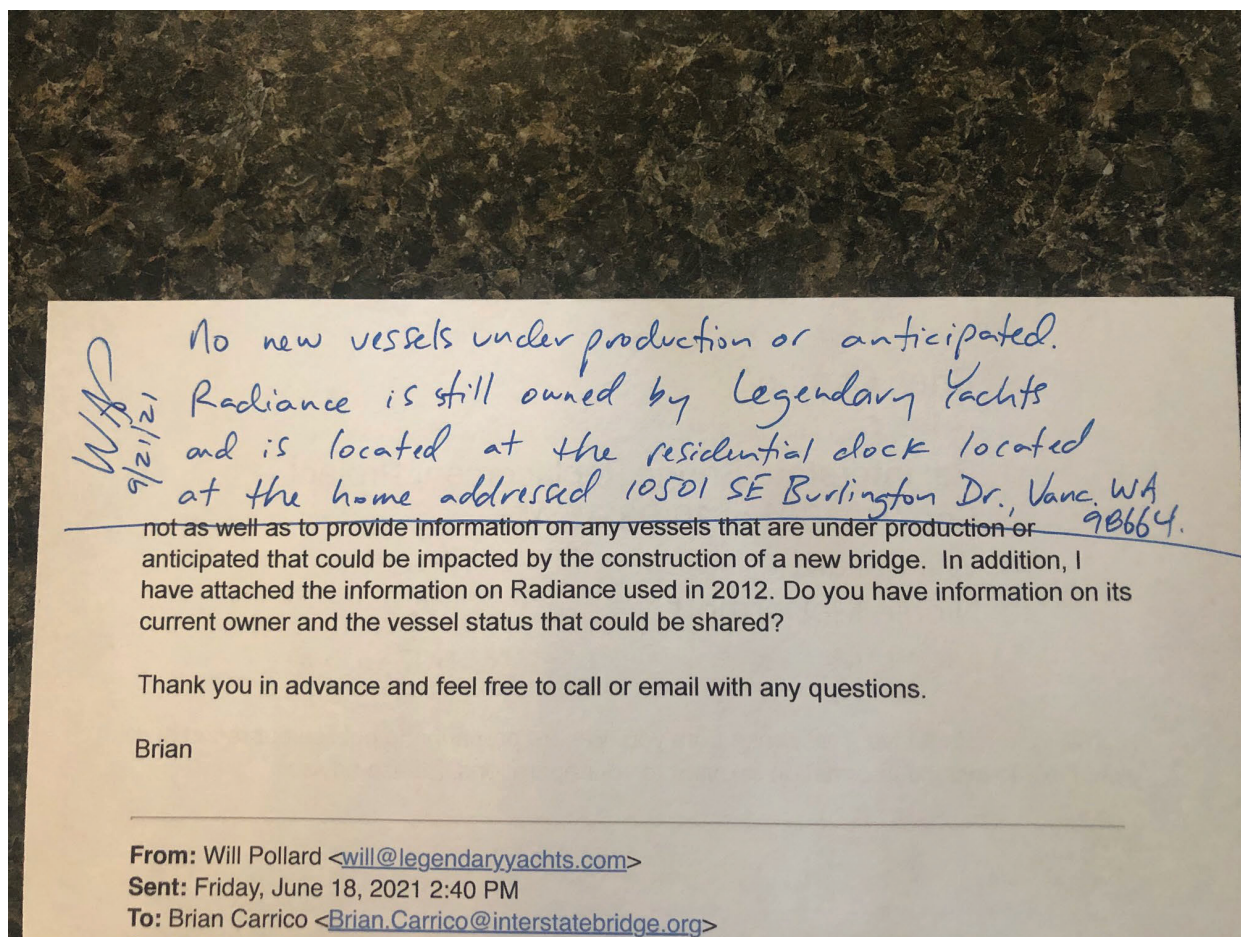
You should have received an email from "[rivernav@interstatebridge.org](mailto:rivernav@interstatebridge.org)" in mid May asking for information on your operations. In 2012 the Columbia River Crossing project evaluated navigation in detail and we are updating. The information noted the following regarding your operations:

Legendary Yachts builds both power and sail classic wooden yachts, at an upland facility ~~located~~ and has relocated to a ~~yard~~ <sup>facility</sup> in Vancouver, WA. just north of the Port of Camas-Washougal's Industrial Park. Boats are loaded on a hydraulic trailer for delivery to a launch site in Camas (using a crane at the Hambleton Lumber in site, when <sup>v such as</sup> they were in business) or Portland, (Schooner Creek Boat Works, located just south of the I-5 bridges). Their largest sailboat to date was the Radiance, which had a length of 84 feet and a mast height above water of 86 feet. This vessel could pass under most of the options under consideration for the CRC..

It would be helpful if could confirm that this information is still correct and update it if is

WJP 9/21/21





All the Best, Will

Sent from my Legendary iPhone

On Sep 21, 2021, at 10:03 AM, Brian Carrico <Brian.Carrico@interstatebridge.org> wrote:

Hi Will, I did not receive a response from you. We are preparing to publish our report and would like to include information relevant to your operations. Please advise.

Brian

**From:** Brian Carrico <Brian.Carrico@interstatebridge.org>  
**Sent:** Wednesday, June 23, 2021 1:38 PM  
**To:** Will Pollard <will@legendaryyachts.com>  
**Cc:** Nicole McDermott <Nicole.McDermott@interstatebridge.org>  
**Subject:** Re: Interstate Bridge Replacement Project

Thanks Will,

You should have received an email from "rivernav@interstatebridge.org" in mid May asking for information on your operations. In 2012 the Columbia River Crossing project evaluated navigation in detail and we are updating. The information noted the following regarding your operations:

Legendary Yachts builds both power and sail classic wooden yachts at an upland facility located just north of the Port of Camas-Washougal's Industrial Park. Boats are loaded on a hydraulic trailer for delivery to a launch site in Camas (using a crane at the Hambleton Lumber site, when they were in business) or Portland (Schooner Creek Boat Works, located just south of the I-5 bridges). Their largest sailboat to date was the Radiance, which had a length of 84 feet and a mast height above water of 86 feet. This vessel could pass under most of the options under consideration for the CRC.

It would be helpful if could confirm that this information is still correct and update it if it is not as well as to provide information on any vessels that are under production or anticipated that could be impacted by the construction of a new bridge. In addition, I have attached the information on Radiance used in 2012. Do you have information on its current owner and the vessel status that could be shared?

Thank you in advance and feel free to call or email with any questions.

Brian

**From:** Will Pollard <will@legendaryyachts.com>  
**Sent:** Friday, June 18, 2021 2:40 PM  
**To:** Brian Carrico <Brian.Carrico@interstatebridge.org>  
**Cc:** Nicole McDermott <Nicole.McDermott@interstatebridge.org>  
**Subject:** Re: Interstate Bridge Replacement Project

Hi Brian,

I am the correct contact.

All the Best, Will

Sent from my Legendary iPhone

On Jun 18, 2021, at 2:00 PM, Brian Carrico <Brian.Carrico@interstatebridge.org> wrote:

I am part of the team working on the Interstate Bridge Program for ODOT and WSDOT, and we are updating information developed for the prior Columbia River Crossing project in 2012.

I am seeking information regarding the operating status of Legendary Yachts and their current operations as part of the programs efforts to assess the impact of the proposed bridges on Columbia River navigation. If you could let me know if you are the correct individual with this information, it would be appreciated.

You can find out more about the program on the project website <https://www.interstatebridge.org/> or by reaching out directly to me.

Regards,  
 Brian

I-5 Bridge Replacement Program



## Recreational Sailboats and Powerboats

Owner: Legendary Yachts

Vessel: Radiance





River User Data Sheet

By: Pat Scott Date: 3/28/2012

1. Company Name and/or Owner of Vessel and contact information

- a. Name of company: Legendary Yachts, Inc.  
b. Name of contact: Pat Scott  
c. Phone number (Office): 360-835-0342 d. (Cell): 360-798-4372  
e. Email: pscott@legendaryyachts.com  
f. Address: 2902 Addy St./ P.O. Box 720  
g. City: Washougal  
h. State: WA i. Zip code: 98671

3a. Vessel Name: RADIANCE 3b. Vessel Type: SAIL

3c. US Coast Guard Document Number: 1025262

4a. Length Overall (LOA), feet: 84' 4b. Beam (width), feet: 16'

5. Draft (depth of hull below waterline, fully laden), feet: 7'9"

6. Air Draft (Height of the highest fixed point of the vessel above the waterline, unladen), feet: 86

7. Air gap for vessel (desired clearance from the highest fixed point on the vessel to lowest part of bridge): 3'

8. Frequency of one-way passage underneath I-5 main channel (typical per month): .6

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

9. Frequency of one-way passage underneath I-5 main channel (other historic events): 2

10. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (typical per month): V

Jan \_\_\_ Feb \_\_\_ Mar \_\_\_ Apr \_\_\_ May \_\_\_ Jun \_\_\_ Jul \_\_\_ Aug \_\_\_ Sep \_\_\_ Oct \_\_\_ Nov \_\_\_ Dec \_\_\_

11. Frequency of one-way passage through North Portland Harbor (Oregon Slough) (other historic events) 0

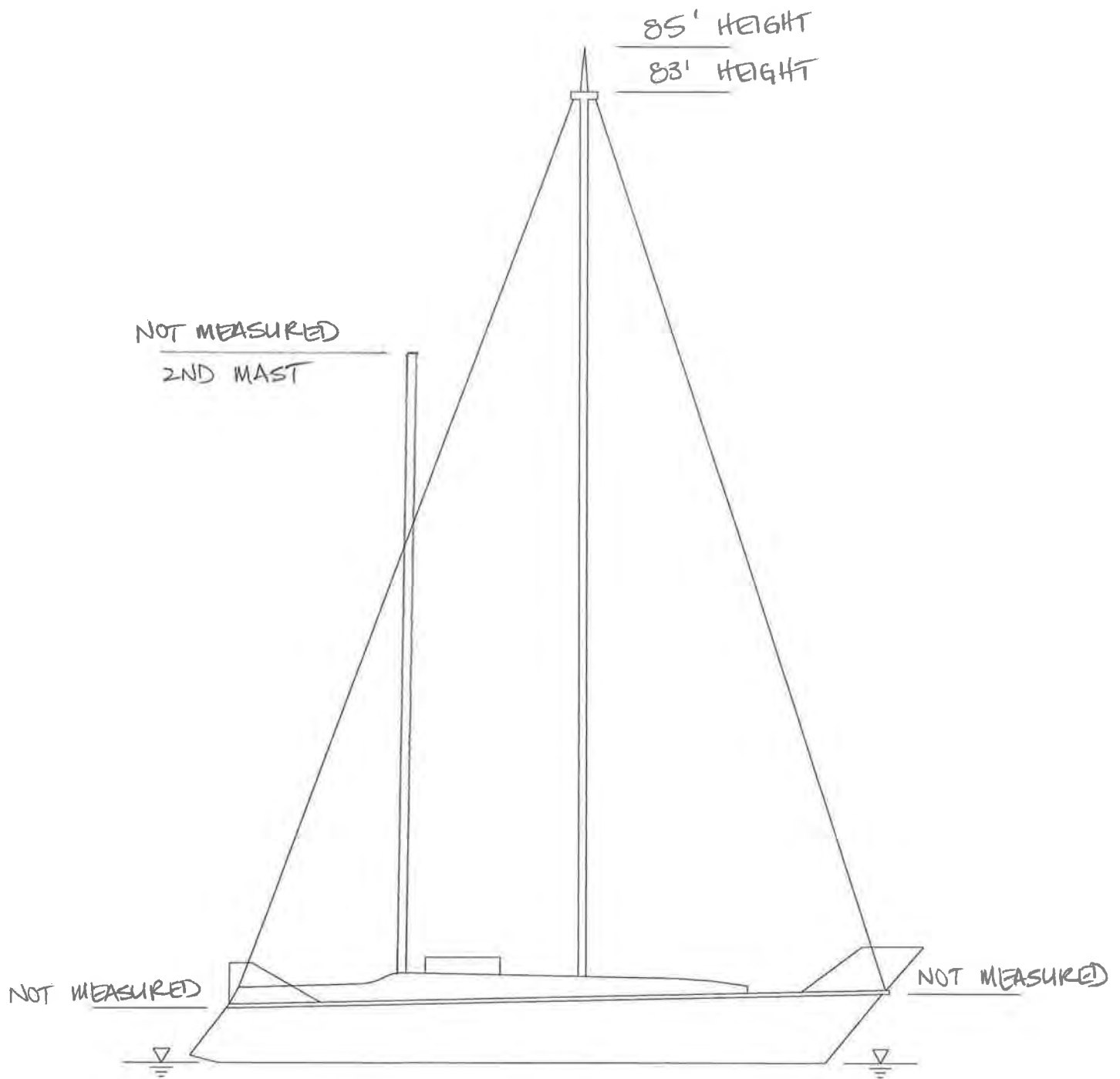


12. Do you have a Business Plan (e.g. 10 or 20 year plan)? What does it say regarding vessels transiting under the I-5 Bridge or into North Portland Harbor (Oregon Slough)? May we have a copy? = V °

13. Other miscellaneous

u † ‡ °  
k





RADIANCE

NAME

(PRIVATE RESIDENCE )  
10501 SE EVERGREEN HWY  
VANCOUVER, WA

LOCATION

07-11-12

DATE



Page 722 of 726  
7/16/2012



## Vessel Height Verification Sheet

By: Karl Krcma Date: 11 July 2012

1. Company Name and/or Owner of Vessel and Contact Information

- a. Name of company: Legendary Yachts
- b. Name of contact: Will Pollard
- c. Phone number (Office): 360.835.0342 (Cell): 360.798.7062
- d. Email: \_\_\_\_\_
- e. Address: 10501 SE Evergreen Hwy City: Vancouver
- State: WA Zip code: 98660

2. Vessel

- a. ID: \_\_\_\_\_ b. Name: Radiance
- c. Type: Sailboat d. USCG Document Number: \_\_\_\_\_

3. Vessel Configuration

- a. Identify vessel configuration: \_\_\_\_\_
- Is a vessel specification sheet available? No
  - Configuration shown on the sheet: not shown, photo only
  - What is the lowest height configuration for transport? 85' (83' without antenna)
- b. What is the gantry configuration? N/A Estimated gantry height: N/A
- c. Does the barge have spuds? N/A
- Height above waterline for travel? N/A
  - Can the spuds be removed for travel? N/A
  - Work and cost involved in removing spuds? N/A

4. Vessel Location

- a. Where is the vessel currently located? Columbia River
- b. Is it working on a job? N/A Is it tied up to shore? Yes
- c. What is the best time to make a trip to the vessel? Anytime, just need a few days advance notice.



5. Surveyed Measurements (all measurements NAVD 88)

Gantry Height:	N/A
Water Level:	N/A
Top of Boom:	N/A
Height of Boom Hinge Pin:	N/A
Boom Cradle:	N/A
Top of Spud:	N/A
Top of Deck:	N/A

6. Vessel Height

Self-Reported		Surveyed	
Air Draft:	86 feet	Air Draft:	85 feet
Air Gap:	10 feet	Air Gap:	10 feet
Water Level:	16 feet (CRD)	Water Level:	16 feet (CRD)
Total Height:	112 feet	Total Height:	111 feet

7. History Notes

Date	Item
3/28/2012	Contacted by Ron Del Rosario
3/28/2012	Data sheet submitted
6/28/2012	Contacted by Karl Krcma for field measurement
7/11/2012	Field measured
7/17/2012	New data sheet submitted



## Recreational Sailboats and Powerboats

### Portland Yacht Club and Rose City Yacht Club

The Portland Yacht Club and Rose City Yacht Club did not respond to the IBR request. Information from these clubs provided in the CRC NIR is included below.



## Summary Tables of Existing User Data

Company and/or Owner of Vessel	Vessel Name	Vessel Type	Length Overall (LOA), Feet	Beam, Feet	Draft, Feet	Air Draft, Feet	Data Source for Air Draft	Frequency of Passage Underneath Interstate-5 Bridges
Portland Yacht Club	High Flight	Sailboat				51	Surveyed	
Portland Yacht Club	Luscious	Sailboat				65	Surveyed	
Portland Yacht Club	Moondance	Sailboat				59	Surveyed	
Portland Yacht Club	Runaway	Sailboat	51	12 to 17	5 to 12	70	Surveyed	Fifteen to twenty trips per year.
Portland Yacht Club	Rya	Sailboat				66	Surveyed	
Portland Yacht Club	Saphira	Sailboat				54	Surveyed	
Portland Yacht Club	Sargasso	Sailboat				65	Surveyed	
Portland Yacht Club	Sovereign	Sailboat				58	Surveyed	
Portland Yacht Club	Sylvia	Sailboat				58	Surveyed	
Portland Yacht Club	Tropicale	Sailboat				61	Surveyed	
Portland Yacht Club	Whisper	Sailboat	57	12 to 17	5 to 12	74	Surveyed	Fifteen to twenty trips per year.
Rose City Yacht Club	Crystal Swan	Sailboat	40	14	6	63	Self-Reported	Three to four round trips per year.
Rose City Yacht Club	Down Wind Drift	Sailboat	42	8	6.5	59	Self-Reported	Three to four round trips per year.
Rose City Yacht Club	Draco	Sailboat	38	13	6.5	60	Self-Reported	Three to four round trips per year.
Rose City Yacht Club	Morgan Le Fay	Sailboat	50		6.5	58	Self-Reported	Three to four round trips per year.
Schooner Creek Boat Works	Rage	Sailboat	70	13	11	80	Surveyed	Approx. 4 times a month from March through September.
Scott Campbell	Riva	Sailboat	46	13.5	7.5	64.5	Self-Reported	Once in April and once in September.
Todd Hilbelink	Wakadui	Sailboat	49.5	14.8	7	66	Surveyed	Two times a month, May through September.
unknown	Make it So	Sailboat				90	Surveyed	
Wind Dancing LLC	Wind Dancing	Sailboat	47	13.9	9.6	66	Self-Reported	Two to four times a month, June through September.

## Marine Contractors

Advanced American Construction	DB 125	Crane barge				78	Drawings	Once to twice a month, all months of the year.
Advanced American Construction	DB 4000	Crane barge				79.5	Drawings	Once to twice a month, all months of the year.
Advanced American Construction	DB 4041	Crane barge				71	Drawings	Once to twice a month, all months of the year.
Advanced American Construction	DB 4100	Crane barge				92	Drawings	Once to twice a month, all months of the year.
Advanced American Construction	Linde Marie	Tug boat	58.4	16.5	5.5	35	Self-Reported	Once to twice a month, all months of the year.



## APPENDIX D COLUMBIA AND SNAKE RIVER NAVIGATION CLEARANCES



# Appendix D. Navigation Clearances for Facilities Crossing the Columbia and Snake Rivers

---

Table D-1 summarizes the navigation clearances for facilities (bridges, cables and locks) that cross or are in the Columbia River (from the mouth to Richland, Washington) and the Snake River (from the mouth to Lewiston, Idaho). This information is provided by river mile beginning at the mouth of the Columbia River and progressing upstream. Horizontal and vertical clearances are provided for bridges, horizontal clearances for navigation locks, and vertical clearances for overhead power lines. Most of the information provided in the table was obtained from the most recent National Oceanographic and Atmospheric Administration (NOAA) navigation chart available online (NOAA, 2012). Some of the bridge names (e.g., most of the railroad bridges upstream of The Dalles Dam) were obtained from the USCG bridge inspection logs available through the internet (USCG, 2011). In addition, USACE channel condition surveys were reviewed for additional information and for cross comparison with the information on the NOAA navigation charts.

Information differing materially between the NOAA charts and either the USACE charts or USCG bridge inspection logs are provided in the notes. In some cases, the reported river mile may be slightly different. The river miles provided in the tables were estimated to the nearest 1/10 statute mile based on river miles provided in the NOAA charts. In addition, the horizontal and vertical clearances were taken from the NOAA navigation charts. The datum for each reach of the river is controlled by the pool elevation of the various dams above Bonneville Dam. Below Bonneville Dam, the CRD is used except near the coast at the Astoria-Megler Bridge where Mean Lower Low Water (MLLW) is used.



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Table D-1. Columbia and Snake River Navigation Clearances

Bridge	River Mile	Horiz. Clr. (ft)	Vert. Clr. (ft)	Vert. Clr. at Center (ft)	Vert. Clr. w/Span Open (ft)	Location	NOAA Chart #	NOAA Chart (date)	Carries	Datum
Columbia River										
Astoria-Megler Bridge	13.5	1070	193	205	--	Astoria	18521	Aug-09	US 101	Mean Lower Low Water (MLLW)
Power Cable	40.0	--	230	--	--	Puget Island	18523	May-10	Power	Columbia River Datum (CRD)
Power Cable	62.4	--	216	--	--	Longview	18524	Jun-11	Power	CRD
Lewis & Clark Bridge	66.0	1120	187	--	--	Longview	18524		SR 433	CRD
Power Cable (main channel)	104.2	--	220	--	--	Vancouver-Portland	18525	Apr-09	Power	CRD
(North Portland Harbor)	1.6	--	160			Vancouver-Portland	18525		Power	CRD
BNSF Rail Bridge	105.6	200	39	--	Unlimited	Vancouver-Portland	18525		BNSF Rail Road (RR)	CRD
(North Portland Harbor)	3.2	125	39	--	Unlimited	Vancouver-Portland	18525			CRD
Interstate Bridge (lift bridge)	106.5	263	39	--	178	Vancouver-Portland	18525		I-5	CRD
(barge channel)		511	46	58	--	Vancouver-Portland	18525			CRD
(alt. barge channel)		260	72	--	--	Vancouver-Portland	18525			CRD
(North Portland Harbor)	4.5	215	35	--	--		18525			CRD
Power Cable (North Portland Harbor)	4.5	--	54	--	--	Vancouver-Portland	18525		Power	CRD
Glenn L. Jackson Memorial Bridge	112.7	469	136	144	--	Vancouver-Portland	18531	Sep-05	I-205	CRD
Power Cable	120.0	--	133	--	--	Camas-Troutdale	18531		Power	CRD
Bonneville Dam - Navigation Lock	145.1	86	--	--	--		18531			
Power Cable	145.1	--	210	--	--	Bonneville	18531		Power	CRD
Power Cable	146.6	--	190	--	--	Bonneville	18531		Power	Normal Pool (NP) (72 ft above Mean Sea Level (MSL))
Bridge of the Gods	148.3	655	135	--	--	Cascade Locks	18532	May-06	Pacific Crest Trail	NP (72 ft above MSL)
Hood River Bridge	169.8	246	67	--	148	Hood River	18532		SR 35	NP (72 ft above MSL)
Power Cable	171.1	--	155	--	--	Bingen	18532		Power	NP (72 ft above MSL)
Power Cable	173.8	--	159	--	--	Eighteen Mile Island	18532		Power	NP (72 ft above MSL)
Power Cable	186.2	--	155	--	--	The Dalles	18532		Power	NP (72 ft above MSL)
The Dalles Bridge (nav. lock approach)	191.6	250	100	--	--	The Dalles	18532		US 197	NP (72 ft above MSL)
(main span)		551	81	--	--	The Dalles	18532			
The Dalles Dam - Navigation Lock	191.8	86	--	--	--		18532			
Power Cable	191.9	--	125	--	--	The Dalles	18533	Sep-04	Power	NP (160 ft above MSL)
Power Cable	201.0	--	123	--	--	Wishram	18533		Power	NP (160 ft above MSL)
Celilo Bridge	201.2	300	20	--	79	Wishram	18533		BNSF RR	NP (160 ft above MSL)
Power Cable	204.5	--	115	--	--	Miller Island	18533		Power	NP (160 ft above MSL)
Sam Hill Memorial Bridge	209.1	300	88	--	--	Biggs	18533		US 97	NP (160 ft above MSL)
Power Cable	215.8	--	93	--	--	Biggs	18535	Aug-04	Power	NP (160 ft above MSL)
John Day Dam - Navigation Lock	216.6	86	--	--	--		18535			
Power Cable	263.3	--	95	--	--	Crowe Butte	18537	Jul-99	Power	NP (265 ft above MSL)
SR-82 Bridge, SB	291.0	335	85	--	--	Umatilla	18539	Mar-04	I-82, SR 395	NP (265 ft above MSL)
SR-82 Bridge, NB		400	71	--	--		18539			
Power Cable	291.2	--	82	--	--	Umatilla	18539		Power	NP (265 ft above MSL)
McNary Dam - Navigation Lock	292.6	86	--	--	--		18541	Mar-02		
McNary Dam Locks Bridge	292.6	86	15				18541		--	NP (340 ft above MSL)
Kalan Bridge	323.5	378	11	--	72	Burbank	18542	Jan-00	Union Pacific RR	NP (340 ft above MSL)
Power Cable	325.6	--	85	--	--	Kennewick-Pasco	18542		Power	NP (340 ft above MSL)
BNSF Rail Bridge	328.1	290	18		70	Kennewick-Pasco	18542		BNSF RR	NP (340 ft above MSL)
Benton-Franklin Intercounty Bridge	328.5	578	56	--	--	Kennewick-Pasco	18542		SR 397	NP (340 ft above MSL)
Power Cable	328.7	--	54	--	--	Kennewick-Pasco	18542		Power	NP (340 ft above MSL)
Pioneer Memorial Bridge	330.1	500	61		--	Kennewick-Pasco	18542		US 395	NP (340 ft above MSL)
Lee-Volpentest Bridges	336.1	400	73	--	--	Kennewick-Pasco	18542		I-182, US 12	NP (340 ft above MSL)



Bridge	River Mile	Horiz. Clr. (ft)	Vert. Clr. (ft)	Vert. Clr. at Center (ft)	Vert. Clr. w/Span Open (ft)	Location	NOAA Chart #	NOAA Chart (date)	Carries	Datum
Snake River										
BNSF Rail Bridge	1.5	380	14	--	60	Pasco-Burbank	18545	Sep-03	BNSF RR	NP (340 ft above MSL)
Vaughn Hubbard Bridge	2.2	400	61	--	--	Pasco-Burbank	18545		US 12	NP (340 ft above MSL)
Power Cable	4.0	--	68	--	--	Pasco-Burbank	18545		Power	NP (340 ft above MSL)
Power Cable	8.7	--	65	--	--	Ice Harbor Lock & Dam	18545		Power	NP (340 ft above MSL)
Power Cable	9.5	--	90	--	--	Ice Harbor Lock & Dam	18545		Power	NP (340 ft above MSL)
Ice Harbor Dam - Navigation Lock	9.7	86	--	--	--		18545			
Power Cable	16.0	--	80	--	--	1 mi. upstream of Dalton Lake	18545		Power	NP (440 ft above MSL)
Power Cable	40.1	--	148	--	--	Lower Monumental Dam	18545		Power	NP (440 ft above MSL)
Power Cable	41.0	--	94	--	--	Lower Monumental Dam	18545		Power	NP (440 ft above MSL)
Lower Monumental Dam - Navigation Lock	41.6	86	--	--	--		18546	Jan-04		
Joso Bridge	58.7	238	144	--	--	Lyons Ferry	18546		Union Pacific RR	NP (540 ft above MSL)
Lyons Ferry Bridge	59.2	200	74	--	--	Lyons Ferry	18546		SR 261	NP (540 ft above MSL)
Power Cable	59.6	--	178	--	--	Lyons Ferry	18546		Power	NP (540 ft above MSL)
Power Cable	60.6	--	178	--	--	Lyons Ferry	18546		Power	NP (540 ft above MSL)
Sargent Bridge	61.7	400	60	--	--	Tucannon	18546		Union Pacific RR	NP (540 ft above MSL)
Power Cable	69.1	--	95	--	--	Little Goose Lock & Dam	18546		Power	NP (540 ft above MSL)
Power Cable	69.3	--	90	--	--	Little Goose Lock & Dam	18546		Power	NP (540 ft above MSL)
Power Cable	70.0	--	93	--	--	Little Goose Lock & Dam	18546		Power	NP (540 ft above MSL)
Little Goose Dam - Navigation Lock	70.2	86	--	--	--		18547	Jul-99		
Elmer C. Huntley Bridge	83.2	520	60	--	--	Central Ferry	18547		SR 127	NP (638 ft above MSL)
Power Cable	83.3	--	80	--	--	Central Ferry	18547		Power	NP (638 ft above MSL)
Power Cable	85.3	--	95	--	--	2 mi. upstream of Central Ferry	18547		Power	NP (638 ft above MSL)
Power Cable	103.3	--	81	--	--	Almota	18547		Power	NP (638 ft above MSL)
Power Cable	104.3	--	75	--	--	Almota	18547		Power	NP (638 ft above MSL)
Lower Granite Dam - Navigation Lock	107.4	86	--	--	--		18548	Dec-02		
Power Cable	108.7	--	80	--	--	Lower Granite Dam	18548		Power	NP (738 ft above MSL)
Power Cable	110.2	--	101	--	--	Wawawai	18548		Power	NP (738 ft above MSL)
Power Cable	130.3	--	80	--	--	Near Silcott Island	18548		Power	NP (738 ft above MSL)
Power Cable	135.5	--	80	--	--	Wilma	18548		Power	NP (738 ft above MSL)
Red Wolf Crossing	137.3	400	60	--	--	Clarkston	18548		SR 128	NP (738 ft above MSL)
SR 12 Interstate Bridge	139.6	160	10	--	42	Clarkston-Lewiston	18548		US 12	NP (738 ft above MSL)
Lewiston/Clarkston Bridge	141.3	250	--	60	--	Clarkston-Lewiston	18548		Fleshman Way – Bryden Canyon Rd.	NP (738 ft above MSL)
Power Cable	141.4	--	80	--	--	Clarkston-Lewiston	18548		Power	NP (738 ft above MSL)
Power Cable	145.0	--	80	--	--	Asotin	18548		Power	NP (738 ft above MSL)
Clearwater River										
Power Cable	0.6	--	81	--	--	Lewiston-North Lewiston	18548		Power	NP (738 ft above MSL)
Camas Prairie Railroad Bridge	0.6	232	7	--	60	Lewiston-North Lewiston	18548		Camas Prairie RR	NP (738 ft above MSL)



## References for Appendix D

National Oceanographic and Atmospheric Administration (NOAA) (2012), NOAA Nautical Chart online Viewer, Site accessed September 2021,  
<https://charts.noaa.gov/InteractiveCatalog/nrnc.shtml>

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## APPENDIX E INTERSTATE DRAWBRIDGE OPERATIONS DATA



## APPENDIX E

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### Interstate Drawbridge Operations Report

Appendix E includes data on I-5 bridge lift span openings collected from Jan 1, 2007 through May 24, 2022. Data from 2007 to 2011 is provided from the 2012 Columbia River Crossing dataset and includes maintenance and test lifts. Data from 2012 to 2021 was collected as part of the Interstate 5 Bridge Replacement project. This dataset does not include maintenance or test lift openings which are not relevant to vessel navigation but can be useful for other purposes related to vehicle traffic. Both datasets include time of gate closing and opening, total time opened, lift elevation, recorded vessel name, weather temperature, wind velocity, water level, vessel type and total height.







Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
01/01/07	1	15:16pm	15:25pm	8	80	"Halsey", "Whisper", "Osprey" sailboats	up	cloudy 38	2	6.8	Sail
01/03/07	1	04:21am	04:30am	9	94	"Yaquina"	up	foggy 47	4	6.2	Federal
01/04/07	1	13:50pm	14:05pm	15	75	"Descutes" + 4 barges	-	sunny 50	6	9.1	Barge
01/04/07	2	22:17pm	22:28pm	11	65	Sundial + 4 barges	down	partly cloudy 39	3	9.7	Barge
01/05/07	1	02:58am	03:11am	13	95	"Chief" (3 barges)	down	cloudy 36	10	9.1	Barge
01/08/07	1	12:30pm	12:40pm	10	80	"Challenger"	down	cloudy 46	4	8.9	Barge
01/08/07	2	01:50am	02:00am	10	80	"Lori B"	down	cloudy 45	calm	8.9	Barge
01/12/07	1	05:07am	05:15am	8	85	"Challenger"	down	clear 26	3	6.3	Barge
01/26/07	1	14:14pm	14:20pm	6	45	"Runaway" sailboat	down	sunny 53	2	5.9	Sail
01/28/07	1	12:36pm	12:43pm	7	75	Runnaway (sailboat)	up	clear 46	4	5.6	Sail
01/30/07	1	10:05am	10:16am	11	120	Mary B	up	clear 35	calm	3.7	Barge
02/02/07	1	12:41pm	12:50pm	9	100	Yaquina dredge	down	partly cloudy 43	1	3.6	Federal
02/03/07	1	10:53am	11:02am	9	95	Crown of Camas	down	cloudy 37	1	3.9	Barge
02/05/07	1	11:05am	11:15am	10	100	Nova	up	cloudy 45	calm	4	Barge
02/06/07	1	13:16pm	13:26pm	10	75	"Washougal" spud	up	cloudy 48	1	3.7	Barge
02/07/07	1	09:30am	09:44am	14	100	Nova deric barg	down	cloudy 43	10	5	Barge
02/18/07	1	08:08am	08:20am	12	75	Rebel	down	partly cloudy 44	calm	7	Barge
02/19/07	1	10:06am	10:17am	11	100	"Daryle B"	up	cloudy 46	22	6	Barge
02/27/07	1	09:46am	10:00am	14	100	"nova" + barge + spud barge	-	snow/rain 36	22	4.9	Barge
02/28/07	1	13:43pm	13:53pm	11	80	Nova + spud barge	down	cloudy 41	6	6.1	Barge
03/01/07	1	23:14pm	23:27pm	13	68	East br test lift	-	cloudy 39	7	6.1	N/A
03/01/07	2	23:50pm	00:03am	13	45	West br test lift	-	cloudy 39	5	6.1	N/A
03/02/07	1	00:11am	00:20am	9	39	East br test lift	-	cloudy 39	5	5.8	N/A
03/02/07	2	00:25an	00:35an	10	35	West br test lift	-	cloudy 39	5	5.7	N/A
03/02/07	1	00:41am	00:44am	3		east br bypass test		cloudy 38	4		N/A
03/02/07	2	00:54am	00:58am	4		west br bypass test		cloudy 38	4		N/A
03/06/07	1	19:46pm	19:55pm	9	90	"Willamette" + 2 barges + 1 spud barge	up	cloudy 55	11	5.7	Barge
03/07/07	1	13:43pm	13:53pm	10	100	Lindy Mari + spud barge	down	cloudy 53	7	4.9	Barge
03/13/07	1	09:05am	09:21am	16	110	"Darryl B" Derrick barge	down	cloudy 45	2	5.3	Barge
03/13/07	1	09:42am	09:43am	1		extract maint crew from pier caps		cloudy 45	2		N/A
03/16/07	1	10:00am	10:08am	8	75	Runnaway (sailboat)	down	clear 51	1	6.4	Sail
03/16/07	2	10:35am	10:44am	9	80	Washugel + spud barge	down	clear 52	4	6.4	Barge
03/16/07	1	20:58pm	21:00pm	2		South B test					N/A
03/16/07	2	21:06pm	21:08pm	2		South B test					N/A
03/18/07	1	13:10pm	13:17pm	7	65	Runaway	up	cloudy 62	2	6	Sail
03/20/07	1	18:09pm	18:16pm	7	60	"Sivercorne" sailboat	up	clear 48	calm	7.7	Sail
03/20/07	2	20:25pm	20:37pm	12	28	test - west bridge only	-	clear 44	calm	8.2	N/A
03/20/07	3	21:09pm	21:24pm	16	28	test - east bridge only	-	clear 43	calm	8.2	N/A
03/20/07	4	22:23pm	22:35pm	12	28	test - west bridge only	-	clear 42	calm	8.1	N/A
03/20/07	5	22:46pm	22:54pm	8	23	test - west bridge only	-	clear 43	0	8	N/A
03/23/07	1	14:00pm	14:08pm	8	60	test lift SB E bridge	-	cloudy 55	8	8.6	N/A
03/23/07	2	10:10am	10:24am	14		stopped for road deck patching		cloudy 54			N/A
03/23/07	3	11:00am	11:06am	6		test lift (traffic stop only)		cloudy 54			N/A
03/24/07	1	13:46pm	13:53pm	7	60	Tango	up	cloudy 59	20	7.2	Sail
03/26/07	1	10:06am	10:08am			sign and siren test NB					N/A
03/28/07	1	18:01pm	18:10pm	9	85	"Arctic Lady"	up	clear 54	5	7.7	Fishing
03/28/07	1	10:00am	10:16am	16		SB only for maint (measure signs)		44	1		N/A
03/29/07	1	20:50pm	20:55pm	5	3	SB only test	-	-	-	-	N/A
03/29/07	2	21:01pm	21:11pm	10	86	SB only test	-	-	-	-	N/A



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
03/29/07	3	21:35pm	21:45pm	10	86	NB only	-	-	-	-	N/A
03/29/07	4	21:53pm	21:58pm	5	30	SB only	-	-	-	-	N/A
03/29/07	5	22:02pm	10:09 PM	5	30	NB only	-	-	-	-	N/A
03/29/07	1	20:23pm	20:29pm	6		SB only					N/A
03/29/07	2	20:45pm	20:49pm	4		SB only					N/A
04/02/07	1	09:00am	09:09am	9	60	Tallulah	down	cloudy 43	1	8.3	Unknown
04/03/07	1	10:29am	10:33am	4		check NE Barrier NB		clear 45	3		N/A
04/05/07	1	09:51am	10:00am	9	65	sailing vessel "Windward"	down	sunny 55	1	8.1	Sail
04/05/07	1	20:03pm	20:09pm	6		maint (Dave)		clear 66	5		N/A
04/06/07	1	13:00pm	13:09pm	9	70	Windward	up	clear 70	5	7.6	Sail
04/07/07	1			11	70	Willamette 5 barges	down	clear 62	3	7.1	Barge
04/07/07	2	12:40pm	12:47pm	7	60	Runaway	-	rain 55	6	6.8	Sail
04/07/07	3	21:55pm	22:07pm	13	85	Umatilla seahawk	down	clear 55	2	6.4	Barge
04/08/07	1	16:25pm	16:36pm	11	75	"Legend" six pack	down	cloudy 57	5	5.6	Barge
04/09/07	1	13:18pm	13:26pm	8	70	sailboat	down	cloudy 47	3	6	Sail
04/11/07	1	10:42am	10:46am	4		tested back barrier NB only		53	12		N/A
04/14/07	1	18:52pm	19:00pm	8	70	"Rebecca B" sailboat	down	partly sunny 55	17	6.6	Sail
04/20/07	1	10:51am	11:00am	9	75	Whisper	down	clear 50	calm	7.9	Sail
04/21/07	1	04:32am	04:41am	9	85	Challenger + spud	down	overcast 46	11	6.7	Barge
04/22/07	1	13:27pm	13:34pm	7	60	Whisper	up	cloudy 55	7	7	Sail
04/24/07	1	10:34am	10:39am	5	20	West BR only - to reseal the span	-	cloudy 54	8	6.2	N/A
04/30/07	1	01:18am	01:23am	5	1	east br touch screen tests	-	cloudy 46	6	5.7	N/A
04/30/07	2	01:28am	01:34am	6	36	east br touch screen tests	-	cloudy 46	6	5.7	N/A
04/30/07	3	02:00am	02:07am	7	39	east br touch screen tests	-	cloudy 44	3	5.7	N/A
04/30/07	4	02:18am	02:24am	6	31	east br touch screen tests	-	cloudy 44	3	5.7	N/A
04/30/07	5	19:36pm	19:46pm	10	90	"Lewiston" + 1 barge + 1 spud barge	up	cloudy 57	10	6.4	Barge
04/30/07	1	00:15am	00:21am	6		east br touch screen tests		cloudy 46	6	6	N/A
04/30/07	2	00:44am	00:50am	6		east br touch screen tests		cloudy 46	6	6	N/A
04/30/07	3	01:07am	01:09am	2		east br touch screen tests		cloudy 46	6	6	N/A
05/02/07	1	21:32pm	21:45pm	13	90	"Deschutes" + 3 barges	down	cloudy 48	17	7.5	Barge
05/02/07	1	12:10pm	12:13pm			NB only for garbage from mack Hs's		cloudy 48	11		N/A
05/04/07	1	14:06pm	14:14pm	8	65	Bellissima sailboat	down	partly cloudy 55	1	7.9	Sail
05/04/07	2	18:51pm	18:58pm	7	60	Runaway	up	cloudy 54	12	7.5	Sail
05/05/07	1	17:57pm	18:07pm	10	70	"Bellissima" sailboat	up	clear 59	calm	7.6	Sail
05/07/07	1	00:11am	00:20am	9	40	test EB drive	-	cloudy 57	3	7.4	N/A
05/07/07	2	00:29am	00:35am	6	40	test EB drive	-	cloudy 57	3	7.4	N/A
05/07/07	3	01:07am	01:19am	12	136	test EB drive	-	cloudy 57	3	7.3	N/A
05/07/07	4	01:33am	01:38am	5	40	test EB drive	-	cloudy 56	3	7.3	N/A
05/09/07	1	22:23pm	22:45pm	22	136	E bridge only - maint	-	clear 57	7	6.4	N/A
05/09/07	1	13:37pm	13:38pm	1		remove trash SB lanes		clear 62	10		N/A
05/10/07	1	23:01pm	23:21pm	20	72	west bridge aux test + greasing	-	clear 54	5	6.6	N/A
05/10/07	2	23:35pm	23:55pm	20	136	west bridge aux test + greasing	-	clear 54	10	6.8	N/A
05/10/07	3	00:25am	00:48am	23	85	west bridge aux test + greasing	-	clear 54	5	7	N/A
05/10/07	4	00:55am	01:24am	28	136	west bridge aux test + greasing	-	clear 52	7	7	N/A
05/10/07	5	01:39am	01:55am	16	95	west bridge aux test + greasing	-	clear 51	8	7	N/A
05/10/07	6	02:02am	02:17am	15	136	west bridge aux test + greasing	-	clear 51	8	7	N/A
05/10/07	7	02:22am	02:36am	14	90	"Dauby" + 2 barges	down	clear 50	5	7	Barge
05/10/07	8	22:23pm	22:41pm	21	76	west br maint	-	cloudy 54	5	6.7	N/A
05/11/07	1	23:00pm	23:22pm	22	72	west br maint	-	clear 53	7	6.8	N/A



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
05/11/07	2	23:31pm	23:58pm	W19/E22	E25/W82	maint both brs	-	clear 52	3	6.9	N/A
05/11/07	3	00:07am	00:31am	24	E25/W71	maint both brs	-	clear 51	9	7	N/A
05/11/07	4	00:39am	00:56am	16	E25/W71	west br only (EMS)	-	clear 51	9	7	N/A
05/11/07	5	01:05am	01:16am	11	69	west br only (EMS)	-	clear 51	5	7.1	N/A
05/11/07	6	01:25am	01:49am	24	25	east br only (VAC)	-	clear 49	9	7.1	N/A
05/11/07	7	02:02am	02:28am	26	25	west br only (VAC)	-	clear 48	9	7.3	N/A
05/11/07	8	12:55pm	13:02pm	7	75	Runaway	down	clear 61	10	7.1	Sail
05/12/07	1	01:51am	02:01am	10	70	Dauby	down	clear 52	2	7.4	Barge
05/13/07	1	05:29am	05:39am	10	67	"Legend" + 2 oil barges	down	cloudy light rain 47	6	7.6	Barge
05/13/07	2	14:10pm	14:16pm	6	60	Runaway	up	cloudy 56	4	6.6	Sail
05/14/07	1	02:16am	02:21am	5	25	test lift east br only	-	clear 49	2	6.7	N/A
05/15/07	1	10:51am	11:01am	10	90	"Crown of Camas" w/spuds	down	clear 70	4	8	Barge
05/17/07	1	09:00am	09:13am	13	87	Deschutes + barges	down	clear 54	5	8.4	Barge
05/17/07	2	11:43am	11:56am	13	86	maint lift	-	clear 57	4	8	N/A
05/17/07	3	20:34pm	20:39pm	5	25	test lift	-	clear 64	3	7.7	N/A
05/19/07	1	21:41pm	21:53pm	12	90	"Willamette" + 4 barges	down	cloudy 56	4	7.8	Barge
05/22/07	1	02:32am	02:43am	11	70	"Dauby" + 2 barges	down	cloudy 51	5	7.1	Barge
05/22/07	2	20:30pm	20:34pm	4	22	N Bound only test - Dave Johnson	-	clear 63	3	6.4	N/A
05/23/07	1	10:10am	10:19am	9	70	Osprey sailboat	down	clear 55	3	6.8	Sail
05/24/07	1	22:07pm	22:19pm	12	82	west br test	-	clear 66	7	6	N/A
05/24/07	2	22:27pm	22:35pm	8	100	east br test	-	-	-	-	N/A
05/24/07	3	22:36pm	22:45pm	9	6	west br test	-	-	-	-	N/A
05/25/07	1	22:51pm	22:57pm	6	50	east bridge test	-	clear 64	11	6	N/A
05/25/07	2	04:11am	04:22am	11	70	"Tidewater" + 2 barges	-	clear 57	0	7	Barge
05/25/07	3	09:08am	09:15am	7	70	Bram Brata	down	overcast 59	5	6.6	Unknown
05/26/07	1	01:49am	01:59am	10	70	Dauby + barges	down	dark 57	3	7	Barge
05/27/07	1	09:04am	09:14am	10	90	Artic Lady	down	cloudy 54	10	6	Fishing
05/29/07	1	18:36pm	19:04pm	30	70	Osprey	-	clear 84	4	6.1	Sail
05/29/07	2	19:47pm	19:51pm	4	12	test lift	-	clear 82	3	6	N/A
06/01/07	1	10:39am	10:49am	10	65	Biena Vita sailboat	down	clear 66	7	6.4	Sail
06/03/07	1	15:40pm	15:49pm	9	65	Biena Vida (sailboat)	up	partly cloudy 82	3	5	Sail
06/04/07	1	00:32am	00:38am	6	30	east bridge test lift	-	clouds 65	2	5.5	N/A
06/04/07	2	00:45am	00:50am	5	22	east bridge test lift	-	clouds 65	5	5.4	N/A
06/04/07	3	00:59am	01:02am	3	8	east bridge test lift	-	clouds 65	5	5.4	N/A
06/04/07	4	01:29am	01:35am	6	35	east bridge test lift	-	clouds 65	2	5.4	N/A
06/04/07	5	01:51am	01:57am	6	35	east bridge test lift	-	clouds 65	3	5.4	N/A
06/04/07	6	02:32am	02:36am	4	25	east bridge test lift	-	clouds 64	0	5.2	N/A
06/04/07	7	18:53pm	19:01pm	8	75	"Ironwood"	up	cloudy 69	6	5.2	Federal
06/07/07	1	19:11pm	19:20pm	9	90	Ironwood	down	cloudy 61	3	5.2	Federal
06/10/07	1	12:30pm	12:37pm	7	60	"Destinado ser asi"	down	cloudy 61	3	6.4	Sail
06/11/07	1	1:48pm	1:55pm	7	47	Test lift EB only	-	clouds 54	6	7.2	N/A
06/11/07	2	2:43pm	2:50pm	7	43	Test lift EB only	-	clouds 54	2	7.2	N/A
06/11/07	3	3:07pm	3:11pm	4	25	Test lift EB only	-	clouds 53	4	7.3	N/A
06/11/07	4	14:14pm	14:25pm	11	100	Lady Wash, Autumn Wind, Hawaiian Chieftan	-	cloudy 62	3	6	Sail
06/12/07	1	19:29pm	19:37pm	8	71	"Gilded Oddyssy" sailboat	up	cloudy 73	2	6.1	Sail
06/13/07	1	11:28am	11:37am	9	70	"Destinada" sailboat	up	partly cloudy 63	4	6.5	Sail
06/13/07		20:04pm	20:17pm	13	100	Lady Washington + Hawaiian Chieftain	down	partly cloudy 61	6	6.3	Sail
06/15/07	1	09:33am	09:44am	11	75	Whisper sailboat	down	rain 58	3	6.8	Sail
06/18/07	1	00:34am	00:40am	6	40	test lift NB only	-	cloudy 56	4	4.7	N/A



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
06/18/07	2	00:44am	00:51am	7	50	test lift NB only	-	cloudy 56	4	4.7	N/A
06/18/07	3	01:04am	01:12am	8	86	test lift NB only	-	cloudy 56	4	4.5	N/A
06/18/07	4	01:16am	01:26am	10	120	test lift NB only	-	cloudy 55	2	4.5	N/A
06/18/07	5	01:34am	01:40am	6	25	test lift NB only	-	cloudy 55	6	4.4	N/A
06/18/07	6	01:57am	02:01am	4	30	test lift NB only	-	cloudy 55	6	4.4	N/A
06/18/07	7	05:27am	05:34am	7	55	"Golden Odessy" sailboat	down	cloudy 53	10	4.2	Sail
06/19/07	1	11:47am	11:49am	2		pushed stalled car from B lane to C lane south bound		clear 66	5		N/A
06/20/07	1	04:47am	04:58am	11	90	"Rebel" w/spuds + crane	up	clear 58	3	5.4	Barge
06/23/07	1	01:39am	01:58am	19	136	Maverick (Derrick)	down	cloudy 55	3	5.3	Barge
06/23/07	2	09:01am	09:12am	11	110	Washougal	down	partly cloudy 61	3	4	Barge
06/25/07	1	00:19am	00:26am	7	50	Test lift east bridge	-	cloudy 55	4	4	N/A
06/25/07	2	00:55am	00:59am	4	25	Test lift east bridge	-	cloudy 55	4	4.1	N/A
06/25/07	3	09:25am	09:34am	9	86	east br maint	-	partly cloudy 61	2	3	N/A
06/27/07	1	20:11pm	20:19pm	8	75	"Whisper" sailboat	up	cloudy 73	1	3.4	Sail
06/29/07	1	18:05pm	18:12pm	7	70	Syren	up	cloudy 65	9	4	Sail
07/03/07	1	09:20am	09:32am	12	86	E bridge lift to remove materials from CWT	-	clear 69	5	4.5	N/A
07/10/07	1	18:31pm	18:39pm	8	73	"Siren" sailboat	down	sunny 95	14	3.4	Sail
07/10/07	2	22:39pm	22:40pm	4	11	test lift - west bridge only	-	clear 82	7	3.1	N/A
07/12/07	1	19:02pm	19:11pm	9	70	Whisper	down	clear 83	14	4.7	Sail
07/15/07	1	22:05pm	22:21pm	21	121	west bridge only - maint	-	clear 69	5	5.5	N/A
07/15/07	2	22:37pm	22:50pm	13	135	west bridge only - maint	-	clear 69	5	5.5	N/A
07/16/07	1	22:10pm	22:20pm	10	86	east bridge only - maint	-	clear 68	6	5.9	N/A
07/16/07	2	22:55pm	23:16pm	21	136	east bridge maint	-	clear 66	7	5.2	N/A
07/16/07	3	23:27pm	23:48pm	21	106	east bridge maint, * glitch in maint screen	-	clear 66	7	5.1	N/A
07/16/07	4	23:57pm	00:12am	15	136	east bridge maint, * glitch in maint screen	-	clear 65	5	5	N/A
07/16/07	5	00:21am	00:41am	20	136	east bridge maint, * glitch in maint screen	-	clear 65	5	4.9	N/A
07/16/07	6	01:21am	01:44am	23	136	west bridge maint	-	clear 64	4	4.8	N/A
07/16/07	7	01:54am	02:01am	7	4	west bridge maint	-	clear 64	4	4.8	N/A
07/16/07	8	02:15am	02:37am	22	136	west bridge maint	-	clear 63	4	4.5	N/A
07/16/07	9	02:39am	02:44am	5	4	west bridge maint	-	clear 63	0	4.5	N/A
07/16/07	10	03:15am	03:26am	11	86	east bridge maint	-	clear 63	4	4.5	N/A
07/16/07	11	03:42am	03:51am	9	86	east bridge maint	-	clear 62	4	4.6	N/A
07/16/07	1	04:00am	04:13am	13		e bridge maint		63	2		N/A
07/16/07	2	12:56pm	12:58pm	2		south debris pick-up					N/A
07/17/07	1	22:59pm	23:18pm	19	136	east br maint	-	cloudy 67	5	5.6	N/A
07/17/07	2	23:30pm	23:50pm	20	136	east br maint	-	cloudy 67	5	5.5	N/A
07/17/07	3	23:58pm	00:20am	22	136	west br maint	-	cloudy 66	4	5.4	N/A
07/17/07	4	00:56am	01:06am	10	86	east br maint	-	cloudy 66	4	5.4	N/A
07/17/07	5	01:26am	01:48am	22	82	west br maint	-	cloudy 66	4	5.2	N/A
07/17/07	6	01:58am	02:25am	27	82	west br maint	-	cloudy 66	4	5	N/A
07/17/07	7	02:04am	02:11am	7	86	east br maint	-	cloudy 66	4	5	N/A
07/17/07	8	02:34am	02:51am	17	82	west br maint	-	rain 64	1	4.9	N/A
07/17/07	9	03:03am	03:13am	10	136	west br maint	-	rain 63	1	4.9	N/A
07/17/07	10	03:19am	03:13am	7	86	east br maint	-	rain 62	0	4.8	N/A
07/17/07	11	03:32am	03:39am	7	86	east bridge maint	-	rain 61	1	4.9	N/A
07/17/07	12	03:55am	04:03am	8	86	east bridge maint	-	rain 61	1	4.9	N/A
07/17/07	13	04:18am	04:33am	15	136	east bridge maint	-	rain 61	2	4.9	N/A
07/17/07	14	22:26pm	22:35pm	9	65	e bridge only - test	-	cloudy 68	calm	5.9	N/A
07/17/07	1	01:54am	01:55am	1		east bridge only		cloudy 66	6		N/A



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
07/17/07	2	02:30am	02:31am	1		east bridge only		cloudy 66	6		N/A
07/18/07	1	00:43am	00:51am	8	20	trng lift e br	-	66	3	5.5	N/A
07/18/07	2	00:54am	01:00am	6	20	trng lift w br	-	66	6	5.5	N/A
07/18/07	3	01:05am	01:11am	6	20	training lift e br	-	66	4	5.5	N/A
07/18/07	4	01:13am	01:18am	5	20	training lift w br	-	66	3	5.5	N/A
07/18/07	5	01:21am	01:26am	6	20	training lift e br	-	66	3	5.5	N/A
07/18/07	6	01:37am	01:50am	13	136	training lift e + w br	-	65	3	5	N/A
07/18/07	7	01:55am	02:09am	14	136	training lift e + w br	-	65	3	5	N/A
07/18/07	8	02:16am	02:32am	16	136	training lift e + w br	-	65	3	5	N/A
07/18/07	9	02:39am	02:52am	13	136	training lift e + w br	-	64	7	4.5	N/A
07/18/07	10	03:00am	03:15am	15	136	training lift e + w br	-	64	2	4.5	N/A
07/18/07	1	23:12pm	23:15pm	.3		trng r br		68	5		N/A
07/18/07	2	23:18pm	23:20pm	2		trng w br		68	5		N/A
07/18/07	3	23:27pm	23:29pm	2		trng r br		68	5		N/A
07/18/07	4	23:31pm	23:33pm	2		trng w br		68	5		N/A
07/18/07	5	23:36pm	23:38pm	2		trng r br		68	5		N/A
07/18/07	6	23:47pm	23:51pm	4		w - e br		68	5		N/A
07/18/07	7	00:07am	00:13am	6		w - e br		68	5		N/A
07/18/07	8	00:17am	00:22am	5		w - e br		68	5		N/A
07/18/07	9	00:28am	00:32am	4		w - e br		68	5		N/A
07/18/07	10	00:36am	00:40am	4		w - e br		68	5		N/A
07/19/07	1	23:52pm	23:58pm	6	10	training lifts w br	-	64	2	5	N/A
07/19/07	2	00:04am	00:14am	10	86	training lifts e br	-	64	3	5	N/A
07/19/07	3	00:21am	00:29am	8	82	training lifts w br	-	64	1	5	N/A
07/19/07	4	00:42am	00:51am	9	100	training lifts w br	-	64	3	5	N/A
07/19/07	5	00:57am	01:08am	11	136	training lifts e br	-	63	2	4.5	N/A
07/19/07	6	01:19am	01:28am	9	38	training lift w + e br	-	63	3	4.5	N/A
07/19/07	7	03:06am	03:20am	14	136	training lift w + e br	-	63	2	4.5	N/A
07/19/07	8	03:38am	03:46am	8	30	training lift w + e br	-	62	2	4.5	N/A
07/19/07	9	03:55am	04:08am	13	100	Dobie	-	62	2	4.5	Unknown
07/19/07	10	04:38am	04:48am	10	87	training lift w + e br	-	61	5	4	N/A
07/19/07	1	01:18am	01:19am	2		training traffic stop		63	3		N/A
07/19/07	2	01:33am	01:38am	5		training traffic stop w br		63	1		N/A
07/19/07	3	01:46am	01:48am	6		training traffic stop e br		63	2		N/A
07/19/07	4	01:53am	01:55am	6		training traffic stop w br		63	2		N/A
07/19/07	5	02:03am	02:05am	4		training traffic stop w br		63	2		N/A
07/20/07	1	23:17pm	23:29pm	12	50	training lift e + w br	-	68	3	5	N/A
07/20/07	2	23:47pm	23:58pm	11	60	training lift e + w br	-	68	0	5	N/A
07/20/07	3	00:12am	00:22am	10	20	training lift e + w br	-	68	0	5	N/A
07/20/07	4	00:33am	00:50am	17	136	training lift e + w br	-	68	0	5	N/A
07/20/07	5	00:57am	01:19am	22	128	training lift w br	-	68	1	4.5	N/A
07/20/07	6	01:31am	01:46am	15	54	training lift e br	-	68	2	4.5	N/A
07/20/07	7	01:58am	02:07am	9	66	training lift e br	-	67	1	4.5	N/A
07/20/07	8	02:27am	02:38am	11	80	training lift e + w br	-	66	0	4.5	N/A
07/20/07	9	03:03am	03:18am	15	4	training lift e br	-	67	1	4.5	N/A
07/20/07	10	03:30am	03:44am	14	2	training lift w br	-	67	1	4.5	N/A
07/20/07	11	03:51am	03:58am	7	2	training lift e br	-	65	2	4.5	N/A
07/20/07	12	04:08am	04:23am	15	30	training lift e + w br	-	65	3	4.5	N/A
07/20/07	13	04:32am	04:47am	15	40	training lift e + w br	-	66	5	3.8	N/A



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
07/20/07	1	10:15am	10:24am	9		maint stop greasing barriers NB only					N/A
07/20/07	2	10:42am	10:51am	9		maint stop greasing barriers SB only					N/A
07/21/07	1	15:05pm	15:12pm	7	66	"Sargasso" sailboat	down	rain 70	4	3	Sail
07/23/07	1	23:20pm	23:29pm	9	60	maint lift e br	-	70	3	5	N/A
07/23/07	2	23:43pm	23:54pm	11	70	practice lift e + w br	-	70	2	5	N/A
07/23/07	3	00:30am	00:38am	8	85	training lift	-	partly cloudy 70	4	5	N/A
07/23/07	4	01:08am	01:21am	13	85	training lift east br only	-	partly cloudy 69	1	5	N/A
07/23/07	5	02:13am	02:21am	8	45	auxiliary lift west br only	-	partly cloudy 68	6	4.6	N/A
07/23/07	6	02:37am	02:49am	12	39	auxiliary lift west br only	-	partly cloudy 68	6	4.5	N/A
07/23/07	7	03:08am	03:20am	12	49	auxiliary lift west br only	-	partly cloudy 68	2	4.4	N/A
07/23/07	8	03:44am	03:50am	6	10	training lift / n gate house stop	-	partly cloudy 67	3	4.3	N/A
07/23/07	9	23:13pm	23:35pm	12:26	30	test lift east only	-	cloudy 64	4	4.5	N/A
07/23/07	10	23:42pm	23:49pm	6:52	30	test lift both bridges	-	c loudy 63	4	4.5	N/A
07/23/07	1	03:56am	03:58am	2		training / south bound only		partly cloudy 67	-		N/A
07/23/07	2	04:04am	04:06am	2		training / south bound only		partly cloudy 67	5		N/A
07/23/07	3	04:14am	04:16am	2		training / south bound only		partly cloudy 67	3		N/A
07/23/07	4	04:32am	04:34am	2		training / north bound only		partly cloudy 67	3		N/A
07/23/07	5	04:38am	04:40am	2		training / north bound only		partly cloudy 67	3		N/A
07/23/07	6	04:43am	04:45am	2		training / north bound only		partly cloudy 67	3		N/A
07/24/07	1	00:00am	00:11am	11	50	training lift e + w br	-	63	5	5	N/A
07/24/07	2	00:45am	00:58am	11	50	training aux west bridge	-	cloudy 62	7	5	N/A
07/24/07	3	01:12am	01:20am	8	82	training lift west bridge	-	cloudy 62	12	5	N/A
07/24/07	4	01:24am	01:32am	8	100	training lift east bridge	-	cloudy 61	9	5	N/A
07/24/07	5	01:36am	01:43am	7	86	training lift east bridge	-	cloudy 61	6	5	N/A
07/24/07	6	02:53am	03:05am	12	60	training lift w + e br	-	cloudy 59	5	5	N/A
07/24/07	7	03:22am	03:34am	12	100	training lift w + e br	-	cloudy 58	7	5	N/A
07/24/07	8	03:53am	04:02am	9	40	training lift w + e br	-	cloudy 58	6	5	N/A
07/24/07	9	04:10am	04:25am	15	60	training lift wb	-	cloudy 57	4	4.5	N/A
07/24/07	10	04:30am	04:41am	11	68	training lift eb	-	cloudy 57	6	4.5	N/A
07/24/07	1	01:55am	01:57am	2		training west bridge only		cloudy 60	14		N/A
07/24/07	2	02:14am	02:16am	2		training east bridge only		cloudy 60	10		N/A
07/24/07	3	03:12am	03:14am	2		training traffic stop w br		cloudy 57	8		N/A
07/25/07	1	00:28am	00:46am	18	90	training lift	-	clear 66	6	2.7	N/A
07/25/07	2	00:58am	01:08am	10	61	training lift	-	clear 66	6	2.7	N/A
07/25/07	3	01:40am	02:00am	20	120	training lift e + w br	-	cloudy 62	8	3	N/A
07/25/07	4	02:06am	02:21am	15	86/82	training lift e + w br	-	cloudy 61	6	3	N/A
07/25/07	5	02:29am	02:44am	15	100	training lift e + w br	-	cloudy 61	4	4	N/A
07/25/07	6	02:51am	03:07am	16	136	training lift e br	-	cloudy 60	11	4.5	N/A
07/25/07	7	03:16am	03:32am	16	90	training lift e + w br	-	cloudy 60	11	4.5	N/A
07/25/07	8	03:38am	03:59am	21	80	training lift e + w br	-	cloudy 60	6	4.5	N/A
07/25/07	9	04:16am	04:33am	17	46	training lift e + w br	-	cloudy 59	8	4	N/A
07/25/07	10	04:46am	04:58am	12	12	training lift e + w br	-	cloudy 59	4	4	N/A
07/25/07	11	12:19pm	12:27pm	8	60	coast guard cutter Barracuda	up	clear 70	7	2.3	Federal
07/25/07	12	22:05pm	22:25pm	20	86	east bridge only - maint	-	clear 69	7	2.3	N/A
07/25/07	13	22:35pm	22:53pm	19	89	west bridge only - maint	-	clear 68	7	2.3	N/A
07/25/07	14	23:02pm	23:22pm	20	136	maint lift w br	-	clear 65	9	2.7	N/A
07/25/07	15	23:47pm	24:00pm	13	86	maint lift w br	-	64	5	3	N/A
07/26/07	1	00:07am	00:14am	7	86	maintenance lift e br	-	clear 63	8	4	N/A
07/26/07	2	00:24am	00:50am	26	136	maint lift e + w br	-	clear 63	5	4.5	N/A



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
07/26/07	3	01:04am	01:27am	23	136	maint lift e br	-	clear 63	5	4.5	N/A
07/26/07	4	01:36am	01:45am	8	82	maint lift w br	-	clear 62	6	4.5	N/A
07/26/07	5	01:53am	02:07am	14	86	maint lift e br	-	clear 61	9	4.5	N/A
07/26/07	6	03:01am	03:26am	25	82	maint lift w br	-	clear 60	12	4.5	N/A
07/26/07	7	03:41am	04:03am	22	82	maint lift w br	-	clear 59	10	4.5	N/A
07/26/07	8	04:48am	05:10am	22	82	maint lift w br	-	clear 59	4	4.5	N/A
07/26/07	9	23:42pm	23:56pm	12	60	maint lift e br	-	cloudy 67	7	3	N/A
07/26/07	1	03:45am	03:46am	1		maint traffic stop e br		clear 60	9		N/A
07/26/07	2	04:20am	04:30am	10		maint traffic stop e br		clear 60	7		N/A
07/26/07	3	04:16am	04:17am	1		maint traffic stop w br		clear 60	5		N/A
07/26/07	4	04:35am	04:36am	1		maint traffic stop e br		clear 60	9		N/A
07/26/07	5	04:29am	04:35am	6		maint traffic stop w br		clear 60	7		N/A
07/26/07	6	05:15am	05:16am	1		maint traffic stop e br		clear 59	7		N/A
07/27/07	1	00:02am	00:11am	9	86	maint lift e br	-	cloudy 62	6	3	N/A
07/27/07	2	00:23am	00:37am	14	80	maint e + w br	-	partly cloudy 62	4	3	N/A
07/27/07	3	00:41am	00:57am	16	106	maint lift e + w br	-	cloudy 62	7	3.5	N/A
07/27/07	4	01:02am	01:18am	16	60	maint lift w br	-	cloudy 61	6	4	N/A
07/27/07	5	01:30am	01:47am	17	80	Lori B	down	cloudy 60	15	4	Barge
07/27/07	6	01:51am	02:11am	20	35	maint lift e br	-	cloudy 60	5	4.5	N/A
07/27/07	7	02:30am	02:42am	12	35	maint lift w br	-	cloudy 60	5	4.5	N/A
07/27/07	8	02:59am	03:15am	16	136	maint lift e + w br	-	cloudy 60	2	5	N/A
07/27/07	9	03:21am	03:46am	17	136	east br lift	-	cloudy 60	8	5.2	N/A
07/27/07	10	04:13am	04:31am	18	40	maint lift e + w br	-	cloudy 60	6	5.2	N/A
07/27/07	11	05:38am	05:51am	13	100	Ross Isle	-	clear 58	8	5	Barge
07/27/07	1	05:22am	05:28am	6		maint traffic stop		cloudy 58	8		N/A
07/28/07	1	09:12am	09:22am	10	86	"Washougal" w/ spuds	down	cloudy 63	3	4.4	Barge
07/28/07	2	14:34pm	14:43pm	9	76	sailboat Lungta	down	partly cloudy 65	3	2.8	Sail
07/29/07	1	22:25pm	22:50pm	25	136	west bridge only - maint	-	cloudy 64	8	3.3	N/A
07/30/07	1	23:06pm	23:30pm	24	136	west bridge maint	-	cloudy 63	12	3	N/A
07/30/07	2	00:02am	00:25am	23	136	east br maint	-	cloudy 61	4	3	N/A
07/30/07	3	00:45am	01:08am	23	136	east br maint w/crossover stop	-	cloudy 62	1	3	N/A
07/30/07	4	01:28am	01:35am	7	86	east br crossover	-	cloudy 59	5	2.6	N/A
07/30/07	5	01:50am	02:11am	21	28	east br maint	-	cloudy 59	6	2.6	N/A
07/30/07	6	02:18am	02:41am	23	64	east br maint	-	cloudy 59	7	2.7	N/A
07/30/07	7	02:52am	03:14am	22	88	east br maint	-	cloudy 59	7	3.2	N/A
07/30/07	8	03:17am	03:42am	25	109	east br maint	-	cloudy 58	2	3.8	N/A
07/30/07	9	03:53am	04:14am	21	121	east br maint	-	cloudy 58	2	4.1	N/A
07/30/07	10	04:18am	04:48am	30	136	east br maint	-	cloudy 58	2	4.6	N/A
07/30/07	11	04:56am	05:03am	7	86	east br maint	-	clouds 58	4	5.2	N/A
07/30/07	12	11:00am	11:10am	10	60	CG Cutter Barracuda	down	clear 68	9	4.2	Federal
07/30/07	13	22:10pm	22:13pm	8	86	east bridge only - maint	-	clear 67	12	4.1	N/A
07/30/07	14	22:35pm	22:53pm	18	27	west bridge only - maint	-	clear 67	12	4.1	N/A
07/30/07	15	23:10pm	23:32pm	22	57	west bridge only - maint	-	clear 67	12	4.1	N/A
07/30/07	16	23:35pm	23:58pm	23	81	west bridge only - maint	-	clear 67	12	4.1	N/A
07/30/07	1	23:08pm	23:13pm	5		transpoty grease to east br		clear 63	11		N/A
07/31/07	1	00:05am	00:26am	22	102	west br maint	-	clear 63	10	4	N/A
07/31/07	2	00:31am	00:56am	25	120	west br maint	-	clear 63	10	4	N/A
07/31/07	3	01:02am	01:29am	28	136	west br maint	-	clear 63	10	4	N/A
07/31/07	4	01:36am	02:00am	24	29/16	e-w br maint	-	clear 63	10	4	N/A



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
07/31/07	5	02:06am	02:24am	18	82	west br maint	-	clear 63	1	3.5	N/A
07/31/07	6	02:47am	03:01am	15	87	e br maint	-	clear 63	1	3.5	N/A
07/31/07	7	03:19am	03:30am	11	15	e br maint	-	clear 63	1	3.5	N/A
07/31/07	8	03:55am	04:16am	21	47	e br maint	-	59	3	4	N/A
07/31/07	9	04:20am	04:42am	21	71	e br maint	-	59	3	4	N/A
07/31/07	10	04:49am	04:57am	8	87	e br maint crossover	-	59	3	4	N/A
07/31/07	11	05:01am	05:08am	8	87	crossover e br	-	clear 58	6	5	N/A
07/31/07	12	22:05pm	22:13pm	8	87	E bridge only - maint	-	clear 73	6	4.4	N/A
07/31/07	13	22:21pm	22:41pm	20	86	E bridge only - maint	-	clear 73	9	4.4	N/A
07/31/07	14	23:04pm	23:27pm	23	101	E bridge only - maint	-	clear 73	9	4.4	N/A
07/31/07	15	23:37pm	00:01am	24	111	E bridge only - maint	-	clear 73	9	4.4	N/A
08/01/07	1	00:12am	00:35am	23	120	e br maint	-	clear 69	6	4	N/A
08/01/07	2	00:43am	01:15am	32	136	e br maint	-	clear 69	6	4	N/A
08/01/07	3	01:31am	01:53am	21	30	w br maint	-	clear 69	6	4	N/A
08/01/07	4	01:57am	02:18am	21	63	w br maint	-	clear 69	6	4	N/A
08/01/07	5	02:26am	02:47am	21	87	w br maint	-	clear 69	6	4	N/A
08/01/07	6	02:51am	03:14am	23	108	w br maint	-	clear 69	6	4	N/A
08/01/07	7	03:18am	03:38am	20	120	w br maint	-	66	5	3.5	N/A
08/01/07	8	03:44am	04:10am	26	136	w br maint	-	66	5	3.5	N/A
08/01/07	9	04:12am	04:30am	18	18	e br maint	-	66	5	3.5	N/A
08/01/07	10	04:25am	04:44am	18	18	w br	-	66	5	3.5	N/A
08/01/07	11	04:35am	04:50am	15	87	e br maint	-	65	5	4	N/A
08/01/07	12	04:54am	05:05am	11	87	e br maint crossover	-	65	5	4	N/A
08/01/07	13	23:01pm	23:21pm	20	136	maint lift w + e br	-	clear 73	7	8	N/A
08/02/07	1	00:00am	00:22am	22	83	maint lift west bridge	-	clear 73	6	4.5	N/A
08/02/07	2	00:31am	00:51am	20	83	maint lift w bridge	-	clear 72	7	4.5	N/A
08/02/07	3	01:00am	01:24am	24	83	maint lift w bridge	-	clear 71	7	4.5	N/A
08/02/07	4	01:35am	01:57am	22	136	maint lift w bridge	-	clear 69	7	4.5	N/A
08/02/07	5	02:15am	02:30am	15	10	maint lift w bridge	-	clear 68	10	4.5	N/A
08/02/07	6	02:33am	02:42am	9	10	maint lift west bridge	-	clear 68	14	4.5	N/A
08/02/07	7	03:22am	03:37am	15	136	maint lift w + e br	-	clear 67	6	4	N/A
08/02/07	8	03:48am	03:59am	11	86	maint lift w + e br	-	clear 67	6	4	N/A
08/02/07	9	04:15am	04:27am	12	100	maint lift w + e br	-	clear 67	2	4	N/A
08/02/07	10	22:08pm	22:16pm	8	86	test lift	-	clear 86	calm	6	N/A
08/02/07	1	00:26am	00:27am	1		traffic stop e bridge		clear 72	9		N/A
08/02/07	2	01:03am	01:05am	2		traffic stop e bridge		clear 72	7		N/A
08/02/07	3	01:35am	01:36am	2		traffic stop e bridge		clear 70	6		N/A
08/03/07	1	00:36am	00:48am	12	86/83	practice lift e + b br	-	clear 63	4	5	N/A
08/03/07	2	00:57am	01:09am	12	86/83	practice lift e br	-	clear 62	3	5	N/A
08/03/07	3	01:21am	01:32am	11	86/82	practice lift e + w br	-	clear 62	1	5	N/A
08/03/07	4	01:38am	01:48am	10	70	practice lift e + w br	-	clear 62	5	5	N/A
08/03/07	5	01:54am	02:04am	10	70	practice lift e + w br	-	clear 62	3	5	N/A
08/03/07	6	02:09am	02:23am	14	136	practice lift e + w br	-	clear 62	4	5	N/A
08/03/07	7	02:29am	02:39am	10	60	practice lift e + w br	-	clear 62	1	5	N/A
08/03/07	8	02:52am	03:01am	9	40	practice lift e + w br	-	clear 62	1	4.5	N/A
08/03/07	9	03:06am	03:14am	8	40	practice lift e + w br	-	clear 62	3	4.5	N/A
08/03/07	10	03:19am	03:29am	10	86/82	practice lift e + w br	-	clear 62	4	4.5	N/A
08/03/07	11	23:25pm	23:41pm	16	136	Norton Bay spud (Megan Renee)	up	clear 63	7	5.3	Barge
08/04/07	1	23:12pm	23:21pm	9	90	Whisperer sailboat	up	clear 63	6	5.1	Sail



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
08/05/07	1	23:42pm	23:59pm	17	136	maint lift e br	-	clear 64	5	5	N/A
08/06/07	1	00:33am	00:46am	13	130	maint lift east br	-	clear 62	2	5	N/A
08/06/07	2	01:13am	01:30am	17	130	maint lift east br	-	clear 62	7	5	N/A
08/06/07	3	04:29am	04:49am	20	115	Norton Bay + barge	down	clear 61	2	4	Barge
08/08/07	1	23:13pm	23:26pm	13	120	maint lift e + w br	-	cloudy 66	1	3.4	N/A
08/08/07	2	23:48pm	00:04am	16	136	maint lift e + w br	-	cloudy 65	2	4	N/A
08/10/07	1	00:09am	00:21am	12	70	sailboat Treolee	down	cloudy 60	5	3	Sail
08/10/07	2	10:00am	10:07am	7	86	maint lift	-	cloudy 60	3	4	N/A
08/10/07	3	13:49pm	13:56pm	7	86	maint lift	-	clear 70	4	2.6	N/A
08/12/07	1	05:31am	05:41am	10	100	Dauby + derick barge	up	partly cloudy 58	4	6	Barge
08/13/07	1	20:30pm	20:35pm	5	10	for Dave Johnson test lift - w bridge only	-	clear 77	6	4.2	N/A
08/15/07	1	23:54pm	24:16am	22	-	-	-	cloudy 67	3	4	N/A
08/16/07	1	11:01am	11:09am	8	80	"Kisses" (yack)	up	cloudy 65	1	4.5	Yacht
08/16/07	2	20:28pm	20:32pm	4	12	test west br	-	-	-	-	N/A
08/16/07	3	20:53pm	20:56pm	3	10	test west br	-	-	-	-	N/A
08/17/07	1	19:43pm	19:54pm	11	90	Kisses	down	partly cloudy 69	13	4	Yacht
08/21/07	1	13:30pm	13:46pm	16	129	Lindy Marie + 2 barges	-	cloudy 63	7	1.5	Barge
08/21/07	1	13:30pm	13:46pm	16	129	Lindy Marie 2 barges	-	partly cloudy 72	4	1.7	Barge
08/23/07	1	05:56am	06:13am	17	70	"Rebel" + 4 barges	down	clear 59	2	3	Barge
08/23/07	2	20:11pm	20:21pm	4	15	test west bridge	-	clear	calm	2	N/A
08/25/07	1	06:00am	06:32am	32	136	maint lift e slides	-	clear 60	calm	3.5	N/A
08/25/07	2	06:53am	07:03am	10	86	maint east br	-	-	-	-	N/A
08/25/07	3	07:04am	07:34am	30	136	maint east br	-	-	-	-	N/A
08/30/07	1	20:19pm	20:23pm	4	12	test SB only	-	clear 78	8	3.8	N/A
09/04/07	1	10:36am	10:50am	14		clean out NB front barrier		partly cloudy 68	3		N/A
09/05/07	1	13:15pm	13:27pm	12	75	Kathryn B + spud barges	up	clear 70	4	2.2	Barge
09/06/07	1	20:10pm	20:14pm	4	13	West bridge test	-	-	-	-	N/A
09/09/07	1	11:50am	12:02pm	12	136	test lift w/br on gen	-	64	11	0.7	N/A
09/09/07	2	12:25pm	12:38pm	13	136	test lift e/br on gen	-	64	11	0.7	N/A
09/09/07	3	01:05am	01:16am	11	136	test lift w/br on gen	-	64	11	0.7	N/A
09/09/07	4	-	-	-	136	test lift both br's on gen	-	64	11	0.7	N/A
09/12/07	1	13:59pm	14:07pm	8	75	"Maridian" sailboat	down	clear 687	3	1.3	Sail
09/13/07	1	10:50am	10:59am	9	80	Washougal + spud barges	down	cloudy 60	1	2.3	Barge
09/13/07	2	20:13pm	20:17pm	4	13	west br test	-	cloudy 60	11	4	N/A
09/17/07	1	23:26pm	23:38pm	11	70	"Chief" + 5 barges	down	rain 56	6	2.4	Barge
09/20/07	1	20:05pm	20:09pm	4	13	west br maint	-	cloudy	calm	0.7	N/A
09/20/07	1	20:14pm	20:15pm	1		south bound only					N/A
09/22/07	1	18:41pm	18:53pm	12	80	Mary B	down	partly cloudy 32	11	1.5	Barge
09/22/07	2	19:45pm	19:50pm	5	10	test lift (ok) w/br	-	partly cloudy 60	5	1.5	N/A
09/24/07	1	00:00am	00:03am	3	10	test lift w br only	-	partly cloudy 54	6	0.6	N/A
09/24/07	2	00:08am	00:14am	6	3	test lift w br only	-	partly cloudy 54	6	0.6	N/A
09/24/07	3	01:39am	01:43am	4	3	test lift w br only	-	clouds 53	1	1.8	N/A
09/24/07	4	02:10am	02:13am	3	15	test lift w br only	-	clouds 53	1	2.2	N/A
09/24/07	5	09:09am	09:18am	9	90	dredge Yaquina	up	cloudy 57	calm	1	Federal
09/24/07	6	13:10pm	13:20pm	10	80	Linx	down	clear 58	5	0	Sail
09/26/07	1	10:35am	10:46am	11	100	Linx sailboat	down	cloudy 57	3	1.3	Sail
09/27/07	1	19:58pm	20:02pm	4	12	west br test	-	-	-	-	N/A
09/27/07	2	20:17pm	20:21pm	4	15	west br test	-	-	-	-	N/A
09/30/07	1	08:28pm	08:38pm	10	85	dredge Yaquina	down	rain 51	17	3	Federal



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
09/30/07	2	14:01pm	14:09pm	8	65	"Chief"	up	rain 53	8	1.5	Barge
10/01/07	1	23:43pm	23:50pm	7	25	test lift west br	-	rain 54	13	3.3	N/A
10/01/07	2	23:58pm	00:12am	14	136	test lift west br	-	54	10	3.2	N/A
10/01/07	3	00:50am	01:05am	15	136	test lift west br	-	53	9	3.2	N/A
10/01/07	4	01:20am	01:25am	5	15	test lift west br	-	53	5	3	N/A
10/01/07	1	23:38pm	23:39pm	1		east br traffic stop		rain 54	16		N/A
10/01/07	2	00:20am	00:22am	2		east br traffic stop		54	13		N/A
10/01/07	3	00:30am	00:38am	2		east br traffic stop		54	7		N/A
10/01/07	4	01:10am	01:12am	2		east br traffic stop		53	8		N/A
10/01/07	5	01:15am	01:16am	1		east br traffic stop		53	10		N/A
10/01/07	6	01:28am	01:30am	2		west br traffic stop		53	7		N/A
10/01/07	7	01:40am	01:43am	3		both br traffic stop		53	6		N/A
10/01/07	8	01:58am	02:02am	4		both br traffic stop		53	6		N/A
10/01/07	9	02:09am	02:12am	3		both br traffic stop		53	11		N/A
10/01/07	10	02:30am	02:33am	3		both br traffic stop		53	12		N/A
10/01/07	11	02:40am	02:43am	3		both br traffic stop		53	7		N/A
10/02/07	1	00:10am	00:17am	7	50	training lift w/bridge	-	56	4	3.2	N/A
10/02/07	2	00:20am	00:27am	7	50	training lift w/bridge	-	56	6	3.2	N/A
10/02/07	3	00:32am	00:38am	6	50	training lift w/bridge	-	56	6	3.2	N/A
10/02/07	4	00:43am	00:50am	7	70	training lift w/bridge	-	55	11	3.2	N/A
10/02/07	5	00:54am	01:01am	7	70	training lift w/bridge	-	55	9	3.2	N/A
10/02/07	6	01:06am	01:12am	6	50	training lift e/bridge	-	55	6	3	N/A
10/02/07	7	01:16am	01:22am	6	50	training lift e/bridge	-	56	5	3	N/A
10/02/07	8	01:32am	01:38am	6	50	training lift e/bridge	-	56	4	3	N/A
10/02/07	9	01:45am	01:52am	7	86	training lift e/bridge	-	56	4	3	N/A
10/02/07	10	01:57am	02:04am	7	86	training lift e/bridge	-	56	6	3	N/A
10/02/07	11	02:00am	02:17am	7	25	training lift both bridges	-	56	11	3	N/A
10/02/07	12	02:20am	02:27am	7	25	training lift both bridges	-	56	9	3	N/A
10/02/07	13	02:30am	02:36am	6	25	training lift both bridges	-	56	2	2.5	N/A
10/02/07	14	02:52am	02:58am	6	25	training lift both bridges	-	55	8	2.2	N/A
10/02/07	15	03:05am	03:11am	6	25	training lift both bridges	-	55	8	2.5	N/A
10/02/07	16	03:17am	03:23am	6	25	training lift both bridges	-	55	9	2.2	N/A
10/02/07	17	03:32am	03:38am	6	25	training lift both bridges	-	55	10	2	N/A
10/02/07	18	03:42am	03:50am	8	25	training lift both bridges	-	55	10	2	N/A
10/03/07	1	00:33am	00:42am	9	86/82	training b/bridges	-	54	2	3.7	N/A
10/03/07	2	01:00am	01:09am	9	86/82	training b/bridges	-	54	2	3.5	N/A
10/03/07	3	01:27am	01:40am	13	136	training b/bridges	-	54	2	3.5	N/A
10/03/07	4	02:01am	02:08am	7	25-Oct	training b/bridges	-	54	3	3.2	N/A
10/03/07	5	02:23am	02:30am	7	580/35	training b/bridges	-	54	1	3	N/A
10/03/07	6	02:43am	02:51am	8	55/70	training b/bridges	-	54	2	3	N/A
10/03/07	7	03:07am	03:07am	7	15/30	training b/bridges	-	54	2	2.7	N/A
10/03/07	8	23:20pm	23:27pm	7	42	practice lift	-	cloudy 49	5	4	N/A
10/04/07	1	23:46pm	23:52pm	8	40	training lifts b/bridges	-	49	8	4	N/A
10/04/07	2	00:54am	01:01am	7	40	training lifts w/bridge bypass	-	49	1	3.8	N/A
10/04/07	3	01:07am	01:14am	7	40	training lift e/bridge bypass	-	49	3	3.8	N/A
10/04/07	4	01:40am	01:48am	8	86/82	training lift b/bridges	-	50	5	3.5	N/A
10/04/07	5	02:01am	02:09am	8	86/82	training lift b/bridges	-	49	5	3.2	N/A
10/04/07	6	02:28am	02:40am	12	136	training lift b/bridges	-	50	6	3.2	N/A
10/04/07	7	02:56am	03:02am	8	70	training lift b/bridges	-	49	0	3	N/A



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
10/04/07	1	00:28am	00:33am	5		west bridge back gate and barrier bypass		49	8		N/A
10/04/07	2	00:35am	00:39am	4		east bridge back gate and barrier bypass		50	8		N/A
10/04/07	3	20:01pm	20:05pm	4		West bridge test		-	-		N/A
10/05/07	1	23:40pm	23:46pm	6	50	test lift	-	cloudy 49	5	3	N/A
10/05/07	2	00:20am	00:29am	9	86	test lift	-	48	1	4	N/A
10/05/07	3	00:43am	00:53am	10	100	test lift b/bridges	-	47	1	4	N/A
10/05/07	4	01:00am	01:10am	10	11	test lift w/bridge	-	48	1	4	N/A
10/05/07	5	01:53am	02:04am	11	49	west br aux	-	cloudy 46	3	3.8	N/A
10/05/07	6	02:08am	02:14am	6	30	west br aux	-	cloudy 46	3	3.8	N/A
10/05/07	7	03:03am	03:29am	6	20	test b/bridges	-	45	3	3.5	N/A
10/05/07	8	03:35am	03:46am	11	86/82	test lift both br	-	cloudy 46	3	3.2	N/A
10/05/07	9	04:44am	04:51am	7	87	maint lift east br	-	cloudy 46	4	2.9	N/A
10/05/07	1	00:13am	00:14am	1		training w/bridge		49	2		N/A
10/05/07	2	00:17am	00:18am	1		training e/bridge		49	2		N/A
10/05/07	3	02:42am	02:45am	3		east br from gate house		cloudy 45	3		N/A
10/05/07	4	02:47am	02:49am	2		east br from gate house		cloudy 45	3		N/A
10/05/07	5	02:51am	02:53am	2		east br from gate house		cloudy 45	3		N/A
10/05/07	6	04:22am	04:38am	16		east br maint		cloudy 45	2		N/A
10/05/07	7	10:07am	10:17am	10		e br maint		-	-		N/A
10/05/07	8	10:33am	10:40am	7		w br maint		-	-		N/A
10/08/07	1	23:32pm	23:41pm	9	77	training lift	-	53	1	1.2	N/A
10/08/07	2	00:02am	00:15am	13	100	training lift	-	52	3	1.2	N/A
10/10/07	1	20:00pm	20:07pm	7	20	test lift west bridge only	-	cloudy 55	3	4.1	N/A
10/15/07	1	00:20am	00:25am	5	18	test lift w/bridge	-	clear 56	5	2.5	N/A
10/15/07	2	00:30am	00:34am	4	15	test lift w/bridge	-	clear 56	3	2.4	N/A
10/15/07	3	00:39am	00:44am	5	10	test lift w/bridge	-	clear 57	4	2.2	N/A
10/15/07	4	01:00am	01:04am	4	10	test lift w/bridge	-	clear 56	6	2	N/A
10/15/07	5	01:16am	01:22am	6	25	test lift w/bridge	-	clear 56	7	2	N/A
10/15/07	1	00:05am	00:07am	2		test w bridge		57	4		N/A
10/16/07	1	23:30pm	23:45pm	15	136	test lift e/bridge	-	cloudy 54	12	2.9	N/A
10/16/07	1	23:50pm	23:51pm	1		test e bridge		cloudy 54	8		N/A
10/18/07	1	20:06pm	20:10pm	4	17	test west bridge	-	rain 58	10	4	N/A
10/20/07	1	17:03pm	17:17pm	14	100	"Clarkston" "Noydena" + two barges	up	cloudy 52	3	2.7	Barge
10/22/07	1	00:14am	00:20am	6	30	test w bridge	-	cloudy 54	5	2.5	N/A
10/22/07	2	00:22am	00:33am	11	86/82	test b/bridges	-	cloudy 54	8	2.5	N/A
10/22/07	3	00:56am	01:14am	18	115	test b/bridges	-	cloudy 54	10	3	N/A
10/22/07	4	01:18am	01:24am	6	30	test b/bridges	-	cloudy 54	8	3	N/A
10/24/07	1	20:08pm	20:16pm	10	20	test for Dave	-	51	5	3.5	N/A
10/25/07	1	10:19am	10:22am	3		two tresh canon NB draw span removed by crew					N/A
10/29/07	1	00:10am	00:25am	16	75	Defiance	down	clear 47	0	2.9	Barge
10/29/07	2	00:31am	00:41am	10	115	test w/bridge	-	clear 48	0	2.9	N/A
10/29/07	3	00:47am	00:58am	11	122	test w/bridge	-	clear 47	3	2.9	N/A
10/29/07	4	01:10am	01:25am	15	130	test w/bridge	-	clear 46	0	2.5	N/A
10/29/07	5	02:00am	02:05am	5	-	test w/bridge	-	clear 46	1	2	N/A
11/05/07	1	00:10am	00:26am	16	100	Rebel	down	clear 49	2	1	Barge
11/10/07	1	08:30am	08:39am	9	80	Husky	up	cloudy 52	2	3.8	Barge
11/12/07	1	00:04am	00:15am	11	126	test w/bridge	-	cloudy 47	12	3	N/A
11/12/07	2	00:19am	00:30am	11	125	test w/bridge	-	cloudy 47	14	2.9	N/A
11/12/07	3	00:45am	00:52am	7	60	test w/bridge	-	cloudy 48	13	2.5	N/A



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
11/12/07	4	00:55am	01:01am	6	30	test w/bridge	-	cloudy 47	12	2.5	N/A
11/12/07	5	01:10am	01:17am	7	60	test w/bridge	-	cloudy 47	6	2.4	N/A
11/12/07	6	01:24am	01:30am	6	60	test w/bridge	-	cloudy 47	9	2.3	N/A
11/14/07	1	11:59am	12:12pm	13	86	"Husky" + derrick	-	suny 52	19	2.7	Barge
11/14/07	2	20:30pm	20:33pm	3	15	test lift east bridge only	-	cloudy 48	19	4.3	N/A
11/19/07	1	05:18am	05:30am	12	100	Yaquina	up	cloudy 41	6	3.5	Federal
11/24/07	1	03:56am	04:06am	10	75	"Chief" + derrick	down	clear 33	0	4.6	Barge
11/26/07	1	20:12pm	20:17pm	5	30	north bound only - test	-	cloudy 38	7	5.1	N/A
11/26/07	2	21:25pm	21:32pm	2	20	both bridges - test	-	cloudy 38	4	5.1	N/A
11/26/07	1	10:07am	10:16am	9		maint		cloudy 38	21		N/A
11/26/07	2	10:33am	11:00am	27		maint - gates opened manually / lost power to bridge front		cloudy 38	17		N/A
11/26/07	3	20:54pm	20:58pm	4		north bound only - test		cloudy 38	7		N/A
11/27/07	1	12:18pm	12:27pm	9	80	"Chief"	down	cloudy 48	1	3.5	Barge
11/29/07	1	11:01am	11:12am	11	86	"Washougal" + 2 derricks 3 barges	-	rain 41	4	4.2	Barge
11/30/07	1	10:09am	10:16am	7	86	maint lift east br	-	cloudy 38	3	4.2	N/A
11/30/07	2	12:47pm	12:55pm	8	86	maint lift east br	-	cloudy 41	0	3.9	N/A
12/04/07	1	03:14am	03:26am	12	60	Dauby	down	rain 57	10	8.3	Barge
12/06/07	1	00:43am	00:53am	10	60	Dauby	down	rain 46	0	9	Barge
12/06/07	2	20:03pm	20:07pm	4	20	east br test	-	cloudy 47	calm	8.2	N/A
12/08/07	1	13:16pm	13:25pm	9	75	Legend	-	44	10	5	Barge
12/21/07	1	13:35pm	14:15pm	20	136	"Betty Lou" "Yaquina" "Rebel"	down	cloudy 43	1	6.5	Federal
12/24/07	1	02:05am	02:16am	11	70	Tidewater	down	rain 42	5	6.2	Barge
12/28/07	1	10:04am	10:15am	11	72	sail vessels "Whisper" "Ecstasy"	down	cloudy 44	4	7.8	Sail
12/28/07	2	20:00pm	20:03pm	3	20	test east br	-	rain 44	12	8	N/A
12/29/07	1	01:30am	01:43am	13	76	"Dauby" (2 barges)	down	rain 40	calm	7.7	Barge
12/30/07	1	12:50pm	12:59pm	9	50	Ecstasy	up	rain	17	6.7	Sail
12/31/07	1	00:10am	00:16am	6	33	test e bridge	-	rain 36	3	5.4	N/A
12/31/07	2	00:20am	00:26am	6	40	test e bridge	-	rain 36	3	5.4	N/A
12/31/07	3	00:33am	00:43am	10	125	test e bridge	-	cloudy 36	3	5.3	N/A
12/31/07	4	00:47am	00:57am	10	125	test e bridge	-	cloudy 35	3	5.2	N/A
12/31/07	5	01:46am	01:57am	11	125	test e bridge	-	cloudy 36	4	5.1	N/A
12/31/07	6	02:27am	02:38am	11	125	test e bridge	-	cloudy 36	1	4.9	N/A
12/31/07	7	02:55am	03:00am	5	20	test e bridge	-	cloudy 35	4	4.9	N/A
01/01/08	1	11:48am	11:57am	9	90	Whisperer	up	cloudy 43	22	4.8	Sail
01/03/08	1	9:10am	9:18am	8	86	East bridge only, lift for maintenance, bird cannons	-	cloudy 40	17	4.8	N/A
01/03/08	2	9:50am	9:58am	8	86	east bridge only, lift to bring maintenance crew down	-	cloudy 41	5	4.7	N/A
01/03/08	1	5:21am	5:27am	6		for tow truck/accident		cloudy 40	14		N/A
01/03/08	2	10:27am	10:32am	5		east machine house steel removal, east bridge only		rain 41	8		N/A
01/05/08	1	15:47pm	15:59pm	13	80	Willamette +4 barges	down	cloudy 42	3	6.7	Barge
01/07/08	1	9:40am	9:47am	7	87	maintenance east bridge only	-	cloudy	calm	6	N/A
01/07/08	2	10:19am	10:27am	8	86	""	-	-	-	-	N/A
01/07/08	3	19:37pm	19:43pm	6	82	west bridge only - maintenance	-	cloudy 40	13	7	N/A
01/07/08	4	19:47pm	19:54pm	7	86	east bridge only - maintenance	-	cloudy 39	14	7	N/A
01/07/08	1	00:18am	00:28am	10		test maintenance - east bridge only 126'		cloudy 37	2		N/A
01/07/08	2	00:56am	01:07am	11		maintenance / test lift - east bridge only 126'		cloudy 37	1		N/A
01/07/08	3	01:20am	01:31am	11		""		cloudy 37	2		N/A
01/07/08	4	01:35am	01:41am	6		"" 60'		cloudy 37	3		N/A
01/07/08	5	01:50am	01:55am	5		"" 25'		cloudy 37	1		N/A



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
01/07/08	6	11:09am	11:11am	2		N.B. load equipment		-	-		N/A
01/07/08	7	12:23pm	12:25pm	2		N.B. ped. Light check		cloudy 37	7		N/A
01/08/08	1	9:36am	9:43am	7	86	east bridge cannon inspect.	-	rain 37	10	6.6	N/A
01/08/08	2	10:07am	10:14am	7	86	east bridge cannon inspect.	-	rain 37	14	6.9	N/A
01/09/08	1	01:37am	01:47am	10	70	"legend"	down	cloudy 38	3	7.1	Barge
01/14/08	1	00:10am	00:20am	10	45	test lift west bridge PLC screen	-	clear 38	4	7	N/A
01/14/08	2	00:46am	00:52am	6	45	test lift west bridge PLC screen	-	clear 38	4	7	N/A
01/14/08	3	00:56am	01:06am	10	126	test lift west bridge PLC screen	-	clear 38	4	6.9	N/A
01/14/08	4	01:13am	01:18am	5	35	test lift west bridge maint screen	-	clear 38	4	6.9	N/A
01/14/08	5	01:45am	01:56am	11	60	test lift east bridge PLC screen	-	clear 38	6	6.8	N/A
01/14/08	6	02:08am	02:14am	6	60	test lift east and west bridge PLC screen	-	clear 38	5	6.8	N/A
01/14/08	7	02:17am	02:23am	6	30	test lift east bridge maint screen	-	clear 38	8	6.7	N/A
01/14/08	8	02:33am	02:41am	8	45	test lift east and west bridge pullout drawer	-	clear 38	8	6.7	N/A
01/14/08	9	21:39pm	21:46pm	7	50	test lift - both bridges	-	cloudy 36	4	7	N/A
01/14/08	1	01:57am	02:05am	8		testing east and west bridge		clear 38	5		N/A
01/15/08	1	09:40am	09:47am	7	86	maint lift N.B. only	-	cloudy 37	5	7.2	N/A
01/15/08	2	10:03am	10:10am	7	87	maint lift N.B. only	-	cloudy 38	5	7.2	N/A
01/15/08	3	18:34pm	18:45pm	11	121	"Lindy Marie" + crane barge	up	clear 40	calm	6.5	Barge
01/16/08	1	11:40am	11:47am	7	86	N.B. only to return bird cannon to s. tower	-	fog 29	calm	6.5	N/A
01/16/08	2	12:12pm	12:19pm	7	86	N.B. only to bring maint. Crew back down	-	fog 30	calm	6.5	N/A
01/18/08	1	10:10am	10:18am	8	87	NB only (east br.) for bird cannon + maint	-	cloudy 37	1	5.4	N/A
01/18/08	2	10:39am	10:53am	14	82	SB only (west br.) for bird cannon, maint., and counter weight wheel inspection	-	cloudy 37	1	5.5	N/A
01/19/08	1	11:21am	11:27am	6	25	test N&S spans	-	rain 35	8	4.7	N/A
01/19/08	2	11:57am	12:05pm	8	87	east br. Maint	-	-	-	-	N/A
01/19/08	3	12:42pm	12:47pm	7	82	west br maint	-	-	-	-	N/A
01/19/08	4	17:01pm	17:08pm	7	82	west bridge only - maintenance	-	cloudy 38	2	6	N/A
01/19/08	5	17:20pm	17:27am	7	86	east bridge only - maintenance	-	cloudy 38	2	6	N/A
01/20/08	1	08:55am	09:04am	9	80	chief	-	cloudy 37	0	4.4	Barge
01/20/08	2	11:55am	12:02pm	7	82	west br only	-	-	-	-	N/A
01/20/08	3	12:40pm	12:49pm	9	82	west br only	-	-	-	-	N/A
01/20/08	4	13:05pm	13:13pm	8	82	west br only	-	-	-	-	N/A
01/20/08	5	13:30pm	13:37pm	7	82	west br only	-	-	-	-	N/A
01/20/08	6	14:25pm	15:04pm	9	100	test lift both bridges	-	cloudy 42	10	6	N/A
01/20/08	7	22:07pm	22:22pm	15	136	test lift both bridges	-	cloudy 35	11	4.5	N/A
01/20/08	8	22:33pm	22:46pm	13	126	test lift both bridges	-	cloudy 35	9	4.5	N/A
01/20/08	9	23:07pm	23:13pm	11	126	test lift both bridges	-	partly cloudy 34	11	4.3	N/A
01/20/08	10	23:23pm	23:33pm	10	126	test lift both bridges, maint. Screen	-	partly cloudy 35	18	4	N/A
01/21/08	1	10:05am	10:22am	23	87	east br main	-	clear 35	15	4	N/A
01/21/08	2	11:42am	11:50am	8	87	east br main	-	-	-	-	N/A
01/21/08	3	12:05pm	12:16pm	11	82	west br maint	-	-	-	-	N/A
01/21/08	4	13:38pm	13:46pm	8	82	west br maint	-	clear 36	18	4.8	N/A
01/22/08	1	11:20am	11:29am	9	87	maint. Lift E. Bridge	-	clear 35	0	4	N/A
01/22/08	2	12:50pm	13:01pm	11	87	maint. Lift E. Bridge	-	clear 40	10	3.9	N/A
01/22/08	3	13:07pm	13:15pm	8	8	maint. Lift W. Bridge	-	clear 40	7	3.9	N/A
01/23/08	1	10:02am	10:10am	8	87	N.B. only (east br.) lift for arial inspection	-	clear 30	6	4.5	N/A
01/23/08	2	10:24am	10:34am	10	82	S.B. only (west br.) lift for arial inspection	-	clear 31	10	4.4	N/A
01/23/08	3	10:53am	11:00am	7	87	N.B. only (east br.) lift for arial inspection	-	clear 32	6	4.4	N/A
01/24/08	1	02:30am	02:41am	11	70	"Hurricane"	down	clear 31	14	4.4	Barge
01/24/08	2	19:32pm	19:41pm	9	80	"Clarkston"	down	partly cloudy 33	16	6.4	Barge



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
01/24/08	3	20:32pm	20:42pm	10	80	"Sundial"	down	partly cloudy 33	9	6.3	Barge
01/24/08	4	23:50pm	24:00pm	10	71	"Willamette"	down	partly cloudy 31	9	5	Barge
01/25/08	1	09:02am	09:13am	11	80	"Out Law"	down	clear 32	4	5.4	Barge
01/25/08	2	12:13pm	12:22pm	9	91	"Lindy Marie" + Derrick Spud	down	clear 37	4	4.7	Barge
01/25/08	3	18:42pm	18:54pm	12	75	"Cascades"	down	clear 36	calm	5.8	Barge
01/26/08	1	18:59pm	19:11pm	12	80	"Umatlla" + 2 barges	down	rain 35	calm	5.5	Barge
01/27/08	1	12:13pm	12:25pm	12	70	captain bob	down	rain 38	5	5.3	Barge
01/27/08	2	1:10pm	1:20pm	10	70	Hurricane	down	rain 38	5	5.3	Barge
01/27/08	3	15:50pm	16:01pm	11	80	"Clearwater" + 4 barges	-	cloudy 39	10	4	Barge
01/28/08	1	06:11am	06:24am	13	70	"Lewiston" + 4 barges	down	cloudy 34	1	3.6	Barge
01/31/08	1	18:12pm	18:22pm	10	70	Willamette	down	rain 39	16	4.7	Barge
02/01/08	1	03:05am	3:15am	10	75	"clarkston" barges	down	cloudy 39	8	4.6	Barge
02/01/08	2	3:43am	3:53am	10	70	"outlaw" barges	down	cloudy 39	12	4.6	Barge
02/01/08	3	11:33am	11:51am	18	87/82	"cascades" barges	down	cloudy 40	14	5.2	Barge
02/03/08	1	3:35am	3:45am	10	71	"chief" barges	down	cloudy 35	3	6	Barge
02/03/08	2	4:51am	5:04am	14	73	"hurricane" barges	down	cloudy 36	3	6	Barge
02/03/08	3	13:23pm	13:30pm	7	60	mistrel	up	cloudy 42	calm	6.1	Sail
02/03/08	4	13:36pm	13:42pm	12	70	clearwater	down	cloudy	calm	6.3	Barge
02/03/08	5	20:48pm	21:01pm	13	80	"Defiance" + 4 barges	down	cloudy 40	calm	5.5	Barge
02/04/08	1	3:07am	3:20am	13	70	"lewiston" barges	down	clear 35	3	5	Barge
02/04/08	2	3:46am	3:59am	13	100	"noydena" crane barge	up	clear 35	3	5	Barge
02/04/08	3	9:00am	9:11am	11	70	Capt Bob	down	cloudy	calm	5	Barge
02/04/08	4	19:07pm	19:18pm	11	135	"Noydena" + 1 crane barge	down	cloudy 41	3	6	Barge
02/07/08	1	11:17am	11:25am	8		SB stop to remove materials from west machine house		rain 44	9		N/A
02/10/08	1	14:31pm	14:38pm	7	60	runaway	down	cloudy	4	5	Sail
02/13/08	1	23:24pm	23:37pm	13	135	maint lift west br. Only	-	clear 40	0	4.9	N/A
02/14/08	1	9:24am	9:33am	9	87	maint lift east br only, adjust up-hauls + camera work	-	cloudy 40	0	6.3	N/A
02/14/08	2	13:35pm	13:43pm	8	87	maint lift east br only, adjust up-hauls w. bridge	-	cloudy	5	6	N/A
02/14/08	3	14:20pm	14:31pm	11	136	maint. Lift to check up-haul cables	-	cloudy	3	5.9	N/A
02/14/08	4	18:50pm	19:00pm	10	70	Legend	-	cloudy 46	calm	4.8	Barge
02/15/08	1	2:23am	2:38am	15	135	"clarkston" derrick	up	partly cloudy 38	0	5	Barge
02/15/08	2	11:03am	11:11am	8	87	maint. Lift NB only camera inspection	-	partly cloudy 42	0	6.1	N/A
02/15/08	3	11:40am	11:47am	7	87	maint. Lift NB only camera inspection	-	partly cloudy 44	2	6.2	N/A
02/15/08	4	20:46pm	20:59pm	13	80	Mary B + derrick	up	cloudy	calm	4.3	Barge
02/16/08	1	11:01am	11:14am	13	136	west bridge	-	partly clear 42	2	4.4	N/A
02/16/08	2	7:23pm	7:30pm	7	86	east br maint	-	fog	calm	4.2	N/A
02/16/08	3	7:49pm	8:01pm	12	135	west br maint	-	fog	calm	4.2	N/A
02/16/08	4	8:13pm	8:27pm	14	136	west br maint	-	fog	calm	4.2	N/A
02/16/08	5	8:44pm	8:58pm	14	82	west br maint	-	fog	calm	4	N/A
02/17/08	1	21:35pm	21:47pm	12	90	"chief" + 3 barges	down	clear 49	2	3.1	Barge
02/18/08	1	00:07am	00:19am	12	133	test lift, PLC screen, e. bridge only	-	clear 42	2	2.5	N/A
02/18/08	2	00:53am	01:00am	7	50	test lift, pull out drawer, e. bridge only	-	clear 41	0	2.5	N/A
02/19/08	1	9:34am	9:42am	8	86	east br. Maint, cannons, cameras	-	clear 44	3	3.9	N/A
02/19/08	2	10:20am	10:29am	9	82	west br. Maint, cannons, cameras	-	clear 46	2	3.8	N/A
02/19/08	1	11:26am	11:31am	5		east br. Removing tools/supplies		clear 48	3		N/A
02/20/08	1	00:09am	00:21am	12	70	"capt Bob" 2 barges	down	cloudy 45	2	4.6	Barge
02/20/08	2	14:46pm	14:55pm	9	70	"roxanna" w/spuds	down	cloudy 49	4	4.4	Barge
02/21/08	1	20:08pm	20:13pm	5	25	E.B. test	-	cloudy 49	8	5.5	N/A
02/21/08	1	13:36pm	13:38pm	2		traffic stop south bound only to allow personal to cross highway		partly cloudy 53	1		N/A



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
02/21/08	2	13:57pm	13:59pm	2		""		partly cloudy 54	0		N/A
02/22/08	1	00:53am	01:15am	23	80	"Outlaw" "Legend" barges	down	partly cloudy 47	11	4.2	Barge
02/22/08	2	10:48am	10:58am	10	85	"SeaTow" with sail boat	up	partly cloudy 53	21	4.5	Sail
02/24/08	1	20:31pm	20:44pm	13	80	"cascades" + 4 barges	down	cloudy 49	5	4.9	Barge
02/24/08	2	23:42pm	23:53pm	11	70	"leviston" + 2 barges	down	cloudy 47	8	3.8	Barge
02/25/08	1	00:27am	00:39am	12	134	test lift PLC screen east bridge only	-	cloudy 46	7	3.6	N/A
02/25/08	2	00:54am	01:05am	11	70	"sundial" 3 barges	down	cloudy 46	6	3.5	Barge
02/25/08	3	01:21am	01:35am	14	135	test lift PLC screen east bridge only	-	cloudy 46	5	3.4	N/A
02/25/08	4	01:50am	01:56am	6	25	test lift pullout drawer east bridge only	-	rain 46	3	3.2	N/A
02/27/08	1	13:46pm	13:53pm	7	82	lift S.B. only for maint. And to allow marc to out towers	-	partly cloudy 58	1	3.8	N/A
02/27/08	2	14:12pm	14:20pm	8	82	lift S.B. only for maint. + to bring Gross back down off tower	-	partly cloudy	4	3.5	N/A
02/27/08	1	12:38pm	12:42pm	4		traffic stop SB only to allow maint to access high span piers		clear 57	2		N/A
02/28/08	1	20:02pm	20:06pm	4	25	west br. Test	-	cloudy	calm	2.5	N/A
03/02/08	1	14:56pm	15:06pm	10	80	"indigo" sailboat	up	clear 50	7	3	Sail
03/03/08	1	00:10am	00:23am	13	135	test lift west br. PLC screen	-	cloudy 41	4	1.8	N/A
03/03/08	2	00:28am	00:41am	13	135	test lift west br. Maint screen	-	cloudy 41	5	1.8	N/A
03/03/08	3	00:52am	00:58am	6	60	test list east and west br. PLC screen	-	cloudy 41	1	1.8	N/A
03/03/08	4	9:15pm	9:22pm	7	86	east br. Lift - removing cannons	-	rain 40	12	2.2	N/A
03/03/08	5	9:41pm	9:49pm	9	86	east br. Lift - removing cannons	-	rain 41	9	2.2	N/A
03/03/08	1	11:21am	11:29am	8		east br. Unloading materials		cloudy 43	10		N/A
03/05/08	1	12:50pm	12:55pm	5		traffic stop south bound only for sign crew working at south end of bridge		clear 46	7		N/A
03/08/08	1	12:50pm	13:00pm	10	80	Roxanna, Derrick	down	cloudy	calm	3.5	Barge
03/10/08	1	00:08am	00:25am	17	135	test lift both bridges PLC screen	-	cloudy 50	6	4	N/A
03/10/08	2	00:32am	00:47am	15	99	""	-	cloudy 51	4	3.9	N/A
03/10/08	3	00:54am	01:06am	12	96	""	-	cloudy 52	5	3.8	N/A
03/10/08	4	01:15am	01:25am	10	60	"" Pull out drawer	-	cloudy 52	7	3.8	N/A
03/10/08	5	12:03pm	12:12pm	9	82	west br. Maint	-	cloudy	10	4.4	N/A
03/10/08	6	13:01pm	13:19pm	18	136	west br. Maint	-	cloudy	10	3.9	N/A
03/10/08	7	13:55pm	14:08pm	13	82	west br. Maint	-	cloudy	7	3.8	N/A
03/10/08	8	18:23pm	18:30pm	7	82	west bridge only - maintenance	-	cloudy 55	2	3.3	N/A
03/10/08	9	20:00pm	20:09pm	9	82	west bridge only - maintenance	-	rain 55	4	4.5	N/A
03/10/08	10	21:02pm	21:10pm	8	82	west bridge only - maintenance	-	cloudy 53	3	4.8	N/A
03/11/08	1	11:45am	12:00pm	15	38	east br. Maint	-	sunny 50	6	5	N/A
03/11/08	2	13:05pm	13:18pm	12	1	""	-	rain 46	5	4.7	N/A
03/11/08	3	13:15pm	13:30pm	15	82	west br. Maint	-	sunny rain 49	2	4.5	N/A
03/11/08	4	22:36pm	22:48pm	18	19	east br. Maint	-	clear 46	4	4.5	N/A
03/11/08	5	22:49pm	23:24pm	13	136	west br. Maint	-	clear 46	4	4.5	N/A
03/11/08	6	23:13pm	23:20pm	7	45	east bridge - test lift	-	clear 44	4	4.5	N/A
03/11/08	7	23:22pm	23:32pm	10	120	west bridge - test lift	-	clear 44	5	4.4	N/A
03/11/08	8	23:33pm	23:47pm	14	16	east bridge - test lift	-	clear 43	6	4.4	N/A
03/11/08	9	23:52pm	00:02am	10	120	west bridge - test lift	-	clear 43	4	4.3	N/A
03/12/08	1	00:11am	00:27am	16	121	west bridge test lift aux motor	-	clear 43	2	4.2	N/A
03/12/08	2	01:47am	02:00am	13	136	east bridge test lift	-	clear 42	0	3.6	N/A
03/12/08	3	02:07am	02:16am	9	120	east bridge test lift	-	clear 42	3	3.5	N/A
03/12/08	4	02:31am	02:40am	9	120	east bridge test lift	-	clear 41	0	3.4	N/A
03/12/08	5	02:45am	02:54am	9	120	east bridge test lift	-	clear 41	1	3.3	N/A
03/12/08	6	03:03am	03:28am	25	132	east bridge test lift aux motor	-	clear 41	1	3.2	N/A
03/12/08	7	05:02am	05:10am	8	3	east bridge torque test w/aux motor	-	clear 41	1	2.9	N/A
03/12/08	8	10:18am	10:34am	16	21	east bridge test lift	-	partly cloudy 43	4	5.5	N/A



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
03/12/08	9	11:14am	11:24am	10	9	east bridge test lift	-	cloudy	2	5.1	N/A
03/12/08	10	12:02pm	12:10pm	8	9	east bridge test lift	-	cloudy	2	4.9	N/A
03/12/08	11	12:54pm	13:10pm	16	82	equipment placement test lift west bridge	-	cloudy 50	1	4.5	N/A
03/12/08	12	13:33pm	13:43pm	10	2	east bridge only test lift	-	cloudy 50	0	4.4	N/A
03/12/08	13	14:10pm	14:23pm	13	82	west br. Lift to bring equipment and personnel down	-	cloudy 52	3	4.2	N/A
03/12/08	14	22:25pm	22:39pm	14	10	east bridge only - maintenance	-	rain 44	6	4.3	N/A
03/12/08	15	22:56pm	23:13pm	17	11	east br. Test lift	-	rain 44	5	4.3	N/A
03/12/08	16	23:26pm	23:33pm	7	8	east br. Test lift	-	rain 44	6	4.3	N/A
03/12/08	1	03:49am	04:06am	17		east bridge torque test w/aux motor		clear 40	2		N/A
03/12/08	2	04:20am	04:30am	10		east bridge torque test w/aux motor		clear 40	3		N/A
03/12/08	3	04:40am	04:47am	7		east bridge torque test w/aux motor		clear 40	2		N/A
03/13/08	1	9:43am	9:55am	12	82	lift west bridge only for equipment and personnel	-	rain 48	9	6.1	N/A
03/13/08	2	10:53am	11:02am	10	82	""	-	rain 47	16	6	N/A
03/13/08	1	00:15am	00:19am	4		west br. Sensor test for contractors		rain 43	7		N/A
03/13/08	2	00:26am	00:30am	4		west br. Sensor test for contractors		rain 43	8		N/A
03/13/08	3	00:47am	00:51am	4		west br. Sensor test for contractors		rain 43	7		N/A
03/13/08	4	00:57am	01:00am	3		west br. Sensor test for contractors		rain 43	12		N/A
03/13/08	5	02:11am	02:17am	6		east br. Loading equipment for contractors		rain 43	9		N/A
03/13/08	6	13:22pm	13:25pm	3		east br. Loading equipment for contractors		rain 47	10		N/A
03/17/08	1	00:30am	00:43am	13	136	for dave, test lift east and west br. PLC screen	-	rain 41	8	3.4	N/A
03/17/08	2	1:07am	1:19am	12	136	test lift east br. PLC bridge	-	rain 41	10	3.5	N/A
03/17/08	3	1:32am	1:45am	13	136	test lift east br. PLC bridge	-	rain 41	12	3.6	N/A
03/17/08	4	1:54am	2:02am	8	45	test lift east and west br. Pullout drawer	-	rain 41	3	3.8	N/A
03/21/08	1	11:40am	11:51am	11	90	sailboat runaway	down	cloudy	1	5.8	Sail
03/23/08	1	3:40am	3:47am	7	80	Noidena w/Derrick	up	cloudy	13	4.3	Barge
03/28/08	1	9:30am	9:38am	8	70	Indigo Sailboat	down	rain 39	9	5.5	Sail
03/31/08	1	00:20am	00:33am	13	136	test lift both bridges PLC screen	-	cloudy 37	7	2.5	N/A
03/31/08	2	00:39am	00:46am	7	56	test lift both bridges PLC screen	-	cloudy 37	6	2.5	N/A
03/31/08	3	1:20am	1:25am	5	12	test lift both bridges pullout panel	-	cloudy 37	6	2.6	N/A
04/02/08	1	13:13pm	13:24pm	11	121	test lift with br. Only	-	clear 51	4	3.7	N/A
04/03/08	1	18:04pm	18:15pm	11	85	linde marie	down	hazy 59	calm	4.5	Barge
04/04/08	1	12:54pm	13:07pm	12	90	nian marie with derrick	down	partly cloudy 47	7	29	Barge
04/04/08	2	17:50pm	17:58pm	8	82	west br. Only	-	cloudy 47	calm	5	N/A
04/04/08	3	18:27pm	18:35pm	8	82	west br. Only	-	cloudy	calm	4.9	N/A
04/07/08	1	00:13am	00:19am	6	65	test list east and west br. PLC screen	-	cloudy 45	14	3.8	N/A
04/07/08	2	00:24am	00:30am	6	32	test lift east br. Maint screen	-	cloudy 44	16	3.8	N/A
04/07/08	3	00:33am	00:38am	5	32	test lift west br. Maint screen	-	cloudy 44	6	3.8	N/A
04/07/08	4	00:43am	00:50am	7	27	test lift east and west br. Pullout drawer	-	cloudy 44	14	3.7	N/A
04/09/08	1	9:12am	9:24am	12	136	difiance with 4 barges	down	rain 42	3	6.4	Barge
04/09/08	2	10:34am	10:50am	16	136	maint. Lift to check elevation calibration	-	cloudy 43	5	5.9	N/A
04/09/08	3	10:56am	11:12am	16	136	w. bridge onlt - maint lift to check elevation calibration	-	cloudy 44	6	5.8	N/A
04/12/08	1	15:16pm	15:26pm	10	80	"P.T. Brix" and Queen of the West	down	clear 75	13	3.9	Barge
04/12/08	2	18:24pm	18:35pm	11	96	"Willamette" + 4 barges	down	clear 75	9	3.3	Barge
04/13/08	1	16:48pm	16:54pm	6	65	tidewater + 1 barge	down	cloudy 62	10	4	Barge
04/16/08	1	11:15am	11:23am	7	87	lift N.B. only to get personnel up on tower	-	cloudy 49	1	3.7	N/A
04/16/08	2	12:38pm	12:46pm	8	86	lift N.B. only to bring personnel back down from s. tower	-	cloudy 50	0	3.8	N/A
04/20/08	1	8:32am	8:42am	10	75	willamette	down	cloudy 37	calm	4.5	Barge
04/23/08	1	1:25am	1:36am	11	80	desperado sail vessel	up	cloudy 45	12	5.5	Sail
04/23/08	2	2:29am	2:38am	9	70	Lori B and barge	down	cloudy 45	12	4.9	Barge



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
04/23/08	3	9:17am	9:32am	15	136	maint. Lift SB only to remove fake eggs	-	cloudy	19	5.8	N/A
04/24/08	1	1:01am	1:12am	11	70	Tidewater + barges	down	cloudy 44	1	5	Barge
04/24/08	2	18:30pm	18:37pm	7	60	Whisper	down	cloudy 50	13	4.5	Sail
04/25/08	1	3:16am	3:28am	12	70	outlaw + barges	down	cloudy 47	0	5	Barge
04/27/08	1	10:14am	10:21am	7	60	whisper	up	cloudy 57	calm	5.5	Sail
05/02/08	1	9:38am	9:50am	12	81	"chief" 4 barges	down	cloudy 52	1	5.7	Barge
05/04/08	1	3:08am	3:17am	9	80	tidewater with 6 barges	down	cludy 45	1	5.8	Barge
05/06/08	1	19:16pm	19:27pm	11	80	tidewater + 3 barges	down	partly cloudy 55	14	6.4	Barge
05/07/08	1	18:23pm	18:33pm	10	80	chief + 4 barges	down	overcast 53	18	6.3	Barge
05/08/08	1	23:23pm	23:33pm	10	70	"Lori B"	down	cloudy 47	4	7.3	Barge
05/10/08	1	3:43am	3:57am	14	110	"Dauby" - 3 barges	down	cloudy 49	7	8.6	Barge
05/11/08	1	6:25am	6:39am	14	90	"Hurricane" + 4 barges	-	cloudy 48	7	8.1	Barge
05/11/08	2	16:12pm	16:21pm	9	80	"Valkerizm" sailboat	down	overcast 55	8	7.5	Sail
05/13/08	1	11:44am	11:55am	11	80	"Lori B" - 1 barge	down	rain 52	5	7.8	Barge
05/14/08	1	1:01am	1:11am	10	70	"willamette" barges	down	cloudy 58	2	8	Barge
05/14/08	2	4:32am	4:41am	9	70	"hurricane" barges	down	cloudy 57	0	8.3	Barge
05/14/08	3	13:51pm	14:04pm	13	80	"Clearwater" barges	down	cloudy 65	6	7.4	Barge
05/15/08	1	11:00am	11:12am	12	70	"Lori B" / barges	down	clear 68	1	6.6	Barge
05/16/08	1	4:08am	4:18am	10	80	"Tidewater" + barges	-	clear 60	8	8.4	Barge
05/16/08	2	13:08pm	13:17pm	9	80	"Runaway" sailboat	down	partly cloudy 85	9	81	Sail
05/16/08	3	21:00pm	21:09pm	9	65	chief	down	clear 87	8	8.7	Barge
05/17/08	1	16:47pm	16:55pm	8	71	"Runaway" + "Pilot" - sailboats	up	clear 92	5	8.8	Sail
05/18/08	1	12:16pm	12:23pm	7	60	Shearwater	down	clear 73	3	9.6	Unknown
05/19/08	1	9:03am	9:14am	11	70	chief	down	clear	calm	12.2	Barge
05/19/08	2	11:00am	11:06am	6	50	Kira Lynn	down	cloudy	calm	12.3	Sail
05/20/08	1	2:22am	2:33am	11	90	"Daubi" + barges	down	clear 60	10	13.3	Barge
05/20/08	2	13:35pm	13:42pm	7	86	test lift north only	-	cloudy 60	5	13.7	N/A
05/20/08	3	13:57pm	14:05pm	8	82	test lift south only	-	cloudy 60	10	13.7	N/A
05/20/08	4	14:20pm	14:26pm	6	82	test lift south only	-	cloudy 60	13	13.7	N/A
05/21/08	1	12:02pm	12:11pm	9	70	Umatilla with one barge	down	rain 52	2	14.4	Barge
05/22/08	1	2:10am	2:24am	14	80	"Daubi" + barges	down	cloudy 49	8	14.5	Barge
05/22/08	2	13:32pm	13:41pm	9	70	"Sail boat Katherine"	down	cloudy 56	6	14.8	Sail
05/23/08	1	10:06am	10:15am	9	70	monyey bar / nelson did this lift	down	cloudy 53	3	14.7	Sail
05/23/08	2	10:35am	10:45am	10	85	whisperer / nelson did this lift	down	cloudy 49	3	14.77	Sail
05/23/08	3	11:58am	12:07pm	9	80	molodez + 4 others	down	rain 50	3	14.7	Sail
05/23/08	4	12:16pm	12:26pm	10	70	deschutes / 4 barges	down	rain 51	5	14.7	Barge
05/23/08	5	12:54pm	13:03pm	9	70	sailboat "Southern Cross" + 1 other	down	rain 51	6	14.7	Sail
05/23/08	6	20:20pm	20:27pm	7	65	Autumn Wind	down	cloudy	calm	14.5	Sail
05/23/08	7	20:46pm	20:53pm	7	66	Sea Gypsy	down	cloudy	calm	14.5	Sail
05/24/08	1	2:04am	2:20am	16	80	"Daubi" + 2 barges	down	cloudy 52	0	14.5	Barge
05/24/08	2	9:49am	9:55am	6	50	Julia Max	down	cloudy	calm	14.3	Sail
05/24/08	3	11:37am	11:48am	11	65	Daubi + 3 sailboats	down	cloudy	calm	14.3	Barge
05/24/08	4	12:15pm	12:22pm	7	60	Tango	down	cloudy	calm	14.3	Sail
05/24/08	5	13:49pm	13:56pm	7	60	Crystal Swan	down	cloudy	calm	14	Sail
05/24/08	6	16:58pm	17:06pm	8	72	"New Era"	down	overcast 72	5	13.8	Sail
05/25/08	1	16:03pm	16:11pm	8	70	"Dublin Rover" sailboat	up	overcast 60	7	13.2	Sail
05/26/08	1	12:58pm	13:06pm	8	60	lucious + tango, crystal swan + 2	up	cloudy	calm	13	Sail
05/26/08	2	13:43pm	13:51pm	8	65	whisper + 4	up	cloudy	calm	13	Sail
05/26/08	3	16:10pm	16:18pm	8	80	"Juna Max" - sailboat	down	overcast 62	calm	12.8	Sail



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
05/27/08	1	14:00pm	14:18pm	18	50	laurie V kira lynn	-	cloudy 61	6	12	Sail
05/28/08	1	2:45am	2:59am	14	80	"Daubi" + "Tidewater" + barges	down	cloudy 59	3	12	Barge
05/28/08	2	18:05pm	18:12pm	7	82	west br. Maint lift only	-	cloudy 59	7	12.2	N/A
05/28/08	3	18:44pm	18:57pm	13	82	"Bruce M" + 2 barges	down	cloudy 57	2	12.3	Barge
05/28/08	4	22:20pm	22:32pm	12	75	"Outlaw" + 3 barges	down	cloudy 54	3	12.4	Barge
05/29/08	1	10:33pm	10:41pm	8	70	Sailboat "Lock Fine"	up	cloudy 54	4	12.9	Sail
05/30/08	1	3:15am	3:28am	13	80	"Dauby" - 3 barges	down	cloudy 52	4	13.6	Barge
05/30/08	2	9:57am	10:08am	11	72	sailboat Kira Lynn + sailboat Knauticos	down	cloudy 55	6	13.5	Sail
05/30/08	1	12:37pm	12:47pm	10		Grease NW barrier		partly cloudy 62	5		N/A
05/31/08	1	10:05am	10:12am	7	65	valpiriso	up	partly cloudy	4	13.5	Sail
05/31/08	2	20:16pm	20:28pm	12	95	"Deschutes" + 4 barges	down	overcast 61	6	13.3	Barge
06/01/08	1	15:22pm	15:31pm	9	75	"Kalos Nautikos" sailboat	up	overcast 56	3	13.5	Sail
06/01/08	2	16:12pm	16:19pm	7	60	"Coqui" sailboat	up	overcast	5	13.5	Sail
06/01/08	3	18:30pm	18:45pm	15	75	"Chief" + 4 barges	down	cloudy 55	7	13.6	Barge
06/02/08	1	2:27am	2:47am	20	65	Capt Bob	down	cloudy 52	1	13.5	Barge
06/02/08	2	19:05pm	19:14pm	9	100	Ironwood	up	rain 58	calm	13.7	Federal
06/03/08	1	1:14am	1:25am	11	70	Daubi	down	rain 52	8	13.5	Barge
06/04/08	1	10:50am	10:58am	8	66	sailboat Pama	down	cloudy 55	7	14.2	Sail
06/04/08	1	22:49pm	22:55pm	6		requested by WASHDOT, debrid in roadway to be removed		overcast 53	4		N/A
06/05/08	1	1:02am	1:15am	13	65	Daubi	down	cloudy 51	4	14.1	Barge
06/05/08	2	9:35am	9:42am	7	86	lift NB only to take ITS + Marc on towers	-	rain 52	8	14.4	N/A
06/05/08	3	10:48am	10:57am	9	86	Lift NB only to bring ITS + Gross back down	-	rain 52	9	14.3	N/A
06/05/08	4	12:38pm	12:50pm	12	71	"Challenger" + 5 barges	down	cloudy 52	8	14.3	Barge
06/05/08	5	14:15pm	14:25pm	10	70	"Clearwater" + 3 barges	down	cloudy 54	11	14.3	Barge
06/05/08	6	20:17pm	20:25pm	8	80	Ironwood	down	cloudy 56	3	14.3	Federal
06/06/08	1	2:42am	2:54am	12	65	lewiston/chief	down	cloudy 50	1	14.3	Barge
06/06/08	2	12:05pm	12:15pm	10	70	"tidewater" + 3 barges	down	cloudy 52	15	14.6	Barge
06/07/08	1	11:31am	11:45am	14	70	"Daubi" + 2 barges	down	cloudy 52	6	14.5	Barge
06/07/08	2	4:45pm	4:57pm	12	70	"Hurricane" + 4 barges	down	rain 51	5	14.2	Barge
06/08/08	1	19:24pm	19:33pm	9	85	"Challenger" + 4 barges	down	cloudy 64	3	12.9	Barge
06/09/08	1	23:15pm	23:26pm	11	55	Outlaw	down	cloudy 58	8	13	Barge
06/09/08	2	9:32am	9:40am	8	86	lift for cable splicing	-	cloudy	14	12.3	N/A
06/09/08	3	11:44am	11:53am	9	86	""	-	cloudy	16	12	N/A
06/09/08	4	13:48pm	13:45pm	7	86	""	-	cloudy	20	12	N/A
06/09/08	5	19:58pm	20:08pm	10	85	"Bruce M" + 1 barges	down	cloudy 53	12	11.5	Barge
06/10/09	1	2:29am	2:40am	11	75	"Daubi" + barges	down	rain 46	15	11.8	Barge
06/12/08	1	13:00pm	13:12pm	12	70	"Bruce M" + 2 barges	down	partly cloudy 58	4	12.5	Barge
06/12/08	2	21:57pm	22:06pm	9	65	Lewiston	down	clear 64	14	12.6	Barge
06/14/08	1	2:33am	2:42am	9	70	"Daubi" + 2 barges	down	clear 48	3	12.4	Barge
06/14/08	2	6:55am	7:02am	7	50	Ballisima	down	clear 62	8	12.2	Sail
06/17/08	1	3:35am	3:45am	10	70	"Daubi" + barges	down	cloudy 51	5	9.8	Barge
06/18/08	1	14:10pm	14:18pm	8	65	Pamo sailboat	up	partly cloudy 62	2	11.1	Sail
06/19/08	1	1:08am	1:18am	10	70	"Daubi" + barges	down	clear 55	0	11.2	Barge
06/19/08	2	9:52am	10:00am	8	55	Sailboat "Tango"	down	clear 63	1	11.4	Sail
06/20/08	1	2:57am	3:08am	11	65	"Katherine B" + barges	down	clear 59	3	11.1	Barge
06/20/08	2	18:20pm	18:27pm	7	60	valpiriso	down	hazy 82	calm	10.5	Sail
06/21/08	1	00:38am	00:49am	11	70	"Daubi" + barges	down	partly cloudy 66	4	10.9	Barge
06/21/08	2	6:06am	6:15am	9	65	"KokoPelli" sail vessel	down	partly cloudy 62	0	10.8	Sail
06/22/08	1	15:48pm	15:56pm	8	80	"Hole in the Water" sailboat	down	clear 70	7	9.8	Sail



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
06/22/08	2	18:46pm	18:55pm	9	60	"Stoker's Delight" sailboat	up	clear 71	6	9.6	Sail
06/23/08	1	2:08am	2:17am	9	70	"Lori B" + barge	down	cloudy 54	7	9.6	Barge
06/23/08	2	22:12pm	22:32pm	20	85	(Down Havis) west bridge only maint	-	clear 61	2	9	N/A
06/23/08	3	22:38pm	22:56pm	18	136	west br. Only -maint	-	clear 59	2	8.9	N/A
06/23/08	4	23:10pm	23:30pm	20	90	east br. Only - maint (Down Havis)	-	clear 57	3	8.9	N/A
06/23/08	5	23:40pm	23:54pm	14	136	east br. Only - maint	-	clear 57	2	8.9	N/A
06/24/08	1	00:15am	00:34am	19	118	east br. Only - maint (uphauls)	-	clear 57	2	8.9	N/A
06/24/08	2	1:05am	1:27am	22	135	west br. Only - maint (uphauls)	-	clear 56	2	8.9	N/A
06/24/08	3	2:10am	2:27am	17	115	"Daubi" + barge / west br uphauls maint	down	clear 54	8	8.9	Barge
06/24/08	4	2:33am	2:46am	13	132	west br only - maint	-	clear 53	1	8.8	N/A
06/24/08	5	3:00am	3:12am	12	136	east br only - maint (uphauls)	-	clear 53	2	8.8	N/A
06/24/08	6	3:30am	3:53am	23	132	east br only -maint	-	clear 52	3	8.8	N/A
06/24/08	7	4:05am	4:21am	16	86	east br only -maint	-	clear 52	0	8.7	N/A
06/24/08	8	11:57am	12:04pm	7	50	"Bueno Vida"	-	clear	7	8.7	Sail
06/24/08	9	22:10pm	22:18pm	8	86	east bridge only - maintenance	-	clear 65	13	9.2	N/A
06/24/08	10	23:00pm	23:19pm	19	136	east bridge only - maintenance (counter weight cables)	-	clear 64	10	9.3	N/A
06/25/08	1	23:55pm	00:15am	20	82	west br only - maint (counter weight cables)	-	clear 61	4	9.4	N/A
06/25/08	2	00:37am	00:52am	15	100	west br only - maint	-	clear 60	10	9.4	N/A
06/25/08	3	1:11am	1:33am	22	135	west br only - maint	-	clear 59	7	9.5	N/A
06/25/08	4	1:55am	2:03am	8	82	west br only - maint	-	clear 59	6	9.5	N/A
06/25/08	5	2:07am	2:26am	19	86	east br only -maint	-	clear 58	4	9.5	N/A
06/25/08	6	2:45am	2:52am	7	86	east br only -maint	-	clear 57	4	9.5	N/A
06/25/08	7	2:59am	3:21am	22	135	west br only - maint	-	clear 57	3	9.5	N/A
06/25/08	8	3:40am	3:59am	19	136	east br only -maint	-	clear 56	2	9.6	N/A
06/25/08	9	4:02am	4:09am	7	82	west br only - maint	-	clear 56	6	9.6	N/A
06/25/08	10	4:15am	4:28am	13	86	east br only -maint	-	clear 55	4	9.6	N/A
06/26/08	1	00:23am	00:35am	12	65	"Daubi" + barges	down	partly cloudy 55	5	10.4	Barge
06/26/08	2	11:40am	11:48am	8	76	sailboat "Tamar"	down	cloudy 58	3	9.9	Sail
06/27/08	1	3:26am	3:38am	12	70	Kathryn B / 3 barges	down	clear 58	6	9.8	Barge
06/27/08	2	11:06am	11:14am	7	70	Portland Steamer	up	clear 68	5	9.9	Yacht
06/27/08	3	18:38pm	18:44pm	6	50	Moments	down	clear 84	18	10	Sail
06/27/08	1	13:29pm	13:32pm	3		SB only , N Portland to install sign mounts, Pier 6		clear 76	9		N/A
06/27/08	2	13:50pm	13:54pm	4		SB only , N Portland to install sign mounts, Pier 10		clear 78	5		N/A
06/28/08	1	12:04am	12:18am	14	65	"Daubi"	down	clear 72	3	9.9	Barge
06/28/08	2	7:55am	8:05am	10	60	Deschutes	down	clear 72	7	10.4	Barge
06/28/08	3	14:54pm	15:00pm	6	60	"Welkin" sailboat	down	clear 90	9	9.9	Sail
07/01/08	1	00:33am	00:45am	12	70	"Daubi" + barges	down	cloudy 60	7	9.5	Barge
07/01/08	2	10:37am	10:46am	9	70	"Spaetlacy" sailboat / "Challenger" (2 barges)	down	cloudy 64	7	9.4	Barge
07/03/08	1	00:56am	1:07am	11	65	"Daubi" + barges	down	cloudy 66	5	9.4	Barge
07/03/08	2	12:42pm	12:50pm	18	56	Defiance / Medetrina (sailboat)	down	cloudy 71	2	10	Barge
07/04/08	1	10:26am	10:35am	9	65	sailboat "Hole in the Water"	up	partly cloudy	8	10.3	Sail
07/04/08	2	14:24pm	14:33pm	9	85	sailboat "Cathryn"	up	cloudy 69	0	9.9	Sail
07/05/08	1	9:30am	9:37am	7	50	Tango	-	cloudy	calm	9.5	Sail
07/06/08	1	12:14pm	12:21pm	7	60	sailboat Cathrine	down	cloudy 66	9	8.5	Sail
07/07/08	1	12:21pm	12:28pm	7	60	sailboat Windward	down	clear	calm	7	Sail
07/07/08	2	13:30pm	13:38pm	8	60	Bruce M	down	clear	8	7	Barge
07/07/08	3	18:05pm	18:13pm	8	80	"Mad Dog" sailboat	up	clear 78	12	6.5	Sail
07/08/08	1	4:46am	4:57am	11	86	maint - trunnion greasing	-	clear 61	0	7.2	N/A
07/08/08	2	9:22am	9:38am	16	86	maint crossover for crew	-	sunny 69	calm	7.2	N/A



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
07/08/08	3	13:22pm	13:32pm	10	86	maint + "Promiss"	up	sunny 79	5	6.8	Sail
07/08/08	4	20:40pm	20:47pm	7	70	"Promises" sailboat	down	clear 81	9	6.5	Sail
07/10/08	1	20:45pm	20:52pm	7	60	Ladyess	down	clear	7	5	Sail
07/11/08	1	9:58am	10:08am	10	90	Radience	up	clear 70	6	5.3	Barge
07/16/08	1	10:51am	11:03am	12	86	NB only maint - lift to take up supplies for greasing	-	clear 64	5	4	N/A
07/16/08	2	13:23pm	13:36pm	13	86	NB maint lift to bring maint crew down	-	clear 70	6	3.1	N/A
07/16/08	3	14:16pm	14:25pm	9	90	sailboat Predator	up	clear 72	8	3	Sail
07/17/08	1	9:40am	9:48am	8	86	NB only - maint lift to take up personnel	-	cloudy 59	0	3.9	N/A
07/17/08	2	11:07am	11:15am	8	86	NB only - maint lift, personnel cross-over	-	partly cloudy 62	10	3.4	N/A
07/17/08	3	12:03pm	12:12pm	9	86	NB only - maint lift to bring down maint personnel	-	clear 62	6	3.1	N/A
07/17/08	4	12:40pm	12:48pm	8	86	NB only - maint life to bring down personnel and elec.	-	clear 65	9	2.9	N/A
07/17/08	1	13:05pm	13:12pm	7		traffic stop SB only - electricians to repait SW barrier light		clear 66	5		N/A
07/18/08	1	4:41am	4:55am	14	110	"Lucy II" + Derricks	up	cloudy 57	5	4.9	Barge
07/18/08	2	13:50pm	13:59pm	9	100	Lissy II	down	cloudy	calm	2.9	Barge
07/18/08	3	14:20pm	14:30pm	10	60	Hurricane	down	cloudy	calm	2.9	Barge
07/18/08	4	21:55pm	22:03pm	8	86	maint lift	-	clear	calm	4	N/A
07/18/08	5	22:33pm	22:46pm	13	15	maint SB	-	clear	calm	4	N/A
07/18/08	6	22:59pm	23:12pm	13	31	maint SB	-	clear 59	calm	3.8	N/A
07/18/08	7	23:23pm	23:39pm	16	54	maint SB	-	clear 58	calm	3.4	N/A
07/18/08	8	23:53pm	00:10am	17	75	maint SB	-	clear	6	3.2	N/A
07/19/08	1	00:20am	00:38am	18	96	maint SB	-	clear 57	8	3.1	N/A
07/19/08	2	00:45am	1:08am	23	115	maint SB	-	clear 56	3	3.1	N/A
07/19/08	3	1:14am	1:35am	21	127	maint SB	-	clear 56	8	2.9	N/A
07/19/08	4	1:44am	1:52am	8	30	maint SB	-	clear 55	3	2.8	N/A
07/19/08	5	1:56am	2:17am	21	135	maint SB	-	clear 55	3	2.8	N/A
07/19/08	6	2:40am	2:56am	16	24	maint EB	-	clear 56	4	2.8	N/A
07/19/08	7	3:02am	3:20am	18	54	maint EB	-	clear 55	6	3	N/A
07/19/08	8	3:25am	3:44am	19	69	maint EB	-	clear 55	9	3.1	N/A
07/19/08	9	3:50am	4:09am	19	84	maint EB	-	clear 55	8	3.5	N/A
07/19/08	10	4:15am	4:35am	20	100	maint EB	-	clear 55	4	3.8	N/A
07/19/08	11	4:39am	5:00am	21	112	maint EB	-	cloudy 56	8	4.2	N/A
07/19/08	12	5:04am	5:25am	21	121	maint EB	-	cloudy 56	4	4.5	N/A
07/19/08	13	5:37am	6:06am	29	136	maint EB	-	cloudy 56	2	5	N/A
07/19/08	14	6:17am	6:26am	9	86	maint EB	-	cloudy 56	7	5.3	N/A
07/19/08	15	22:17pm	22:37pm	20	82	maint lift - SB only	-	clear 67	calm	4.2	N/A
07/19/08	16	22:50pm	23:08pm	18	136	maint lift - SB only	-	clear 64	7	4.1	N/A
07/19/08	17	23:35pm	23:52pm	17	86	maint lift - NB only	-	clear 62	3	4	N/A
07/20/08	1	00:02am	00:18am	16	136	NB only - maint	-	clear 61	8	3.7	N/A
07/21/08	1	11:26am	11:30am	4		NB OP House garbage removal		cloudy 69	7		N/A
07/22/08	1	9:11am	9:20am	9	86	east bridge only maint lift	-	cloudy 58	5	4.8	N/A
07/22/08	2	9:44am	9:52am	8	86	east bridge only maint lift	-	cloudy 59	3	4.7	N/A
07/22/08	3	10:32am	10:39am	7	86	east bridge only maint lift	-	cloudy 59	5	4.4	N/A
07/25/08	1	3:56am	4:07am	11	70	"Tidewater"	down	clear 72	2	3.8	Barge
07/25/08	2	18:54pm	19:03pm	9	70	"Mad Dog"	down	clear 81	10	2	Unknown
07/27/08	1	23:20pm	23:34pm	14	136	test lift for dave johnson, west br only	-	cloudy 75	6	4	N/A
07/27/08	2	23:55pm	23:58pm	3	4	test lift west br only	-	cloudy 75	10	4.6	N/A
07/28/08	1	9:09am	9:16am	7	86	NB only - cable greasing	-	clear 62	calm	3.2	N/A
07/28/08	2	11:14am	11:25am	11	86	"Valkeraza" sailboat	up	clear 67	calm	2.6	Sail
07/28/08	3	13:47pm	13:54pm	7	86	NB only - cable greasing	-	clear 75	calm	2.8	N/A



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
07/29/08	1	3:45am	3:55am	10	70	"Daubi" + barges	down	clear 60	0	5.7	Barge
07/29/08	2	10:39am	10:47am	8	75	Tammra sailboat	up	cloudy 61	8	3.3	Sail
07/30/08	1	9:03	9:04am	1		remove a dead cat from A + B lanes SB					N/A
07/30/08	2	13:00pm	13:04pm	4		fixing back gates and ped gate SB					N/A
07/30/08	3	13:20pm	13:34pm	14		fixing back gates and ped gate SB					N/A
07/30/08	4	14:04pm	14:14pm	10		fixing back gates and ped gate SB					N/A
07/31/08	1	9:36am	9:37am	1		SB with br only traffic stop, checking back gate lights					N/A
08/02/08	1	1:51am	2:02am	11	85	"Challenger" + 4 barges	down	clear 55	6	2.9	Barge
08/12/08	1	9:52am	9:59am	7	60	sailboat "Anamcara"	up	cloudy 67	0	1.9	Sail
08/15/08	1	10:07am	10:22am	15	80	"Washugal" + Derrick + sailboat "Bonnie Vie"	down	clear 80	7	2.4	Barge
08/15/08	2	19:49pm	19:55pm	6	86	east br maint	-	clear 88	11	3.5	N/A
08/15/08	3	20:11pm	20:17pm	6	82	west br maint	-	clear			N/A
08/30/08	1	7:10am	7:20am	10	95	lungta (touch screen)	down	cloudy 55	5	5.3	Sail
08/31/08	1	3:15am	3:25am	10	72	Daubi (touch screen)	down	partly cloudy	calm	2.5	Barge
08/31/08	2	18:57pm	19:07pm	10	90	"Nancy Ann" sailboat (used touch screen)	up	cloudy 54	5	4.8	Sail
09/05/08	1	9:00am	9:13am	13	93	Lindy Marie with Derrick	up	clear 63	10	2.2	Barge
09/06/08	1	4:27am	4:42am	15	100	"Lissy Too" w/ 2 Derricks	up	c loudy 60	12	1.7	Barge
09/10/08	1	9:30am	9:38am	8	86	east bridge only to take maint up on N tower	-	clear 59	0	0.3	N/A
09/10/08	2	11:38am	11:45am	7	87	bring maint down	-	clear 65	7	-0.06	N/A
09/14/08	1	20:31pm	20:41pm	10	95	"Yaquina"dredge / used touch screen	up	clear 76	5	2.4	Federal
09/16/08	1	5:45am	5:56am	11	95	"Yaquina"	down	clear 61	0	3.1	Federal
09/16/08	2	19:34pm	19:43pm	9	100	"Yaquina"	up	clear 80	3	4.7	Federal
09/18/08	1	13:24pm	13:37pm	13	90	washugal with 2 spuds / derrick	up	cloudy 61	0	2	Barge
09/19/08	1	12:06pm	12:19pm	13	130	"Lindy Marie" with Derrick	down	cloudy 60	3	2.1	Barge
09/20/08	1	15:03pm	15:17pm	14	95	"Yaquina" touch screen	down	cloudy 63	calm	1.1	Federal
09/20/08	2	18:54pm	19:07pm	13	80	"Orca" sailboat, touch screen	up	cloudy 62	5	2.2	Sail
09/21/08	1	22:39pm	22:41pm	7	50	test lift for dave johnson	-	cloudy 59	calm	3.8	N/A
09/22/08	1	12:03pm	12:14pm	11	87	maint east br	-	partly cloudy	calm	1.9	N/A
09/22/08	2	13:32pm	13:39pm	7	87	maint east br	-	partly cloudy	calm	2	N/A
09/23/08	1	6:12am	6:21am	10	87	maint - east bridge only, pullout drawer	-	cloudy 48	5	0.8	N/A
09/23/08	2	12:43pm	12:54pm	11	86	""	-	clear 59	5	0.4	N/A
09/27/08	1	18:30pm	18:37pm	7	50	test lift both bridges, dave johnson, touch screen	-	clear 69	5	2.9	N/A
09/27/08	2	20:49pm	20:51pm	7	40	test lift both bridges, johnson	-	clear 69	5	2.9	N/A
09/27/08	3	21:12pm	21:19pm	11	131	test lift both bridges, dave johnson, touch screen	-	clear 66	5	2.5	N/A
10/09/08	1	9:23am	9:31am	8	87	NB only to take maint up on S tower	-	partly cloudy 48	0	-0.04	N/A
10/09/08	2	10:55am	11:04am	9	87	NB only maint personnel to cross over to N tower	-	partly cloudy 52	1	-0.05	N/A
10/09/08	3	11:14am	11:23am	9	87	NB only to bring maint personnel down	-	partly cloudy 54	0	0.05	N/A
10/09/08	4	18:00pm	18:08pm	8	65	make it so	up	rain 46	0	1.8	Sail
10/16/08	1	9:46am	9:56am	10	82	maint lift SB only to take personnel up on N tower	-	cloudy 52	10	2.5	N/A
10/16/08	2	13:30pm	13:39pm	9	82	maint lift SB only to bring maint personnel down	-	partly cloudy 58	5	1.3	N/A
10/17/08	1	9:34am	9:44am	10	82	maint lift SB only to take personnel up on S tower	-	fog 52	0	3	N/A
10/17/08	2	12:54pm	13:04pm	10	82	maint lift SB only to bring maint personnel back down	-	clear 62	0	2.5	N/A
10/23/08	1	9:21am	9:31am	10	87	maint lift to take personnel up on SE counter weight (ladders) east bridge only	-	cloudy 47	1	0.5	N/A
10/23/08	2	13:45pm	13:55pm	10	87	maint lift east bridge only to bring down maint personnel	-	clear 57	2	2.8	N/A
10/24/08	1	4:23am	4:33am	10	100	"Lewiston" for assist, "P.J. BriX" + Derrick	down	clear 41	2	2.4	Barge
10/28/08	1	11:05am	11:14am	9	86	east bridge maint lift	-	fog 50	calm	1.4	N/A
10/28/08	2	12:10pm	12:17pm	7	86	east bridge maint lift	-	cloudy 54	calm	1.1	N/A
10/30/08	1	11:40am	11:50am	10	90	"Patricia" w/spuds	up	cloudy 52	1	1.9	Barge
11/03/08	1	10:24am	10:35am	12	100	Buth and Manitowok	up	cloudy 52	10	2.5	Barge



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
11/24/08	1	10:25am	10:33am	8	87	maint lift	-	partly cloudy 47	3	1.9	N/A
11/24/08	2	11:34am	11:44am	10	86	maint lift	-	partly cloudy 49	3	2.3	N/A
11/24/08	3	12:08pm	12:18pm	10	86	maint lift	-	partly cloudy 49	0	2.5	N/A
11/25/08	1	11:25am	11:34am	9	95	make it so	down	cloudy 41	4	2.2	Sail
12/05/08	1	3:59am	4:18am	19		maint		clear 37	2		N/A
12/05/08	2	4:25am	4:39am	14		maint		clear 36	3		N/A
12/06/08	1	12:40pm	12:50pm	10	70	"Pegasus" sailboat	down	clear 44	calm	3.4	Sail
12/11/08	1	19:26pm	19:39pm	13	120	P.J. Brix + derrick	down	cloudy	calm	3.8	Barge
12/15/08	1	13:07pm	13:20pm	13	125	P.J. Brix + derrick	-	clear 25	25	3	Barge
12/23/08	1	1:36am	2:37am	61		east bridge clearing snow off of drawspan		cloudy 26			N/A
12/23/08	2	2:43am	4:20am	96		west bridge clearing snow off of drawspan		cloudy 27			N/A
12/26/08	1	23:45pm	23:50pm	5		maint		rain 41			N/A
12/27/08	1	2:06am	2:21am	15	136	test lift both bridges	-	rain 42		4.2	N/A
12/27/08	2	11:33am	11:45am	12	70	Orca	down	rain 49	12	3.5	Sail
12/27/08	1	00:01am	00:06am	5		maint		rain 41			N/A
12/29/08	1	21:08pm	21:20pm	12	90	ocean going tug "Pacific Freedom" + 1 barge a "PJ Brix"	down	cloudy 41	0	6.7	Barge
01/04/09	1	13:35pm	13:43pm	8	70	runaway	-	cloudy 35		9.4	Sail
01/05/09	1	10:57am	11:10am	13	136	test lift both bridges	-	cloudy 47	2	9.3	N/A
01/06/09	1	13:05pm	13:14pm	9	73	runaway	up	cloudy 53	6	9.6	Sail
01/07/09	1	9:53am	10:06am	13		traffic stop - NB only to grease barriers		cloudy 53	n/a		N/A
01/07/09	2	10:26am	10:38am	12		traffic stop - SB only to grease barriers		cloudy 53	n/a		N/A
01/08/09	1	4:09am	4:22am	13	100	"captain bob" + barges	down	rain 48		12.5	Barge
01/08/09	2	9:03am	9:17am	14	136	cascades with 4 barges	down	rain 48	n/a	12.8	Barge
01/08/09	3	9:10am	10:03am		125	ruth with Derrick	up	rain 48	n/a		Barge
01/09/09	1	1:30am	1:49am	19	136	automatic screen, test lift both bridges	-	cloudy 40		12.7	N/A
01/09/09	2	2:00am	2:24am	24	100	auto test lift both bridges, "outlaw" and barges	down	cloudy 40		12.7	Barge
01/09/09	3	2:31am	2:51am	20	136	pull out drawer, test lift both bridges	-	cloudy 38		12.6	N/A
01/09/09	4	3:04am	3:18am	14	136	auto, test lift both bridges	-	cloudy 39		12.5	N/A
01/09/09	5	5:10am	5:22am	12	125	auto - Yaquina Dredge, "Betty Lou" "Maverick"	up	cloudy 37		12.4	Federal
01/10/09	1	11:00am	11:11am	11	80	hurricane + 6	-	cloudy 36	calm	10.8	Barge
01/10/09	2	10:52am	11:03am	11	83	PJ Brix with barge	up	cloudy	n/a	10	Barge
01/11/09	1	9:07am	9:19am	12	70	Capt Bob	down	rain 44		8.9	Barge
01/12/09	1	00:14am	00:27am	13	136	auto test lift both bridges	-	fog 45		8.4	N/A
01/12/09	2	00:49am	00:58am	9	70	auto test lift both bridges	-	fog 45		8.4	N/A
01/12/09	3	1:08am	1:16am	8	83	auto test lift both bridges	-	fog 45		8.3	N/A
01/12/09	4	1:48am	1:55am	7	86	auto east bridge only	-	fog 45		8.2	N/A
01/12/09	5	2:15am	2:23am	8	86	auto west bridge only	-	fog 45		8.1	N/A
01/12/09	6	2:30am	2:43am	13	136	auto test lift both bridges	-	fog 45		8.1	N/A
01/12/09	7	2:50am	3:00am	10	crossover 86/82	pull out drawer, test lift both bridges	-	fog 45		8.1	N/A
01/12/09	8	9:43am	9:51am	8	86	east bridge maint	-	wet 45		8.2	N/A
01/12/09	9	11:09am	11:18am	9	86	east bridge maint	-	cloudy 45		8	N/A
01/12/09	1	12:44pm	13:00pm	16		east bridge maint					N/A
01/13/09	1	18:03pm	18:17pm	14	86	"willamette" + 4 barges (TS)	down	cloudy + fog 49	calm	8.8	Barge
01/14/09	1	9:44am	9:55am	11	120	"Ruth" w/Derrick	down	cloudy 39		7.5	Barge
01/14/09	2	21:33pm	21:45pm	12	86	"Lori B" + 1 barge	down	clear 39	calm	8.1	Barge
01/15/09	1	11:30am	11:45am	15	86	"Legend" w/4 barges	down	light fog 36		8.4	Barge
01/16/09	1	4:24am	4:38am	14	70	auto screen Lori B + Outlaw + barges	down	clear 35	calm	7.7	Barge
01/16/09	2	14:10pm	14:20pm	10	70	"Umatilla" w/steamer port., auto screen	down	clear 47		7.8	Barge



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
01/17/09	1	12:46pm	12:57pm	11	86	"Deschutes" + 4 barges (TS)	down	clear 41	3	7.1	Barge
01/17/09	2	16:41pm	16:54pm	13	85	"Chief" + 4 barges (TS)	down	clear 40	7	6.5	Barge
01/23/09	1	10:52am	11:04am	12	90	"Casey H" w/Derrick	up	cloudy 35	calm	4	Barge
01/23/09	2	21:36pm	21:47pm	9	100	PJ Brix	-	cloudy 37		4.5	Barge
01/27/09	1	10:10am	10:40am	30	90	Nakoa	up	snow 32	10	5	Barge
01/29/09	1	11:02am	11:10am	8	86	NB only to take maint + elec on towers	-	fog 34	calm	4.1	N/A
01/29/09	2	11:23am	11:31am	8	86	NB only to take bring personnel down	-	fog 33	calm	4	N/A
01/30/09	1	9:38am	9:47am	9	90	tug "Nikoa"	down	fog 32	calm	4.6	Barge
02/02/09	1	13:05pm	13:07pm	2		NB only					N/A
02/03/09	1	13:13pm	13:25pm	12	90	tug "Ruth" + Derrick barge	down	clear 52	4	3.8	Barge
02/06/09	1	10:10am	10:18am	8	86	maint lift NB only to take personnel up on N tower	-	rain 38	calm	2.5	N/A
02/06/09	2	11:25am	11:34am	9	86	maint lift NB only to bring down personnel	-	cloudy 41	calm	3.5	N/A
02/06/09	3	12:43pm	12:53pm	10	86	maint lift NB + SB both to bring down Roussea + elev	-	cloudy 45	4	3.8	N/A
02/10/09	1	12:36pm	13:00pm	24	136	ruth + Derrick barge	up	rain/snow 36	19	2.5	Barge
02/11/09	1	19:40pm	19:56pm	16	13	"Maverick" + 1 crane barge	up	clear 40	6	5.9	Barge
02/12/09	1	11:48am	11:57am	9	85	crown of camas w/Derrick	down	cloudy 36	calm	4.6	Barge
02/13/09	1	10:58am	11:07a,	9	86	NB only to take maint + elec on N tower	-	cloudy 43	12	4.7	N/A
02/13/09	2	13:09pm	13:17pm	8	86	NB only to bring maint + elec down from N tower	-	cloudy 44	8	4.8	N/A
02/15/09	1	22:40pm	22:47pm	7	80	auto west bridge only - test	-	cloudy 38	3	3.3	N/A
02/15/09	2	23:05pm	23:16pm	11	136	auto west bridge - test	-	cloudy 38	4	3.1	N/A
02/15/09	3	23:34pm	23:41pm	7	86	auto east bridge - test	-	cloudy 35	4	3	N/A
02/15/09	4	23:47pm	23:59pm	12	136	auto east bridge - test	-	cloudy 38	calm	3	N/A
02/16/09	1	00:32am	00:47am	15	136	drawer, both bridges - test	-	cloudy 38	calm	2.9	N/A
02/16/09	2	13:50pm	14:01pm	11	120	Lindy Marie	-	cloudy 49	calm	3.5	Barge
02/19/09	1	23:18pm	23:38pm	20	40	east and west bridge aux training	-	clear 44	5	1	N/A
02/19/09	2	23:50pm	23:59pm	9	40	east and west bridge aux training	-	clear 42		1.3	N/A
02/20/09	1	00:17am	00:28am	11	40	east and west bridge aux training	-	clear 42	calm	1.3	N/A
02/20/09	2	00:40am	00:53am	13	40	east and west bridge aux training	-	clear 42	calm	1.2	N/A
02/20/09	3	1:18am	1:32am	14	68	pull out drawer and maint screen	-	clear 41	calm	2.1	N/A
02/20/09	4	1:39am	1:48am	9	30	pull out drawer and maint screen	-	clear 40	calm	2.1	N/A
02/20/09	5	2:00am	2:14am	14	38	utilizing bypasses	-	clear 40	calm	2.3	N/A
02/20/09	6	3:11am	3:23am	12	40	east and west bridge aux	-	clear 40	calm	2.8	N/A
02/20/09	7	3:34am	3:44am	10	40	west bridge aux	-	clear 40	calm	2.8	N/A
02/20/09	8	4:13am	4:28am	15	30	east and west bridge maint screen and bypasses	-	clear 38	calm	2.8	N/A
02/20/09	9	13:07pm	13:21pm	14	120	Betty Lou, Maverick, Yaquinto	down	clear 51	calm	3.7	Federal
02/20/09	1	4:00am	4:05am	5		north gate house pennant training		clear 38	calm		N/A
02/22/09	1	15:51pm	15:59pm	8	70	"Barents Sea"	up	cloudy 42	17	4.8	Unknown
02/23/09	1	9:32am	9:42am	10	120	Betty Lou	down	rain 42	calm	2.5	Barge
02/23/09	2	10:18am	10:31am	13	80	Barents Sea	down	raim 42	calm	2.5	Unknown
02/27/09	1	19:06pm	19:19pm	13	90	"Aries" + Derrick	down	cloudy	calm	5.8	Barge
03/01/09	1	14:07pm	14:15pm	8	70	Annacara	down	rain 42	5	3.8	Unknown
03/03/09	1	10:39am	10:52am	13	110	Lindy Marie	down	cloudy 48	calm	5.6	Barge
03/06/09	1	1:17am	1:31am	14	80	construction barge "PJ Brix" and "Betsy L"	down	clear 40	calm	3.8	Barge
03/07/09	1	11:50am	12:12pm	17	85	touch screen "Defiance" + 4 barges	down	cloudy 44	9	4	Barge
03/07/09	2	17:24pm	17:37pm	13	100	touch screen "Lindy Marie" + 2 barges / 1 crane	up	cloudy 42	4	4.4	Barge
03/10/09	1	9:42am	9:43am	1		pier cap cleaning 5,6,7,8		cloudy 40	7		N/A
03/10/09	2	10:49am	10:53am	4		pier cap cleaning 5,6,7,8		cloudy 41	calm		N/A
03/10/09	3	11:35am	11:36am	1		pier cap cleaning 5,6,7,8		cloudy 42	4		N/A
03/19/09	1	4:51am	5:00am	9	85	PJ Brix + barge	down	cloudy 45	6	3.8	Barge



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
03/21/09	1	9:38am	9:45am	7	70	Annacara	up	cloudy	calm	2.5	Unknown
03/22/09	1	15:54pm	16:03pm	9	70	touch screen "Coqui" sailboat	down	cloudy 46	6	4.2	Sail
03/25/09	1	13:23pm	13:37pm	9	85	"Jim Moore" 1 barge	up	cloudy 50	calm	3.2	Barge
03/30/09	1	13:05pm	13:15pm	10	80	"Jim Moore" 1 barge	down	cloudy 45	5	5.9	Barge
03/31/09	1	19:00pm	19:10pm	10	80	touch screen "Alsea" fishing boat	up	partly cloudy 44	10	4.7	Fishing
04/02/09	1	6:12am	6:22am	10	80	sail vessel "Bonnievie"	down	cloudy 47	4	4.3	Sail
04/02/09	2	13:26pm	13:38pm	12	70	"Legend" w/4 barges	down	cloudy 49	6	5.9	Barge
04/04/09	1	12:40pm	12:49pm	9	70	make it so	up	clear	calm	4.8	Sail
04/07/09	1	12:25pm	12:34pm	9	80	maint east bridge only	-	clear 66	4	3.9	N/A
04/08/09	1	11:11am	11:19am	8	100	test lift east bridge only	-	cloudy 55	S-11	4.4	N/A
04/09/09	1	18:01pm	18:10pm	9	82	Bruce M	down	cloudy	W-3	5.8	Barge
04/14/09	1	10:57am	11:05am	8	73	runaway - sailboat	down	partly cloudy 45	SW 3	7.4	Sail
04/16/09	1	18:00pm	18:09pm	9	90	Daryl B	down	clear 64	S-11	6.1	Barge
04/17/09	1	11:08am	11:18am	10	81	maint lift SB only to remove roof used drawer, pier 2	-	cloudy 53	W-2	6.2	N/A
04/19/09	1	15:53pm			90	touch screen "Lori B" + 1 barge	down	clear 77	S 4	5.6	Barge
04/20/09	1	9:44am	9:58am	14	120	"Lindy Marie" + 1 Derek	-	clear 58	SW 2	5.3	Barge
04/23/09	1	3:16am	3:27am	11	85	"Legend" + fuel barge	down	clear 43	0	7	Barge
04/23/09	2	18:02pm	18:10pm	8	75	whisperer	down	cloudy	calm	7.5	Sail
04/24/09	1	21:58pm	22:08pm	10	85	"minnow"	-	clear 51	calm	9.2	Sail
04/25/09	1	6:00am	6:43am	43	2	maint lift for vactor NE corner (drawer)	-	cloudy 44	calm	10	N/A
04/25/09	2	7:54am	8:04am	10	12	lift to inspect NB/E Bridge (drawer)	-	cloudy 46	S-1	10	N/A
04/25/09	3	13:05pm	13:12pm	7	65	"fury"	-	cloudy	SW 8	10	Sail
04/26/09	1	10:15am	10:25am	10	65	willamette	down	cloudy	calm	9	Barge
04/26/09	2	12:41pm	12:52pm	11	70	"Ecstasy" "Whisperer" "Fury"	up	cloudy	calm	9.2	Sail
04/27/09	1	1:47am	1:59am	11	85	(drawers) "Lori B" + 1 big barge	down	cloudy 47	0	8.4	Barge
04/28/09	1	5:57am	5:59am	2	2	test lift NB only	-	rain 47	0	8.2	N/A
04/28/09	2	9:10am	9:21am	11	80	"minnow" sailboat	-	cloudy 47	calm	8.7	Sail
04/28/09	3	11:11am	11:21am	10	100	"lewiston"	-	cloudy 46	calm	8.8	Barge
04/29/09	1	1:47am	2:02am	15	80	"Lori B" cement barge	down	rain 45	1	7.8	Barge
04/30/09	1	20:17pm	20:27pm	10	70	Cascades	down	clear	calm	6.2	Barge
05/01/09	1	9:03am	9:15am	12	70	TSL - sailboat	up	clear 53	0	6.4	Sail
05/02/09	1	7:00am	7:07am	7	70	Annacara	down	rain	E-10	5.7	Sail
05/02/09	2	8:40am	8:47am	7	70	vallpariso	down	cloudy	E-12	5.4	Sail
05/02/09	3	17:24pm	17:34pm	10	85	touch screen vallpariso sailboat	up	partly cloudy 59	S-6	5.4	Sail
05/03/09	1	6:07am	6:14am	7	70	puralandra	down	cloudy	calm	6.1	Unknown
05/04/09	1	1:30am	1:44am	14	80	willamette barges	down	clear 50	5	5.5	Barge
05/05/09	1	14:01pm	14:10pm	9	100	make it so	down	cloudy 58	SW 10	6.1	Sail
05/07/09	1	18:01pm	18:09pm	8	75	make it so	up	cloudy	W-6	9.8	Sail
05/08/09	1	5:28am	5:37am	9	75	"tidewater" and barges	down	clear 43	0	10.3	Barge
05/08/09	2	10:01am	10:08am	7	70	sailboat "Seren"	down	clear 49	W-4	9.6	Sail
05/09/09	1	6:08am	6:22am	14	70	"defiance"	down	clear 45	N-9	9.3	Barge
05/09/09	2	14:30pm	14:53E 14:38W	23	60	runaway	up	clear	W-9	8	Sail
05/09/09	3	15:46pm	15:49pm	3	3	test - east bridge only	-	clear 67	W-4	8.1	N/A
05/09/09	4	16:10pm	16:13pm	3	3	test - east bridge only	-	clear 67	NW-4	8.1	N/A
05/09/09	5	22:50pm	22:53pm	3	3	test - east bridge only	-	clear 55	W-5	8.5	N/A
05/10/09	1	18:42pm	18:52pm	10	85	touch screen "serene" sailboat	up	cloudy 67	SE-1	7.4	Sail
05/12/09	1	9:20am	9:33am	13	90	lady washington	up	cloudy 48	8	7.8	Sail
05/12/09	2	12:50pm	13:03pm	13	90	hawaiian chiefton	up	partly cloudy 51	11	7.4	Sail
05/15/09	1	9:50am	10:02am	12	70	sailboat Valparizo	down	clear 30	SW-2	7.4	Sail



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
05/15/09	2	11:17am	11:24am	7	86	maint lift to take taurus + fisher on N tower	-	clear 54	W-3	7.4	N/A
05/15/09	3	12:50pm	12:57pm	7	86	maint lift to bring workers down	-	clear 58	w-4	7.2	N/A
05/15/09	4	13:24pm	13:33pm	9	70	sailboat Fury	-	clear 60	W-3	7.2	Sail
05/16/09	1	12:18pm	12:28pm	10	50	sailboat "Coqui" (drawers)	up	clear 65	4	7.4	Sail
05/17/09	1	7:12am	7:19am	7	86	maint lift to take Bush and Sallenger on S tower to band falcon	-	clear 53	W-3	7	N/A
05/17/09	2	8:03am	8:10am	7	86	maint lift to bring perssonel down	-	clear 55	W-3	7	N/A
05/17/09	3	13:47pm	14:00pm	13	90	"Deschutes" + 4 barges (drawer)	down	clear 74	3	7	Barge
05/17/09	4	16:55pm	17:10pm	10	85	touch screen "Fury" + "Valparizo" sailboats	up	clear 79	W-10	6.8	Sail
05/17/09	5	18:43pm	18:54pm	11	85	touch screen "Makina Girl" sailboat	up	clear 80	W-4	6.9	Sail
05/18/09	1	10:40am	10:46am	6		west bridge hoist removal		clear 61	W-2		N/A
05/20/09	1	18:26pm	18:36pm	10	70	albatross	down	clear 63	7	8.6	Sail
05/20/09	2	22:10pm	22:22pm	12	70	Capt Bob	down	clear 56	5	8.7	Barge
05/21/09	1	00:31am	00:42am	11	75	willamette (2 barges) drawer	down	cloudy 52	W-4	8.7	Barge
05/22/09	1	2:08am	2:22am	14	75	"tidewater" and barges	down	clear 52	10	9.6	Barge
05/22/09	2	12:46pm	12:55pm	9	75	sailboat "Jilani" auto screen	down	clear 65	7	9.5	Sail
05/22/09	3	19:04pm	19:11pm	7	65	tango	down	clear 69	9	9.5	Sail
05/23/09	1	11:51am	11:58am	7	50	sailboat Fury	down	clear	NW-10	10.2	Sail
05/23/09	2	19:22pm	19:32pm	11	85	touch screen "Chief" + 4 barges	down	clear 70	NW-4	9.4	Barge
05/24/09	1	20:58pm	21:10pm	12	85	touch screen "descutes" + 4 barges	down	clear 64	W-2	8.8	Barge
05/25/09	1	5:15am	5:27am	12	75	Tidewater + barges	down	clear 47	0	9.4	Barge
05/25/09	2	14:48pm	14:58pm	10	85	touch screen "tango" sailboat	up	clear 66	W-3	9.3	Sail
05/25/09	3	22:03pm	22:13pm	10	85	touch screen "Kiangle" sailboat	up	clear 62	NW-3	9.9	Sail
05/25/09	4	23:13pm	23:24pm	11	85	"Legend" + barges	down	clear 61	NW-10	9.8	Barge
05/27/09	1	18:09pm	18:19pm	10	70	sailboat "Genesis" drawer	up	clear 75	W-6	10.5	Sail
05/27/09	2	18:44pm	18:53pm	9	70	Descutes 2 barges (drawer)					Barge
05/29/09	1	10:38am	10:48am	10	80	sailboat "autumn wind"	down	clear 69	W-4	10.4	Sail
05/30/09	1	16:19pm	16:25pm	16	85	touch screen "Legend" + 2 barges	down	clear 85	W-10	10	Barge
05/30/09	2	21:24pm	21:35pm	11	85	touch screen "Chief" + 4 barges	down	clear 78	W-5	9.8	Barge
05/31/09	1	2:30am	2:40am	10	65	"Deschutes" with 3 barges	down	clear 64	calm	10.2	Barge
05/31/09	2	13:38pm	13:48pm	10	60	auto Willamette 4 barges	-	clear	W-3	10	Barge
06/01/09	1	1:20am	1:32am	12	75	Lori B w/barge (knife river)	down	clear 60	4	10.2	Barge
06/02/09	1	5:45am	5:52am	7	60	tidewater + 4 barges	down	rain 61	N-2	10.3	Barge
06/02/09	2	11:01am	11:09am	8	60	Lock Fine sailboat	down	cloudy 61	W-3	10	Sail
06/03/09	1	13:13pm	13:23pm	10	75	PT Thompson / Tug	up	cloudy 77	W-6	9.9	Barge
06/03/09	2	18:03pm	18:12pm	9	70	touch screen "Point Thompson" - tug	down	clear 86	W-6	9.9	Barge
06/03/09	3	21:41pm	21:51pm	10	75	touch screen "Legend" + 4 barges	down	cloudy 80	NW-3	9.9	Barge
06/04/09	1	12:11pm	12:24pm	13	100	willamette w/PT Thompson	up	cloudy 70	calm	10	Barge
06/04/09	2	19:05pm	19:12pm	7	70	autumn wind	up	cloudy	E-14	10	Sail
06/05/09	1	14:02pm	14:12pm	10	65	tidewater w/4 barges	down	rain 60	calm	10	Barge
06/06/09	1	6:40am	6:49am	9	75	autumn wind	down	cloudy 56	SE-6	10.6	Sail
06/06/09	2	7:28am	7:37am	9	65	Deschutes	down	cloudy 56	SE-5	10.6	Barge
06/08/09	1	2:46am	2:57am	11	70	"outlaw" + barges	down	cloudy 56	1	10	Barge
06/08/09	2	18:42pm	19:51pm	9	70	touch screen "Vagabond" sailboat	up	clear 71	W-2	10	Sail
06/09/09	1	9:03am	9:13am	10	95	auto screen Make It So sailboat	down	clear 60	0	11	Sail
06/09/09	2	10:06am	10:17am	11	90	fishing boat "alsea"	down	clear 61	1	10.9	Fishing
06/10/09	1	11:23am	11:34am	11	85	sailboat "albatross"	up	cloudy 59	E-3	10.4	Sail
06/11/09	1	9:08am	9:20am	12	25	maint west bridge	-	cloudy 59	4	9.4	N/A
06/11/09	2	12:01pm	12:20pm	19	136	willamette / assist tugs with barge	down	cloudy 63	2	9	Barge
06/11/09	3	21:21pm	21:30pm	9	60	tidewater	down	cloudy 64	6	8.5	Barge



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
06/12/09	1	00:23am	00:41am	18	80	"Lori B" + barges	down	cloudy 59	NW-4	8.4	Barge
06/12/09	2	9:52am	10:05am	13	90	"willamette" - 1 barge, 2 -assist tugs, 2 police escorts	up	cloudy 60	NW-2	7.9	Barge
06/13/09	1	10:18am	10:26am	9	65	clearwater	down	cloudy	calm	7	Barge
06/13/09	2	15:34pm	15:43pm	9	66	touch screen "wanderer" sailboat	up	overcast 68	calm	6.5	Sail
06/13/09	3	16:53pm	17:00pm	7	65	touch screen BonneVie and Symmetry sailboats	down	overcast 69	calm	6.6	Sail
06/14/09	1	00:49am	1:00am	11	75	auto screen "Deschutes" + 3 barges	down	cloudy 59	2	7	Barge
06/16/09	1	10:10am	10:25am	15	100	hawaiian chiefton, lady washington	down	partly cloudy 61	2	5.3	Sail
06/17/09	1	9:42am	9:49am	7	86	maint lift east bridge only	-	cloudy 62	2	5.5	N/A
06/17/09	2	11:07am	11:15am	8	86	maint lift east bridge only	-	cloudy 63	3	5.5	N/A
06/17/09	3	12:00pm	12:07pm	7	86	maint lift east bridge only	-	cloudy 64	4	5.5	N/A
06/18/09	1	18:14pm	18:28pm	14	115	willametter, cascades + large barge	down	partly cloudy	calm	5	Barge
06/19/09	1	9:47am	10:03am	16	125	cascades + willamette + large barge	up	cloudy 63	SE-3	6.5	Barge
06/19/09	2	13:52pm	14:00pm	8	90	"argosy" fishing vessel	up	rain 62	S-2	6.4	Fishing
06/20/09	1	2:22am	2:36am	14	80	defiance + barges	down	cloudy 57	3	7	Barge
06/20/09	2	18:37pm	18:46pm	9	60	deschutes + 4 barges	down	cloudy 59	NW-W-5	7.4	Barge
06/20/09	1	23:54pm	00:22am	28		west bridge sign crew work		cloudy 59	4		N/A
06/23/09	1	9:13am	9:21am	8	86	east bridge maint oiling CWT tails	-	clear 56	W-2	7.3	N/A
06/23/09	2	10:47am	11:12am	25	136	clearwater/PT Thompson w/large barge + police escorts	down	clear 61	W-4	6.8	Barge
06/23/09	3	12:35pm	12:42pm	7	86	east bridge maint crew down from towers	-	clear 65	w-4	6.4	N/A
06/24/09	1	5:18am	5:28am	10	120	PT Thompson + barge, willamette, clearwater	up	clear 59	NW-3	7.9	Barge
06/25/09	1	9:02am	9:10am	8	87	maint lift	-	cloudy 60	SE-2	8.4	N/A
06/25/09	2	10:09am	10:19am	9	86	maint lift	-	cloudy 61	W-6	8.2	N/A
06/26/09	1	22:42pm	23:03pm	21	136	west bridge only - maint	-	clear 61	NW-11	6.8	N/A
06/26/09	2	23:07pm	23:18pm	11	87	east bridge only - maint	-	clear 61	NW-11	6.8	N/A
06/26/09	3	23:21pm	23:24pm	22	136	west bridge only - maint	-	clear 60	NW-5	6.8	N/A
06/27/09	1	00:18am	00:39am	21	136	east bridge only - maint	-	clear 59	NW-5	6.6	N/A
06/27/09	2	00:54am	1:15am	21	136	east bridge only - maint	-	clear 57	NW-6	6.4	N/A
06/27/09	3	2:25am	2:36am	11	86	east bridge only - maint	-	clear 55	NW-10	6	N/A
06/27/09	4	2:52am	3:05am	13	86	east bridge only - maint	-	clear 54	NW-4	6	N/A
06/27/09	5	3:08am	3:29am	21	136	west bridge only - maint	-	clear 54	NW-4	6	N/A
06/27/09	6	3:30am	3:40am	10	86	east bridge only - maint	-	clear 54	calm	6	N/A
06/27/09	7	4:37am	3:47am	20	136	west bridge only - maint	-	clear 54	calm	5.9	N/A
06/27/09	8	3:44am	3:50am	6	3	east bridge only - maint	-	clear 54	calm	5.9	N/A
06/27/09	9	4:06am	4:32am	26	136	east bridge only - maint	-	clear 53	NW-3	5.8	N/A
06/27/09	10	4:36am	4:55am	19	136	east bridge only - maint	-	clear 52	NW-2	5.6	N/A
06/27/09	11	5:05am	5:17am	12	86	east bridge only - maint	-	clear 51	NW-4	6.5	N/A
06/27/09	12	8:26am	8:46am	20	100	PT Thompson	down	clear	calm	6	Barge
07/02/09	1	5:40am	5:47am	7	80	"Tamar" sail vessel	down	clear 42	NW-3	4.9	Sail
07/02/09	2	10:03am	10:12am	9	80	auto screen "Whisper" sailboat	down	clear 70	3	3.5	Sail
07/02/09	3	22:30pm	22:37pm	7	76	argosy	down	clear 76	W-4	2.7	Fishing
07/05/09	1	13:30pm	13:37pm	7	65	whisper	up	cloudy 78	calm	2	Sail
07/06/09	1	4:19am	4:35am	16	120	"Mt. Hood" Derrick barge	down	cloudy 57	SE-4	5	Barge
07/09/09	1	12:01pm	12:10pm	9	90	Pacific Wolf tug	up	partly cloudy 64	SW-W-3	4.7	Barge
07/09/09	2	18:10pm	18:17pm	7	75	pacific wolf	down	clear	NW-7	4	Barge
07/11/09	1	6:10am	6:18am	8	70	Wakadui sailboat	down	clear 60	E-4	5	Sail
07/11/09	2	16:58pm	17:07pm	9	70	sailboat (couldn't verify name)	up	cloudy 74	E-1	3.4	Sail
07/13/09	1	9:31am	9:36am	5		SB only					N/A
07/15/09	1	5:25am	5:37am	12	130	Bruce M Derrick	up	clear 58	NW-6	3.6	Barge
07/16/09	1	9:41am	9:49am	8	95	Catamaran "ALII NV II"	up	clear 68	W-3	2.8	Sail



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
07/16/09	2	13:18pm	13:26pm	8	95	"ALII NV II"	down	clear 81	W-5	3	Sail
07/17/09	1	10:55am	11:09am	15	86	maint lift (grease delivery)	-	sunny 74	4	2.2	N/A
07/17/09	2	22:03pm	22:14pm	11	86	maint east bridge	-	-	-	-	N/A
07/17/09	3	22:35pm	22:50pm	15	18	west bridge	-	-	-	-	N/A
07/17/09	4	23:04pm	23:17pm	13	32	west bridge maint	-	clear 74	NW-2	3.6	N/A
07/17/09	5	23:22pm	23:33pm	11	86	east bridge maint	-	clear 75	NW-2	3.8	N/A
07/17/09	6	23:36pm	23:53pm	17	47	west bridge maint	-	clear 73	NW-1	4.1	N/A
07/17/09	7	23:57pm	00:04am	7	86	east bridge maint	-	clear 72	NW-4	4.2	N/A
07/17/09	8	00:04am	00:23am	19	69	west bridge maint	-	clear 72	NW-2	4.5	N/A
07/18/09	1	00:32am	00:52am	20	90	west bridge maint	-	clear 71	NW-7	4.7	N/A
07/18/09	2	00:58am	1:22am	24	102	west bridge maint	-	clear 70	NW-4	5	N/A
07/18/09	3	1:28am	1:51am	23	114	west bridge maint	-	clear 69	NW-3	5.2	N/A
07/18/09	4	1:59am	2:25am	26	126	west bridge maint	-	clear 69	NW-1	5.2	N/A
07/18/09	5	2:30am	3:02am	32	136	west bridge maint	-	clear 68	NW-5	5.2	N/A
07/18/09	6	3:20am	3:39am	19	30	east bridge maint	-	clear 67	NW-3	5.1	N/A
07/18/09	7	3:47am	4:04am	17	51	east bridge maint	-	clear 65	NW-6	4.8	N/A
07/18/09	8	4:18am	4:40am	22	72	east bridge maint	-	clear 65	5	4.6	N/A
07/18/09	9	4:44am	5:04am	20	92	east bridge maint	-	clear 64	9	4.4	N/A
07/18/09	10	5:08am	5:28am	20	103	east bridge maint	-	clear 62	3	4.2	N/A
07/18/09	11	5:32am	5:54am	22	112	east bridge maint	-	clear 62	NW-4	4	N/A
07/18/09	12	6:00am	6:25am	25	124	east bridge maint	-	clear 61	NW-3	3.9	N/A
07/18/09	13	6:31am	6:58am	27	136	east bridge maint	-	clear 62	NW-8	3.8	N/A
07/18/09	14	7:10am	7:19am	9	86	east bridge maint	-	-	-	-	N/A
07/18/09	15	21:58pm	22:07pm	9	86	east bridge only - maint	-	clear 68	NW-4	2.1	N/A
07/18/09	16	22:17pm	22:25pm	8	86	east bridge only - maint	-	clear 68	NW-4	2.2	N/A
07/18/09	17	22:33pm	22:41pm	8	86	east bridge only - maint	-	clear 68	NW-11	2.2	N/A
07/18/09	18	22:44pm	23:04pm	20	60	west bridge only - maint	-	clear 65	NW-8	2.3	N/A
07/18/09	19	23:18pm	23:43pm	25	136	west bridge only - maint	-	clear 64	NW-3	2.5	N/A
07/19/09	1	00:07am	00:27am	20	70	west bridge only - maint	-	clear 62	NW-6	3.2	N/A
07/19/09	2	00:36am	00:57am	21	136	west bridge only - maint	-	clear 60	NW-4	3.8	N/A
07/19/09	3	1:07am	1:15am	8	86	west bridge only - maint	-	clear 59	NW-3	4.2	N/A
07/19/09	4	1:22am	1:30am	8	86	west bridge only - maint	-	clear 59	NW-3	4.3	N/A
07/20/09	1	10:01am	10:14am	13	86	maint lift east bridge	-	clear 67	NW-6	3	N/A
07/20/09	2	18:40pm	18:50pm	10	80	Iron Wood	-	clear 88	NW-9	4	Federal
07/22/09	1	18:30pm	18:39pm	9	80	whisper sailboat	down	sunny 76	NW-10	4.4	Sail
07/23/09	1	18:48pm	18:57pm	9	75	Iron Wood	down	clear	W-5	3	Federal
07/27/09	1	13:16pm	13:24pm	8	70	"Last Resort" sailboat	up	clear 86	W-4	3.2	Sail
07/30/09	1	12:53pm	13:04pm	11	100	sailboat "radiance"	up	clear 83	W-1	3.3	Sail
07/31/09	1	12:18pm	12:26pm	8	70	sailboat "Sweet Dreams"	down	clear 73	W-3	2.9	Sail
08/01/09	1	4:50am	4:59am	9	75	sailboat "wakadoo!"	up	clear 63	N-2	3.8	Sail
08/01/09	2	12:11pm	12:18pm	7	85	"Last Resort" sailboat	down	clear 62	n-4	3.1	Sail
08/03/09	1	2:20am	2:22am	2		training / west bridge		clear 63	NW-5		N/A
08/03/09	2	3:03am	3:05am	2		training / west bridge		clear 63	NW-6		N/A
08/03/09	3	3:42am	3:45am	3		training / west bridge		clear 63	NW-6		N/A
08/03/09	4	3:51am	3:53am	2		training / east bridge		clear 63	NW-6		N/A
08/03/09	5	4:01am	4:03am	2		training / east bridge		clear 63	NW-6		N/A
08/03/09	6	4:25am	4:27am	2		training / east bridge		clear 63	NW-6		N/A
08/04/09	1	4:00am	4:11am	11	82	drawer training west bridge	-	clear 59	NW-3	4.5	N/A
08/04/09	2	4:16am	4:24am	8	60	drawer training west bridge	-	clear 59	NW-3	4.5	N/A



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
08/04/09	3	4:30am	4:40am	10	60	drawer training east bridge	-	clear 59	NW-3	4.5	N/A
08/04/09	4	4:41am	4:52am	11	50	drawer training east bridge	-	clear 59	NW-3	4.5	N/A
08/04/09	5	23:39pm	23:49pm	10	50	drawer training west bridge	-	partly cloudy 61	NW-4	2	N/A
08/04/09	1	12:35pm	12:37pm	2		training / west bridge		clear 78	NW-4		N/A
08/04/09	2	12:44pm	12:46pm	2		training / east bridge		clear 78	NW-4		N/A
08/04/09	3	12:51pm	12:54pm	3		training / west bridge		clear 78	NW-4		N/A
08/04/09	4	12:59pm	1:02pm	3		training / east bridge		clear 78	NW-4		N/A
08/04/09	5	1:20pm	1:22pm	2		training / west bridge		clear 78	NW-4		N/A
08/04/09	6	1:24pm	1:26pm	2		training / east bridge		clear 78	NW-4		N/A
08/04/09	7	1:31pm	1:33pm	2		training / west bridge		clear 78	NW-4		N/A
08/04/09	8	1:37pm	1:40pm	3		training / east bridge		clear 78	NW-4		N/A
08/04/09	9	1:44pm	1:46pm	2		training / west bridge		clear 78	NW-4		N/A
08/04/09	10	1:50pm	1:52pm	2		training / east bridge		clear 78	NW-4		N/A
08/04/09	11	1:54pm	1:56pm	2		training / west bridge		clear 78	NW-4		N/A
08/04/09	12	2:06pm	2:08pm	2		training / east bridge		clear 78	NW-4		N/A
08/04/09	13	3:17pm	3:20pm	3		training both east/west		clear 78	NW-4		N/A
08/04/09	14	3:25pm	3:28pm	3		training both east/west		clear 78	NW-4		N/A
08/04/09	15	3:37pm	3:40pm	3		training both east/west		clear 78	NW-4		N/A
08/04/09	16	3:46pm	3:49pm	3		training both east/west		clear 78	NW-4		N/A
08/05/09	1	00:14am	00:29am	15	136	pull put drawer. Training east and west bridge	-	clear 60	NW-3	2	N/A
08/05/09	2	00:44am	1:06am	22	136	Ledgen and barges	up	clear 60	NW-6	1.8	Barge
08/05/09	3	1:18am	1:37am	19	136	training / both spans	-	clear 59	NW-5	1.8	N/A
08/05/09	4	1:44am	2:00am	16	136	training / both spans	-	clear 59	NW-3	1.8	N/A
08/05/09	5	2:25am	2:38am	13	136	training / both spans	-	clear 58	NW-0	2.5	N/A
08/05/09	6	2:45am	3:01am	16	136	training / both spans	-	clear 59	NW-3	2.8	N/A
08/05/09	7	3:10am	3:17am	7	30	training east span	-	clear 58	NW-4	2.8	N/A
08/05/09	8	3:23am	3:30am	7	50	training west span	-	clear 58	NW-5	2.8	N/A
08/05/09	9	3:37am	3:44am	7	86	training east span	-	clear 58	NW-2	3	N/A
08/05/09	10	3:54am	4:01am	7	82	training west span	-	clear 58	NW-1	3.8	N/A
08/05/09	11	4:13am	4:21am	8	70	training east span	-	clear 58	NW-3	4	N/A
08/05/09	1	4:37am	4:41am	4		gate close and open training		clear 58	NW-5		N/A
08/05/09	2	23:54pm	23:57pm	3		training east gates/barrier		clear 61	NW-2		N/A
08/06/09	1	00:46am	1:02am	16	136	auto screen east and west bridge	-	clear 59	NW-2	2.5	N/A
08/06/09	2	1:15am	1:32am	17	136	auto screen east and west bridge	-	clear 59	NW-5	2	N/A
08/06/09	3	1:38am	1:51am	13	136	auto screen east and west bridge	-	clear 59	NW-6	2.5	N/A
08/06/09	4	2:15am	2:30am	15	136	auto screen east and west bridge	-	clear 59	NW-7	2.5	N/A
08/06/09	5	2:44am	2:55am	11	70	auto screen east and west bridge	-	clear 60	NW-4	2.5	N/A
08/06/09	6	2:59am	3:05am	6	60/80	auto screen east and west bridge	-	clear 60	NW-6	2.5	N/A
08/06/09	7	3:13am	3:21am	9	54/60	auto screen east and west bridge	-	clear 60	NW-6	3	N/A
08/06/09	8	3:25am	3:35am	10	55/54	auto screen east and west bridge	-	clear 60	NW-2	2.8	N/A
08/06/09	9	3:34am	3:45am	11	35	maint screen west bridge	-	clear 60	NW-6	3.2	N/A
08/06/09	10	4:15am	4:21am	6	35	auto screen east and west bridge	-	clear 60	NW-6	3	N/A
08/06/09	11	4:27am	4:37am	10	35	maint screen east bridge	-	clear 60	NW-2	4	N/A
08/06/09	1	00:03am	00:06am	3		training west bridge		clear 61	NW-6		N/A
08/06/09	2	00:16am	00:20am	4		training east bridge		clear 61	NW-1		N/A
08/06/09	3	00:28am	00:32am	4		training west bridge		clear 61	NW-5		N/A
08/06/09	4	3:55am	4:05am	10		training west bridge maintenance control		clear 60	NW-5		N/A
08/06/09	5	9:50am	9:53am	3		traffic stop to check out NB - back gates no function on NW back gate elec notified		cloudy 61	W-2		N/A
08/06/09	6	10:14am	10:18am	4		traffic stop to check SB - front gates no indicator light on NW gate on touch screen		cloudy 61	W-2		N/A



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
08/06/09	7	12:02pm	12:04pm	2		traffic stop SB for elec + D Johnson for NE gate test		cloudy 62	S-2		N/A
08/06/09	8	12:59pm	13:02pm	3		"same as last stop"		cloudy 63	E-5		N/A
08/06/09	9	13:37pm	13:39pm	2		"same as last stop"		cloudy 65	E-3		N/A
08/06/09	10	13:53pm	13:55pm	2		Dave found a computer erroe, says problem with SB - E gate is fixed		cloudy 65	E-4		N/A
08/06/09	11	23:44pm	23:52pm	3		NGH pen station		cloudy 63	W-4		N/A
08/06/09	12	23:57pm	00:03am	6		NGH pen station		cloudy 63	W-4		N/A
08/07/09	1	00:45am	1:04am	19	20	west bridge aux	-	cloudy 63	NW-2	2.2	N/A
08/07/09	2	1:09am	1:23am	14	82	west bridge aux	-	cloudy 63	NW-2	2.1	N/A
08/07/09	3	2:16am	2:28am	12	20	east bridge aux	-	cloudy 62	NW-2	2	N/A
08/07/09	4	2:53am	3:02am	9	20	west bridge drawer	-	cloudy 62	NW-2	1.9	N/A
08/07/09	5	3:07am	3:21am	14	136	west bridge drawer	-	cloudy 62	NW-2	1.9	N/A
08/07/09	6	3:44am	3:59am	13	100	west bridge maint	-	cloudy 61	NW-2	1.9	N/A
08/07/09	7	4:10am	4:19am	9	90	west bridge auto	-	cloudy 61	NW-2	2.3	N/A
08/07/09	8	19:12pm	19:30pm	18	80	whisperer sailboat	up	cloudy	4	3.9	Sail
08/07/09	1	00:12am	00:19am	7		SGH east and west bridge		cloudy 63	NW-2		N/A
08/07/09	2	00:22am	00:25am	3		SGH east and west bridge		cloudy 63	NW-2		N/A
08/07/09	3	1:28am	1:38am	10		NGH E bridge barrier test		cloudy 62	NW-2		N/A
08/07/09	4	1:58am	2:01am	3		e bridge barrier test		cloudy 61	NW-2		N/A
08/07/09	5	18:45pm	18:52pm	7		test gates / barriers		cloudy 67	3		N/A
08/10/09	1	00:40am	00:53am	13	75	training east /west	-	clear 62	NW-3	2.6	N/A
08/10/09	2	1:14am	1:23am	9	70	training east /west	-	clear 61	NW-3	2.3	N/A
08/10/09	3	2:05am	2:25am	20	100	training east /west	-	clear 60	NW-2	2	N/A
08/10/09	4	9:00am	9:10am	10	90	"Lewiston" + Derrick barge	up	clear 62	E-6	3.6	Barge
08/11/09	1	3:33am	3:49am	16	136	training / idzardi	-	clear 64	NW-3	2.8	N/A
08/11/09	2	3:55am	4:13am	18	136	training / idzardi	-	clear 64	NW-3	1.8	N/A
08/12/09	1	22:07pm	22:25pm	E -20 W - 22	136	test lift both bridges	-	clear 64	NW-3	4.3	N/A
08/13/09	1	22:48pm	23:01pm	13	136	test lift	-	cloudy 63	4	4.4	N/A
08/13/09	2	23:11pm	23:23pm	12	136	test lift	-	cloudy 62	4	4.4	N/A
08/14/09	1	1:42am	1:53am	11	100	"Lewiston" + Derrick	up	cloudy 58	1	3.5	Barge
08/16/09	1	23:30pm	23:45pm	15	136+10	test lift west bridge - johnson	-	clear 66	W-NW-4	1.4	N/A
08/17/09	1	00:02am	00:14am	12	136	test lift west bridge for johnson	-	clear 63	NW-3	2.5	N/A
08/22/09	1	3:26am	3:40am	14	136	"Dredge Yaquina"	up	cloudy 62	W-3	2.1	Federal
08/24/09	1	9:02am	9:13am	11	86	maint EB only	-	partly cloudy	calm	3.9	N/A
08/24/09	2	9:36am	9:43am	7	86	maint EB only	-	partly cloudy	calm	3.9	N/A
08/24/09	3	13:25pm	13:33pm	8	86	maint EB only	-	clear 67	W-2	2.3	N/A
08/25/09	1	4:54am	5:06am	12	100	"Yaquina" Dredge	down	cloudy 56	SE-5	1.7	Federal
08/25/09	2	10:40am	10:58am	18	86	maint lift	-	cloudy 56	2	3.1	N/A
08/25/09	3	18:51pm	19:02pm	11	90	"Yaquina" Dredge	up	clear 69	W-6	1.9	Federal
08/26/09	1	9:01am	9:09am	8	86	lift NB only to take personnel on towers	-	clear 55	W-1	1.9	N/A
08/26/09	2	10:10am	10:20am	10	95	make it so	up	clear 59	W-2	2.4	Sail
08/26/09	3	13:03pm	13:10pm	7	86	lift to bring maint personnel down NB only	-	clear 69	W-4	1.9	N/A
08/27/09	1	9:00am	9:13am	13	86	maint lift NB only to retrieve equipment from tower	-	clear 67	W-2	1.3	N/A
09/01/09	1	9:08am	9:24am	16	100	Uquina	-	cloudy 59	NW-0	1.5	Federal
09/01/09	2	18:38pm	18:50pm	12	90	"Yaquina" Dredge	up	clear 73	NW-3	2.8	Federal
09/01/09	1	10:16am	10:24am	8		grease southwest barrier		61	NW-2		N/A
09/01/09	2	10:37am	10:44am	7		grease southeast barrier		62	NW-2		N/A
09/02/06	1	9:16am	9:23am	7	86	maint lift to take EMST personnel on towers	-	partly cloudy 58	W-3	1.5	N/A
09/02/06	2	10:14am	10:23am	9	86	maint lift so personnel can cross over to south tower	-	partly cloudy 62	calm	1.1	N/A
09/02/06	3	10:50am	10:58am	8	86	maint lift to bring down personnel	-	clear 64	S-3	1	N/A



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
09/03/09	1	11:16am	11:30am	14	100	"Yaquina"	-	cloudy 68	SW-1	1	Federal
09/03/09	2	19:08pm	19:16pm	8	75	Sweet Dreams	up	clear	calm	3	Sail
09/10/09	1	00:18am	00:34am	16	110	"Mary B" Derrick barge	down	cloudy 62	NW-2	2.2	Barge
09/14/09	1	4:13am	4:26am	13	136	"Maverick" + Derrick barge	up	cloudy 61	E-3	2.5	Barge
09/17/09	1	9:14am	9:25am	11	110	"Darryl B" w/Derrick	down	cloudy 58	W-1	2	Barge
09/26/09	1	7:20am	7:48am	28	136	NB maint	-	clear	calm	1	N/A
09/26/09	2	8:06am	8:39am	33	136	NB maint	-	clear	calm	1	N/A
09/26/09	3	9:03am	9:24am	21	86	NB maint	-	partly cloudy	calm	0.08	N/A
10/01/09	1	9:28am	9:51am	23		maintenance		55	SE-4		N/A
10/03/09	1	3:39am	3:51am	12	100	training	-	cloudy 47	N-0	2.5	N/A
10/03/09	2	4:40am	4:52 AM	12	100	training	-	cloudy 47	N-1	2.9	N/A
10/03/09	3	5:25am	5:35am	10	28	training	-	cloudy 47	NW-2	3	N/A
10/12/09	1	00:39am	00:44am	5	50	test lift east bridge only	-	clear 48	1	3.4	N/A
10/14/09	1	9:58am	10:11am	13	100	lady washington	up	cloudy 51	E-11	2.6	Sail
10/20/09	1	13:09pm	13:12pm	3		SB only material pick-up		cloudy 53	calm		N/A
10/24/09	1	5:20am	5:33am	13	100	test	-	47	NW-1	0.8	N/A
10/24/09	2	5:49am	6:00am	11	86	test	-	48	SW-1	0.8	N/A
10/29/09	1	11:19am	11:29am	10	86	sailing vessel Spirit	down	rain 45	E-11	0.9	Sail
10/31/09	1	4:43am	4:57am	14	91	"Legend" + 4 barges	down	rain 55	NW-2	3.4	Barge
11/02/09	1	00:05am	00:11am	6	50	test NB only for D. Johnson	-	clear 44	W-1	1.5	N/A
11/02/09	2	00:31am	00:37am	6	50	test NB only for D. Johnson	-	clear 43	W-4	1.4	N/A
11/09/09	1	9:31am	9:42am	11	80	"Nova" w/Derrick	up	rain 48	E-5	4	Barge
11/10/09	1	11:25am	11:34am	9	100	Northbound maint lift for D. Johnson	-	cloudy 52	5	4.5	N/A
11/17/09	1	4:10am	4:20am	10	90	"Willamette" Derrick	up	rain 48	SE-2	4.5	Barge
11/17/09	2	10:55am	11:05am	10	100	lady washington	down	rain 48	S-3	4.3	Sail
11/23/09	1	11:18am	11:34am	16	136	"Lindy Marie" with Derrick	up	clear 47	E-7	4.2	Barge
11/24/09	1	10:08am	10:21am	13	115	"Lindy Marie" with Derrick	down	cloudy 47	E-2	3.9	Barge
11/25/09	1	12:16pm	12:28pm	12	90	"Huskey" + Spud + Derrick	down	sunny 52	E-1	3.9	Barge
12/02/09	1	5:07am	5:19am	12	126	"Maverick" - Dredge, Yaquina	up	cloudy 37	W-4	4.2	Federal
12/04/09	1	11:33am	11:45am	12	100	"Huskey" + Spud + Derrick	down	clear 35	calm	3.2	Barge
12/22/09	1	13:27pm	13:40pm	13	90	"Invader" + 2 barges + 1 spud	down	cloudy 40	W-11	4.8	Barge
12/24/09	1	12:36pm	12:45pm	9	85	"Lewiston" + spud barge	down	foggy 30	W-NW-2	4.8	Barge
12/31/09	1	10:04am	10:13am	9	60	"Bruce M" + 3 chip barges	down	rain 37	E-6	3.8	Barge
11/11/10	1	10:55am	11:08am	12	86	NB lift only to take maint up w/bird cannons	-	cloudy 42	E-3	4.9	N/A
11/11/10	2	11:59am	12:07pm	8	86	NB lift only for maint to cross-over to south end/tower	-	cloudy 43	E-3	5.4	N/A
01/13/10	1	22:24pm	22:52pm	22	136	test	-	cloudy 48	S-3	5.8	N/A
01/14/10	1	8:38am	8:39am	1		sarkinen materials drop in Gore Point		cloudy 44	E-5		N/A
01/16/10	1	7:31am	7:41am	10	85	Tug "Sirus"	up	rain 44	E-3	6	Barge
01/20/10	1	13:08pm	13:14pm	6	86	maint - east bridge only	-	cloudy 46	0	6	N/A
01/20/10	2	14:11pm	14:17pm	7	86	maint - east bridge only	-	cloudy 48	0	5.8	N/A
01/22/10	1	13:30pm	13:40pm	10	120	"Nova" + Derrick barge	up	cloudy 46	SE-2	5.6	Barge
01/25/10	1	9:01am	9:08am	7	86	maint lift NB only to retrieve propane bottles and turn off cannons	-	cloudy 41	E-5	4.4	N/A
02/01/10	1	9:27am	9:39am	12	86	maint lift NB only to restart bird cannons	-	cloudy 41	W-1	5	N/A
02/11/10	1	10:25am	10:29am	4		clearance light pier #7		74	E-9		N/A
02/11/10	2	10:50am	10:53am	3		completion of maint (Light pier #7)		74	E-7		N/A
02/17/10	1	9:48am	10:00am	12	130	Umatilla	-	sunny 43	NW-3	4.2	Barge
02/19/10	1	13:15pm	13:32pm	17	136	Clarkston / Yaquina	-	clear 57	W-11	3.5	Federal
02/25/10	1	12:33pm	12:51pm	18	125	Maverick	-	cloudy 52	E-4	4.8	Barge



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
02/26/10	1	11:19am	11:35am	16	100	Maverick	-	rain 46	E-5	3.2	Barge
03/03/10	1	9:13am	9:20am	8	86	maintenance lift	-	cloudy 43	W-1	5.7	N/A
03/03/10	2	9:38am	9:50am	12	86	maintenance lift	-	cloudy 44	E-1	5.5	N/A
03/09/10	1	12:22pm	12:25:30pm	3.5							N/A
03/13/10	1	22:22pm	22:35pm	13	130	"Howard Olsen" + oil platform	down	clear 43	calm	3.1	Barge
03/15/10	1	10:25am	10:27am	2		maint to cross road deck southbound to get to high span piers (5-8)		hazy 47	W-4		N/A
03/15/10	2	10:54am	10:57am	3		maint to cross road deck southbound to get to high span piers (5-8)		hazy 48	W-5		N/A
03/15/10	3	11:26am	11:28am	2		" " for return to sidewalk		hazy 50	W-5		N/A
03/15/10	4	11:57am	11:59am	2		traffic stop SB so maint can pick up debris (span - 8)		hazy 53	W-2		N/A
03/17/10	1	19:34pm	19:46pm	12	100	"TJ Brix" + Derrick + tug	-	clear 52	NW-6	4.3	Barge
03/20/10	1	00:22am	00:30am	8	110	"Nancy Ann" + spud barge	up	clear 56	W-11	2.7	Barge
03/21/10	1	10:22am	10:34am	12	80	Tug "Sirus"	down	cloudy 51	E-5	4.6	Barge
03/25/10	1	5:52am	6:04am	12	120	Jim Moore (tug), PJ Brix w/Lucky logger (crane)	up	rain 46	SE-5	2.5	Barge
03/25/10	2	21:10pm	21:23pm	13	110	Jim Moore, PJ Brix - lucky logger	down	cloudy 47	SE-5	1.8	Barge
03/28/10	1	17:31pm	17:39pm	8	80	sailboat "Anamcam"	down	cloudy 53	SE-2	5.7	Sail
04/04/10	1	2:08am	2:25am	17	85	"Outlaw"	down	42	E-13	5	Barge
04/06/10	1	18:30pm	18:45pm	15	130	"Christy T" + 1 Derrick barge	up	cloudy 52	W-6	3.7	Barge
04/08/10	1	9:10am	9:25am	15	130	Ramona III	down	cloudy 40	W-7	3.3	Sail
04/14/10	1	10:15am	10:25am	10	80	Betty Lue	up	45	W-4	4	Sail
04/17/10	1	9:10am	9:19am	9	80	"Autumn Carra" (sailboat)	up	cloudy 52	E-7	5.2	Sail
04/18/10	1	19:24pm	19:36pm	12	90	"Arctic Lady" fishing boat	up	clear 71	NW-2	3.3	Fishing
04/22/10	1	00:59am	1:14am	15	70	Rebel + 6 barges	down	cloudy 46	W-10	4.8	Barge
04/30/10	1	9:48am	9:56am	9	80	Tango	down	partly cloudy 49	SW-3	6.5	Sail
05/01/10	1	8:34am	8:43am	9	80	"Valperezso" (sailboat)	down	cloudy 49	S-2	6.5	Sail
05/01/10	2	17:39pm	17:48pm	9	90	"Valperezso" (sailboat)	up	cloudy 56	NW-11	4.9	Sail
05/04/10	1	00:54am	1:07am	13	70	"Dauby" + 2 barges	-	cloudy 43	S-5	5.8	Barge
05/11/10	1	6:00am	6:11am	11	75	Adam cara, unidentified vessel	down	cloudy 50	0	5.5	Sail
05/14/10	1	00:00am	00:13am	13	30	aux motor test east and west bridge	-	59	6	5	N/A
05/14/10	2	00:23am	00:35am	12		aux motor test east and west bridge	-	59	6	5	N/A
05/14/10	3	00:43am	00:55am	12		aux motor test east and west bridge	-	59	6	5	N/A
05/14/10	4	1:06am	1:17am	11		aux motor test east and west bridge	-	59	6	5	N/A
05/14/10	5	1:20am	1:36am	16	75	Lori B	-	58	1	5	Barge
05/14/10	6	1:48am	1:58am	10	30	aux motor test east and west bridge	-	57	1	5	N/A
05/14/10	7	3:46am	3:54am	8	30	maint lift	-	54	0	5.9	N/A
05/14/10	8	4:08am	4:21am	13	136	maint test lift	-	53	0	6	N/A
05/14/10	1	2:24am	2:31am	7		trng traffic stops east and west bridge		57	1		N/A
05/14/10	2	2:38am	2:43am	5		trng traffic stops east and west bridge		57	1		N/A
05/14/10	3	2:50am	2:56am	6		trng traffic stops east and west bridge		57	1		N/A
05/14/10	4	3:01am	3:07am	6		trng traffic stops east and west bridge		55	1		N/A
05/14/10	5	3:08am	3:15am	7		trng traffic stops east and west bridge		55	NW-3		N/A
05/14/10	6	3:16am	3:24am	8		trng traffic stops east and west bridge		55	0		N/A
05/18/10	1	9:05am	9:20am	15		SB only barrier greasing		57	E-3		N/A
05/18/10	2	9:32am	9:45am	13		NB only barrier greasing		57	3		N/A
05/18/10	3	10:01am	11:00am			east and west bridge traffic stop for text		59	S-5		N/A
05/20/10	1	13:45pm	13:58pm	13	70	"Daubi"	-	partly cloudy 52	SW-5	6.5	Barge
05/21/10	1	11:28am	11:40am	12	50	maint lift	-	cloudy 47	E-10	6.4	N/A
05/21/10	2	1:15am	1:30am	15	19	maint lift	-	cloudy 46	E-4	6.8	N/A
05/21/10	3	1:45am	2:00am	15	20	maint lift	-	cloudy 46	E-1	6.8	N/A
05/21/10	4	2:51am	3:00am	9	20	maint lift	-	cloudy 46	E-4	6.5	N/A



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
05/21/10	5	13:30pm	13:36pm	6	30	maint lift	-	cloudy 49	E-2	7	N/A
05/21/10	1	2:16am	2:24am	8		maint test		cloudy 46	E-4		N/A
05/21/10	2	2:30am	2:38am	8		maint test		cloudy 46	E-4		N/A
05/21/10	3	2:44am	2:50am	6		maint test		cloudy 46	E-6		N/A
05/22/10	1	6:12am	6:29am	17	50	shadow line (could not open bridge)	down				Sail
05/22/10	2	7:33am	7:42am	9	50	shadow line	down	cloudy 44	SE-2	7.5	Sail
05/22/10	3	23:47pm	23:52pm	5	25	test lift west bridge	-	49	W-0	6.9	N/A
05/23/10	1	00:04am	00:15am	11	30	test lift	-	48	W-2	7	N/A
05/23/10	2	00:19am	00:46am	17	136	test lift east bridge	-	48	SW-0	7.2	N/A
05/23/10	3	00:58am	1:14am	16	136	test lift west bridge	-	48	SW-0	7.3	N/A
05/23/10	4	1:28am	1:44am	17	30	test lift east bridge	-	48	SW-1	7.4	N/A
05/23/10	5	1:46am	2:00am	14	30	test lift west bridge	-	47	SW-1	7.7	N/A
05/25/10	1	1:56am	2:05am	9	60	Dauby + 2 sand barges	-	cloudy 54	E-5	7.4	Barge
05/25/10	2	22:02pm	22:15pm	13	65	Bruce M + 2 chip barges, Legend + 3 barges	down	rain 54	W-2	7	Barge
05/27/10	1	3:34am	3:48am	14	65	Dauby + 2 gravel barges	down	clear 47	0	6.8	Barge
05/27/10	2	5:01am	5:10am	9	75	Genesis (sailboat)	down	cloudy 47	0	7.5	Sail
05/27/10	3	11:52am	12:00pm	9	80	whisper/spirit	down	cloudy 57	W-4	6.2	Sail
05/28/10	1	19:34pm	19:41pm	7	80	"autumn wind"	-	rain 41	SE-1	6.4	Sail
05/29/10	1	23:40pm	23:53pm	13	136	test lift	-	53	NW-3	5.5	N/A
05/30/10	1	11:26am	11:37am	11	100	"smooth sailing" "Whisper"	up and down	57	E-2	6.1	Sail
05/31/10	1	14:04pm	14:14pm	10	80	sailboat "Tango"	up	cloudy 65	S-3	6.6	Sail
06/02/10	1	3:07am	3:17am	10	75	Dauby + 2 sand barges	down	rain 58	E-9	6	Barge
06/03/10	1	5:37am	5:45am	8	65	Ceste fivon (sailboat)	down	sunny 48	E-1	7.5	Sail
06/04/10	1	3:03am	3:14am	11	70	"Dauby" + 2 barges	down	rain 49	NW-4	10.2	Barge
06/04/10	2	9:00am	9:10am	10	100	Make It So	down	rain 52	W-2	10.8	Sail
06/04/10	3	10:33am	10:47am	15	60	"Lori B"	down	clear 55	N-12	11.8	Barge
06/05/10	1	3:59am	4:14am	13	60	Cascade	down	49	NW-11	12	Barge
06/06/10	1	9:12am	9:21am	9	60	"sailboat Onnie"	down	rain 57	calm	13.4	Sail
06/07/10	1	9:13am	9:23am	10	70	"chief"	down	cloudy 58	S-1	13.4	Barge
06/07/10	1	2:09am	2:13am	4		training - west bridge only		cloudy 56	0		N/A
06/07/10	2	3:12am	3:16am	4		training - west bridge only		cloudy 56	0		N/A
06/07/10	3	3:26am	3:28am	2		training - west bridge only		cloudy 56	NE-1		N/A
06/07/10	4	3:45am	3:47am	2		training - east bridge only		cloudy 56	0		N/A
06/07/10	5	4:02am	4:05am	3		training - east bridge only		cloudy 56	0		N/A
06/07/10	6	4:36am	4:38am	2		training - east bridge only		cloudy 55	NW-1		N/A
06/07/10	7	4:51am	4:52am	1		training - west bridge only		cloudy 55	NW-1		N/A
06/07/10	8	5:05am	5:07am	2		training - east bridge only		cloudy 54	NW-4		N/A
06/08/10	1	2:12am	2:22am	10	60	Dauby + 2 sand barges	down	cloudy 55	W-5	13.7	Barge
06/08/10	1	1:44am	1:46am	2		training - west bridge only		cloudy 55	W-4		N/A
06/08/10	2	2:45am	2:47am	2		training - east bridge only		cloudy 54	NW-4		N/A
06/08/10	3	3:00am	3:02am	2		training - east bridge only		cloudy 53	0		N/A
06/08/10	4	3:10am	3:12am	2		training - west bridge only		cloudy 53	0		N/A
06/08/10	5	3:29am	3:31am	2		training - west bridge only		cloudy 52	0		N/A
06/08/10	6	3:34am	3:36am	2		training - west bridge only		cloudy 52	0		N/A
06/08/10	7	4:07am	4:09am	2		training - east bridge only		cloudy 52	0		N/A
06/08/10	8	4:12am	4:14am	2		training - west bridge only		cloudy 52	0		N/A
06/08/10	9	4:27am	4:30am	3		training east and west bridge		cloudy 52	N-2		N/A
06/08/10	10	4:41am	4:44am	3		training east and west bridge		cloudy 52	N-3		N/A
06/08/10	11	4:57am	5:00am	3		training east and west bridge		clear 51	NW-2		N/A



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
06/09/10	1	1:40am	1:50am	10	30	training lift east bridge	-	cloudy 53	SE-5	14	N/A
06/09/10	2	2:02am	2:08am	6	30	training lift west bridge	-	cloudy 53	E-5	14	N/A
06/09/10	3	2:21am	2:27am	6	30	training lift east bridge	-	rain 53	SE-5	14	N/A
06/09/10	4	2:49am	2:57am	8	60	training lift west bridge	-	rain 53	4	14	N/A
06/09/10	5	3:05am	3:13am	8	60	training lift east bridge	-	rain 52	E-6	14	N/A
06/09/10	6	3:30am	3:41am	8	86/82 crossover	training lift east and west crossover	-	rain 53	E-6	14	N/A
06/09/10	7	3:59am	4:06am	7		training lift east and west	-	rain 53	E-5	14	N/A
06/09/10	8	4:22am	4:36am	14		training lift east and west	-	rain 53	E-6	14.1	N/A
06/09/10	9	4:57am	5:05am	8	30	training lift east and west	-	rain 53	E-4	14.1	N/A
06/09/10	10	9:15am	9:25am	10	70	Bruce M + 2 sawdust barges	down	cloudy 59	E-4	14	Barge
06/09/10	11	13:57pm	14:07pm	10	60	Sundial	-	cloudy 60	SE-3	14	Barge
06/09/10	1	1:06am	1:09am	3		training east and west bridge		cloudy 54	SE-6		N/A
06/09/10	2	1:22am	1:25am	3		training east and west bridge		cloudy 54	SE-6		N/A
06/10/10	1	00:42am	00:49am	7	30	training lift east and west	-	cloudy 53	SE-2	13.9	N/A
06/10/10	2	1:02am	1:11am	9	60	training lift east and west drawer	-	cloudy 53	SE-2	13.9	N/A
06/10/10	3	1:27am	1:36am	9	50	training lift east and west drawer	-	cloudy 52	SE-2	13.9	N/A
06/10/10	4	1:46am	1:53am	7	10	training lift east and west drawer	-	cloudy 52	SE-5	14	N/A
06/10/10	5	2:34am	2:50am	16	75	hurricane and a six pack	down	rain 52	0	14	Barge
06/10/10	6	3:01am	3:09am	8	83	training lift east bridge	-	rain 52	S-3	14	N/A
06/10/10	7	3:15am	3:23am	8	87	training lift west bridge	-	rain 52	0	14	N/A
06/10/10	8	3:29am	3:40am	11	100	Dauby + 2 barges	down	rain 52	0	14	Barge
06/10/10	9	3:50am	3:59am	9	125	training lift east bridge	-	rain 52	0	14	N/A
06/10/10	10	4:04am	4:20am	16	136	Chief + 3 barges	down	rain 52	0	14	Barge
06/10/10	11	5:01am	5:10am	9	65	PJ Brix + Jim Moore + 1 barge	up	rain 52	S-2	14	Barge
06/10/10	12	9:05am	9:19am	14	70	clearwater	down	rain 53	S-2	14.2	Barge
06/10/10	13	10:46am	10:58am	12	60	"Catherine B"	down	rain 54	S-3	14.2	Barge
06/10/10	14	19:59pm	20:10pm	11	60	"Cascades" + "Spirit of 98"	down	cloudy 56	W-5	14	Barge
06/10/10	1	4:30am	4:33am	3		training traffic stop east bridge		rain 52	S-2		N/A
06/10/10	2	4:39am	4:42am	3		training traffic stop west bridge		rain 52	S-2		N/A
06/10/10	3	4:50am	4:52am	2		training traffic stop east bridge		rain 52	0		N/A
06/11/10	1	00:29am	00:36am	7	30	training bridge lift east and west bridge	-	cloudy 53	W-2	14.1	N/A
06/11/10	2	1:00am	1:08am	8	40	training bridge lift east and west bridge	-	cloudy 53	NW-3	14.1	N/A
06/11/10	3	1:22am	1:36am	14	136	training bridge lift east and west bridge	-	cloudy 53	NW-2	14.1	N/A
06/11/10	4	2:08am	2:22am	14	136	training bridge lift east and west bridge	-	cloudy 53	SW-1	14.1	N/A
06/11/10	5	2:41am	2:49am	8	30E / 40W	training bridge lift east and west bridge	-	cloudy 53	SW-1	14.1	N/A
06/11/10	6	4:04am	4:11am	7	40E / 30W	training bridge lift east and west bridge	-	cloudy 53	SW-1	14.1	N/A
06/11/10	7	4:20am	4:27am	7	30E / 40W	training bridge lift east and west bridge	-	cloudy 53	SW-1	14.1	N/A
06/11/10	8	4:42am	4:49am	7	35E / 30W	training bridge lift east and west bridge	-	cloudy 52	SW-1	14.2	N/A
06/11/10	9	5:52am	6:02am	10	65	"Lori B" 65' lift east and west	down	cloudy 52	NW-1	14.25	Barge
06/11/10	10	11:15am	11:25am	9	65	Tropical	up	partly cloudy 56	NW-4	14.3	Unknown
06/11/10	11	12:48pm	13:00pm	12	70	Chief	down	partly cloudy 57	W-5	14.3	Barge
06/11/10	1	23:54pm	23:58pm	4		training traffic stop west bridge		cloudy 54	W-3		N/A
06/11/10	2	00:11am	00:14am	3		training traffic stop east bridge		cloudy 54	W-2		N/A
06/12/10	1	3:26am	3:40am	14	66	Defiance	down	53	NW-2	14.5	Barge
06/12/10	2	10:35am	10:44am	9	66	"raven"	down	clear 58	W-4	14.6	Unknown
06/13/10	1	6:06am	6:20am	14	60	Deschutes	down	56	NW-1	14.5	Barge
06/13/10	2	8:40am	8:49am	9	60	PJ Brix + Jim Moore	down	clear 59	W-3	14.4	Barge
06/13/10	3	20:45pm	20:56pm	11	73	California Girl sailboat	up	clear 61	W-10	13	Sail
06/14/10	1	23:34pm	23:43pm	9	120	training lift east and west	-	clear 53	W-4	12.7	N/A



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
06/14/10	2	00:21am	00:32am	11	80	training lift east and west	-	clear 52	NW-3	12.6	N/A
06/14/10	3	00:13am	1:30am	17	30	Hurricane + Maverick + barges	down	clear 51	NW-3	12.5	Barge
06/14/10	4	1:57am	2:05am	8	30	trng	-	clear 51	NW-3	12.5	N/A
06/14/10	5	2:23am	2:30am	8	85	trng	-	clear 51	NW-3	12.5	N/A
06/14/10	6	3:06am	3:17am	11	86/83	trng	up	clear 50	N-5	12.3	N/A
06/14/10	7	4:05am	4:19am	14	50/50	training	-	clear 49	0	12.1	N/A
06/14/10	8	4:25am	4:35am	10	65	training	-	clear 49	N-12	12.1	N/A
06/14/10	9	9:42am	9:51am	9	65	"Symmetry"	down	clear 51	N-3	12.1	Sail
06/14/10	10	10:52am	11:04am	12	70	"chief"	down	cloudy 53	W-3	11.7	Barge
06/15/10	1	00:13am	00:23am	10	80	training lift east and west	-	cloudy 52	W-11	10.5	N/A
06/15/10	2	00:30am	00:43am	13	80	Dauby + 2 barges	down	cloudy 52	W-11	10.5	Barge
06/15/10	3	1:03am	1:13am	10	abort	training lift east and west	-	cloudy 52	W-14	10.5	N/A
06/15/10	4	1:25am	1:40am	15	136 full	training lift east and west	-	cloudy 51	W-7	10.5	N/A
06/15/10	5	2:16am	2:25am	9	80	training lift east and west	-	cloudy 51	W-7	10.5	N/A
06/15/10	6	2:30am	2:33am	3		traffic stop	-	cloudy 51	W-5	10.5	N/A
06/15/10	7	3:53am	3:03am	10	100	training bridge east and west	-	cloudy 51	W-4	10.4	N/A
06/15/10	8	3:14am	3:26am	12	86	training east bridge	-	cloudy 51	W-5	10.3	N/A
06/15/10	9	3:41am	3:47am	6	abort	training east and west	-	cloudy 50	W-5	10.3	N/A
06/15/10	10	3:59am	4:07am	8	70	training east and west	-	cloudy 50	W-3	10.3	N/A
06/15/10	11	4:21am	4:34am	13	10/25, 82/31	training lift	-	cloudy 50	W-1	10.2	N/A
06/15/10	12	4:42am	4:53am	11	5	training lift in bypass mode	-	cloudy 50	0	10.2	N/A
06/15/10	13	5:00am	5:10am	10	6	training lift in bypass mode	-	cloudy 50	W-1	10.2	N/A
06/15/10	14	6:20am	6:30am	10	100	Arctic lady 100'	-	cloudy 50	W-3	10.4	Fishing
06/16/10	1	9:44am	9:54am	10	60	Athesa	up	51	SE-3	10.8	Sail
06/17/10	1	2:05am	2:19am	14	80	Dauby + two barges	down	cloudy 54	SW-2	11	Barge
06/17/10	2	10:06am	10:18am	12	75	Rapscallion	down	cloudy 55	W-2	11.1	Sail
06/17/10	3	18:23pm	18:32pm	9	75	"Tango"	down	cloudy 59	N-4	10.8	Sail
06/18/10	1	00:37am	00:49am	12	80	"chief" 2 barges	down	cloudy 53	NW-5	11.2	Barge
06/18/10	2	18:01pm	18:12pm	11	70	sailboat "St Marie" + "Lori B"	down	cloudy 66	NW-3	10.7	Barge
06/19/10	1	5:39am	6:02am	23	30	maint east bridge north end	-	cloudy 53	0	11	N/A
06/19/10	2	6:13am	6:42am	29	30	maint east bridge north end	-	cloudy 53	0	11	N/A
06/19/10	3	6:52am	7:19am	27	30	east bridge north end	-	cloudy 54	SE-3	10.8	N/A
06/19/10	4	7:29am	7:55am	26	30	west bridge north end	-	cloudy 53	SE-1	10.8	N/A
06/19/10	5	8:16am	8:46am	30	30	west bridge north end	-	cloudy 53	SE-3	10.4	N/A
06/19/10	6	8:56am	9:24am	26	30	east bridge south end	-	cloudy 53	SE-3	10.3	N/A
06/20/10	1	8:49am	9:01am	12	70	"Clearwater" + 4 barges	down	rain 53	0	8.9	Barge
06/20/10	2	9:29am	9:40am	11	70	"legend" + 3 barges	down	rain 53	0	8.8	Barge
06/20/10	3	15:28pm	15:38pm	10	70	sailboat "St Marie"	up	rain 58	SE-5	8.7	Sail
06/22/10	1	1:27am	1:39am	12	85	Dauby + 2 barges	down	cloudy 57	NW-4	9	Barge
06/22/10	2	18:56pm	19:05pm	9	80	"Lori B" + barges	down	cloudy 72	NW-8	9.5	Barge
06/26/10	1	9:07am	9:18am	11	70	sailboats - "Jenny's Joy" + Legend	down	cloudy 56	W-5	10	Sail
06/23/10	1	13:44pm	13:55pm	11	55	Bruce M	down	clear 74	W-3	9.8	Barge
06/23/10	2	9:32am	9:37am	5		pub equipment		clear 63	W-3		N/A
06/24/10	1	00:55am	1:07am	12	80	"chief" + barge	down	clear 62	NW-2	9.9	Barge
06/24/10	2	5:15am	5:28am	13	80	"Cascade"	down	clear 57	NW-3	10.5	Barge
06/25/10	1	1:31am	1:44am	13	80	"rebel" + 2 barges	down	clear 60	NW-5	9.9	Barge
06/29/10	1	13:21pm	13:30pm	9	70	"Wind Raven" sail vessel	down	partly cloudy 61	0	8.2	Sail
06/29/10	2	21:45pm	21:53pm	8	80	Affamation (sailboat)	down	clear 60	NW-9	8.9	Sail
07/01/10	1	3:02am	3:12am	10	60	Dauby + 2 barges	down	57	W-NW-4	8.7	Barge



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
07/01/10	2	18:05pm	18:13pm	7	65	St Marie	down	cloudy 60	E-1	8.5	Sail
07/02/10	1	19:05pm	19:13pm	8	80	"Wakadui" sailboat	down	clear 60	calm	5.9	Sail
07/03/10	1	13:53pm	14:05pm	12	90	"Sirius" (tug)	up	clear 62	N-2	6	Barge
07/03/10	2	22:47pm	23:00pm	13	80	"Sirius"	-	clear 61	NW-6	6.2	Barge
07/05/10	1	4:25am	4:35am	10	90	"Autumn Cara" sailing vessel	up	cloudy 53	NW-2	4.6	Sail
07/05/10	2	15:21pm			80	"St Marie" (sailboat)	up	cloudy 63	NW-8	3.9	Sail
07/06/10	1	10:10am	10:22am	12	105	Willamette spud, Lassen spud, barge	up	clear 64	8	4	Barge
07/06/10	2	13:16pm	13:25pm	9	90	Lassen and spud barge	down	clear 76	9	3.8	Barge
07/11/10	1	10:07am	10:17am	10	100	"radiant"	down	cloudy	W-3	5.3	Sail
07/12/10	1	18:44pm	18:52pm	8	80	"Afimation" sailboat	up	clear 64	NW-7	4.9	Sail
07/14/10	1	5:16am	5:39am	23	86	maintenance lift	-	cloudy 54	NW-1	4.9	N/A
07/14/10	2	12:03pm	12:27pm	25	86	maintenance lift	-	clear 70	NW-9	5	N/A
07/14/10	1	5:51am	6:08am	17		washington drillinh equipment locating		clear 54	NW-1		N/A
07/15/10	1	5:32am	5:40am	8	86	maintenance lift	-	clear 60	N-3	4	N/A
07/15/10	2	11:23am	11:34am	11	86	maintenance lift	-	clear 69	NW-5	4.9	N/A
07/16/10	1	2:58am	3:11am	13	80	"Chief" + 2 barges	down	clear 54	NW-6	4.7	Barge
07/17/10	1	16:51pm	16:59pm	8	80	"Maddog" sailboat	up	clear 71	W-5	3.3	Sail
07/18/10	1	13:16pm	13:36pm	20	136	"Willamette" w/one massive barge loaded	down	partly cloudy 61	W-2	3.3	Barge
07/20/10	1	9:20am	9:39am	19	87	west bridge cable scrape	-	cloudy 54	NW-8	3.4	N/A
07/21/10	1	3:51am	4:11am	20	136	maintenance lift	-	cloudy 55	NW-7	4.4	N/A
07/21/10	2	4:19am	4:30am	11	38	maintenance lift	-	cloudy 55	NW-5	4.3	N/A
07/21/10	3	4:42am	4:58am	16	27	maintenance lift	-	cloudy 55	NW-3	4.2	N/A
07/21/10	4	5:10am	5:19am	9	39	maintenance lift	-	cloudy 55	NW-4	4	N/A
07/21/10	5	9:48am	10:07am	19	86	maintenance lift (east bridge)	-	cloudy 58	NW-2	2.5	N/A
07/21/10	6	12:34pm	12:42pm	8	75	Valbare ZO	-	clear 63	W-2	2	Unknown
07/21/10	7	21:47pm	22:05pm	18	70	maint - west bridge only	-	clear 72	NW-2	2.2	N/A
07/21/10	8	22:15pm	22:34pm	19	136	maint - west bridge only	-	clear 69	NW-4	2.2	N/A
07/21/10	9	21:47pm	22:13pm	27	136	maint - west bridge only	-	clear 68	W-4	2.1	N/A
07/21/10	10	23:32pm	00:01am	29	136	maint - west bridge only	-	clear 64	W-6	2.8	N/A
07/22/10	1	00:43am	00:52am	9	86	maintenance list east bridge	-	clear 61	NW-2	3.6	N/A
07/22/10	2	00:21am	1:49am	28	136	maint lift west only	-	clear 59	0	4.5	N/A
07/22/10	3	2:01am	2:30am	29	136	maint lift west only	-	clear 59	NW-1	4.7	N/A
07/22/10	4	3:00am	3:09am	9	86	maint lift east only	-	clear 57	NW-2	5	N/A
07/22/10	5	9:00am	9:17am	17	85	willamette	-	clear 59	NW-2	3.9	Barge
07/22/10	6	14:05pm	14:16pm	9	80	whisper	-	clear 68	NW-6	2	Sail
07/23/10	1	21:25pm	21:40pm	15	7	maint lift east bridge onlt adjust shims - south end	-	clear 73	NW-6	3.1	N/A
07/25/10	1	19:37pm	19:47pm	10	90	"Radiance" sailboat	up	clear 85	NW-5	4.4	Sail
07/26/10	1	18:10pm	18:19pm	9	80	Ironwood	up	clear 86	NW-11	3.4	Federal
07/29/10	1	18:00pm	18:09pm	9	80	Ironwood	down	clear 79	N-9	2.7	Federal
07/31/10	1	14:51pm	15:01pm	10	80	"Wakadui" sailboat	up	partly cloudy 63	W-2	2	Sail
08/01/10	1	12:23pm	12:38pm	15	136	Willamette with Derrick	down	partly cloudy 64	W-4	2.3	Barge
08/02/10	1	18:53pm	19:02pm	9	80	"whisper" sailboat	up	clear 75	NW-3	0.9	Sail
08/03/10	1	10:12am	10:21 AM	9	100	Tug "Lassen" with Derrick + 3 assist tug	up	cloudy 59	NW-2	1.3	Barge
08/03/10	2	11:50am	12:03pm	13	100	"Lassen" w/ 1 spud, 1 Derrick. 3 tug, "chinook"	down	cloudy 61	W-2	1.5	Barge
08/04/10	1	21:40pm	21:58pm	18	73	east bridge only - maint	-	partly cloudy 75	NW-2	2.1	N/A
08/04/10	2	22:20pm	22:44pm	24	136	east bridge only - maint	-	partly cloudy 72	N-1	3.5	N/A
08/04/10	3	23:13pm	23:31pm	18	107	east bridge only - maint	-	partly cloudy 72	N-1	3.5	N/A
08/04/10	4	23:43pm	23:58pm	16	136	east bridge only - maint	-	partly cloudy 72	N-1	4.3	N/A
08/05/10	1	00:15am	00:37am	22	136	east bridge maint lift	-	cloudy, calm	2	5	N/A



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
08/05/10	2	1:16am	1:25am	9	86	east bridge maint lift	-	cloudy, calm	2	5	N/A
08/05/10	3	1:45am	2:08am	22	136	east bridge maint lift	-	cloudy, calm	2	5	N/A
08/05/10	4	2:17am	2:39am	2	136	east bridge maint lift	-	cloudy, calm	2	4.5	N/A
08/05/10	5	3:11am	3:28am	16	86	east bridge maint lift	-	cloudy, calm	2	4.5	N/A
08/10/10	1	10:07am	10:17am	10	20	west bridge HVAC delivery	-	rain 57	calm	3.4	N/A
08/10/10	1	9:01am	9:06am	5		NB HVAC delivery		cloudy 58	NW-2		N/A
08/12/10	1	13:55pm	14:05pm	10	75		down	clear 72	W-2	2.8	N/A
08/12/10	2	10:25am	10:29am	4		traffic stop NB					N/A
08/14/10	1	7:23am	7:34am	11	115	Nakoa	up	clear 66	NW-1	3	Barge
08/16/10	1	1:03am	1:22am	19		traffic stop for WDOT crack sealing		clear 70	NW-4		N/A
08/16/10	2	1:28am	1:48am	20		traffic stop for WDOT crack sealing		clear 69	0		N/A
08/16/10	3	1:55am	2:17am	22		traffic stop for WDOT crack sealing		clear 67	0		N/A
08/16/10	4	2:22am	2:44am	22		traffic stop for WDOT crack sealing		clear 65	NW-1		N/A
08/16/10	5	2:52am	3:16am	24		traffic stop for WDOT crack sealing		clear 65	NW-2		N/A
08/17/10	1	2:52am	3:06am	14	86	practice/maint + sail vessel	-	clear 69	0	3.4	Sail
08/17/10	1	00:44am	1:05am	21		traffic stop WDOT work		clear 76	0		N/A
08/17/10	2	1:12am	1:29am	17		traffic stop WDOT work		clear 74	0		N/A
08/17/10	3	1:35am	1:54am	19		traffic stop WDOT work		clear 73	0		N/A
08/17/10	4	2:00am	2:22am	22		traffic stop WDOT work		clear 73	0		N/A
08/17/10	5	10:19am	10:21am	2		maint - east bridge only		clear 72	W-2		N/A
08/18/10	1	9:09am	9:20am	11	85	Willamette chap	-	cloudy 60	NE-1	1.8	Barge
08/19/10	1	9:28am	9:43am	15	86	(cross-over) maintenance	-	cloudy 58	E-1	1.9	N/A
08/20/10	1	12:23pm	12:34pm	11	84	Lissy II	-	clear 62	NW-6	1.7	Barge
08/20/10	2	21:56pm	22:06pm	10	86	maint lift east bridge only take personnel up on towers	-	cloudy 62	W-7	1.4	N/A
08/20/10	3	22:25pm	22:48pm	23	30	east bridge only	-	cloudy	W-2	1.3	N/A
08/20/10	4	23:13pm	23:34pm	21	48	east bridge only	-	cloudy 59	NW-7	1.3	N/A
08/20/10	5	23:50pm	00:11am	21	69	east bridge only	-	cloudy 58	NW-5	1.5	N/A
08/20/10	6	00:24am	00:47am	24	89	east bridge only	-	cloudy 57	NW-4	2	N/A
08/20/10	7	00:58am	1:27am	29	110	east bridge only	-	cloudy 56	NW-5	2.5	N/A
08/20/10	8	1:42am	2:04am	26	124	east bridge only	-	cloudy 55	NW-1	3.3	N/A
08/20/10	9	2:21am	2:52am	31	136	east bridge only	-	cloudy 54	NW-3	3.8	N/A
08/20/10	10	3:13am	3:33am	20	24	west bridge greasing	-	cloudy 55	NW-2	4	N/A
08/20/10	11	3:37am	4:00am	22	22	west bridge greasing	-	cloudy 54	NW-1	4.2	N/A
08/20/10	12	4:05am	4:31am	26	68	west bridge greasing	-	cloudy 54	NW-3	4	N/A
08/20/10	13	4:37am	4:59am	22	89	west bridge greasing	-	cloudy 53	NW-2	3.8	N/A
08/20/10	14	5:04am	5:28am	24	113	west bridge greasing	-	cloudy 53	NW-2	3.5	N/A
08/20/10	15	5:33am	6:00am	27	136	west bridge greasing - completed	-	cloudy 53	NW-1	2.9	N/A
08/20/10	16	6:24am	6:35am	11	86	86' crossover	-	cloudy 53	NW-1	2.8	N/A
08/21/10	1	22:37pm	23:02pm	25	90	maint - west bridge only	-	clear 62	NW-6	1.8	N/A
08/21/10	2	11:13am	11:35am	22	136	maint - west bridge only	-	clear 60	NW-3	1.3	N/A
08/21/10	3	12:04pm	12:29pm	25	99	maint east bridge	-	clear 55	NW-2	1.2	N/A
08/22/10	1	00:04am	00:29am	25	99	maint east bridge	-	clear 55	NW-2	1.2	N/A
08/22/10	2	00:39am	00:59am	20	136	maint east bridge	-	clear 59	NW-3	1	N/A
08/22/10	3	1:12am	1:25am	13	86	crossover	-	clear 59	0	1.6	N/A
08/26/10	1	10:44am	10:56am	12	86	Washougal	-	partly cloudy 63	NW-7	2.5	Barge
08/27/10	1	10:13am	10:22am	15	70	Bruce M	down	partly cloudy 59	NW-3	2.7	Barge
08/28/10	1	1:48am	1:50am	2		test southbound gates fronts		clear 58	NW-2		N/A
08/31/10	1	12:41pm	12:50pm	9	85	Trilogy II (sailboat)	up	cloudy 60	SE-2	1.2	Sail
08/31/10	2	18:43pm	18:52pm	9	85	Trilogy 2 sailboat	down	cloudy 61	SE-5	0.9	Sail



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
08/31/10	3	19:23pm	19:40pm	17	90	"Casey H" + "Nakoa"	down	cloudy 61	SE-5	1.5	Barge
09/06/10	1	18:59pm	19:09pm	10	95	"Make It So" sailboat	up	partly cloudy 70	W-2	2.9	Sail
09/09/10	1	18:43pm	18:52pm	9	80	sailboat "Nancy Riley"	up	cloudy 63	0	4.6	Sail
09/13/10	1	10:00am	10:11am	11	86	lift NB only to take up personnel + supplies	-	cloudy 62	W-4	2.8	N/A
09/13/10	2	13:47pm	13:57pm	10	86	lift nb only to bring down personnel	-	cloudy 69	W-7	1.1	N/A
09/15/10	1	12:48pm	13:00pm	12	100	"Christy T" w/Derrick	up	cloudy 67	E-3	2.2	Barge
09/17/10	1	9:30am	9:42am	12	100	"Christy T" w/Derrick	down	cloudy 63	W-4	0.5	Barge
09/17/10	2	18:16pm	18:27pm	11	110	Bruce M	down	cloudy 66	E-6	1.9	Barge
09/19/10	1	7:05am	7:17am	12	70	"Tidewater" + 4 barges, Maverick assisting	down	cloudy 61	E-3	1.9	Barge
09/19/10	2	8:55am	9:07am	12	100	"Christy T"	down	cloudy 62	E-6	1.5	Barge
09/19/10	3	21:18pm	21:30pm	12	100	"Bruce M" + 1 barge	down	rain 60	E-4	1.6	Barge
09/20/10	1	13:57pm	14:07pm	10	70	sailboat Scout	down	cloudy 63	W-6	1	Sail
09/21/10	1	00:01am	00:14am	13	110	Dredge Aquina	up	cloudy, calm 58	0	0.7	Federal
09/21/10	2	21:41pm	21:52pm	11	90	"Lassen" + 1 Derrick	down	cloudy 59	W-5	2.3	Barge
09/27/10	1	12:49pm	12:58pm	9	100	"Yaquina"	down	clear 77	SE-E-2	1.4	Federal
10/03/10	1	00:03am	00:18am	15	80	Dauby	up	clear 58	NW-2	3.4	Barge
10/13/10	1	19:12pm	19:19pm	7	74	"Smooth sailing" sail vessel	up	clear 64	E-3	2	Sail
10/14/10	1	6:15am	6:29am	14	120	Bruce M + spud barge	up	cloudy 49	0	1.7	Barge
10/16/10	1	14:58pm	15:07pm	14	125	Bruce M + 1 Derrick	down	overcast 59	W-5	2.7	Barge
10/20/10	1	5:16am	5:32am	16	100	Betty Lou towing the Yaquina, Maverick pushing	up	clear 50	NW-2	2.9	Federal
10/27/10	1	9:50am	10:01am	11		maint on car walks		clear 48			N/A
10/30/10	1	11:50am	12:00pm	10	80	"Luntka"	down	rain 49	E-6	3.4	Sail
11/02/10	1	18:02pm	18:13pm	11	100	"Christy B" + 1 spud barge	up	clear 62	NW-3	4.4	Barge
11/05/10	1	9:25am	9:30am	5		maintenance		foggy 53	SE-1		N/A
11/06/10	1	7:00am	7:10am	10	100	"Adriatic Sea" tug	up	rain 53	W-3	4.9	Barge
11/09/10	1	12:14pm	12:38pm	24	136	Willamette Champion, Bruce M (Derricks)	up	rain 45	E-16	3.7	Barge
11/15/10	1	18:38pm	18:50pm	12	100	"Patricia" + spud + Derrick	down	cloudy 58	S-5	2.5	Barge
11/16/10	1	3:28am	3:33am	5		traffic stop northbound		overcast 51	W-6		N/A
11/16/10	2	3:38am	3:40am	2		traffic stop northbound		overcast 51	W-6		N/A
11/16/10	3	3:44am	3:48am	4		traffic stop northbound		overcast 51	W-6		N/A
11/16/10	4	3:48am	3:51am	3		traffic stop northbound		overcast 51	W-6		N/A
11/16/10	5	3:52am	3:54am	2		traffic stop northbound		overcast 51	W-6		N/A
11/16/10	6	4:00am	4:02am	2		traffic stop southbound		rain 50	W-3		N/A
11/16/10	7	4:03am	4:05am	2		traffic stop southbound		rain 50	W-3		N/A
11/16/10	8	4:07am	4:11am	4		traffic stop N/S bound		rain 50	W-3		N/A
11/16/10	9	4:22am	5:25am	63		traffic stop N/S bound		rain 50	0		N/A
11/16/10	10	5:38am	6:03am	25		traffic stop northbound - repair		cloudy 49	SW-3		N/A
11/16/10	11	9:56am	10:01am	5		traffic stop NB, NE Barrier inspection + repair		partly sunny 52	W-3		N/A
11/16/10	12	10:31am	10:33am	2		traffic stop NB, NE Barrier repair		mostly cloudy 52	W-5		N/A
11/17/10	1	2:21am	2:32am	11	30	training lift	-	48	E-6	3	N/A
11/17/10	2	2:37am	2:50am	13	30	training lift	-	48	E-6	3	N/A
11/17/10	3	2:57am	3:07am	10	86	training lift	-	48	E-6	3	N/A
11/17/10	4	3:13am	3:27am	14	136	training lift	-	48	E-6	3	N/A
11/17/10	5	3:36am	3:43am	7	50	training lift	-	48	E-6	3	N/A
11/17/10	6	3:50am	3:59am	9	30	training lift	-	48	E-6	3	N/A
11/17/10	7	4:08am	4:25am	17	75	training lift	-	48	E-6	3	N/A
11/17/10	8	22:28pm	22:47pm	19	136	full lift, maintenance	-	rain 41	E-16	3	N/A
11/17/10	9	23:25pm	22:39pm	14	136	full lift, maintenance	-				N/A
11/17/10	1	2:04am	2:06am	2		traffic stop training		48	E-6		N/A



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
11/17/10	2	4:35am	4:40am	5		traffic stop training		48	E-6		N/A
11/17/10	3	4:55am	4:58am	3		traffic stop training		48	E-6		N/A
11/17/10	4	10:21am	10:24am	3		barrier repair		50	SE-6		N/A
11/17/10	5	11:45am	11:49am	4		barrier repair		49	SE-10		N/A
11/17/10	6	12:33pm	12:37pm	4		barrier repair		49	SE-6		N/A
11/17/10	7	14:20pm	14:26pm	6		barrier repair		49	SE-11		N/A
11/17/10	8	21:01pm	21:19pm	18		NB only, limit switch replace (max)		rain 44	N-3		N/A
11/17/10	9	22:02pm	22:07pm	5		NB only, Max limit switch replace		rain 42	NE-7		N/A
11/18/10	1	1:12am	1:22am	10	30	E/W training lifts	-	rain 38	E-8		N/A
11/18/10	2	1:29am	1:40am	11	32	E/W training lifts	-	rain 38	E-8		N/A
11/18/10	3	1:56am	2:05am	11	50	E/W training lifts	-	rain 38	E-8		N/A
11/18/10	4	2:21am	2:32am	11	30	training lifts east	-	rain 38	E-10		N/A
11/18/10	5	2:55am	3:01am	6	30	training lifts east	-	rain 38	E-10		N/A
11/18/10	6	3:09am	3:18am	9	86	training lifts east	-	rain 38	E-3		N/A
11/18/10	7	3:23am	3:31am	8	50	training lifts west	-	rain 38	E-3		N/A
11/18/10	8	3:38am	3:47am	9	100	training lifts west	-	rain 38	E-3		N/A
11/18/10	9	4:10am	4:22am	12	100	E/W training lifts	-	rain 38	E-3		N/A
11/18/10	10	4:29am	4:40am	11	75	E/W training lifts	-	rain 38	E-3		N/A
11/18/10	11	4:29am	4:45am	16	136	E/W training lifts	-	cloudy 41	E-4		N/A
11/18/10	12	5:52am	5:00am	8	32	training lifts east	-	cloudy 41	E-4		N/A
11/18/10	13	23:49pm	00:00am	11	25	training lift - west bridge auxillary motor test	-	rain 41	E-8	3.6	N/A
11/18/10	1	10:04am	10:16am	12		traffic stop NB only for emergency barrier repair		rain 39	SE-2		N/A
11/18/10	2	10:27am	10:48am	21		traffic stop NB only for emergency barrier repair		rain	E-2		N/A
11/19/10	1	00:10am	00:18am	8	25	training lift - west bridge auxillary motor test	-	rain 41	E-8	3.5	N/A
11/19/10	2	1:41am	2:00am	19	8	traffic lifts	-	rain 41	E-8	3.5	N/A
11/19/10	3	2:19am	2:29am	10	60	traffic lifts N/S	-	rain 41	E-8	3.5	N/A
11/19/10	4	2:34am	2:45am	11	80	traffic lifts N/S	-	rain 41	E-8	3.5	N/A
11/19/10	5	2:51am	3:10am	19	136	traffic lifts N/S	-	rain 41	E-8	3.5	N/A
11/19/10	6	3:21am	3:42am	21	136	traffic lifts N/S	-	rain 41	E-8	3.5	N/A
11/19/10	7	4:02am	4:23am	21	100	traffic lifts N/S	-	rain 41	E-8	3.5	N/A
11/19/10	1	00:50am	00:52am	2		east bridge training ft gate + barrier - s gatehouse		rain 41	E-8		N/A
11/19/10	2	00:54am	00:56am	2		east bridge training ft gate + barrier - s gatehouse		rain 41	E-6		N/A
11/19/10	3	1:04am	1:06am	2		west bridge training ft gate + barrier - n gatehouse		rain 41	E-5		N/A
11/19/10	4	1:07am	1:09am	2		west bridge training ft gate + barrier - n gatehouse		rain 41	E-6		N/A
11/23/10	1	13:48pm	13:49pm	1		wires pulled out, maintenance test west front gates		27	NW-2		N/A
11/30/10	1	9:55am	10:12am	17	120	"Christy T" MG	up	rain 37	E-19	3.2	Barge
12/01/10	1	12:50pm	13:10pm	20	110	"Ruth"	-	overcast 42	E-5	6	Barge
12/01/10	1	10:20am	10:26am	6		maint stop east bridge		41	E-4		N/A
12/05/10	1	3:57am	4:09am	12	70	Willamette	-	clear 42	0	5.5	Barge
12/06/10	1	10:01am	10:13am	12	120	Bruce M w/Derrick	up	cloudy 39	E-4	4.4	Barge
12/07/10	1	19:54pm	20:04pm	10	90	"Maverick" + 1 barge	down	rain 40	SE-5	5.8	Barge
12/08/10	1	1:55am	2:06am	11	80	"Rebel" 80'	down	rain 41	SE-4	4.2	Barge
12/08/10	2	13:59pm	14:09pm	10	70	"Chief"	-	cloudy 44	E-13	4.3	Barge
12/13/10	1	13:02pm	13:19pm	17	136	"Nancy Ann" w/Derrick	down	cloudy 56	E-4	7.5	Barge
12/14/10	1	23:43pm	23:58pm	15	136	maint lift	-	cloudy 43	S-9	9.2	N/A
12/15/10	1	12:15pm	12:24pm	9	75	"Runaway"	up	partly cloudy 47	S-5	9.8	Sail
12/20/10	1	10:38am	10:49am	11	95	"Casy-H" pushing the Adriatic Sea	down	rain 37	E-18	6.4	Barge
12/20/10	2	18:01pm	18:12pm	11	95	"Casy-H" pushing the Adriatic Sea	up	cloudy 38	E-12	7.5	Barge
12/22/10	1	10:49am	10:59am	10	95	Adriatic/Hernelly	down	cloudy 39	E-11	6.5	Barge



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
12/22/10	2	13:30pm	13:43pm	13	100	Adriatic/Hernelly/Bruce M	up and down	cloudy 41	E-6	5.8	Barge
12/27/10	1	14:03pm	14:12pm	9		remove wires / maintenance		rain 45	SW-6		N/A
12/28/10	1	9:32am	9:46am	14	87	maint lift for east bridge only, bird cannons	-	rain 46	W-2	6.6	N/A
12/29/10	1	9:17am	9:25am	8	86	maint / crossover	-	rainy 38	E-7	7.2	N/A
12/29/10	2	10:06am	10:13am	7	86	maint / crossover	-	rainy 37	E-7	7.5	N/A
01/05/11	1	12:05pm	12:13pm	8	70	Columbiaharan Asst	down	rainy 38	E-6	6.6	Unknown
01/12/11	1	9:01am	9:10am	9	95	Adriatic Sea	down	rain 41	E-6	4.9	Barge
01/12/11	2	14:01pm	14:10pm	9	95	Adriatic Sea	up	rain 51	SE-3	5.5	Barge
01/13/11	1	5:37am	5:47am	10	90	Adriatic Sea	down	rain 52	SE-6	4.7	Barge
01/17/11	1	12:44pm	12:50pm	11	105	"Betty Lou" w/clarkston pushing the Yaquina	down	cloudy 51	E-3	12	Federal
01/17/11	2	22:30pm	22:44pm	14	120	"Nancy Ann" + Derrick	up	cloudy 44	calm	12.5	Barge
01/20/11	1	12:02pm	12:16pm	14	120	Husky / Derek barge	up	partly cloudy 36	E-2	12.7	Barge
01/22/11	1	10:07am	10:19am	12	110	Maverick w/Derrick	down	partly cloudy	W-4	10.8	Barge
01/25/11	1	12:19pm	12:29pm	10	75	Runaway	down	cloudy 49	W-3	10.9	Sail
01/26/11	1	20:32pm	20:40pm	8	60	test lift west bridge only	-	cloudy 44	NE-1	8.5	N/A
01/26/11	2	20:50pm	20:59pm	9	100	test lift west bridge only	-	cloudy 44	0	8.5	N/A
01/26/11	3	21:07pm	21:20pm	13	136	test lift west bridge only	-	cloudy 43	0	8.5	N/A
01/27/11	1	12:54pm	13:04pm	10	72	Runaway	up	clear 46	0	9.5	Sail
01/27/11	1	12:25pm	12:37pm	12		runaway / bridge, problems					N/A
01/28/11	1	18:04pm	18:14pm	10	100	"Bruce M" + spud + Derek	-	cloudy 52	S-4	8.9	Barge
02/04/11	1	20:50pm	21:02pm	12	100	Maverick + spud barge	up	clear 45	E-NE-1	6.2	Barge
02/12/11	1	8:48am	9:01am	13	70	Daubi + 3 barges	down	cloudy 43	E-12	5.4	Barge
02/13/11	1	15:11pm	15:21pm	10	65	"Presto" - sailboat	up	cloudy 47	W-2	5.6	Sail
02/13/11	2	17:42pm	17:58pm	16	136	"Nany Ann" + Crane	down	rain 46	E-7	5	Barge
02/15/11	1	12:42pm	12:56pm	14	90	Barge + assist tug Christy T, "ATV Nathan E. Stewart"	down	cloudy 42	E-13	6.5	Barge
02/16/11	1	18:30pm	18:38pm	8	80	"Runaway" sailboat	up	cloudy 38	E-4	8.5	Sail
02/18/11	1	4:58am	5:19am	17	80	Hurricane + barges	down	cloudy 35	E-10	8.1	Barge
02/19/11	1	15:15pm	15:23pm	8	80	"Presto" - sailboat	down	clear 47	NW-6	7	Sail
02/23/11	1	21:37pm	21:52pm	15	130	"Husky" + crane barge	up	cloudy 35	S-1	6.4	Barge
02/24/11	1	9:33am	10:50am	17	130		down	clear/pt 34	S-1	6.8	Unknown
02/26/11	1	3:05am	3:17am	12	65	"Hurricane" + 4 barges	down	clear 21	0	4.6	Barge
02/27/11	1	7:48am	7:58am	10	85	"Ible's World" name on the boat was "Victory"	down	cloudy 37	S-5	3.9	Sail
02/28/11	1	21:38pm	21:50pm	12	120	"Clarkston" + crane barge	up	rain 37	E-9	5.9	Barge
03/01/11	1	19:59pm	20:10pm	11	125	"Clarkston" + crane barge	down	cloudy 38	NW-2	8	Barge
03/07/11	1	9:58am	9:59am	1		SB traffic stop so maint can cross the hyway (pier cleaning)		partly cloudy 36	S-2		N/A
03/07/11	2	12:16pm	12:17pm	1		" " return to sidewalk		cloudy 45	E-1		N/A
03/16/11	1	9:45am	9:54am	9	70	"Riva" sail vessel	down	rain 41	SE-3	8.6	Sail
03/16/11	2	22:50pm	23:02pm	12	120	"Maverick" + Derrick	up	rain 41	E-35	8.7	Barge
03/17/11	1	13:28pm	13:40pm	11	80	tug "seahawk", towing oil barge "Casey H" assisting	up	cloudy 45	E-10	8.9	Barge
03/17/11	2	18:00pm	18:14pm	14	115	"Maverick" w/Derrick, Sea Hawk joined in	down	rain 46	E-9	9.9	Barge
03/18/11	1	13:00pm	13:09pm	9	80	sailboats "Spirit" "Wind Raven" " Ruffian"	down	cloudy 42	E-12	9.7	Sail
03/20/11	1	12:45pm	12:55pm	10	70	Spirit / Wind Raven (sailboats)	up	cloudy 50	E-16	8.8	Sail
03/21/11	1	4:40am	4:57am	17	110	"Maverick" + Derrick	up	cloudy 43	E-11	8.5	Barge
03/21/11	2	9:00am	9:14am	14	110	"Maverick" + Derrick	down	rain 44	0	9.3	Barge
03/25/11	1	13:10pm	13:22pm	12	80	Daubi + barge	down	partly cloudy 45	6	8.4	Barge
03/26/11	1	4:42am	4:54am	12	80	"Captain Bob" + 2 barges	down	rain 42	E-12	7.5	Barge
03/26/11	2	15:10pm	15:25pm	15	110	"Bruce M" + crane barge, "Captain Bob" + crane barge	down	cloudy 48	SW-3	8	Barge
03/28/11	1	9:39am	9:49am	10	86	maint lift to bring down bird cannons	-	cloudy 45	S-3	7.4	N/A



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
03/29/11	1	13:10pm	13:17pm	7		WashDot request, pot hole patching		rain 49	S-5		N/A
03/30/11	1	4:32am	4:46am	14	80	Deschutes + barges	down	cloudy 52	S-6	8	Barge
03/30/11	2	10:30am	10:44am	14	120	Patricia / Washougal / crane barge	up	cloudy 55	E-SE-3	8.3	Barge
04/02/11	1	11:35am	11:44am	9	65	Tidewater 3 barges	down	partly cloudy 44	W-SW-5	11.4	Barge
04/03/11	1	21:52pm	22:06pm	14	105	"sundial" + 4 barges	down	cloudy 50	calm	13	Barge
04/03/11	2	22:24pm	22:37pm	13	100	"Chief" + 4 barges	down	cloudy 49	calm	13	Barge
04/04/11	1	1:56am	2:12am	16	100	"Legend" + 4 barges	down	cloudy 45	SE-6	13	Barge
04/04/11	2	12:12pm	12:22pm	10	70	"Cascades" + 4 barges	down	rain 46	E-9	13.1	Barge
04/05/11	1	9:01am	9:15am	14	90	"Hurricane" + 4 barges	down	partly cloudy 43	SE-2	13.8	Barge
04/06/11	1	10:45am	10:55am	10	75	"Chief" + 3 barges	down	partly cloudy 43	SW-3	14.4	Barge
04/06/11	2	11:41am	11:50am	9	70	Crystal Swar sailboat	down	rain 39	SW-W-2	14.4	Sail
04/06/11	3	18:20pm	18:28pm	8	65	Tidewater 3 barges	down	cloudy 43	NE-5	13.9	Barge
04/07/11	1	9:15am	9:25am	10	67	"Bruce M" + 2 chip barges	down	cloudy 39	NW-3	13.8	Barge
04/07/11	2	9:49am	10:00am	11	65	"Lori B" + 4 barges	down	partly cloudy 38	NW-5	13.8	Barge
04/07/11	3	10:37am	10:47am	10	65	Outlaw + 4 barges	down	cloudy 40	N-2	13.8	Barge
04/07/11	4	11:10am	11:18am	8	60	La Cieta sailboat	down	partly cloudy 41	N-4	13.8	Sail
04/08/11	1	4:07am	4:17am	10	65	Captain B and log barge	down	37	0	12.3	Barge
04/08/11	2	23:12pm	23:24pm	10	70	"Chief" + barge	down	clear 48	W-1	11.5	Barge
04/09/11	1	8:55am	9:08am	12	65	"Sun Dial" w/	down	cloudy 42	?	10.8	Barge
04/09/11	2	22:19pm	22:32pm	13	90	"Willamette" + 4 barges	down	cloudy 48	-	11.1	Barge
04/10/11	1	3:32am	3:45am	13	65	"Hurricane" + 3 barges	down	rain	?	11	Barge
04/10/11	2	14:12pm	12:26pm	14	65	"Legend" + 3 barges	down	cloudy 52	SE-7	11.3	Barge
04/10/11	3	17:59pm	18:10pm	11	85	"Challenger" + 4 barges	down	cloudy 54	SW-6	11	Barge
04/10/11	4	19:02pm	19:13pm	11	85	"Clearwater" + 3 barges	down	cloudy 55	SW-5	10.9	Barge
04/10/11	5	22:17pm	22:29pm	12	85	"Outlaw" + 3 barges	down	rain 47	-	10.9	Barge
04/13/11	1	9:01am	9:11am	10	90	"Sirius" tug boat	up	cloudy 43	SE-5	9.9	Barge
04/14/11	1	3:53am	4:02am	9	80	Hiedi L Brisco" empty gravel barge	up	rain 43	S-3	9.8	Barge
04/14/11	2	11:36am	11:48am	12	60	"Challenger" + 3 barges	down	rain 45	SE-9	9.2	Barge
04/16/11	1	23:07pm	23:21pm	14	80	Hiedi L Brisco - 1 barge, "Catherine B" - 2 barges	down	rain 51	E-5	9.2	Barge
04/16/11	2	6:35am	6:58am	23	70	Outlaw + 4 grain barges	down	cloudy 51	S-1	10.2	Barge
04/16/11	3	8:41am	8:51am	10	70	"Chief" + 4 barges	down	overcast 51	W-NW-2	9.9	Barge
04/16/11	4	12:55pm	13:06pm	11	70	Tidewater 4 barges	down	overcast 52	W-3	9.6	Barge
04/16/11	5	13:32pm	13:40pm	8	65	"Riva" sailboat	up	overcast 53	W-3	9.5	Sail
04/16/11	6	23:00pm	23:10pm	10	80	"Sirius" tug boat	down	cloudy 43	W-6	9.6	Barge
04/17/11	1	17:05pm	17:12pm	7	80	Anamcar - sail vessel	down	partly cloudy 50	W-4	9.8	Sail
04/18/11	1	00:54am	1:05am	11	70	"Legend" + 4 barges	down	clear 42	NW-8	10	Barge
04/19/11	1	11:56am	12:06pm	10	70	Chief + 4 barges	down	clear 47	calm	10.9	Barge
04/19/11	2	19:23pm	19:36pm	13	85	"Willamette" + 4 barges	down	clear 54	NW-4	10.8	Barge
04/20/11	1	10:31am	10:48am	17	90	husky grain barges, spud umpqua	up	overcast 45	W-NW-7	10.9	Barge
04/20/11	2	14:00pm	14:12pm	12	110	husky grain barges	up	overcast 53	calm	10.7	Barge
04/21/11	1	19:17pm	19:31pm	14	65	"Lori B" + 3 barges	down	partly cloudy 48	NW-4	9.6	Barge
04/21/11	2	22:30pm	22:44pm	14	80	"Legend" + 3 barges	down	partly cloudy 44	0	10	Barge
04/22/11	1	5:05am	5:20am	15	75	"Kathryn B" 1 barge	s	38	NE-0	9.5	Barge
04/22/11	2	10:44am	10:54am	10	65	Cascades - 4 grain barges	down	clear 44	W-2	10.02	Barge
04/23/11	1	11:54am	12:07pm	13	136	"Olaf J" w/2 Derricks, "Daryl B" assisting	down	clear 56	W-3	9.4	Barge
04/23/11	2	13:23pm	13:43pm	20	136	"Nancy Ann" w/Derrick, "Christy T" assisting	up	clear 62	W-2	9.3	Barge
04/24/11	1	13:21pm	13:35pm	14	65	"Clearwater" + 4 barges	down	cloudy 52	S-3	8.3	Barge
04/28/11	1	21:41pm	21:53pm	12	75	"Chief" + 4 barges	down	cloudy 42	W-1	8.4	Barge
04/29/11	1	23:20pm	23:38pm	18	80	"Challenger" + 3 barges	down	cloudy 42	S-1	8.3	Barge



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
04/29/11	2	23:55pm	00:08am	13	80	"Legend" + 3 barges	down	cloudy 41	SE-4	8.7	Barge
04/29/11	3	12:39pm	12:50pm	11	70	"Wind Raven" sailboat	down	partly cloudy 52	W-2	8.2	Sail
04/29/11	4	13:57pm	14:08pm	11	70	"Dauby" + 2 barges	down	partly cloudy 52	W-2	8.2	Barge
05/01/11	1	12:47pm	12:55pm	8	80	"Annabella" sailboat	up	clear 53	W-2	7	Sail
05/02/11	1	4:30am	4:43am	13	75	"Legend" + 4 barges	down	clear 51	E-9	8.1	Barge
05/04/11	1	23:22pm	23:33pm	11	70	"Hurricane" + 4 barges	down	clear 58	NW-2	7.9	Barge
05/06/11	1	9:30am	9:40am	9	66	"Wind dancing" SB	up	cloudy 49	E-5	7.7	Sail
05/06/11	2	20:12pm	20:20pm	8	75	"Orcinius" sailing vessel	up	rain 48	E-4	7.4	Sail
05/07/11	1	2:54am	3:07am	13	90	"Catherine B" + 2 barges	down	cloudy 49	SE-9	7.6	Barge
05/07/11	2	6:34am	6:42am	8	80	"Anamcara" sailboat	down	cloudy 49	S-7	7.9	Sail
05/08/11	1	12:16pm	12:24pm	8	75	sailboat "Orcinius"	down	partly cloudy 48	SW-2	7.5	Sail
05/08/11	2	16:32pm	16:40pm	8	80	"Riba" sailboat	down	partly cloudy 53	W-6	7	Sail
05/08/11	3	23:11pm	23:21pm	10	60	"Willamette" + 4 barges	down	cloudy 58	W-8	7.6	Barge
05/12/11	1	20:04pm	20:15pm	11	65	"Legend" + 4 barges	down	partly cloudy 59	W-1	7.9	Barge
05/13/11	1	12:17pm	12:27pm	10	70	sail vessels "Bonnevie" "Symmetry"	down	partly cloudy 61	W-5	9	Sail
05/13/11	2	14:01pm	14:08pm	7	70	sail vessel "Maia Doran"	down	partly cloudy 67	W-10	9.3	Sail
05/13/11	3	18:00pm	18:13pm	13	85	sailboat Ata Marie - inbound, sailboat Ma Cherie - outbound	up	cloudy 68	N-4	9.7	Sail
05/14/11	1	3:37am	3:47am	10	90	"Dauby" + 2 barges	down	clear 53	W-2	10.5	Barge
05/14/11	2	10:13am	10:25am	12	70	"Tidewater" + 3 barges	down	cloudy 55	W-3	10.7	Barge
05/14/11	3	15:00pm	15:14pm	14	80	"Rebel" + 4 barges	down	cloudy 62	SE-4	10.8	Barge
05/15/11	1	3:33am	3:43am	10	60	"willamette" + barges	down	rain 51	0	11.4	Barge
05/15/11	2	5:06am	5:18am	12	60	"Capt Bob" + barges	down	rain 50	0	11.6	Barge
05/15/11	3	13:23pm	13:37pm	14	70	"Symmetry" + Bonnevie" + Maia Doran + Ma Cherie	up	rain 52	S-2	11.4	Sail
05/15/11	4	16:13pm	16:26pm	13	80	"Clearwater" + 3 barges	down	cloudy 54	SW-4	11.7	Barge
05/16/11	1	5:00am	5:12am	12	75	"Legend" + 4 barges	down	cloudy 47	S-1	13.1	Barge
05/17/11	1	00:49am	1:01am	12	60	"Daubi" + gravel barge	down	clear 48	NW-3	14.3	Barge
05/17/11	2	9:11am	9:20am	9	68	"Marilyn J" sailboat	down	cloudy 46	W-5	14.9	Sail
05/18/11	1	1:25am	1:36am	11	75	Tidewater + 3 barges	down	cloudy 52	0	15.3	Barge
05/18/11	2	12:45pm	12:55pm	10	125	"Kathryn B" + barge	down	sunny 61	W-S-3	15.6	Barge
05/18/11	3	18:16pm	18:29pm	13	90	"Cascades" + 3 barges	down	clear 69	NW-3	15.5	Barge
05/18/11	4	20:13pm	20:26pm	13	90	"Deschutes" + 3 barges	down	clear 64	NW-7	15.6	Barge
05/19/11	1	2:50am	3:01am	11	60	"Daubi" + gravel barge	down	cloudy 52	W-4	15.7	Barge
05/19/11	2	12:06pm	12:18pm	12	68	"Hurricane" + 3 barges	down	clear 60	calm	15.9	Barge
05/19/11	3	19:44pm	19:56pm	12	70	"Chief" + 3 barges	down	clear 67	N-7	15.8	Barge
05/20/11	1	9:11am	9:22am	11	86	"Catherine B" + Log barge, Ryan + Jim Toops to top	down	clear 52	W-2	15.8	Barge
05/20/11	2	10:07am	10:15am	8	61	sailing vessel "Elizabeth"	down	clear 54	W-4	15.8	Sail
05/20/11	3	12:48pm	12:56pm	8	80	sailing vessels "Galical" "Mara Doran" "Blue Heron"	down	clear 64	W-3	15.8	Sail
05/21/11	1	3:56am	4:10am	14	85	"Outlaw" + 3 barges	down	light rain 51	NW-2	16	Barge
05/21/11	2	6:30am	6:44am	14	80	"rebel" + 3 barges	down	high clouds 50	0	15.7	Barge
05/21/11	3	7:16am	7:27am	11	65	"Tidewater" + 1 barge	down	cloudy	0	15.8	Barge
05/21/11	4	8:09am	8:21am	12	80	"Pandora Red" also the "Solarity"	up	cloudy 52	W-2	15.9	Sail
05/21/11	5	11:33am	11:40am	7	65	sailboat "Luscious"	down	cloudy 57	W-2	15.9	Sail
05/21/11	6	11:55am	12:10pm	15	65	"Deschutes" + 3 barges	down	cloudy 57	W-1	15.9	Barge
05/21/11	7	13:58pm	14:07pm	9	65	sailboat "Kalysta"	down	cloudy 58	NW-6	15.9	Sail
05/21/11	8	19:26pm	19:40pm	14	90	"Sundial" + 3 barges	down	cloudy 55	NW-3	15.8	Barge
05/21/11	9	21:21pm	21:31pm	10	85	"Clearwater" + 3 barges	down	cloudy 54	NW-4	15.8	Barge
05/22/11	1	12:16pm	12:29pm	13	70	sailboatd - Luscious + Galatea, Hurriance + 2 barges	up and down	cloudy 55	NW-6	15.6	Sail
05/22/11	2	16:08pm	16:17pm	9	70	"Blue Heron" sailboat	up	cloudy 56	W-3	15.5	Sail
05/22/11	3	17:01pm	17:10pm	9	70	"Maia Doran" sailboat	up	cloudy 54	W-3	15.6	Sail



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
05/22/11	4	18:31pm	18:38pm	7	70	"Barlavento" sailboat	down	cloudy 55	W-2	15.6	Sail
05/23/11	1	2:30am	2:39am	9	60	"Willamette" + 2 barges	down	cloudy 50	NW-6	15.5	Barge
05/23/11	2	11:43am	11:54am	75	75	"Chief" + 3 barges	down	cloudy 53	W-2	15.6	Barge
05/23/11	3	22:12pm	22:22pm	80	80	"Capt Bob" + 2 barges	down	partly cloudy 55	NW-4	15.8	Barge
05/24/11	1	4:06am	4:19am	13	65	"Lori B" + log barge	down	cloudy 48	0	15.9	Barge
05/24/11	2	5:20am	5:30am	10	65	"Willamette" + 2 barges	down	cloudy 47	N-1	15.9	Barge
05/24/11	3	6:02am	6:15am	13	65	"Daubi" + 2 barges	down	cloudy 47	0	15.9	Barge
05/24/11	4	9:18am	9:33am	15	65	"Tidewater" 3 barges	down	cloudy 50	SW-1	15.8	Barge
05/24/11	5	13:50pm	14:05pm	15	60	Outlaw 3 barges	down	partly sunny 61	SE-1	15.8	Barge
05/24/11	6	18:19pm	18:29pm	10	75	Deschutes + 2 barges	down	partly cloudy 63	W-3	15.8	Barge
05/24/11	7	21:21pm	21:34pm	13	75	Clearwater + 3 barges	down	partly cloudy 62	NW-3	15.8	Barge
05/25/11	1	4:24am	4:34am	10	65	"Lori B"	down	cloudy 55	W-2	15.9	Barge
05/25/11	2	9:50am	10:02am	12	68	Queen of the West	down	rain 51	NE-3	15.8	Yacht
05/25/11	3	13:19am	13:31am	12	60	"Dabuy" 2 barges	down	overcast 54	E-5	15.8	Barge
05/26/11	1	5:30am	5:42am	12	65	"Lori B"	down	cloudy 45	E-2	16	Barge
05/26/11	2	9:08am	9:18am	10	60	"Grace" sailboat, "Shell Boogie" sailboat	down	cloudy 49	SE-3	16	Sail
05/26/11	3	9:55am	10:12am	17	70	"Whisper" sailboat, "Ecstasy" sailboat	down	cloudy 51	SE-2	16	Sail
05/26/11	4	11:32am	11:48am	16	8	maintenance lift	-	cloudy 52	S-2	16	N/A
05/26/11	5	13:03pm	13:13pm	10	70	"Moon Dance" sailboat, "Molodez" sailboat	-	rain 51	0	16	Sail
05/27/11	1	3:44am	3:55am	11	65	"Lori B" + 1 barge, "Daubi" + 2 barges	down	cloudy 50	SE-5	15.9	Barge
05/27/11	2	12:58pm	13:08pm	10	66	"Luscious" sailboat, "Spirit" sailboat	down	overcast 54	S-2	16	Sail
05/27/11	3	18:36pm	18:45pm	9	72	Autumn Wind sailboat	down	partly cloudy 51	SE-3	16.3	Sail
05/28/11	1	10:09am	10:17am	8	80	sailing vessels "Blue Fin" "Dazzle"	down	cloudy 51	N-3	16.4	Sail
05/28/11	2	11:51am	12:05pm	14	80	"Deschutes" + 2 barges, sailing vessels Lightspeed and Marylinn J	down	cloudy 53	S-2	16.4	Barge
05/28/11	3	14:55pm	15:13pm	13	80	"Queen of the West", "Sundial" + 3 barges	down	partly cloudy 56	NW-4	16.4	Barge
05/28/11	4	19:51pm	20:04pm	13	80	"Outlaw" + 3 barges	down	partly cloudy 57	NW-7	16.6	Barge
05/29/11	1	00:50am	1:04am	14	70	"Chief" + 2 barges	down	cloudy 49	NW-4	16.8	Barge
05/29/11	2	19:10pm	19:19pm	9	80	"Willamette" + 2 barges	down	cloudy 55	E-2	16.9	Barge
05/29/11	1	13:10pm	13:13pm	3		clean mattress of SB (alarm?)					N/A
05/30/11	1	2:52am	3:05am	13	70	"Challenger" + 2 barges	down	cloudy 51	0	16.9	Barge
05/30/11	2	4:04am	4:15am	11	65	"Lori B" + 1 log barge	down	cloudy 51	NE-2	17	Barge
05/30/11	3	10:06am	10:16am	10	70	"Deschutes" 2 barges	down	partly cloudy 53	SE-1	17	Barge
05/30/11	4	10:35am	10:44am	8	60	"Rose Petals" sailboat	down	partly cloudy 53	SE-3	17	Sail
05/30/11	5	11:25am	11:35am	10	70	"Willamette" 2 barges	down	partly cloudy 55	E-3	17	Barge
05/30/11	6	12:37pm	12:48pm	11	60	"Hurricane" 3 barges	down	partly cloudy 57	SE-2	17	Barge
05/30/11	7	13:05pm	13:19pm	14	75	"Whisper" / "Tropaica" / Luscious / Dazzle	up	partly cloudy 57	SE-2	17	Sail
05/30/11	8	13:58pm	14:05pm	12	60	"rebel" 2 barges	down	partly cloudy 60	SE-2	17	Barge
05/30/11	9	15:03pm	15:11pm	8	73	"Granuaile" sailboat	down	partly cloudy 60	SE-2	17.1	Sail
05/30/11	1	14:48pm	14:55pm	7		stopped traffic for lift, truck stopped on lift span, wouldn't go, so release traffic		partly cloudy 60	SE-3		N/A
05/31/11	1	00:20am	00:30am	10	70	"Lisa Melinda" 85' fishing boat	up	cloudy 54	S-5	17.2	Fishing
05/31/11	2	14:08pm	14:15pm	7	65	Gracy sailboat	up	partly cloudy 55	W-2	17.1	Sail
06/01/11	1	4:56am	5:07am	11	70	"Chief" + 3 barges	down	rain 51	0	17.3	Barge
06/01/11	2	11:46am	11:54am	8	65	"deschutes" + 2 grain barges	down	cloudy 54	E-1	17.3	Barge
06/02/11	1	00:13am	00:22am	9	65	"Outlaw" + 3 barges	down	cloudy 52	NW-1	17.3	Barge
06/02/11	2	5:18am	5:33am	9	70	"Patricia" + 2 barges	down	cloudy 47	E-3	17.3	Barge
06/02/11	3	6:02am	6:11am	15	70	"Cascade" + 2 barges	down	cloudy 47	E-3	17.3	Barge
06/02/11	4	9:14am	9:28am	14	60	"Kathryn B" + Bruce M + 2 barges	down	partly cloudy 52	2	17.4	Barge
06/02/11	5	10:49am	11:00am	11	60	Thirsty sailboat	up	partly cloudy 54	S-5	17.4	Sail
06/02/11	6	18:00pm	18:12pm	12	60	"Challenger" + 2 barges	down	partly cloudy	W-1	17.2	Barge



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
06/02/11	7	22:13pm	22:28pm	15	70	"rebel" + 3 barges	down	cloudy 54	E-4	17.3	Barge
06/03/11	1	13:45pm	13:53pm	8	70	cool change sailboat	up	sunny 69	N-4	17.1	Sail
06/03/11	2	19:28pm	19:42pm	14	70	"Tidewater" + 3 barges	down	clear 75	NE-5	17	Barge
06/03/11	3	20:47pm	20:57pm	10	70	"Willamette" + 2 barges	down	clear 72	NW-3	17	Barge
06/04/11	1	7:24am	7:34am	10	70	columbia river marine assist towing sailboat	up	clear 56	N-2	17.2	Barge
06/04/11	2	11:28am	11:41am	13	80	"Chief" + 3 barges	down	clear 77	E-11	17.3	Barge
06/04/11	3	14:01pm	14:13pm	12	75	"Deschutes" + 2 barges	down	partly cloudy 81	N-6	17.3	Barge
06/04/11	4	17:09pm	17:18pm	9	80	clearwater + 2 barges	down	clear 83	NE-2	17.3	Barge
06/04/11	5	19:23pm	19:31pm	8	70	"edna Lavine" sailboat	down	clear 81	NW-7	17.3	Sail
06/05/11	1	1:15am	1:30am	15	75	"Rebel" + 2 barges	down	clear 66	0	17.2	Barge
06/05/11	2	4:00am	4:13am	13	65	"Outlaw" + 3 barges	down	cloudy 63	W-3	17.3	Barge
06/05/11	3	5:03am	5:17am	14	65	"Sundial" + 2 barges	down	cloudy 63	NW-5	17.3	Barge
06/05/11	4	12:04pm	12:12pm	8	65	"Sea Moore" sailboat	down	cloudy 67	W-5	17.4	Sail
06/05/11	5	13:03pm	13:12pm	9	70	"Foreigner" sailboat	down	cloudy 68	W-4	17.3	Sail
06/05/11	6	13:43pm	13:58pm	15	90	"Maverick" with asst. "Daniel" + sailboat "sargaso"	down	cloudy 70	W-3	17.3	Barge
06/05/11	7	17:00pm	17:10pm	10	75	"Willamette" + 2 barges	down	cloudy 74	W-5	17.2	Barge
06/05/11	8	19:02pm	19:13pm	11	75	"Hurricane" + 3 barges	down	cloudy 75	W-4	17.2	Barge
06/05/11	9	20:52pm			75	"Legend" + 2 barges	down	cloudy 74	NW-4	17.2	Barge
06/06/11	1	10:52am	11:00am	8	75	sailboat "Winema"	down	cloudy 59	W-2	17.3	Sail
06/06/11	2	19:33pm	19:42pm	9	75	"Seymore" sailboat	up	cloudy 66	S-1	17.3	Sail
06/07/11	1	11:38am	11:49am	11	80	"Chief" + 3 barges	down	cloudy 58	N-6	17.1	Barge
06/07/11	2	18:52pm	19:00pm	8	75	"Ramrod" sailboat	down	partly cloudy 59	W-10	17	Sail
06/08/11	1	4:08am	4:17am	9	65	"Tidewater" + 3 barges	down	cloudy 54	0	17	Barge
06/08/11	2	9:00am	9:08am	8	80	"Blue Fin"	down	cloudy 55	S-2	16.9	Sail
06/08/11	3	9:34am	9:43am	9	80	"Queen of the West"	down	partly cloudy 56	E-2	16.9	Yacht
06/08/11	4	13:16pm	13:30pm	14	80	"Bruce M" + 2 loaded chip barges	down	cloudy 59	NW-6	17	Barge
06/08/11	5	19:17pm	19:28pm	11	75	"Sundial" + 3 barges	down	cloudy 60	NW-2	17	Barge
06/09/11	1	00:50am	00:58am	8	70	"Willamette" + 2 barges	-	cloudy 57	NW-4	16.9	Barge
06/09/11	2	5:19am	5:31am	12	70	"Lori B" + 2 barges	-	cloudy 52	NW-4	16.9	Barge
06/09/11	3	11:30am	11:42am	12	70	"Chief" + 3 barges	down	partly cloudy 62	W-4	16.8	Barge
06/09/11	4	13:39pm	13:52pm	13	70	"Hurricane" + 3 barges, "Santana" sailboat	down	partly cloudy 65	W-4	16.8	Barge
06/09/11	5	18:00pm	18:15pm	15	70	"Cascades" + 2 barges	down	cloudy 68	N-9	16.8	Barge
06/10/11	1	22:43pm	22:54pm	11	65	"clearwater" + 2 barges	down	cloudy 57	NW-3	16.7	Barge
06/11/11	1	6:58am	7:13am	15	70	"outlaw" + 2 barges, waited above Ryan's point for full open!	down	cloudy 54	W-3	16.7	Barge
06/11/11	2	8:34am	8:43am	9	85	sailing vessel "Tango"	down	cloudy 55	W-3	16.7	Sail
06/11/11	3	10:30am	10:38am	8	70	sailing vessel "Sea Moore"	down	cloudy 57	NW-3	16.6	Sail
06/11/11	4	11:44am	11:56am	12	80	sailboats "Barlavento" + Indigo + Misty Isle	up and downr	cloudy 59	0	16.6	Sail
06/11/11	5	12:39pm	12:53pm	14	70	"Bruce M" + 2 barges	down	cloudy 60	N-3	16.6	Barge
06/11/11	6	13:27pm	13:36pm	9	60	sailboat "SLA Rose"	down	cloudy 61	W-2	16.6	Sail
06/11/11	7	14:14pm	14:23pm	9	80	"Queen of the West"	down	cloudy 62	W-3	16.6	Yacht
06/11/11	8	22:55pm	23:03pm	8	70	legend + 2 barges	down	clear 58	NW-5	16.5	Barge
06/12/11	1	3:21am	3:33am	12	70	"Willamette" + 2 barges	down	cloudy 52	NW-2	16.5	Barge
06/12/11	2	7:28am	7:37am	9	65	sailboat "Black Acre"	down	clear 52	NW-2	16.5	Sail
06/12/11	3	10:13am	10:21am	8	75	sailboat "Spatlese"	down	cloudy	S-1	16.5	Sail
06/12/11	4	12:06pm	12:14pm	8	65	sailboat "Kiitos"	down	cloudy 62	E-1	16.4	Sail
06/12/11	5	13:53pm	14:05pm	12	70	sailboat "Sea Marie" + "Classic Lady"	up and downr	cloudy 65	0	16.4	Sail
06/12/11	6	15:19pm	15:28pm	9	70	"Ingrid Princess" sailboat	up	cloudy 65	NE-2	16.5	Sail
06/13/11	1	5:17am	5:26am	9	75	"Symmetry" sailboat	down	cloudy 56	S-4	16.52	Sail
06/13/11	2	6:13am	6:23am	10	75	"Sam-B" + 1 barge	up	cloudy 56	S-5	16.53	Barge



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
06/13/11	3	23:50pm	23:59pm	9	75	"Daubi" + 2 barges	down	cloudy 56	N-6	16.11	Barge
06/14/11	1	3:55am	4:06am	11	70	clarkston + 2 barges	down	cloudy 55	NW-3	16.5	Barge
06/14/11	2	19:03pm	19:14pm	11	80	"Catherine B" + 2 barges	down	cloudy 60	NW-16	16.6	Barge
06/14/11	3	22:48pm	22:57pm	9	85	"Willamette"	down	cloudy 55	NW-5	16.5	Barge
06/15/11	1	00:20am	00:30am	10	75	"Legend" + 2 barges	down	cloudy 54	NW-6	16.5	Barge
06/15/11	2	9:08am	9:19am	11	90	Ata Marie, Make It So	down	53	W-5	16.6	Sail
06/15/11	3	11:11am	11:19am	8	60	"deschutes" + 2 grain barges	down	cloudy 54	W-2	16.6	Barge
06/15/11	4	12:10pm	12:18pm	8	80	"SLA Rose" sailboat	up	partly cloudy 57	W-5	16.6	Sail
06/15/11	5	12:49pm	13:00pm	11	70	Clearwater	down	partly cloudy 56	W-4	16.6	Barge
06/15/11	6	20:38pm	20:50pm	12	75	"Tidewater" + 3 barges	down	clear 58	W-8	16.5	Barge
06/15/11	7	22:29pm	22:39pm	10	86	"Dauby" + 1 barge	down	clear 55	W-3	16.5	Barge
06/16/11	1	5:38am	5:48am	10	75	"Hurricane" + 2 barges	down	partly cloudy 50	NW-2	16.6	Barge
06/16/11	2	13:01pm	13:08pm	7	70	"Endeavor" sailboat	up	partly cloudy 60	E-2	16.5	Sail
06/16/11	3	13:31pm	13:50pm	19	70	Bruce M + 2 barges	down	partly cloudy 61	calm	16.5	Barge
06/16/11	4	18:46pm	18:57pm	11	75	sailboats - Rapscaillon and Rose Pedal	up and down	partly cloudy 67	W-5	16.6	Sail
06/17/11	1	11:04am	11:13am	9	70	Mark-4, Moon River, Golden Goose sailboats	down	clear 58	W-3	16.6	Sail
06/17/11	2	13:13pm	13:20pm	7	60	Mandoken sailboat	down	clear 64	N-NW-1	16.6	Sail
06/18/11	1	00:40am	00:51am	11	70	"Daubi" + 2 barges	down	clear 59	NW-2	16.53	Barge
06/18/11	2	8:43am	8:58am	15	70	"Deschutes" + 2 barges	down	rain 53	E-3	16.5	Barge
06/18/11	3	9:24am	9:37am	13	60	sailboat "Ramrod"	up	rain 53	E-2	16.4	Sail
06/18/11	4	13:54pm	14:03pm	9	65	sailboat "Glori Jana"	down	rain 57	SE-3	16.3	Sail
06/18/11	5	17:53pm	18:04pm	11	80	"Catherine B" + 2 barges	down	rain 59	calm	16	Barge
06/19/11	1	2:14am	2:23am	9	75	"Tidewater" + 2 barges	down	cloudy 57	W-10	15.9	Barge
06/19/11	2	4:00am	4:16am	16	90	"Sam B" + 1 barge	down	cloudy 56	0	15.9	Barge
06/19/11	3	14:52pm	15:01pm	9	75	sailboats "Dew Drop" + Maia Doran	up	cloudy 63	E-2	15.5	Sail
06/20/11	1	22:53pm	23:03pm	10	80	"Willamette" + 2 barges	down	clear 65	NW-6	14.5	Barge
06/21/11	1	9:51am	9:58am	7	87	maint NB only	-	sunny 58	W-3	14.1	N/A
06/21/11	2	10:58am	11:06am	10	87	sailing vessel Wind Dancing	down	sunny 62	W-5	14.1	Sail
06/21/11	3	11:25am	11:34am	9	60	fishing vessel "Lisa Melinda"	down	sunny 64	W-5	14.1	Fishing
06/21/11	4	12:34pm	12:43pm	9	87E/65N	"Bread + Roses"	down	sunny 68	W-4	14.1	Unknown
06/21/11	5	22:16pm	22:27pm	11	80	"Bruce M" + 1 barge	down	clear 73	NW-13	14.1	Barge
06/22/11	1	4:45am	4:53am	8	70	"Tidewater" + 2 barges	down	cloudy 59	NW-4	14	Barge
06/22/11	2	9:42am	9:53am	11	70	"Queen of the West"	down	cloudy 61	NW-2	14	Yacht
06/22/11	3	12:20pm	12:31pm	11	70	"Hurricane"	down	cloudy 64	W-4	14.1	Barge
06/22/11	4	18:01pm	18:21pm	20	75	"Catherine B" + "Legend"	down	cloudy 66	W-4	14.1	Barge
06/22/11	5	21:13pm	21:22pm	9	75	"Cascades" + 2 barges	down	cloudy 60	NW-7	14.1	Barge
06/23/11	1	10:16am	10:24am	8	65	sailing vessel "Ecstasy"	down	cloudy 58	S-1	14	Sail
06/23/11	2	18:00pm	18:16pm	16	136	"Maverick" + 2 Derricks	down	partly cloudy 63	NW-4	13.9	Barge
06/24/11	1	9:07am	9:14am	7	70	Aghassi	down	cloudy 58	2	14.1	Unknown
06/25/11	1	8:53am	9:04am	11	70	sailboats "Tropical" + "Trio Lee"	down	clear 55	NW-4	15.4	Sail
06/25/11	2	12:18pm	12:27pm	9	70	sailboat "Ramrod"	down	clear 63	W-9	15.4	Sail
06/25/11	3	13:07pm	13:17pm	10	70	"Legend" + 2 barges	down	clear 64	0	15.3	Barge
06/25/11	4	15:11pm	15:22pm	11	75	"Queen of the West"	down	clear 68	NW-10	15.4	Yacht
06/26/11	1	11:40am	11:49am	9	80	sailboat "Coqui"	up	clear 63	W-2	14.4	Sail
06/26/11	2	13:53pm	14:05pm	12	70	"Willamette" + 2 barges	down	cloudy 69	W-2	14.2	Barge
06/26/11	3	16:33pm	16:40pm	7	70	"Coqui" sailboat	down	cloudy 71	W-3	14.1	Sail
06/27/11	1	10:00am	10:27am	27	136	maint list for Gross can check out counter weight west bridge wheels	-	cloudy 66	0	13.3	N/A
06/27/11	2	21:59pm	22:12pm	13	70	"Tidewater" + 3 barges	down	cloudy 68	0	13	Barge
06/28/11	1	00:44am	00:55am	11	70	"Daubi" + 2 barges	down	rain 64	S-1	13	Barge



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
06/28/11	2	9:06am	9:17am	11	120	"Daniel Foss" (Derrick)	up	rain 62	NW-2	13.1	Barge
06/28/11	3	10:36am	10:45am	9	100	"Adriatic Sea" (tug only)	up	rain 63	NW-1	13	Barge
06/28/11	4	11:10am	11:20am	10	80	Runaway (sailboat)	up	rain 63	NW-1	12.9	Sail
06/28/11	5	19:03pm	19:12pm	9	70	sailboat "Symmetry"	up	cloudy 68	E-2	12.7	Sail
06/29/11	1	9:19am	9:29am	10	77	"clearwater" + 2 barges	down	cloudy 61	E-1	12.6	Barge
06/29/11	2	13:49pm	13:59pm	10	75	"Kathryn B" + 2 barges	down	cloudy 63	SW-4	12.4	Barge
06/30/11	1	00:29am	00:40am	11	70	"Daubi" + 1 barge	down	cloudy 58	SW-4	12.4	Barge
06/30/11	2	5:30am	5:39am	9	80	"Jenny's Joy" sail vessel	down	cloudy 55	N-1	12.53	Sail
06/30/11	3	9:30am	9:38am	8	70	"Wakadui" sailboat	down	cloudy 58	calm	12.4	Sail
06/30/11	4	12:52pm	13:02pm	10	80	"Cascades" + 2 barges	down	cloudy 61	E-3	12.3	Barge
06/30/11	5	13:43pm	13:51pm	8	65	"Bruce M" + 2 barges	down	cloudy 61	E-3	12.2	Barge
06/30/11	6	18:05pm	18:13pm	8	66	Maia Dokan, Do Drop In sailboats	down	cloudy 64	W-NW-7	12.1	Sail
06/30/11	7	23:50pm	00:08am	18	69	maintenance lift	-	cloudy 57	NW-6	12.2	N/A
06/30/11	1	23:23pm	23:33pm	10		East bridge R-barrier check for damage		cloudy 57	NW-8		N/A
07/01/11	1	9:01am	9:18am	17	136	Deschutes tug Portland	up	clear sun 56	2	12.5	Barge
07/01/11	2	10:10am	10:20am	10	95	Fuego	down	clear sun 59	7	12.6	Unknown
07/01/11	3	10:52am	11:05am	13	136	Deschutes spud barge	down	clear sun 59	5	12.6	Barge
07/01/11	4	11:35am	11:45am	10	84	Spirit sailboat	down	clear sun 62	5	12.6	Sail
07/01/11	5	12:56pm	13:06pm	10	90	"Adriatic Sea" (light boat)	down	clear 65	NW-11	12.5	Barge
07/02/11	1	1:20am	1:30am	10	80	"Dauby" + 2 barges	down	clear 64	NW-3	13	Barge
07/02/11	2	5:44am	5:59am	15	136	"Maverick" + crane barge	up	clear 57	NW-2	13.4	Barge
07/02/11	3	7:35am	7:43am	8	60	Anabelle sailboat	down	clear 58	N-NW-6	13.4	Sail
07/02/11	4	9:13am	9:21am	8	65	Legend + 4 barges	down	clear 60	N-NW-6	13.4	Barge
07/02/11	5	9:37am	9:45am	8	90	Maverick + 1 spud barge	down	clear 61	N-NW-6	13.4	Barge
07/02/11	6	11:30am	11:42am	12	65	Rebel - Galatea, Stella, Quarz, S.B.	down	clear 66	W-4	13.5	Barge
07/02/11	7	13:06pm	13:15pm	9	65	Cascades 4 barges	down	clear 71	W-SW-3	13.5	Barge
07/02/11	8	14:45pm	14:54pm	9	65	"Tango" sailboat	up	clear 77	W-4	13.5	Sail
07/02/11	9	16:25pm	16:37pm	12	75	"Willamette" + 3 barges	down	clear 79	W-5	13.4	Barge
07/02/11	10	16:57pm	17:05pm	8	65	"Invictus" sailboat	up	clear 81	NW-5	13.4	Sail
07/03/11	1	11:39am	11:49am	10	85	"Rebel" + 2 barges	down	cloudy 63	calm	13.7	Barge
07/04/11	1	8:22am	8:30am	8	65	Clearwater 2 barges	down	clear 58	NW-5	13.6	Barge
07/04/11	2	10:11am	10:19am	8	70	PT Thompson	up	clear 61	NW-3	13.6	Barge
07/04/11	3	12:02pm	12:10pm	8	70	Galatea + Spirit sailboats	up	clear 67	NW-1	13.6	Sail
07/04/11	4	12:24pm	12:32pm	8	70	PT Thompson	down	clear 68	6	13.6	Barge
07/04/11	5	14:43pm	14:52pm	9	70	Maverick Western Ranger	down	clear 74	W-4	13.6	Barge
07/05/11	1	9:19am	9:36am	17	80	Washougal + spud barge, Symmetry + Invictus S.B.	down	clear 63	4	12.8	Barge
07/05/11	2	12:47pm	12:57pm	10	70	Stella Polake, Ana Blue S.B.	up	clear 73	9	12.8	Sail
07/05/11	3	13:45pm	13:54pm	9	70	Rapscallion, Glori Jana S.B.	up	clear 77	W-10	12.3	Sail
07/05/11	4	20:57pm	21:06pm	9	75	"Challenger" + 3 barges	down	clear 78	NW-10	11.9	Barge
07/06/11	1	3:11am	3:20am	9	70	"Bruce M" + 1 barge	down	clear 64	NW-2	11.9	Barge
07/06/11	2	9:30am	9:40am	10	75	"Queen of the West"	down	clear 66	NW-6	11.7	Yacht
07/07/11	1	4:30am	4:39am	9	70	"Willamette" + 3 barges	down	clear 60	NW-3	11.8	Barge
07/07/11	2	10:57am	11:07am	10	90	"Bruce M" + 2 chip barges	down	cloudy 62	NW-5	11.8	Barge
07/07/11	3	12:05pm	12:20pm	15	80	"rebel" + 3 barges	down	cloudy 62	NW-6	11.8	Barge
07/07/11	4	18:35pm	18:48pm	13	65	"Kathryn B" + 3 barges	down	partly cloudy 64	E-9	11.4	Barge
07/09/11	1	9:21am	9:30am	9	70	sailboat "Great Shearwater"	down	clear 57	W-5	11.5	Sail
07/09/11	2	14:52pm	15:02pm	10	70	"Clearwater" + 3 barges	down	clear 72	NW-10	11.4	Barge
07/09/11	3	22:09pm	22:17pm	8	30	Test lift both bridges	-	clear 66	NW-5	11.3	N/A
07/09/11	4	23:20pm	23:28pm	8	100	test lift east bridge only	-	clear 63	NW-2	11.4	N/A



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
07/09/11	5	23:32pm	23:40pm	8	100	test lift west bridge only	-	clear 62	NW-2	11.4	N/A
07/09/11	6	23:46pm	23:53pm	7	44	test lift east bridge only	-	clear 62	NW-4	11.4	N/A
07/10/11	1	14:00pm	14:08pm	8	70	sailboat "Maia Doran"	up	partly cloudy 70	W-3	11	Sail
07/10/11	2	15:51pm	16:05pm	14	75	"Legend" + 4 barges	down	clear 75	W-2	11.2	Barge
07/10/11	3	15:07pm	15:14pm	7	60	"Rapscallion" sailboat	down	clear 75	NW-4	11.2	Sail
07/12/11	1	1:20am	1:46am	26	70	"Daubi" + 2 barges	-	raiun 60	0	10.7	Barge
07/12/11	2	10:52am	11:10am	18	136	East bridge maint "Sashey" sail vessel	up	cloudy 61	SE-2	10.4	Sail
07/12/11	3	13:25am	13:33am	8	80	"Wind Dancer" sail vessel	up	cloudy 63	SE-5	10	Sail
07/13/11	1	9:12am	9:46am	33	136	Lassen, PT Thompson, Deschutes, "Willamette" - oil Derrick barge	down	cloudy 62	S-1	9.5	Barge
07/14/11	1	1:49am	1:59am	10	70	"Daubi" + 1 barge	down	cloudy 59	NW-2	8.6	Barge
07/14/11	2	18:29pm	18:38pm	9	70	sailboat "Wind Dancing"	down	partly cloudy 68	NW-3	8.9	Sail
07/16/11	1	2:59am	3:09am	10	80	"Dauby" + 2 barges	down	rain 61	NE-4	10.5	Barge
07/16/11	2	3:55am	4:05am	10	85	"Challenger" + 3 barges	down	rain 60	calm	10.5	Barge
07/16/11	3	14:21pm				"Tidewater" + 3 barges	down	partly cloudy 69	SE-4	9	Barge
07/16/11	4	18:24pm	18:33pm	9	70	"rebel" + 3 barges	down	cloudy 71	S-2	8.8	Barge
07/16/11	5	23:54pm	00:03am	9	75	Dauby + crane barge	down	cloudy 62	NW-6	8.8	Barge
07/18/11	1	1:40am	1:49am	9	75	"Legend" + 4 barges	down	cloudy 58	W-4	8	Barge
07/18/11	2	20:57pm	21:07pm	10	70	"Spatlease" + Rapscallion sailboats	up	partly cloudy 67	NW-5	8.4	Sail
07/19/11	1	12:37pm	12:50pm	13	100	"Deschutes" "PT Thompson" "Willamette" crowly barge	down	cloudy 63	SE-1	8.6	Barge
07/20/11	1	10:53am	11:01am	8	70	"Wind Raven"	down	cloudy 63	W-5	8.1	Sail
07/20/11	2	11:45am	11:55am	10	86	"Crown of Camas" spud barge	down	partly cloudy 64	W-4	8.1	Barge
07/20/11	3	22:35pm	22:47pm	12	75	"Capt Bob" + 4 barges	down	partly cloudy 65	NW-4	8.2	Barge
07/21/11	1	18:00pm	18:07pm	7	30	test lift for D. Johnson	-	cloudy 67	W-11	6.8	N/A
07/21/11	1	10:18am	10:20am	2		traffic stop for Dave Johnson		cloudy 62	3		N/A
07/21/11	2	13:33pm	13:35pm	2		traffic stop to remove debris - SB		cloudy 65	S-4		N/A
07/22/11	1	11:05am	11:19am	14	100	Columbia + Derek barge, Willamette + spud barge	up	cloudy 61	NW-1	6.9	Barge
07/22/11	2	14:03pm	14:14pm	11	110	Columbia + Derek barge, Willamette + spud barge	down	sunny 65	W-5	6.8	Barge
07/24/11	1	21:11pm	21:21pm	10	75	"Chief" + 4 barges	down	clear 76	NW-9	5.8	Barge
07/25/11	1	19:20pm	19:28pm	8	75	"Ironwood"	up	clear 70	NW-9	5.8	Federal
07/27/11	1	2:00am	2:10am	10	70	"Willamette" + 4 barges	down	partly cloudy 58	NW-3	6.4	Barge
07/28/11	1	18:24pm	18:32pm	8	85	"Ironwood"	down	clear 79	W-7	5.9	Federal
07/29/11	1	20:17pm	20:27pm	10	110	"Daniel Foss" (Derrick)	down	clear 75	W-7	5.4	Barge
07/31/11	1	21:55pm	22:09pm	9	80	"Sam B" + 1 barge	up	clear 66	NW-9	7.1	Barge
08/01/11	1	4:38am	4:52am	14	136	Tug Maverick + 1 crane barge	up	clear 57	NW-5	5.7	Barge
08/05/11	1	5:50am	6:01am	11	90	"Sam B" + 1 barge	-	cloudy 61	NW-4	4.96	Barge
08/12/11	1	10:04am	10:12am	8	90	"Cristy T" + spud barge, crane	down	partly cloudy 60	3	5.5	Barge
08/12/11	2	11:18am	11:27am	9	90	Make It So	up	sunny 64	4	5	Sail
08/12/11	3					"Christy T" + Derrick	up	clear 77	3	5.4	Barge
08/17/11	1	6:00am	6:16am	16	86	maintenance lift	-	clear 59	NW-4	4.1	N/A
08/18/11	1	9:30am	9:50am	20	82	(Drawer) maint lift west bridge	-	cloudy 60	NW-4	4.7	N/A
08/19/11	1	12:09pm	12:29pm	22	86	maint lift east bridge only	-	clear 74	NW-10	4.4	N/A
08/20/11	1	6:02am	6:39am	32	136	maint east bridge lube slides	-				N/A
08/20/11	2	6:47am	7:13am	25	136	maint east bridge lube slides	-	61	2	4	N/A
08/20/11	3	21:38pm	21:52pm	14	125	"Betty Lou" + Derrick	down	clear 79	W-5	4.7	Barge
08/22/11	1	11:11am	11:21am	10	86	maint lift to retrieve greasing supplies	-	partly cloudy 767	SE-3	2.7	N/A
08/22/11	2	11:47am	11:56am	9	80	sailboat "Anum Cara"	up	partly cloudy 69	S-10	2.8	Sail
08/24/11	1	13:24pm	13:32pm	8	80	"Washougal" + Derrick	up	clear 81	W-2	2.8	Barge
08/25/11	1	9:00am	9:08am	8	65	"Ironwood" USCG	up	clear 67	NW-6	4.3	Federal
08/26/11	1	11:37am	11:45am	8	70	"Marine Assist" w/sailboat	down	clear 71	NW-6	3.5	Barge



Date	lift #	gates closed	gates open	total time (min)	life elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
08/30/11	1	10:01am	10:15am	14	136	maint	-	overcast 61	NW-4	4.8	N/A
09/04/11	1	20:24pm	20:31pm	7	75	"Walk-a-Doi" sailboat	up	clear 80	NW-3	2.2	Sail
09/10/11	1	23:33pm	23:42pm	9	76	east bridge only - test	-	clear 76	calm	2.4	N/A
09/10/11	2	23:45pm	23:54pm	9	76	west bridge only - test	-	clear 75	NW-2	2.4	N/A
09/11/11	1	00:02am	00:11am	9	73	east bridge only - test	-	clear 75	calm	2.3	N/A
09/11/11	2	00:15am	00:23am	8	67	west bridge only - test	-	clear 75	calm	2.1	N/A
09/12/11	1	18:05pm	18:13pm	8	75	sailing vessel "Autumn Wind"	up	clear 74	NW-3	4.5	Sail
09/12/11	2	13:40pm	13:43pm	3		maintenance - east bridge only		clear 68	SE-1		N/A
09/15/11	1	10:11am	10:29am	18	86	maintenance east bridge, "Jenny's Joy" sail vessel	up	cloudy 63	W-1	3	Sail
09/15/11	2	12:28pm	12:37pm	9	86	maintenance - east bridge only	-	cloudy 63	W-3	2	N/A
09/20/11	1	18:36pm	18:46pm	10	100	"Yaquina"	up	clear 78	NW-2	1.2	Federal
09/27/11	1	00:36am	1:07am	31	136	"Yaquina" Dredge	down	cloudy 59	SE-11	2.75	Federal
09/28/11	1	20:32pm	20:50pm	18		NB only - WDOT striping		clear 68	NE-5		N/A
10/02/11	1	12:08pm	12:17pm	9	80	sailboat "Bad Dog"	up	cloudy 60	E-7	2.8	Sail
10/04/11	1	12:23pm	12:30pm	7	50	test lift No. B. only	-	partly cloudy 62	11	3.3	N/A
10/08/11	1	15:08pm	15:16pm	8	80	"Haven" sailboat	down	partly cloudy 64	W-1	2.8	Sail
10/24/11	1	10:33am	10:45am	12	100	"Casey H" w/2 Derricks + 2 spuds	up	partly cloudy 49	W-2	0.9	Barge
10/27/11	1	12:53pm	13:00pm	7	80	"Ironwood"	down	clear 48	NW-3	1.8	Federal
10/29/11	1	14:02pm	14:13pm	11	70	"Rebel" w/4 barges	down	clear 51	W-3	2.9	Barge
10/30/11	1	14:48pm	15:03pm	15	75	"Rebel" + 4 barges	down	fog/rain 59	calm	2.3	Barge
11/03/11	1	12:29pm	12:45pm	16	100	"Olaf J" (Derrick)	down	cloudy 45	NW-1	3.8	Barge
11/03/11	2	18:00pm	18:12pm	12	90	"Daubi" + Derrick	up	partly cloudy 47	NW-5	2.5	Barge
11/07/11	1	9:20am	9:31am	11	90	"Washougal" + Derrick	down	cloudy 47	E-3	1.6	Barge
11/19/11	1	7:39am	8:02am	23	86	maint lift to remove weight from NB/East bridge counterweights	-	cloudy 38	0	2.7	N/A
11/19/11	2	8:20am	8:45am	25	86	maint lift to remove weight from NB/East bridge counterweights	-	cloudy 38	S-1	3.1	N/A
11/19/11	3	9:03am	9:22am	19	68/136	maint lift NB only to check ballance	-	cloudy 39	S-1	3.4	N/A
11/20/11	1	22:09pm	22:20pm	11	90	east bridge only - test	-	cloudy 37	SE-4	2.8	N/A
11/20/11	2	22:23pm	22:34pm	9	90	west bridge only - test	-	cloudy 37	SE-6	2.8	N/A
11/20/11	3	22:38pm	22:47pm	9	90	east bridge only - test	-	cloudy 37	SE-2	2.9	N/A
11/20/11	4	23:05pm	23:17pm	12	90	west bridge only - test	-	cloudy 37	SE-5	3.2	N/A
11/20/11	5	23:23pm	23:35pm	12	136	east bridge only - test	-	cloudy 37	SE-4	3.2	N/A
11/20/11	6	23:41pm	23:54pm	13	136	west bridge only - test	-	cloudy 38	SE-3	3.4	N/A
11/23/11	1	00:46am	00:58am	12	75	"Rebel" + 4 barges	down	rain 56	S-4	5.2	Barge
11/25/11	1	2:00am	2:10am	10	80	"Tidewater" + 4 barges	down	cloudy 43	W-4	6.5	Barge
11/26/11	1	7:35am	7:50am	15	6	maint adjustment lift	-	cloudy 47	SE-7	5.9	N/A
11/26/11	2	7:58am	8:13am	15	136	maint adjustment lift	-	cloudy 47	SE-7	5.9	N/A
11/30/11	1	00:13am	00:24am	11	75	"Rebel" + 4 barges	down	cloudy 45	S-3	4.5	Barge
12/01/11	1	11:26am	11:41am	15	80	"Daryl B" + 2 Derricks	down	clear 39	0	3.9	Barge
12/02/11	1	9:54am	9:55am	1		SE ped gate warning lights are out, full stop NB		cloudy 43	calm		N/A
12/03/11	1	5:11am	5:21am	10	90	"Daubi" + spud/Derek barge	up	clear 33	N-2	1.6	Barge
12/08/11	1	23:02pm	23:15pm	13	136	test lift east bridge	-	clear 35	NW-2	2.6	N/A
12/15/11	1	10:57am	11:05am	8	83	west bridge only, EMS battery delivery - CWTS	-	cloudy 37	E-5	3.9	N/A
12/17/11	1	12:13pm	12:26pm	13	85	"Stacy T" w/Derrick	down	clear 43	E-1	3.5	Barge



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
1/7/2012	1	12:22	12:31	9	85	Jonathan	Up	Cloudy 45	5	3.9	Sail
1/11/2012	2	14:11	14:25	14	75	Legend	Down	Sunny 46	9	3.6	Barge
1/14/2012	1	13:46	13:56	10	75	Legend		Rain 41	5	3.8	Barge
1/18/2012	1	3:11	3:25	14	85	Tidewater	Down	Snow/rain 33	3	3.7	Barge
1/20/2012	2	18:00	18:19	19	75	Deschutes	Down	Rain 36	14	11.2	Barge
1/20/2012	1	14:04	14:19	15	75	Lori B	Down	Rain 37	22	11	Barge
1/20/2012	2	18:00	18:19	19	75	Legend	Down	Rain 36	14	11.2	Barge
1/21/2012	2	19:30	19:42	12	85	Tidewater	Down	Cloudy 42	4	12.4	Barge
1/21/2012	3	22:41	22:52	16	85	Outlaw	Down	Cloudy 42	Calm	12.3	Barge
1/21/2012	1	12:18	12:27	9	80	Runaway	up	Rain 45	11	11.5	Sail
1/22/2012	1	15:14	15:27	13	80	Hurricane	Down	Rain 42	7	11.5	Barge
1/26/2012	1	23:53	0:06	13	80	Legend	Down	Cloudy 51	8	9.8	Barge
1/26/2012	2	9:37	9:51	14	90	Stacy T	Down	Clear 44	4	10	Barge
1/27/2012	2	13:00	13:12	12	80	Outlaw	Down	Clear 33	3	9.4	Barge
1/27/2012	1	0:42	0:53	11	80	Wallace E	Down	Clear 34	1	9.5	Barge
1/28/2012	2	12:00	12:10	10	85	Deschutes	Down	Cloudy 39	1	8.8	Barge
1/28/2012	1	5:23	5:37	14	75	Rebel	Down	Cloudy 32	2	8.7	Barge
1/28/2012	3	14:34	14:45	11	70	Legend	Down	Hazy 44	2	8.5	Barge
2/1/2012	1	22:32	22:42	10	85	Juno	Up	Cloudy 41	Calm	6	Other/unknown
2/2/2012	1	9:39	9:53	14	100	Nancy Ann	Up	Cloudy 38	2	5.4	Other/unknown
2/16/2012	1	18:01	18:13	12	100	Fishing vessel Jewel	Down	Cloudy 43	5	4.1	Sail
2/17/2012	1	13:15	13:25	10	110	Stacy T	Up	Rain 44	19	5	Barge
2/18/2012	1	22:41	22:52	11	85	Tidewater	Up	Cloudy 42	3	3.5	Barge
2/25/2012	1	20:45	20:58	13	80	Deschutes	Down	Cloudy 39	2	5.7	Barge
2/26/2012	1	14:20	14:34	14	90	Nancy Ann	Down	Cloudy 41	5	4.9	Other/unknown
2/27/2012	1	20:24	20:35	11	80	Tidewater	Down	Clear 40	6	5.2	Barge
2/28/2012	1	10:35	11:02	27	136/86	Norton Bay	Up	Cloudy 39	15	5.4	Barge
3/3/2012	1	2:41	2:52	11	60	Tidewater	Down	Cloudy 47	5	4.7	Barge
3/5/2012	1	19:41	19:53	12	130	Sundial	Up	Cloudy 41	6	5.2	Barge
3/6/2012	1	19:59	20:11	12	125	Sundial	Down	Clear 41	5	5.3	Barge
3/8/2012	1	19:02	19:20	18	100	Norton Bay	Down	Clear 58	11	5.9	Barge
3/18/2012	2	11:44	11:58	14	136	Juno	Up	Cloudy 40	2	10.7	Other/unknown
3/19/2012	1	21:47	21:59	12	110	Sundial	Up	Cloudy 41	13	9.8	Barge
3/20/2012	2	18:02	18:18	16	136	Sundial	Down	Cloudy 48	4	9.1	Barge
3/23/2012	2	23:10	23:19	9	65	Deschutes	Down	Clear 45	1	10	Barge
3/23/2012	1	12:43	12:53	10	80	Rebel	Down	Clear 41	3	10	Barge
3/24/2012	1	9:37	9:52	16	133	Free Bird	Down	Clear 54	9	10.3	Sail
3/25/2012	1	4:08	4:20	12	90	Deschutes	Down	Overcast 44	3	10.3	Barge
3/25/2012	4	21:37	21:37	13	85	Tidewater	Down	Cloudy 44	5	10.5	Barge
3/25/2012	3	15:30	15:39	9	80	Free Bird	Up	Cloudy 53	3	10.4	Sail



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
3/25/2012	2	6:52	7:03	11	90	Pacific Avenger	Up	Overcast 44	2	10.6	Barge
3/26/2012	1	11:03	11:12	9	85	Rage	Up	Clear 47	2	10.1	Sail
3/26/2012	2	12:27	12:36	9	85	Rage	Down	Clear 50	7	10	Sail
3/28/2012	3	9:45	10:55	10	95	Dauby	Down	Cloudy 49	6	9.9	Barge
3/28/2012	1	2:00	2:10	10	80	Deschutes	Down	Cloudy 47	5	8.8	Barge
3/28/2012	2	9:00	9:09	9	90	Juno	Down	Cloudy 48	12	9.8	Other/unknown
3/31/2012	5	21:11	21:22	11	80	Chief	Down	Rain 48	4	15.4	Barge
3/31/2012	6	22:34	22:46	12	80	Defiance	Down	Rain 47	2	15.4	Barge
3/31/2012	7	23:56	0:08	12	80	Deschutes	Down	Rain 45	9	15.4	Barge
3/31/2012	2	12:05	12:17	12	75	Kathryn B	Down	Rain 44	12	15.3	Barge
3/31/2012	3	15:12	15:25	13	85	Tidewater	Down	Partly Cloudy 50	14	15.5	Barge
3/31/2012	4	18:10	18:21	11	80	Tidewater	Down	Partly Cloudy 51	12	15.4	Barge
3/31/2012	1	0:41	0:53	12	70	Willamette	Down	Rain 41	3	14.1	Barge
4/1/2012	2	19:54	20:05	11	80	Capt Bob	Down	Partly Cloudy 47	3	15.6	Barge
4/1/2012	1	19:06	19:19	13	80	Cascades	Down	Cloudy 49	6	15.6	Barge
4/2/2012	1	1:22	1:37	15	70	Rebel	Down	Cloudy 43	5	15.6	Barge
4/3/2012	1	1:19	1:29	10	70	Dauby	Down	Cloudy 51	12	15.5	Barge
4/3/2012	3	22:08	22:19	11	85	Lori B	Down	Cloudy 45	3	15.5	Barge
4/3/2012	2	10:24	10:38	14	70	Sundial	Down	Rain 48	5	15.4	Barge
4/4/2012	1	9:19	9:29	10	70	Defiance	Down	Cloudy 42	0	15.2	Barge
4/4/2012	2	10:30	10:39	9	70	Tidewater	Down	Rain 42	3	15.2	Barge
4/6/2012	3	12:12	12:23	11	70	Bruce M	Down	Partly Cloudy 48	1	12	Barge
4/6/2012	1	2:36	2:48	12	70	Chief	Down	Cloudy 39	2	12.3	Barge
4/6/2012	2	10:56	11:09	13	70	Legend	Down	Partly Clويدy 46	4	12.3	Barge
4/7/2012	1	23:18	23:27	9	65	Dauby	Down	Cloudy 42	0	12.3	Barge
4/7/2012	5	21:24	21:34	10	80	Hurricane	Down	Cloudy 56	Calm	12.9	Barge
4/7/2012	3	8:54	9:04	10	60	Tidewater	Down	Fog 36	2	12.7	Barge
4/7/2012	2	5:38	5:48	10	65	Wallace E	Down	Cloudy 34	0	12.5	Barge
4/7/2012	6	22:42	22:53	11	80	Willamette	Down	Cloudy 57	Calm	12.9	Barge
4/7/2012	4	11:47	11:55	8	65	Runaway	Down	Sunny 46	3	12.6	Sail
4/8/2012	4	15:48			75	Clearwater	Down	Clear 66	Calm	12.3	Barge
4/8/2012	1	3:32	3:42	10	80	Rebel	Down	Cloudy 54	Calm	12.5	Barge
4/8/2012	3	11:32	11:40	8	70	Runaway	Up	Clear 59	Calm	12.6	Sail
4/9/2012	3	4:03	4:13	10	65	Chief	Down	Cloudy 52	Calm	11.8	Barge
4/9/2012	1	1:54	2:03	9	60	Lori B	Down	Cloudy 55	6	12	Barge
4/9/2012	4	18:03	18:16	13	75	Legend	Down	Cloudy 66	2	10.9	Barge
4/9/2012	2	3:37	3:48	11	70	Wallace E	Down	Cloudy 55	Calm	11.8	Barge
4/10/2012	1	1:20	1:30	10	60	Capt Bob	Down	Cloudy 51	2	11	Barge
4/10/2012	2	9:20	9:29	9	90	Huski	Down	Cloudy 52	11	10.8	Barge
4/10/2012	3	21:33	21:44	11	75	Catherine	Down	Cloudy 54	2	9.3	Barge



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
4/11/2012	2	11:47	11:56	9	60	Bruce M	Down	Cloudy 52	2	10	Barge
4/11/2012	4	19:42	19:55	13	70	Chief	Down	Cloudy 49	4	9.4	Barge
4/11/2012	5	23:29	23:29	9	60	Deschutes	Down	Rain 46	3	10	Barge
4/11/2012	1	5:26	5:39	13	55	Hurricane	Down	Cloudy 51	2	9	Barge
4/11/2012	3	13:55	14:05	10	90	Huski	Down	Cloudy 53	3	9.8	Barge
4/12/2012	2	4:40	4:52	12	60	Dauby	Down	Cloudy 45	0	10.1	Barge
4/12/2012	1	2:59	3:10	11	60	Outlaw	Down	Cloudy 46	3	10.1	Barge
4/13/2012	3	10:16	10:28	12	65	Tidewater	Down	Partly Cloudy 46	3	9.8	Barge
4/13/2012	2	9:06	9:16	10	60	Wallace E	Down	Partly Cloudy 46	0	9.7	Barge
4/13/2012	1	0:20	0:30	10	65	Willamette	Down	Partly Cloudy 45	2	9.9	Barge
4/14/2012	2				75	Hurricane	Down	Clear 43	0	9.7	Barge
4/14/2012	3	11:33	11:45	12	75	Hurricane	Down	Partly Cloudy 57	Calm	9.7	Barge
4/14/2012	1	2:12	2:26	14	65	Rebel	Down	Cloudy 46	0	9.8	Barge
4/15/2012	10	21:40	21:56	16	65	Lori B	Down	Rain 55	0	8.9	Barge
4/15/2012	8	8:46	8:58	12	60	Legend	Down	Partly Cloudy 47	Calm	8.8	Barge
4/15/2012	9	15:49	15:58	9	80	Riva	Down	Partly Cloudy 63	0	9	Sail
4/16/2012	2	23:50	0:02	12	75	Dauby	Down	Cloudy 47	2	8.5	Barge
4/16/2012	1	20:52	21:04	12	80	Tidewater	Down	Cloudy 51	3	8.4	Barge
4/17/2012	1	9:30	9:37	7	70	Aquila	Down	Cloudy 47	2	9	Sail
4/19/2012	1	0:33	0:46	13	65	Dauby	Down	Cloudy 47	2	9.9	Barge
4/19/2012	2	0:43	0:58	15	65	Defiance	Down	Cloudy 46	0	9.9	Barge
4/19/2012	3	13:00	13:09	9	70	Aquila	Up	Rain 47	0	10.1	Sail
4/20/2012	1	12:44	12:57	13	70	Willamette	Down	Cloudy 53	3	10.6	Barge
4/21/2012	1	2:02	2:23	21	60	Hurricane	Down	Cloudy 48	0	10.8	Barge
4/21/2012	4	20:47	21:01	14	75	Rebel	Down	Clear 69	2	11.2	Barge
4/21/2012	2	12:35	12:47	12	80	Outlaw	Down	Sunny 56	1	11.07	Barge
4/21/2012	3	14:45	14:53	8	80	Riva	up	Clear 64	3	10.1	Sail
4/22/2012	2	23:33	23:47	14	75	Legend	Down	Clear 64	6	11.3	Barge
4/22/2012	1	12:27	12:34	7	70	Adventura	Down	Clear 65	4	11	Sail
4/23/2012	1	9:03	9:17	14	70	Clearwater	Down	Sunny 58	3	11.9	Barge
4/25/2012	2	20:12	20:23	11	70	Wila	Down	Drizzle 58	3	12.4	Sail
4/25/2012	1	9:27	9:36	9	75	Queen of the West	Down	Cloudy 56	5	12.4	Cruise/passenger
4/26/2012	1	4:10	4:30	20	65	Dauby	Down	Rain 50	9	13.7	Barge
4/26/2012	2	10:50	11:15	25	80	Tidewater	Down	Rain 47	10	14.4	Barge
4/26/2012	3	11:28	11:37	9	85	Whisper	Down	Rain 53	10	14.4	Sail
4/27/2012	2	9:26	9:36	10	60	Bruce M	Down	Cloudy 50	4	14.7	Barge
4/27/2012	6	19:28	19:42	14	65	Chief	Down	Cloudy 52	5	14.5	Barge
4/27/2012	1	0:58	1:13	15	60	Outlaw	Down	Cloudy 46	4	14.7	Barge
4/27/2012	4	12:43	12:51	8	75	Wind River	Down	Rain 51	1	14.6	Sail
4/27/2012	3	11:22	11:32	10	75	Luscious	Down	Cloudy 54	3	14.6	Sail



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
4/27/2012	5	13:39	13:49	10	75	Queen of the West	Up	Cloudy 53	1	14.6	Cruise/passenger
4/28/2012	3	14:47	17:59	12	80	Rebel	Down	Partly Cloudy 61	4	14.7	Barge
4/28/2012	4	23:20	23:30	10	75	Willamette	Down	Cloudy 58	2	14.6	Barge
4/28/2012	2	12:59	13:09	10	75	Queen of the West	Down	Partly Cloudy 55	3	14.6	Cruise/passenger
4/29/2012	3	13:04	13:16	12	75	Cascades	Down	Cloudy 57	5	14.7	Barge
4/29/2012	1	4:30	4:40	10	75	Deschutes	Down	Cloudy 53	5	14.6	Barge
4/29/2012	6	21:10	21:23	13	75	Sundial	Down	Cloudy 60	7	14.5	Barge
4/29/2012	5	19:15	19:28	13	75	Tidewater	Down	Cloudy 63	2	14.5	Barge
4/29/2012	2	9:22	9:31	9	75	Ecstasy	Up	Cloudy 53	Calm	14.5	Sail
4/29/2012	4	13:29	13:37	8	70	Wind Raven	Up	Cloudy 58	5	14.7	Sail
4/30/2012	1	19:59	20:13	14	65	Hurricane	Down	Cloudy 50	6	13.8	Barge
5/1/2012	2	3:38	3:50	12	60	Dauby	Down	Cloudy 44	3	13.5	Barge
5/1/2012	1	0:38	0:51	13	70	Legend	Down	Cloudy 46	1	13.5	Barge
5/1/2012	3	19:22	19:31	9	80	Seascape	Up	Cloudy 49	3	13.7	Sail
5/2/2012	1	9:45	9:56	11	65	Defiance	Down	Cloudy 47	4	13.8	Barge
5/2/2012	2	20:53	21:05	12	70	Tidewater	Down	Cloudy 51	5	13.9	Barge
5/3/2012	1	1:01	1:11	10	60	Chief	Down	Rain 47	5	14	Barge
5/3/2012	2	2:30	2:42	12	60	Dauby	Down	Rain 47	3	14	Barge
5/3/2012	3	4:34	4:46	12	60	Deschutes	Down	Rain 47	9	14.3	Barge
5/3/2012	4	12:54	13:07	11	65	Hurricane	Down	Rain 55	8	13.6	Barge
5/4/2012	1	9:01	9:15	14	60	Bruce M	Down	Cloudy 47	1	14.8	Barge
5/4/2012	2	18:00	18:16	16	65	Rebel	Down	Parly Cloudy 52	11	15	Barge
5/5/2012	6	22:40	22:57	11	75	Capt Bob	Down	Clear 50	3	14.4	Barge
5/5/2012	3	11:54	12:05	11	75	Deschutes	Down	Cloudy 51	Calm	14.7	Barge
5/5/2012	1	7:57	8:09	12	80	Sundial	Down	Cloudy 45	Calm	15	Barge
5/5/2012	2	8:41	8:50	9	70	Penelope	Down	Cloudy 46	Calm	15	Sail
5/5/2012	5	17:41	14:49	8	70	Penelope	Up	Cloudy 52	6	14.5	Sail
5/5/2012	4	12:25	12:32	7	70	Rya	Down	Cloudy 52	2	14.7	Sail
5/6/2012	3	8:14	8:24	10	65	Chief	Down	Cloudy 44	3	14.4	Barge
5/6/2012	7	21:21	21:23	13	75	Clearwater	Down	Clear 61	5	14.3	Barge
5/6/2012	8	22:24	22:35	11	70	Defiance	Down	Clear 58	3	14.3	Barge
5/6/2012	5	13:35	13:47	12	70	Hurricane	Down	Clear 57	6	14.3	Barge
5/6/2012	1	0:36	0:52	17	65	Tidewater	Down	Clear 48	5	14.2	Barge
5/6/2012	4	12:17	12:30	11	70	Willamette	Down	Clear 52	5	14.4	Barge
5/6/2012	2	6:23	6:30	7	60	Hardway	Down	Clear 42	Calm	14.2	Other/unknown
5/6/2012	6	17:05	17:12	7	70	Reva	Down	Clear 66	7	14.3	Sail
5/8/2012	3	14:15	14:25	10	60	Dauby	Down	Clear 66	7	12.6	Barge
5/8/2012	1	2:19	2:32	13	65	Rebel	Down	Clear 58	Calm	13.1	Barge
5/8/2012	4	18:02	18:11	9	110	Stacy T	Up	Clear 68	9	12.4	Barge
5/8/2012	2	11:35	11:43	8	85	Calif Girl	Down	Sunny63	5	12.8	Sail



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
5/9/2012	5	18:00	18:12	12	65	Chief	Down	Partly Cloudy 47	16	11.3	Barge
5/9/2012	2	1:34	10:47	13	65	Clearwater	Down	Cloudy 50	6	12	Barge
5/9/2012	1	1:31	1:44	13	70	Defiance	Down	Partly Cloudy 49	9	12.2	Barge
5/9/2012	4	12:30	12:43	13	65	Lori B	Down	Partly Clear 52	5	11.9	Barge
5/9/2012	3	11:56	12:07	11	100	Olaf J	Down	Partly Clear 53	7	11.9	Marine construction
5/10/2012	3	23:09	23:23	14	60	Cascades	Down	Clear 51	4	11.3	Barge
5/10/2012	1	0:47	0:58	11	70	Hurricane	Down	Cloudy 45	4	11.3	Barge
5/10/2012	2	9:51	10:04	13	75	Sargasso	Down	Clear 46	5	11.5	Barge
5/11/2012	1	3:07	3:20	13	60	Legend	Down	Clear 46	4	11	Barge
5/11/2012	3	11:47	11:56	9	70	Bonnevie	Down	Clear 56	6	10.9	Sail
5/11/2012	2	11:19	11:29	10	70	Maia Doran	Down	Clear 55	5	10.9	Sail
5/12/2012	1	10:44	10:57	13	70	Defiance	Down	Clear 62	4	10.4	Barge
5/12/2012	2	15:42	15:50	8	70	Bonnevie	Up	Clear 77	4	10.4	Sail
5/13/2012	1	11:19	11:30	11	70	Hurricane	Down	Clear 68	4	10.3	Barge
5/13/2012	2	12:14	12:23	9	70	Penelope	Up	Clear 72	5	10.3	Sail
5/14/2012	1	18:14	18:21	7	70	Affirmation	Down	Clear 81	7	8.9	Sail
5/15/2012	1	9:29	9:43	14	70	Defiance	Down	Clear 55	3	8.8	Barge
5/17/2012	2	23:20	23:36	16	90	Tidewater	Down	Clear	5	9.7	Barge
5/17/2012	1	18:44	18:54	10	70	Tango	Up	Clear 61	13	9.7	Sail
5/19/2012	3	15:16	12:28	12	75	Defiance	Down	Partly Cloudy 66	Calm	11.3	Barge
5/19/2012	1	2:30	2:44	14	70	Sundial	Down	Clear 48	0	10.6	Barge
5/19/2012	2	10:40	10:49	9	80	Runaway	Down	Clear 54	2	11.2	Sail
5/21/2012	1	9:50	10:02	12	59	Runaway	Up	Rain 55	5	11.2	Sail
5/23/2012	1	11:15	11:32	17	73	Lori B	Down	Cloudy 58	0	11.3	Barge
5/24/2012	4	13:58	14:09	11	75	Runaway	Down	Rain 52	6	11.5	Sail
5/25/2012	2	11:51	12:03	12	80	Always & Forever	Up	Partly Cloudy 61	2	11.7	Sail
5/25/2012	3	12:43	12:56	13	70	Wind Raven	Down	Partly Cloudy 61	1	11.6	Sail
5/25/2012	1	11:07	11:18	11	75	Passion Yacht	Down	Partly Cloudy 60	0	11.8	Other/unknown
5/26/2012	11	12:13	12:27	14	65	Cascades	Down	Cloudy 58	1	11.7	Barge
5/26/2012	9	10:19	10:35	16	70	Chief	Down	Cloudy 55	1	11.7	Barge
5/26/2012	7	4:47	5:15	18	50	Kathryn B		Cloudy 52	0	11.3	Barge
5/26/2012	10	11:37	11:55	18	75	Runaway	Up	Cloudy 52	1	11.7	Sail
5/26/2012	12	13:44	13:58	14	80	Liahana	Up	Cloudy 60	0	11.7	Sail
5/27/2012	2	13:12	13:29	17	55	Rebel	Down	Cloudy 57	1	10.7	Barge
5/27/2012	1	3:30	3:46	16	45	Sundial	Down	Cloudy 52	5	11.1	Barge
5/29/2012	1	9:58	10:17	19	56	Always & Forever	Down	Cloudy 57	Calm	8.8	Sail
5/29/2012	2	11:59	12:15	16	70	Liahana	Down	Sunny 60	Calm	8.8	Sail
5/31/2012	1	9:28	9:45	17	75	Desert Vision		58		8.3	Sail
6/1/2012	1	9:02	9:23	21	65	Rebel	Down	Cloudy 60	Calm	8	Barge
6/2/2012	1	4:10	4:28	18	41	Lori B	Down	Cloudy 55	4	8.9	Barge



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
6/2/2012	2	16:15	16:35	20	50	Legend	Down	Cloudy 62	6	7.9	Barge
6/3/2012	1	8:20	8:30	10	40	Tidewater	Down	Cloudy 50	0	8.4	Barge
6/3/2012	2	11:52	12:04	8	50	Liahana	Up	Cloudy 56	Calm	7.9	Sail
6/5/2012	2	23:51	0:03	12	50	Affirmation	Up	Clear 51	Calm	9.5	Sail
6/6/2012	1	19:02	19:16	14	65	Autumn Wind	Down	Cloudy 65	0	9.6	Sail
6/7/2012	1	11:00	11:11	11	60	Liahana	Down	Rain 52	12	11	Sail
6/8/2012	1	18:00	18:18	18	50	Kathryn B	Down	Rain 47	1	10.7	Barge
6/8/2012	2	21:52	22:09	17	55	Lori B	Down	Rain 47	0	11	Barge
6/9/2012	3	9:58	10:12	14	50	Defiance	Down	Cloudy 51	2	11.4	Barge
6/9/2012	2	9:38	9:51	13	50	Desert Vision	Up	Cloudy 51	1	11.4	Sail
6/9/2012	1	9:07	9:19	12	50	Yankee Rose	Down	Cloudy 52	1	11.4	Sail
6/13/2012	1	18:03	18:18	15	60	Sargasso	Up	Partly Cloudy 63	2	10.3	Barge
6/14/2012	1	0:21	0:36	15	65	Dauby	Down	Cloudy 52	10	10.1	Barge
6/14/2012	2	10:04	10:18	14	50	Tidewater	Down	Cloudy 52	0	10	Barge
6/15/2012	1	10:10	10:28	18	90	Stacy T	Down	Clear 58	Calm	9.7	Barge
6/15/2012	3	12:21	12:32	11	60	Maia Doran	Down	Clear 67	3	9.5	Sail
6/15/2012	2	11:08	11:23	15	90	Meduse	Up	Clear 65	3	9.5	Other/unknown
6/16/2012	1	0:20	0:33	13	40	Dauby	Down	Cloudy 66	0	9.9	Barge
6/16/2012	3	14:31	14:42	11	70	Legend	Down	Sunny 81	Calm	9.7	Barge
6/16/2012	2	10:59	11:07	8	50	Runaway	Down	Clear 69	6	10	Sail
6/17/2012	1	14:53	15:02	9	55	Mia Doran	Up	Cloudy 69	7	9	Other/unknown
6/18/2012	1	10:42	11:02	20	50	Runaway	Up	Cloudy 55	0	9.1	Sail
6/21/2012	1	9:01	9:27	26	60	Deschutes	Down	Clear 62	Calm	10.9	Barge
6/23/2012	1	0:45	0:57	12	65	Dauby	Down	Coudy 57	2	10.3	Barge
6/23/2012	2	15:43	15:54	11	75	Lori B	Down	Partly Cloudy 53	Calm	10.8	Barge
6/23/2012	3	16:41	16:54	13	95	Rebel	Down	Partly Cloudy 56	2	10.8	Barge
6/24/2012	1	6:58	7:08	10	95	Pacific Avenger	Down	Rain 50	0	10.6	Barge
6/27/2012	3	23:33	23:44	11	60	Dauby	Down	Clear 59	0	12.8	Barge
6/27/2012	2	21:37	21:50	13	70	Legend	Down	Clear 70	1	12.5	Barge
6/27/2012	1	12:06	12:15	9	80	Libby	Down	Clear 64	0	12.1	Sail
6/28/2012	1	9:15	9:31	16	70	Bruce M	Down	Clear 62	0	12.9	Barge
6/28/2012	1	9:15	9:31	16	70	Jenny's Joy	Down	Clear 62	0	12.9	Sail
6/29/2012	1	1:50	2:03	13	70	Chief	Down	Cloudy 63	4	12.3	Barge
6/29/2012	3	12:42	12:51	9	75	Affirmation	Down	Cloudy 71	1	11.7	Sail
6/29/2012	2	9:00	9:08	8	65	Fury	Down	Cloudy 64	4	11.9	Sail
6/29/2012	4	18:00	18:15	15	100	Olaf J	Down	Cloudy 74	1	11.8	Marine construction
6/30/2012	2	11:01	11:10	9	65	Clearwater	Down	Cloudy 67	Calm	11.9	Barge
6/30/2012	4	14:25	14:35	10	60	Lori B	Down	Rain 67	3	11.8	Barge
6/30/2012	5	14:44	14:54	10	80	Stacy T	Up	Rain 66	5	11.8	Barge
6/30/2012	6	16:04	16:12	8	70	Das Suenos	Up	Cloudy 68	3	12	Sail



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
6/30/2012	3	13:38	13:45	7	50	high Road	Down	Cloudy 68	4	11.8	Other/unknown
6/30/2012	1	10:01	10:16	9	65	Spay Lacy	Down	Cloudy 67	Calm	11.9	Other/unknown
7/1/2012	1	13:29	13:42	13	75	Tidewater	Down	Cloudy 63	4	12	Barge
7/2/2012	1	21:49	21:46	7	75	Autumn Cara	Up	Cloudy 62	Calm	11.9	Sail
7/2/2012	2	22:17	22:24	7	70	Semitry	Up	Cloudy 62	2	11.9	Sail
7/5/2012	2	9:15	9:28	13	115	Stacy T	Down	Clear 61	3	10.9	Barge
7/5/2012	3	11:09	11:16	7	70	Des Quenos	Down	Clear 61	0	10.8	Sail
7/5/2012	4	12:12	12:19	8	80	Meduse	Down	Clear 62	0	10.7	Other/unknown
7/5/2012	1	6:12	6:20	8	70	Minnow	Down	Clear 54	1	10.6	Sail
7/7/2012	1	15:42	15:50	8	70	Autumn Cara	Down	Clear 82	8	10	Sail
7/8/2012	1	10:12	10:20	8	50	Autumn Cara	Up	Sunny 70	0	9.6	Sail
7/10/2012	1	2:12	2:24	12	60	Dauby	Down	Partly Cloudy 55	0	9.3	Barge
7/10/2012	2	2:45	2:55	10	60	Lori B	Down	Partly Cloudy 55	1	9.3	Barge
7/10/2012	3	14:15	14:24	9	70	Sequoia	Up	Clear 71	0	8.2	Sail
7/12/2012	2	1:50	2:05	15	70	Legend	Down	Clear 65	1	9.3	Barge
7/12/2012	1	23:43	23:51	8	70	Affirmation	Up	Clear 70	0	9.2	Sail
7/13/2012	3	19:04	19:17	13	70	Tidewater	Down	Parlty Cloudy 77	2	8.4	Barge
7/13/2012	2	3:10	3:26	16	70	Legend	Down	Clear 58	0	9.3	Barge
7/13/2012	1	1:22	1:32	10	70	the Office	Down	Clear 59	2	9.2	Sail
7/14/2012	1	0:37	0:48	11	75	Dauby	Down	Clear 65	Calm	8.9	Barge
7/15/2012	2	12:35	12:46	11	70	Deschutes	Down	Cloudy 61	3	8.7	Barge
7/15/2012	1	6:32	6:41	9	60	Desert Vision	Down	Rain 59	Calm	9	Sail
7/20/2012	1	11:10	11:20	10	80	Sequoia	Down	Cloudy 64	1	7.9	Sail
7/22/2012	1	18:01	18;15	14	70	Deschutes	Down	Cloudy 66	2	9	Barge
7/23/2012	1	9:12	9:20	8	85	Runaway	Up	Partly Cloudy 59	3	9	Sail
7/24/2012	1	2:58	3:08	10	70	Dauby	Down	Clear 57	2	9	Barge
7/27/2012	1	5:17	5:29	12	65	Sundial	Down	59	0	7.8	Barge
7/28/2012	1	5:20	5:33	13	65	Defiance	Down	Cloudy 59	4	7.5	Barge
7/28/2012	2	14:43	14:51	8	70	Tanuki	Down	Clear 78	0	6.3	Other/unknown
7/31/2012	1	18:08	18:17	9	85	Stacy T	Up	Clear 78	0	6.4	Barge
8/3/2012	1	6:03	6:12	9	60	Defiance	Down	Cloudy 60	4	6.9	Barge
8/4/2012	1	9:34	9:45	11	75	Autumn Cara	Down	Clear 74	1	6.6	Sail
8/4/2012	2	22:02	22:09	7	70	Autumn Cara	Up	Clear 85	Calm	6.9	Sail
8/8/2012	1	19:01	19:14	13	70	Attair	Up	Clear 73	1	3.8	Barge
8/11/2012	1	11:55	12:04	9	65	Spirit	Down	Clear 71	4	2.8	Cruise/passenger
8/12/2012	1	11:06	11:22	16	90	Audratic Sea	Down	Sunny 75	0	3.6	Sail
8/15/2012	1	6:16	6:24	8	50	Sweet Dreams	Down	Cloudy 62	Calm	5.1	Sail
8/20/2012	1	9:13	9:23	10	55	Jenny's Joy	Up	Partly Cloudy 62	0	5.5	Sail
8/25/2012	1	15:30	15:37	7	65	Spirit	Up	Clear 81	0	3.7	Cruise/passenger
8/31/2012	1	18:40	18:50	10	80	Sweet Dreams	Up	Clear 73	7	5.4	Sail



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
9/5/2012	1	19:45	19:53	8	80	Autumn Wind	Up	Clear 79	1	3.9	Sail
9/6/2012	1	5:07	5:16	9	65	Wallace E	Down	Clear 58	0	2.6	Barge
9/10/2012	1	14:12	14:22	10	100	Yaquina	Up	Cloudy 67	2	2	Dredge
9/18/2012	3	5:30	5:42	12	95	Yaquina	Down	Clear 59	3	2.5	Dredge
9/18/2012	6	18:08	18:19	11	95	Yaquina	Up	Clear 82	6	4	Dredge
9/20/2012	1	3:43	4:04	21	95	Yaquina	Down	Overcast 54	6	3	Dredge
9/22/2012	1	14:16	14:26	10	75	Sweet Dreams	Down	Clear 65	3	1.9	Sail
9/24/2012	1	20:07	20:17	10	80	Too Dreamy	Up	Clear 76	4	1	Sail
10/15/2012	1	12:45	12:53	8	65	Free Bird	Down	Cloudy 64	5	1.3	Sail
10/23/2012	1	4:57	5:09	12	136	Clarkston	Up	Cloudy 44	2	2.9	Barge
10/23/2012	2	18:52	19:01	9	85	Clarkston	Down	Cloudy 47	12	2.7	Barge
10/25/2012	1	0:46	1:03	17	100	Bruce M	Up	Rain 47	4	2.6	Barge
11/15/2012	1	10:12	10:22	10	110	Stacy T	Down	Clear 43	0	4.7	Barge
11/16/2012	1	18:25	18:36	11	110	Stacy T	Up	Cloudy 49	0	6.2	Barge
11/24/2012	1	5:24	5:36	12	60	Kathryn B	Down	Cloudy 49	0	7.6	Barge
11/26/2012	1	12:20	12:33	13	100	Roxanna	Down	Clear 50	0	6.4	Sail
12/4/2012	1	4:15	4:30	15	80	Legend	Down	Rain 53	0	8	Barge
12/6/2012	1	9:44	9:50	11	110	Crown of Camas	Up	Cloudy 44	0	9.6	Barge
12/8/2012	1	12:06	12:22	16	70	Challenger	Down	Cloudy 45	0	9.4	Barge
12/9/2012	1	14:47	14:55	8	75	Sunuku	Up	Rain 43	0	9.3	Other/unknown
12/11/2012	1	11:30	11:40	10	85	Runaway	Down	Cloudy 47	0	7	Sail
12/13/2012	1	10:08	10:16	8	80	Runaway		Clear 42	2	9	Sail
12/14/2012	1	22:23	22:35	12	100	Nancy Ann	Down	Cloudy 38	8	8.8	Other/unknown
12/15/2012	1	9:50	10:03	13	60	Challenger	Down	Rain 38	10	7.9	Barge
12/17/2012	1	18:22	18:33	11	80	Lori B	Down	Dry 38	1	8	Barge
12/20/2012	1	23:22	23:36	14	65	Lori B	Down	Cloudy 37	3	8.2	Barge
12/22/2012	1	10:55	11:10	15	70	Lori B	Down	Rain	9	7.9	Barge
12/27/2012	1	21:04	21:13	9	65	Hurricane	Down	Cloudy 41	8	7.6	Barge
12/28/2012	1	13:32	13:42	10	80	Stacy T	Up	Cloudy 42	1	6.3	Barge
1/4/2013	1	0:01	0:11	10	65	Lori B	Down	Clear 33	10	5.3	Barge
1/12/2013	1	9:55	10:07	12	75	Renee	Up	Overcast 30	2	6	Barge
1/13/2013	1	9:18	9:30	12	90	Renee	Up	Cloudy 28	1	6.4	Barge
1/16/2013	1	13:22	13:30	8	70	Bonnevie	Up	Cloudy 34	3	5.5	Sail
1/21/2013	1	16:41	12:55	14	70	Rebel	Down	Clear 39	1	4.7	Barge
1/31/2013	1	18:00	18:08	8	85	Renee	Down	Cloudy 50	2	6.4	Barge
2/20/2013	1	18:00	18:17	17	100	Dutchess B	Down	Partly Cloudy 44	2	3.2	Sail
2/24/2013	1	16:38	16:50	12	95	Mary B	Up	partly Cloudy 51	4	5	Barge
3/2/2013	1	2:47	3:00	13	90	Mary B	Down	50	0	3.2	Barge
3/5/2013	1	18:28	18:42	14	100	norton Bay	Down	Rain 42	7	3.1	Barge
3/9/2013	1	16:08	16:16	8	70	Ocean Transport	Up	Clear 57	1	4.9	Barge



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
3/12/2013	2	14:17	14:29	12	100	Ramona III	Up	Cloudy 59	2	3.3	Barge
3/12/2013	1	13:48	13:57	9	70	Wakabui	Down	Cloudy 58	3	3.3	Sail
3/13/2013	1	13:42	14:03	21	100	Ramona III	Down	Cloudy 58	0	3.2	Barge
3/23/2013	1	18:11	18:19	8	75	Island Cat	Down	Clear 48	2	3.7	Sail
3/24/2013	1	5:19	5:35	16	60	Rebel	Down	Cloudy 37	Calm	3.8	Barge
3/27/2013	2	20:36	20:57	21	80	Nova	Down	Cloudy 56	3	4.8	Sail
3/27/2013	1	11:55	12:04	9	75	Wakadouï		Cloudy 54	1	3.4	Sail
3/30/2013	1	11:32	11:44	12	80	Rebel	Down	Clear 57	4	4.8	Barge
4/4/2013	1	3:17	3:30	13	65	Tidewater	Down	Cloudy 54	4	4.7	Barge
4/9/2013	1	18:28	18:37	8	80	Husky	Down	Cloudy 55	1	9.2	Barge
4/11/2013	1	9:02	9:16	14	70	Tidewater	Down	Cloudy 48	2	9.3	Barge
4/13/2013	1	3:34	3:45	11	70	Chief		Rain 43	6	9	Barge
4/14/2013	1	15:43	15:52	9	80	Autumn Cara	Down	Cloudy 47	4	7.1	Sail
4/16/2013	1	9:16	9:33	17	136	Lindy Marie	Up	Cloudy 40	1	8	Barge
4/16/2013	2	13:02	13:13	11	100	Lindy Marie	Down	Partly Cloudy 51	1	8	Barge
4/19/2013	1	0:30	0:45	15	95	Chief	Down	Cloudy 50	3	5.7	Barge
4/20/2013	2	17:36	17:49	13	85	Rebel	Down	Clear 57	3	5.5	Barge
4/20/2013	1	7:20	7:30	10	85	Seascape	Down	Cloudy	0	5.1	Sail
4/24/2013	1	12:46	12:56	10	80	Autumn Cara	Up	Clear 65	8	5.4	Sail
4/27/2013	1	10:25	10:36	11	90	Ocean Transport	Down	Partly Cloudy 56	2	6.4	Barge
5/4/2013	1	15:29	15:36	7	65	Autumn Cara	Down	Clear 81	12	6.5	Sail
5/9/2013	1	23:11	23:21	10	90	Stacy T	Down	Clear 66	4	7.3	Barge
5/10/2013	1	9:43	9:52	9	100	Stacy T	Up	Clear 60	1	7.9	Barge
5/12/2013	1	3:45	3:56	11	70	Hurricane	Down	Partly Cloudy 65	0	9.4	Barge
5/15/2013	1	11:42	11:52	10	65	Rebel	Down	Cloudy 53	2	9.7	Barge
5/17/2013	1	10:11	10:20	9	70	Maia Doran	Down	56	3	8.9	Sail
5/20/2013	1	2:18	2:26	8	60	Osprey	Up	Clear 50	5	8.8	Cruise/passenger
5/21/2013	1	13:46	13:54	8	60	Capt Bob	Down	Rain 51	2	7.9	Barge
5/23/2013	2	23:12	23:24	12	70	Rebel	Down	Rain 48	7	8.5	Barge
5/23/2013	1	13:55	14:04	9	70	Ecstasy	Down	Cloudy 53	7	8	Sail
5/24/2013	1	3:57	4:04	7	65	Capt Bob	Down	Rain 49	2	9.3	Barge
5/24/2013	2	10:47	10:55	8	80	Whisper	Down	Cloudy 53	3	9.4	Sail
5/25/2013	1	12:26	12:34	8	65	Gladiator	Down	Clear 59	1	9	Sail
5/26/2013	1	3:33	3:46	13	75	Hurricane	Down	Rain 54	9	8.8	Barge
5/27/2013	2	13:37	13:46	9	70	Whisper	Up	Cloudy 53	9	9.1	Sail
5/27/2013	1	11:53	12:01	8	70	Willow	Up	Rain 54	11	9.2	Sail
5/28/2013	2	13:38	13:51	13	65	Aquila	Down	Cloudy 60	2	9.6	Sail
5/28/2013	1	10:00	10:10	10	100	Lady Washington	Up	Cloudy 56	3	10	Sail
5/31/2013	1	18:00	18:08	8	75	Autumn Wind	Down	Partly Cloudy 66	7	7.9	Sail
6/1/2013	1	18:00	18:08	8	70	Manana	Up	Partly Cloudy 67	2	7.7	Sail



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
6/2/2013	1	9:56	10:04	8	50	Sargasso	Down	Partly cloudy 59	6	6.5	Barge
6/3/2013	1	10:29	10:37	8	80	Stacy T	Down	Cloudy 56	3	5.8	Barge
6/3/2013	2	18:18	18:27	9	90	Stacy T	Up	Clear 73	10	5.1	Barge
6/6/2013	1	2:57	3:08	11	75	PJ Brix	Down	Clear 59	7	6.7	Barge
6/8/2013	1	5:33	5:45	12	70	Kathryn B	Down	Clear 52	2	6.9	Barge
6/16/2013	1	8:13	8:21	8	80	Sargasso		Overcast 58	15	5.2	Barge
6/17/2013	1	5:38	5:46	8	60	Jenny's Joy	Down	Partly Cloudy 57	3	4.6	Sail
6/18/2013	1	11:29	11:37	8	100	Stacy T	Down	Cloudy 63	1	4	Barge
6/18/2013	2	18:47	18:58	9	100	Stacy T	Up	Clear 62	4	4.3	Barge
6/19/2013	1	5:31	5:39	8	60	Wakadui	Down	Cloudy 55	Calm	5.8	Sail
6/21/2013	1	10:37	10:47	10	85	Mariner	Up	Cloudy 60	0	5.1	Barge
6/21/2013	2	12:01	12:10	9	85	Mariner	Down	Partly Cloudy 62	1	4.8	Barge
6/24/2013	1	13:32	13:42	10	85	Lady Washington	Down	Cloudy 64	4	7.1	Sail
6/25/2013	1	22:35	22:44	9	75	Affirmation	Down	Cloudy 65	4	8.3	Sail
6/27/2013	1	18:45	18:56	11	75	Aquila	Up	Overcast 78	5	7.3	Sail
6/29/2013	1	4:39	4:47	8	70	Aquila	Down	Cloudy 66	0	7.4	Sail
6/29/2013	3	6:02	6:10	8	70	Madrone	Down	Cloudy 65	0	7.2	Sail
6/29/2013	2	5:34	5:42	8	70	Tasi	Down	Cloudy 69	3	7.2	Sail
8/20/2013	1	10:55	11:06	11	70	Jenny's Joy	Up	Partly Cloudy 64	9	3.6	Sail
8/21/2013	1	13:54	14:06	12	136	Yaquina	Up	Clear 80	3	2.7	Dredge
8/28/2013	1	12:18	12:27	9	85	Patricia	Down	73	3	2.7	Barge
8/31/2013	1	1:27	1:41	14	136	Yaquina	Down	Clear 64	3	3.9	Dredge
9/1/2013	1	13:58	14:07	9	70	Autumn Cara	Up	Sunny 78	Calm	1.7	Sail
9/5/2013	2	22:00	22:10	10	75	Osprey	Up	Rain 60	7	3	Cruise/passenger
9/10/2013	1	12:56	13:08	12	120	Christy T	Down	Clear 76	6	2.1	Barge
9/11/2013	3	18:20	18:30	10	100	Christy T	Up	Clear 92	6	2.3	Barge
9/11/2013	2	18:00	18:08	8	75	Autumn Wind	Up	Clear 92	9	2.1	Sail
9/18/2013	1	18:18	18:32	14	120	Daniel Foss	Down	Sunny 69	3	4.5	Barge
10/5/2013	1	21:57	22:07	10	80	Chief	Down	Clear 58	2	3.5	Barge
10/13/2013	1	20:56	7:10	14	90	Lori B	Up	Clear 54	3	1.7	Barge
10/16/2013	1	19:27	19:38	11	100	Daubi	Up	Clear 58	4	3	Barge
10/19/2013	1	11:07	11:18	11	100	patricia	Down	Light Fog 46	2	2.9	Barge
10/31/2013	1	11:37	11:50	13	100	norton Bay	Down	Cloudy 54	2	0.9	Barge
11/1/2013	1	11:54	12:10	16	100	Dutchess B	Down	Partly Cloudy 52	1	0.6	Sail
11/9/2013	1	9:03	9:17	14	110	Viking	Up	Fog 43	2	3.9	Barge
11/11/2013	1	15:15	15:31	16	100	Invader	Up	Clear 57	10	4	Barge
11/12/2013	1	14:18	14:27	9	80	Christy T	Down	Cloudy 54	3	4.7	Barge
11/19/2013	1	10:14	10:27	13	90	Viking	Down	Overcast 48	11	4.4	Barge
11/27/2013	1	11:10	11:27	17	100	Christy T	Up	Clear 43	1	3.3	Barge
11/27/2013	2	11:45	12:00	15	100	Invader	Down	Clear 44	1	3.6	Barge



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
11/27/2013	3	14:06	14:20	14	100	Invader	Up	Clear 49	2	3.9	Barge
1/25/2014	1	17:24	17:38	14	80	Rebel	Down	Clear 44	5	2.9	Barge
1/27/2014	1	10:57	11:09	12	120	Lindy Marie	Up	Cloudy 37	2	2.9	Barge
2/3/2014	1	9:00	9:10	10	90	Willamette Champ	Up	Cloudy 36	1	5.5	Marine construction
2/4/2014	1	9:01	9:11	10	80	Dutchess B	Up	Cloudy 30	2	4.4	Sail
2/4/2014	2	20:22	20:32	10	80	Atlantic Champion	Down	Cloudy 30	13	3.8	Other/unknown
2/19/2014	2	5:53	6:09	16	70	Defiance	Down	Cloudy 40	Calm	10	Barge
2/19/2014	1	0:54	1:05	11	70	Wallace E	Down	Cloudy 42	3	9.9	Barge
2/22/2014	2	17:42	17:53	11	80	Chief	Down	Clear 45	Calm	6.9	Barge
2/22/2014	1	4:01	4:13	12	110	Kathryn B	Up	Cloudy 36	Calm	6.8	Barge
2/24/2014	1	3:44	3:53	9	70	Tidewater	Down	Rain 44	7	6	Barge
2/26/2014	1	13:27	13:39	12	110	Klickitat	Down	Cloudy 48	15	5.7	Barge
2/27/2014	1	2:53	3:05	12	125	North Bay	Down	Clear 41	Calm	5.2	Marine construction
3/9/2014	1	8:04	8:21	7	70	Tasi	Down	Rain 52	1	11.7	Sail
3/13/2014	1	14:05	14:17	12	100	Patricia	Up	Cloudy 54	2	11.7	Barge
3/15/2014	1	9:19	9:07	13	120	Patricia	Down	Rain 55	3	9.1	Barge
3/15/2014	1	14:29	14:38	9	75	Carol Marie	Down	Cloudy 62	4	9.9	Sail
3/15/2014	1	9:19	9:07	12	120	Symmetry	Down	Rain 55	3	9.1	Sail
3/19/2014	1	19:46	20:00	14	60	Willamette	Down	Cloudy 46	8	9	Barge
3/20/2014	1	9:25	9:35	10	90	Bruce M	Up	Clear 40	1	9.4	Barge
3/20/2014	2	12:44	12:58	14	60	Wallace E	Down	Cloudy 46	1	8.9	Barge
3/22/2014	1	8:20	8:31	11	100	Bruce M	Down	Clear 38	1	7.7	Barge
3/23/2014	2	15:05	15:17	12	80	Capt. Bob	Down	Clear 56	2	6.9	Barge
3/23/2014	1	14:20	14:28	8	70	Somehow	Up	Clear 54	2	6.9	Sail
3/30/2014	1	10:20	10:27	7	60	Elizabeth	Down	Cloudy 49	Calm	10.1	Sail
4/1/2014	1	1:07	1:18	11	85	Lori B	Down	Rain 46	Calm	10.4	Barge
4/2/2014	2	19:34	19:49	15	70	Willamette	Down	Cloudy 55	1	9	Barge
4/2/2014	1	10:18	10:25	7	70	Wind Dancine	Down	Cloudy 47	1	9	Sail
4/3/2014	1	9:40	9:58	18	136	Lindy Marie	Up	Cloudy 48	7	9.2	Barge
4/6/2014	1	13:24	13:39	15	80	Defiance	Down	Cloudy 59	1	7.6	Barge
4/7/2014	1	9:42	9:54	12	100	Diane B	Down	Fog 48	Calm	6.8	Barge
4/7/2014	1	9:42	9:54	12	100	Lindy Marie	Down	Fog 49	Calm	7.8	Barge
4/11/2014	1	11:58	12:07	9	70	Minnow	Up	Clear 56	13	6.4	Sail
4/14/2014	1	9:10	9:18	8	80	Minnow	Down	Cloudy 48	1	8.5	Sail
4/14/2014	2	13:07	13:15	8	70	Riva	Up	Cloudy 54	4	8.1	Sail
4/24/2014	1	4:05	4:16	11	60	Lori B	Down	Rain 52	10	8.4	Barge
4/26/2014	3	6:48	6:58	10	65	Deschutes	Down	Cloudy 45	Calm	9.7	Barge
4/26/2014	2	4:48	4:59	11	60	Kathryn B	Down	45	Calm	9.7	Barge
4/26/2014	1	2:17	2:28	11	60	Lori B	Down	45	3	9.3	Barge
4/27/2014	2	17:09	17:17	8	65	Aquila	Up	Partly Cloudy 53	8	9.8	Sail



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
4/27/2014	1	16:29	16:36	7	75	Autumn Kara	Down	Partly Cloudy 54	10	9.8	Sail
4/28/2014	2	9:10	9:22	12	60	Deschutes	Down	Cloudy 48	Calm	10	Barge
4/28/2014	1	1:51	2:00	9	75	Sundial	Down	Cloudy 46	2	10.3	Barge
4/29/2014	2	10:58	11:07	9	70	Mystique	Down	Sunny 59	2	9.8	Sail
4/29/2014	1	9:35	9:45	10	108	Winddancer	Up	Sunny 54	2	10	Sail
5/2/2014	2	9:33	9:42	10	80	Autumn Kara	Up	Clear 58	2	8.8	Sail
5/2/2014	1	23:59	0:09	10	70	Juno	Up	Clear 70	3	8.8	Sail
5/3/2014	2	8:14	8:33	19	65	Cascade	Down	Cloudy 54	4	8.3	Barge
5/3/2014	1	0:10	0:22	12	70	Diane B	Down	Clear 57	6	8.1	Barge
5/3/2014	3	14:47	14:56	9	75	Autumn Cara	Down	Rain 58	17	7.8	Sail
5/3/2014	3	14:47	14:56	9	75	Reva	Down	Rain 58	17	7.8	Sail
5/7/2014	1	11:37	11:47	10	80	Taukni	Down	Clear 56	Calm	9.4	Sail
5/8/2014	1	21:16	21:29	13	65	Cascade	Down	Rain 55	9	8.4	Barge
5/8/2014	1	18:30	18:37	7	70	Bonnvie	Down	Cloudy 51	2	8.7	Sail
5/10/2014	1	10:10	10:19	9	80	Tug Washington	Down	Cloudy 51	Calm	8.9	Barge
5/11/2014	1	18:24	18:35	11	75	Defiance	Down	Clear 64	5	9.1	Barge
5/12/2014	1	9:48	9:56	8	80	Spatlese	Down	Sunny 56	3	9.7	Sail
5/14/2014	2	14:13	14:22	9	80	Dauby	Down	Clear 81	9	9.1	Barge
5/14/2014	1	5:00	5:10	10	80	Juneau	Down	Clear 58	Calm	10	Other/unknown
5/15/2014	1	0:52	1:02	10	70	Lori B	Down	Clear 68	2	8.6	Barge
5/15/2014	2	12:06	12:18	12	130	Mistral	Down	Clear 73	Calm	9	Sail
5/17/2014	1	0:15	0:23	8	65	Lori B	Down	Clear 56	Calm	8.5	Barge
5/17/2014	2	8:58	9:06	8	65	Carol Marie	Down	Cloudy 56	2	9.5	Sail
5/17/2014	4	21:11	21:20	9	65	Carol Marie	Up	Cloudy 62	4	9.2	Sail
5/17/2014	3	10:04	10:12	8	65	Madrone	Down	Cloudy 56	Calm	9.5	Sail
5/18/2014	2	16:04	16:14	10	80	Chief	Down	Cloudy 56	4	9.9	Barge
5/18/2014	1	12:18	12:27	9	75	Madrone	Up	Cloudy 59	5	10.3	Sail
5/19/2014	1	10:06	10:20	14	136	Dauby	Down	Cloudy 58	2	10.5	Barge
5/20/2014	1	13:18	13:28	10	70	Lori B	Down	Clear 67	3	10.9	Barge
5/22/2014	1	10:52	11:00	8	80	Whisper	Down	Clear 61	3	9.4	Sail
5/25/2014	2	22:05	22:17	12	132	Capt. Bob	Down	Rain 56	2	10.9	Barge
5/25/2014	1	18:18	18:30	12	134	Sanooki	Up	Rain 59	2	10.9	Sail
5/26/2014	3	19:25	19:33	8	70	Aiya	Up	Clear 64	13	10.7	Sail
5/26/2014	2	15:02	15:10	8	70	Bonnvie	Up	Partly Cloudy 66	2	10.5	Sail
5/26/2014	1	13:44	13:55	11	136	Whisper	Up	Partly Cloudy 65	6	10.5	Sail
5/27/2014	1	12:36	12:45	9	70	Spaet Lacy	Up	Cloudy 62	3	10.7	Sail
5/28/2014	1	12:46	12:55	9	80	Aequila	Down	Clear 57	5	11	Sail
5/29/2014	1	12:36	12:47	9	80	Spaplese	Down	Cloudy 58	2	10.9	Sail
5/30/2014	2	21:04	21:12	8	75	Madrone	Down	Clear 66	4	10.8	Sail
5/30/2014	1	10:50	10:58	8	75	Maridoran	Down	Clear 60	5	10.9	Sail



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
5/31/2014	1	4:56	5:04	8	80	Autumn Wind	Down	Clear 53	2	10.5	Sail
6/1/2014	1	16:57	17:54	7	60	Spatlese	Up	Clear 68	6	9	Sail
6/2/2014	2	6:12	6:22	10	90	Dauby	Up	Cloudy 55	10	9	Barge
6/2/2014	1	1:40	1:49	9	60	Tidewater	Down	Clear 58	4	9	Barge
6/4/2014	1	19:16	19:27	11	85	Chief	Down	Sunny 69	4	9	Barge
6/4/2014	2	22:57	23:09	12	70	Kathryn B	Down	Clear 57	4	9	Barge
6/6/2014	1	5:14	5:21	7	70	Endeavor	Down	Clear 51	6	8.7	Sail
6/7/2014	1	5:34	5:42	8	65	Lori B	Down	Clear 55	2	9	Barge
6/8/2014	1	7:27	7:35	8	65	Chief	Down	Cloudy 56	4	8.2	Barge
6/11/2014	1	11:00	11:10	10	65	Aquila	Up	Cloudy 59	4	7.4	Sail
6/14/2014	1	5:17	5:27	10	65	Aquila	Down	Cloudy 55	1	7.5	Sail
6/14/2014	2	13:46	13:56	10	75	Tango	Down	Cloudy 61	3	6.6	Sail
6/21/2014	1	15:21	15:30	9	65	Tango	Up	Clear 68	2	6.4	Sail
6/23/2014	1	9:53	10:05	12	85	Husky	Up	Sunny 63	Calm	7.2	Barge
6/24/2014	2	9:50	10:02	12	86	Husky	Down	Cloudy 61	2	7	Barge
6/24/2014	1	5:45	5:52	7	50	One World	Down	Cloudy 58	1	7.8	Sail
6/27/2014	1	23:45	23:53	8	70	One World	Up	Cloudy 62	3	6.9	Sail
6/27/2014	2	12:51	13:00	9	90	Whisper	Down	Cloudy 67	7	7.2	Sail
6/28/2014	1	17:57	18:07	10	70	Lori B	Down	Partly Cloudy 68	7	7.5	Barge
6/29/2014	1	5:13	5:20	7	70	Kalani	Down	Cloudy 60	Calm	7.5	Sail
7/1/2014	1	10:39	10:47	8	70	Gladiator	Down	Sunny 76	7	8.45	Sail
7/3/2014	1	11:33	11:45	12	136	Lindy Rose	Down	Cloudy 63	4	7.2	Sail
7/6/2014	1	15:43	15:51	8	70	Jenny's Joy	Down	Clear 81	7	5.5	Sail
7/7/2014	1	9:13	9:21	8	70	NRC Quest	Down	Cloudy 69	3	5	Barge
7/10/2014	1	5:18	5:29	11	90	Viking	Up	Clear 56	5	6.7	Barge
7/17/2014	1	14:15	14:30	15	136	Daubi	Down	Clear 76	3	4.8	Barge
7/19/2014	1	2:58	3:09	11	60	Lori B	Down	Cloudy 62	2	5.5	Barge
7/22/2014	1	13:31	13:40	9	75	One World	Down	Cloudy 69	1	3.4	Sail
7/23/2014	1	20:00	20:17	17	136	Laggen	Down	Cloudy 63	5	4	Barge
7/23/2014	1	12:55	13:05	10	100	Patricia	Down	Rainy 60	1	2.9	Barge
7/27/2014	1	19:30	19:37	7	65	Autumn Kara	Up	Clear 84	4	4.9	Sail
8/6/2014	1	19:20	19:31	11	70	Jenny's Joy	Up	Clear 78	4	2.3	Sail
8/8/2014	1	5:27	5:37	10	70	Wallace E	Down	Cloudy 58	1	5.3	Barge
8/16/2014	1	16:11	16:19	8	60	Whisper	Up	Clear 81	7	2.7	Sail
8/18/2014	1	10:06	10:15	9	70	Seascape	Down	Sunny 68	4	2.2	Sail
8/27/2014	1	6:11	6:18	7	50	Discovery	Up	Clear 65	3	4.6	Barge
8/31/2014	1	7:19	7:26	7	50	Discovery	Down	Cloudy 61	Calm	2.5	Barge
9/1/2014	1	7:15	7:27	12	80	Sea Spruce	Down	Sunny 58	Calm	1.7	Barge
9/1/2014	2	14:13	14:27	14	90	Sea Spruce	Up	Clear 75	2	1.8	Barge
9/1/2014	1	7:15	7:27	12	80	Sommers	Down	Sunny 58	Calm	1.7	Barge



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
9/1/2014	2	14:13	14:27	14	90	Sommers	Up	Clear 75	2	1.8	Barge
9/1/2014	1	7:15	7:27	12	80	Willamette	Down	Sunny 58	Calm	1.7	Barge
9/1/2014	2	14:13	14:27	14	90	Willamette	Up	Clear 75	2	1.8	Barge
9/3/2014	4	13:55	14:06	11	50	Daniel Foss	Down	Partly Cloudy 63	0	2	Barge
9/3/2014	2	10:40	10:55	15	125	Patricia	Down	Partly Cloudy 63	3	0.8	Barge
9/4/2014	1	12:30	12:43	13	136	Yaquina	Up	Clear 75	3	0.7	Dredge
9/9/2014	1	19:49	22:01	12	100	Yaquina	Down	Clear 66	4	3.3	Dredge
9/10/2014	1	9:31	9:39	8	75	Halsey	Down	Cloudy 58	2	3.2	Sail
9/12/2014	1	19:11	19:25	14	100	Laggen	Down	Clear 80	2	3.3	Barge
9/12/2014	1	19:11	19:25	14	100	Sommers	Down	Clear 80	2	3.3	Barge
9/21/2014	1	9:20	9:27	7	30	Pacific Escort	Up	Sunny 67	Calm	1.5	Barge
9/21/2014	2	10:12	10:17	5	20	Pacific Escort	Down	Sunny 70	Calm	1.3	Barge
9/24/2014	1	11:16	11:28	12	136	Yaquina	Up	Cloudy 63	6	3.1	Dredge
9/28/2014	1	11:35	11:50	15	111	Yaquina	Down	Clear 62	7	2.7	Dredge
9/29/2014	1	21:54	22:02	8	70	Nakolo	Up	Cloudy 58	4	4	Barge
10/1/2014	1	12:19	12:30	11	75	Nakolo	Down	Cloudy 60	2	2.2	Barge
10/6/2014	1	11:19	11:31	12	85	Lil Go	Down	Sunny 69	3	1.3	Sail
10/8/2014	1	11:48	11:57	9	80	Mamala	Up	Cloudy 62	1	2.3	Sail
10/17/2014	1	9:30	9:42	12	100	Stacey T	Down	Cloudy 56	5	1	Barge
10/18/2014	1	12:41	12:52	11	110	Patricia	Up	Cloudy 63	9	2.7	Barge
1/1/2015	1	13:51	14:00	9	70	Madrone	Down	Clear 38	Calm	7.4	Sail
1/6/2015	1	9:42	9:51	9	100	Make It So	Down	Fog 42	1	7.3	Sail
1/9/2015	2	10:49	11:08	19	136	Willamette Camp	Down	42	2	5.9	Barge
1/9/2015	1	10:21	10:31	10	75	Dutchess	Up	Clear 42	Calm	6.3	Sail
1/10/2015	1	9:13	9:26	13	70	Chief	Down	Rain 39	Calm	6.1	Barge
1/15/2015	1	9:33	9:42	9	70	Halsey	Down	Cloudy 40	7	4.3	Sail
1/17/2015	1	9:31	9:41	10	75	Halsey	Up	Rain 42	6	4.9	Sail
1/27/2015	1	11:12	11:23	11	95	Ross Island	Down	Fog 44	4	6	Dredge
1/28/2015	1	11:57	12:05	8	70	Montana	Down	Overcast 49	4	6.5	Barge
2/2/2015	1	3:47	4:01	14	90	Rebel	Down	Rain 43	2	5.7	Barge
2/4/2015	1	9:30	9:37	7	70	Delta Lindsey	Up	Cloudy 46	1	6.4	Barge
2/5/2015	1	12:03	12:11	8	65	Delta Lindsey	Down	Rain 46	10	6.5	Barge
2/27/2015	1	14:15	14:23	8	70	Moria	Down	Partly Cloudy 53	2	5.9	Other/unknown
3/10/2015	2	13:34	13:45	11	100	Stacey T	Down	Clear 57	1	4.3	Barge
3/10/2015	3	18:38	18:47	9	110	Stacey T	Up	Cloudy 61	4	3.8	Barge
3/10/2015	1	9:02	9:13	11	90	Argosy	Up	Clear 43	1	5.2	Sail
3/12/2015	1	12:07	12:18	11	100	Stacey T	Down	Partly Cloudy 54	2	4.4	Barge
3/17/2015	1	14:01	14:10	9	90	Maddy T	Down	Cloudy 55	5	6.1	Sail
3/18/2015	1	2:27	2:37	10	100	Christy T	Up	Clear 55	Calm	5.5	Barge
3/19/2015	1	0:03	0:14	11	70	Clearwater	Down	Clear 49	1	5	Barge



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
3/21/2015	1	11:35	11:44	9	70	Moments	Up	Rain 49	5	6.4	Sail
3/23/2015	1	9:36	9:44	8	70	Maddy T	Down	Cloudy 47	5	7.5	Sail
3/24/2015	1	10:56	11:03	7	50	Riva	Down	Partly Cloudy 51	2	7.6	Sail
3/25/2015	1	9:59	10:05	6	50	Delta Lindsey	Up	Cloudy 49	7	7.1	Barge
3/26/2015	1	12:52	13:00	8	60	Delta Lindsey	Down	Clear 55	2	6.8	Barge
3/28/2015	1	10:22	10:32	10	45	George W	Up	Cloudy 54	3	5.9	Sail
3/28/2015	2	15:21	15:29	8	70	George W	Down	Partly Cloudy 59	2	6.2	Sail
4/5/2015	1	12:20	12:29	8	70	Runaway	Up	Cloudy 48	2	6.4	Sail
4/7/2015	1	20:12	20:20	8	50	George W	Down	Cloudy 54	7	6.4	Sail
4/10/2015	1	10:00	10:08	8		Riva	Up	Clear 51	4	5.7	Sail
4/17/2015	1	11:18	11:27	9	65	George W	Up	Clear 60	8	3.8	Sail
4/19/2015	1	16:55	17:03	8	65	George W	Down	Clear 75	10	3.6	Sail
4/22/2015	1	10:01	10:11	10	80	Dutchess	Down	Clear 43	3	5.4	Sail
4/25/2015	1	14:14	14:24	10	90	Stacey T	Down	Partly Cloudy 56	3	3.5	Barge
4/26/2015	1	16:12	16:19	7	65	Autumn Cara	Down	Cloudy 59	5	3	Sail
5/4/2015	3	12:54	13:06	11	35	Delta Lindsey	Up	Partly Cloudy 58	Calm	4	Barge
5/6/2015	1	18:44	18:53	9	65	Delta Lindsey	Down	Partly Cloudy 58	3	4.1	Barge
5/17/2015	1	16:25	16:31	6	15	Delta Lindsey	Up	Clear 67	5	4	Barge
5/22/2015	1	13:05	13:23	18	136	Stacey T	Up	Cloudy 57	3	5.3	Barge
5/23/2015	1	10:45	11:06	10	100	Stacey T	Down	Cloudy 56	1	5.1	Barge
5/29/2015	1	14:11	14:22	11	100	Stacey T	Up	Clear 74	3	4.3	Barge
5/30/2015	1	5:59	6:14	15	136	Autumn Wind	Down	Clear 52	2	5.6	Sail
6/3/2015	1	18:21	18:31	10	100	Stacey T	Down	Cloudy 60	5	4.7	Barge
6/3/2015	2	20:14	20:26	12	100	Astoria	Down	Cloudy 60	3	5.3	CE
6/4/2015	1	21:38	21:49	11	100	Stacey T	Up	Clear 65	5	5.2	Barge
6/9/2015	1	18:33	18:42	9	70	Topaz	Up	Clear 82	4	3.3	Sail
6/11/2015	2	19:44	19:54	10	80	Argosy	Down	Clear 70	4	2.7	Sail
6/12/2015	1	11:18	11:27	9	90	Maddy T	Up	Clear 61	1	3	Sail
6/14/2015	1	15:54	16:01	7	70	Tanewshe	Down	Clear 82	4	3.5	Other/unknown
6/18/2015	1	21:14	21:23	9	70	Tanuki	Up	Partly Cloudy 66	6	4.4	Sail
6/28/2015	1	11:31	11:42	11	90	Stacey T	Down	Cloudy 80	Calm	2.3	Barge
7/1/2015	1	20:13	20:24	11	60	Whisper		Clear 88	6	3.8	Sail
7/2/2015	5	12:34	12:44	10	75	Stacey T	Up	Clear 84	3	3.3	Barge
7/4/2015	1	19:22	19:29	7	70	Whisper	Up	Clear 88	8	4.7	Sail
7/6/2015	2	22:09	22:20	11	75	Stacey T	Down	Clear 71	4	5.5	Barge
7/6/2015	1	12:25	12:34	9	70	MaMala	Up	Clear 79	1	4	Sail
7/8/2015	1	5:39	5:46	7	50	Jenny's Joy	Down	Cloudy 61	2	3.5	Sail
7/11/2015	3	18:28	18:37	9	80	Stacey T	Up	Cloudy 71	6	2.7	Barge
7/13/2015	1	12:21	12:32	11	90	Lady Washington	Up	Partly Cloudy 71	6	1.9	Sail
7/19/2015	1	14:03	14:13	10	90	Make It So		Clear 90	2	2.7	Sail



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
7/24/2015	1	12:01	12:10	9	80	Whisper	Down	Clear 70	Calm	2	Sail
7/25/2015	14	15:11	15:20	9	100	Willamette Camp	Down	Cloudy 66	4	2.3	Barge
7/27/2015	1	13:58	14:06	8	70	MaMala	Down	Partly Cloudy 69	3	1.9	Sail
8/1/2015	1	13:06	13:15	9	80	Whisper	Up	Clear 83	4	3.1	Sail
8/2/2015	1	13:55	14:04	9	95	Stacey T	Up	Cloudy 76	3	3.2	Barge
8/5/2015	1	9:44	9:53	9	80	MaMala		Cloudy 63	2	4.3	Sail
8/9/2015	1	13:09	13:16	7	60	Jenny's Joy	Up	Clear 74	2	2.4	Sail
8/10/2015	1	14:05	14:12	7	70	MaMala	Down	Clear 81	1	2.5	Sail
8/12/2015	1	12:45	12:55	10	100	Stacey T	Up	Clear 79	1	2	Barge
8/12/2015	2	18:34	18:44	10	80	MaMala	Up	Clear 89	1	3.8	Sail
8/13/2015	2	19:08	19:20	12	100	Stacey T	Down	Partly Cloudy 80	7	4.4	Barge
8/13/2015	1	12:58	13:08	10	80	MaMala	Down	Clear 71	3	2	Sail
8/14/2015	1	20:41	20:52	11	100	Stacey T	Up	Cloudy 67	2	4	Barge
8/18/2015	1	19:28	19:36	8	85	Yaquina	Up	Clear 89	9	3.5	Dredge
8/19/2015	1	9:05	9:14	9	100	Stacey T	Down	Clear 70	2	3.9	Barge
8/19/2015	2	11:08	11:21	13	136	Stacey T	Up	Clear 75	5	3.5	Barge
8/22/2015	1	9:08	9:18	10	100	Stacey T	Down	Hazy 59	3	2	Barge
8/24/2015	1	11:04	11:13	9	80	Lady Washington	Down	Clear 65	6	1.5	Sail
8/25/2015	1	4:30	4:41	11	136	Yaquina	Down	Clear 57	3	3.9	Dredge
9/10/2015	1	9:44	9:54	10	75	Roxanna	Down	Clear 63	4	2	Sail
9/25/2015	1	13:00	13:11	11	70	Sirius	Up	Cloudy 60	5	1.6	Other/unknown
9/27/2015	1	5:50	5:59	9	35	Sirius	Down	Clear 49	10	4.3	Other/unknown
10/9/2015	1	10:12	10:25	13	136	CG Henry Blake	Up	Cloudy 62	3	1	Federal
10/16/2015	1	10:38	10:49	11	136	CG Henry Blake	Down	Clear 59	3	3.5	Federal
10/20/2015	1	13:48	13:57	9	90	Stacey T	Up	Partly Cloudy 60	2	2.3	Barge
11/11/2015	1	11:54	12:07	13	85	Husky	Up	Clear 51	Calm	2.3	Barge
11/14/2015	1	10:33	10:49	16	90	Husky	Down	Cloudy 58	4	4	Barge
11/22/2015	1	13:38	13:46	8	65	Karol Marie	Up	Clear 43	1	5.4	Sail
11/24/2015	1	9:27	9:36	9	70	Stokers Delight	Down	Cloudy 39	2	4.4	Other/unknown
11/26/2015	1	12:09	12:20	11	80	Scorpius	Down	Clear 46	7	3	Other/unknown
11/26/2015	2	18:08	18:18	10	80	Scorpius	Up	Clear 45	11	5.9	Other/unknown
11/28/2015	1	11:16	11:27	11	100	Stacey T	Down	Clear 39	2	3.5	Barge
11/28/2015	2	19:16	19:25	9	100	Stacey T	Up	Clear 37	9	5.8	Barge
11/30/2015	1	13:12	13:22	10	90	Stacey T	Down	Cloudy 35	9	3.8	Barge
12/1/2015	2	13:48	13:59	11	100	Stacey T	Up	Cloudy 36	9	3.8	Barge
12/1/2015	1	2:03	2:12	9	60	Scorpius	Down	Cloudy 35	4	3.8	Other/unknown
12/6/2015	1	14:43	14:50	7	60	Riva	Down	Cloudy 56	13	6	Sail
12/8/2015	1	10:16	10:33	17	100	Stacey T	Down	Rain 59	5	8.7	Barge
12/13/2015	1	3:23	3:36	13	136	Clearwater	Down	Cloudy 45	5	11	Barge
12/16/2015	1	10:56	11:09	13	80	Nova	Up	Cloudy 42	Calm	8.5	Barge



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
12/17/2015	1	10:33	0:55	11	70	Rebel	Down	Rain 40	10	8.2	Barge
12/18/2015	1	10:03	10:12	9	100	Christy T	Up	Rain 47	6	9.4	Barge
12/19/2015	1	17:55	18:06	11	100	Stacey T	Up	Cloudy 45	5	9.8	Barge
12/22/2015	2	22:28	22:38	10	75	Capt. Bob	Down	Cloudy 41	1	9.2	Barge
12/22/2015	1	9:51	10:02	11	80	Husky	Up	Cloudy 42	2	9.5	Barge
1/4/2016	1	11:06	11:21	15	70	Husky	Down	Cloudy 32	Calm	4.3	Barge
1/4/2016	2	12:35	12:51	16	85	Husky	Down	Cloudy 33	Calm	5.1	Barge
1/19/2016	1	13:03	13:15	12	110	Christie	Down	Rain 42	1	7.7	Barge
1/20/2016	1	11:56	12:05	9	80	Runaway	Down	Cloudy 48	7	7.4	Sail
1/22/2016	1	3:15	3:30	15	75	Sundial	Down	Rain 45	5	8	Barge
1/23/2016	1	12:04	12:12	8	75	Runaway	Up	Cloudy 45	5	6.9	Sail
1/27/2016	2	20:26	20:42	16	65	Willamette	Down	Rain 48	13	7	Barge
1/27/2016	1	13:25	13:37	12	90	Dutchess	Up	Cloudy 51	10	6.8	Sail
2/9/2016	1	12:24	12:40	16	136	Stacey T	Down	Clear 55	7	4.5	Barge
2/9/2016	2	22:27	22:37	10	80	Stacey T	Up	Cloudy 50	2	5.5	Barge
2/11/2016	1	9:18	9:28	10	90	Dutchess	Down	Cloudy 51	1	6.3	Sail
2/15/2016	1	8:52	9:02	10	85	Ross Isle	Up	Cloudy 54	Calm	6.3	Dredge
2/19/2016	1	1:02	1:18	16	80	Crown Pt	Down	Cloudy 47	9	8	Barge
2/21/2016	2	20:07	20:19	12	105	Mary B	Up	Clear 45	Calm	8.6	Barge
2/21/2016	1	14:45	14:57	12	85	Rebel	Down	Cloudy 49	2	8	Barge
2/23/2016	1	2:28	2:42	14	105	Mary B	Down	Fog 38	Calm	7.2	Barge
2/24/2016	1	10:02	10:11	9	100	Stacey T	Down	Cloudy 50	6	6.7	Barge
2/27/2016	2	20:34	20:47	13	90	Crown Pt	Down	Clear 49	5	5.8	Barge
2/27/2016	1	10:24	10:32	8	70	Riva	Up	Cloudy 55	4	6.5	Sail
3/1/2016	1	20:04	20:12	8	75	Runaway	Up	Rain 48	13	6	Sail
3/4/2016	1	20:01	20:17	16	70	Kathryn B	Down	Cloudy 52	2	5.9	Barge
3/5/2016	1	9:35	9:45	10	70	Nevermore	Up	Cloudy 52	11	6.4	Sail
3/10/2016	2	18:50	19:03	13	120	Stacey T	Down	Cloudy 49	5	10.6	Barge
3/10/2016	1	10:30	10:39	9	75	Two Dream	Down	Cloudy 54	4	10	Other/unknown
3/11/2016	2	20:09	20:22	13	120	Stacey T	Up	Rain	14	10.5	Barge
3/11/2016	1	13:13	13:22	9	65	Honey	Down	Rain 51	Calm	10.4	Other/unknown
3/12/2016	4	12:40	12:48	8	65	Honey	Up	Cloudy 44	5	10.4	Barge
3/12/2016	1	23:34	23:44	10	95	Stacey T	Up	Rain 50	5	10	Barge
3/12/2016	3	11:52	12:00	8	65	Moon Dance	Up	Rain 45	4	4-Oct	Sail
3/12/2016	2	10:30	10:40	10	65	Wind Raven	Up	Cloudy 45	5	10.5	Sail
3/13/2016	1	11:26	11:34	8	65	Runaway	Down	Cloudy 51	11	10	Sail
3/15/2016	1	19:24	19:32	8	65	Runaway	Up	Coudy 45	4	9	Sail
3/18/2016	1	9:14	9:22	8	80	Ross Isle	Down	Overcast 52	19	8.3	Dredge
3/21/2016	1	11:54	12:03	9	75	Stokers Delight	Down	Overcast 53	6	7.2	Other/unknown
3/27/2016	1	9:55	10:05	10	90	American Pride	Up	Cloudy 48	4	7.8	Cruise/passenger



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
4/5/2016	1	10:32	10:45	13	120	Stacey T	Down	Cloudy 51	3	4.7	Barge
4/9/2016	1	12:07	12:16	9	75	First Light	Down	Partly Cloudy 56	3	8	Sail
4/10/2016	2	11:38	11:46	8	65	First Light	Up	Cloudy 49	2	8	Sail
4/10/2016	1	11:10	11:18	8	65	Runaway	Down	Cloudy 49	2	8	Sail
4/12/2016	1	11:16	11:26	10	70	Runaway	Up	Cloudy 54	6	7.8	Sail
4/14/2016	1	18:00	18:09	9	70	Emonja	Down	Cloudy 52	2	8	Sail
4/15/2016	1	10:35	10:42	7	70	Carolmarie	Down	Clear 52	Calm	8.3	Sail
4/17/2016	1	14:13	14:22	9	70	Carolmarie	Up	Clear 77	11	9.4	Sail
4/18/2016	1	12:57	13:05	8	70	Charlie		Clear 78	3	9	Sail
4/19/2016	1	20:20	20:29	9	70	Summer Wind	Up	Clear 79	3	9	Other/unknown
4/20/2016	2	21:47	22:00	13	70	Sundial	Down	Cloudy 65	Calm	9	Barge
4/24/2016	1	0:09	0:22	13	70	Granite Point	Down	Cloudy 54	4	10.2	Barge
4/26/2016	1	12:27	12:35	8	70	Canace	Down	Cloudy 56	Calm	10.5	Sail
4/27/2016	1	9:12	9:20	8	100	Husky	Up	Cloudy 48	3	9.5	Barge
4/28/2016	1	13:08	13:19	11	100	Husky	Down	Cloudy 60	1	8.6	Barge
4/28/2016	2	18:00	18:09	9	70	Cielo Blue	Down	Cloudy 61	5	8.2	Sail
4/29/2016	1	10:44	10:53	9	75	Nancy Riley	Down	Rain 49	Calm	8.1	Sail
4/30/2016	1	14:25	15:34	9	75	Autumn Cara	Down	Clear 61	7	7.8	Sail
5/3/2016	1	11:47	11:57	10	100	Sirius	Up	Clear 63	2	6.5	Other/unknown
5/5/2016	2	13:09	13:19	10	86	Imanji	Up	Partly Cloudy 61	Calm	6.3	Other/unknown
5/5/2016	1	9:28	9:44	16	100	Sirius	Down	Cloudy 55	5	6.8	Other/unknown
5/7/2016	2	9:06	9:15	9	75	Autumn Cara	Up	Clear 67	3	8.6	Sail
5/7/2016	1	6:15	6:23	8	70	Blue Martini	Down	Clear 60	1	8.8	Sail
5/10/2016	1	13:39	13:47	8	70	Autumn Cara	Down	Clear 69	9	8.4	Sail
5/14/2016	1	18:35	18:45	10	90	Stacey T	Up	Rain 55	9	6.4	Barge
5/15/2016	1	15:30	15:40	10	90	Stacey T	Down	Cloudy 56	1	6.5	Barge
5/20/2016	1	9:16	9:26	10	75	Sargaso	Down	Cloudy 51	5	6.3	Barge
5/20/2016	2	19:47	19:56	9	70	Riva	Down	Cloudy 59	4	6.8	Sail
5/24/2016	1	18:07	18:14	7	65	Nancy Riley	Up	Cloudy 67	6	5.3	Sail
5/25/2016	1	12:43	12:51	8	70	Tow Boat	Up	Cloudy 59	6	5.8	Barge
5/28/2016	1	9:40	9:48	8	75	Whisper	Down	Clear 55	3	5.4	Sail
5/30/2016	1	12:29	12:36	7	70	Whisper	Up	Clear 64	5	4.3	Sail
6/1/2016	1	18:15	18:28	13	136	Nancy Riley	Down	Cloudy 74	8	4.7	Sail
6/4/2016	1	6:28	6:37	9	70	Autumn Wind	Up	Clear 66	5	7.2	Sail
6/27/2016	5	11:36	11:46	11	40	South Creek	Down	Clear 72	3	4.7	Barge
7/10/2016	1	10:17	10:25	8	75	Make It So	Down	Cloudy 60	3	4	Sail
7/14/2016	1	18:13	18:25	12	75	PS Brix	Down	Clear 74	15	2.1	Barge
7/23/2016	1	6:13	6:29	16	120	Willamette	Down	Cloudy 60	3	3.4	Barge
7/29/2016	1	18:35	18:44	9	80	Denise Foss	Up	Clear 72	2	2.5	Barge
7/30/2016	1	14:33	14:52	19	136	Denise Foss	Down	Clear 74	7	2.9	Barge



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
8/1/2016	2	18:40	18:48	8	80	Make It So	Up	Clear 75	4	4.5	Sail
8/1/2016	1	12:01	12:12	11	80	Umitilla	Down	Clear 62	4	3.3	Barge
8/4/2016	1	18:08	18:20	12	80	Tranquility	Down	Clear 85	8	3.1	Sail
8/5/2016	1	20:48	20:58	10	90	Tranquility	Up	Clear 64	5	4.9	Sail
8/21/2016	1	7:52	7:59	7	65	Jabez	Up	Partly Cloudy 60	6	5.6	Sail
8/24/2016	1	5:10	5:24	14	136	Yaquina	Up	Clear 63	Calm	2.2	Dredge
8/30/2016	1	4:19	4:33	14	120	Yaquina	Down	Clear 50	3	5.2	Dredge
9/7/2016	1	9:18	9:28	10	120	Christie	Up	Cloudy 61	1	2.4	Barge
9/7/2016	2	12:11	12:23	12	120	Christie	Down	Cloudy 64	1	1.8	Barge
9/11/2016	1	14:56	15:06	10	75	Autumn Wind	Up	Partly Cloudy 68	7	1.9	Sail
9/16/2016	2	19:22	19:31	9	75	Bagabundo	Up	Cloudy 75	3	4.1	Sail
9/17/2016	2	10:30	10:38	8	50	Bumble Bee	Up	Rain 56	8	2.6	Sail
9/18/2016	1	6:16	6:25	9	75	Orsinus	Up	Cloudy 60	Calm	3.6	Sail
9/18/2016	2	19:35	19:43	8	75	Orsinus	Down	Cloudy 67	2	4.6	Sail
9/21/2016	1	20:38	20:49	11	100	Tranquility	Down	Partly Cloudy 62	2	4.4	Sail
9/23/2016	1	13:03	13:13	10	80	Anas	Up	Cloudy 59	6	2.4	Sail
9/25/2016	1	14:14	14:26	12	130	Dauby	Up	Clear 75	5	2.4	Barge
9/26/2016	1	2:30	2:38	8	70	Tranquility	Up	Clar 63	2	3.7	Sail
10/1/2016	1	0:53	1:04	11	70	Dauby	Down	Cloudy 57	5	1	Barge
10/17/2016	1	9:28	9:37	9	95	Southcreek	Down	Cloudy 54	3	6.4	Barge
10/23/2016	1	9:06	9:17	11	90	Delta Lindsey	Down	Cloudy 53	6	3.4	Barge
10/23/2016	2	11:30	19:19	10	95	Delta Lindsey	Up	Cloudy 58	1	3.9	Barge
10/25/2016	1	4:54	5:04	10	90	Delta Lindsey	Down	Cloudy 53	6	4.4	Barge
10/25/2016	2	10:28	10:39	11	90	Delta Lindsey	Up	Cloudy 54	5	3	Barge
11/1/2016	1	3:52	4:01	9	70	Celestial	Up	Cloudy 52	5	4.8	Sail
11/3/2016	1	12:37	12:55	18	136	Deschutes	Down	Partly Cloudy 58	2	5.1	Barge
11/6/2016	1	13:00	13:09	9	100	Summer S		Cloudy 60	5	5	Other/unknown
11/9/2016	1	12:04	12:14	10	95	Orsinus	Up	Cloudy 56	5	4.6	Sail
11/9/2016	2	13:48	13:57	9	95	Orsinus	Down	Clear 62	Calm	4.8	Sail
11/11/2016	1	10:49	11:00	11	100	Southcreek	Up	Cloudy 56	2	5.2	Barge
11/27/2016	1	10:37	10:44	7	75	Riva	Down	Cloudy 46	4	7	Sail
11/28/2016	1	10:52	10:52	10	95	Stacey T	Down	Cloudy 47	2	6.9	Barge
12/5/2016	1	13:12	13:22	10	100	Stacey T		Cloudy 38	4	4.8	Barge
12/6/2016	1	12:10	12:19	9	70	Irmongina	Down	Cloudy 41	4	5.2	Other/unknown
12/11/2016	1	21:43	21:54	11	120	Maverick	Up	Rain 42	3	6	Sail
12/13/2016	1	22:08	22:17	9	100	Maverick	Down	Cloudy 35	6	6.6	Sail
12/17/2016	1	7:48	7:58	10	100	Stacey T	Down	Cloudy 29	5	6.5	Barge
12/18/2016	1	13:34	13:42	8	68	Riva	Up	Fog 38	2	5.3	Sail
12/21/2016	1	12:36	12:45	9	100	Stacey T		Fog	Calm	6.5	Barge
12/29/2016	1	13:44	13:54	10	75	Star Castle	Up	Cloudy 40	2	4.8	Other/unknown



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
1/2/2017	1	18:08	18:18	10	100	Stacey T	Up	Cloudy 31	9	5.1	Barge
2/7/2017	1	23:09	23:19	10	80	Defiance	Up	Cloudy 37	3	8	Barge
2/7/2017	2	18:37	18:46	9	80	Defiance	Down	Cloudy 37	8	8.9	Barge
2/13/2017	1	11:50	11:58	8	70	In Your Dreams	Up	Clear 47	10	10.6	Sail
2/14/2017	2	12:31	12:45	14	100	Nova	Up	Cloudy 45	5	9.2	Barge
2/14/2017	1	11:45	12:02	13	100	Lindy Marie	Up	Cloudy 45	7	9.2	Barge
2/17/2017	1	11:33	11:46	13	100	Lindy Marie	Down	Partly Cloudy 48	3	10.4	Barge
2/18/2017	1	11:04	11:13	9	85	Runaway	Down	Cloudy 45	2	8.5	Sail
2/23/2017	1	10:47	11:00	13	85	Nova	Down	Partly Cloudy 39	1	11.2	Barge
2/24/2017	1	18:01	18:13	12	70	Chaos	Up	Cloudy 39	2	11.2	Sail
2/26/2017	1	9:25	9:34	9	70	Anais	Down	Rain 37	2	10.2	Sail
2/27/2017	1	13:57	14:05	8	80	Anais	Up	Rain 42	4	9.1	Sail
3/2/2017	1	10:07	10:17	9	80	Runaway	Up	Cloudy 43	9	8.2	Sail
3/4/2017	1	11:46	11:59	13	85	South Creek	Down	Rain 46	3	8.7	Barge
3/11/2017	1	1:26	1:37	11	70	Crown Point	Down	Cloudy 44	2	12.7	Barge
3/16/2017	1	2:31	2:40	9	60	Daubi	Down	Clear 44	2	15.4	Barge
3/17/2017	1	10:10	10:18	8	60	Columbia River Marine Assistance	Down	Rain 42	2	15.8	Federal
3/17/2017	2	13:13	13:23	10	60	Columbia River Marine Assistance	Up	Rain 43	3	15.9	Federal
3/18/2017	2	11:08	11:20	8	75	Moonshadow	Down	Cloudy 46	4	16.5	Sail
3/18/2017	1	10:48	10:56	8	75	Runaway	Down	Cloudy 46	2	16.4	Sail
3/19/2017	1	13:33	13:42	9	75	Moonshadow	Up	Clear 47	4	16.6	Sail
3/21/2017	2	5:15	5:26	11	70	Cap't Bob	Down	Rain 44	1	16.4	Barge
3/21/2017	1	2:01	2:09	8	70	Sundial	Down	Rain 44	3	16.4	Barge
3/21/2017	4	11:35	11:45	10	80	Runaway	Up	Cloudy 46	10	16.4	Sail
3/21/2017	3	9:38	9:46	8	60	Columbia River Marine Assistance	Up	Cloudy 45	12	16.4	Federal
3/23/2017	3	14:01	14:15	14	75	Kathryn B	Down	Cloudy 53	2	16.7	Barge
3/23/2017	1	2:32	2:42	11	60	Crown Point	Down	Cloudy 45	3	16.6	Barge
3/23/2017	4	21:00	21:13	13	70	Crown Point	Down	Rain 47	4	16.7	Barge
3/23/2017	5	22:00	22:12	12	70	American Empress		Rain 47	1	16.7	Cruise/passenger
3/23/2017	3	14:01	14:15	14	75	Cha Cha	Up	Cloudy 53	2	16.7	Sail
3/23/2017	2	10:02	10:10	8	60	Julia Max	Up	Cloudy 45	6	16.7	Sail
3/24/2017	1	5:35	5:46	11	60	Willamette	Down	Rain 46	5	16.7	Barge
3/25/2017	1	2:14	2:24	10	80	Cap't Bob	Down	Cloudy 46	Calm	17	Barge
3/25/2017	2	9:48	10:00	12	70	Hurricane	Down	Cloudy 47	Calm	17.2	Barge
3/26/2017	1	1:41	1:57	16	70	Cascade	Down	Cloudy 46	5	17.2	Barge
3/26/2017	3	6:02	6:12	10	70	Clearwater	Down	Cloudy 45	11	17.3	Barge
3/26/2017	2	3:31	3:39	8	70	American Empress	Down	Cloudy 45	7	17.2	Cruise/passenger
3/27/2017	1	2:00	2:12	12	70	Deschutes	Down	Rain 47	1	17.2	Barge



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
3/27/2017	2	4:01	4:10	9	70	Diane B	Down	Rain 47	3	17.2	Barge
3/28/2017	1	23:40	23:49	9	60	Deschutes	Up	Cloudy 47	5	17.3	Barge
3/28/2017	2	11:21	11:37	16	136	Hurricane	Down	Cloudy 51	4	17.3	Barge
3/28/2017	3	12:33	12:42	10	70	Lori B	Down	Cloudy 53	6	17.6	Barge
3/29/2017	1	1:03	1:14	11	70	Granite Point	Down	Rain 47	Calm	17.2	Barge
3/29/2017	2	21:32	21:45	13	70	Willamette	Down	Cloudy 48	6	17.3	Barge
3/30/2017	1	4:51	5:04	13	60	Clearwater	Down	Cloudy 45	Calm	17.3	Barge
3/30/2017	3	9:47	9:55	8	70	Rowena	Down	Cloudy 46	4	17.5	Sail
3/30/2017	2	6:04	6:12	8	60	American Empress	Up	Cloudy 45	2	17.3	Cruise/passenger
3/31/2017	1	19:18	19:30	12	65	Cascade	Down	Partly Cloudy 55	Calm	17.4	Barge
4/1/2017	1	8:52	9:05	13	65	Granite Point	Down	Cloudy 49	4	16.7	Barge
4/1/2017	1	19:51	20:00	9	70	Lori B	Down	Cloudy 55	6	16.7	Barge
4/2/2017	1	2:15	2:27	12	70	Deschutes	Down	Cloudy 47	6	16.7	Barge
4/2/2017	3	11:21	11:30	9	75	Runaway	Down	Cloudy 49	1	16.7	Sail
4/2/2017	2	3:51	4:00	9	70	American Empress	Down	Cloudy 47	3	16.6	Cruise/passenger
4/5/2017	1	0:27	0:38	11	70	Cascade	Down	Clear 51	7	15.2	Barge
4/5/2017	2	2:10	2:19	9	70	Daubi	Down	Clear 50	7	15.2	Barge
4/5/2017	3	13:01	13:13	12	72	American Empress	Up	Cloudy 58	12	15.1	Cruise/passenger
4/6/2017	1	10:18	10:36	18	72	Clearwater	Down	Rain 48	5	14.5	Barge
4/6/2017	2	21:57	22:04	12	65	Defiance	Down	Cloudy 53	2	14.4	Barge
4/8/2017	2	11:08	11:20	12	65	Diane B	Down	Cloudy 47	1	13.1	Barge
4/8/2017	1	9:40	9:48	8	70	Autumn Cara	Up	Cloudy 45	3	13.3	Sail
4/9/2017	1	10:32	10:47	15	60	Deschutes	Down	Cloudy 45	4	13.3	Barge
4/9/2017	2	15:23	15:31	8	70	Riva	Down	Cloudy 55	3	13.4	Sail
4/11/2017	1	22:47	22:55	8	60	Crown Point	Down	Rain 48	3	12.8	Barge
4/13/2017	4	18:26	18:40	14	100	Cascade	Down	Cloudy 48	Calm	13.3	Barge
4/13/2017	1	10:33	0:57	13	60	Granite Point	Down	Cloudy 46	2	12.6	Barge
4/13/2017	3	13:33	13:41	8	75	Starry Night	Down	Cloudy 50	5	13.3	Sail
4/13/2017	2	12:28	12:37	9	80	Columbia River Marine Assistance	Down	Cloudy 52	10	13.2	Barge
4/14/2017	1	10:13	10:26	13	100	Defiance	Down	Cloudy 47	Calm	13.6	Barge
4/14/2017	2	20:15	20:27	12	100	Willamette	Down	Partly Cloudy 48	2	13.3	Barge
4/15/2017	3	19:42	19:51	9	75	Deschutes	Down	Clear 58	5	12.9	Barge
4/15/2017	2	13:51	14:08	17	75	Kathryn B	Down	Partly Cloudy 52	Calm	13.2	Barge
4/15/2017	1	3:40	3:52	12	136	Lori B	Down	Cloudy 42	1	13.2	Barge
4/16/2017	1	9:46	9:55	9	50	Cap't Bob	Down	Partly Cloudy 50	Calm	12.9	Barge
4/16/2017	2	17:24	17:34	10	60	Granite Point	Down	Cloudy 63	6	12.4	Barge
4/17/2017	2	13:11	13:22	11	70	Clearwater	Down	Cloudy 54	1	11.9	Barge
4/17/2017	1	3:41	3:50	9	70	Julia Max	Up	Cloudy 50	6	12.2	Sail
4/18/2017	1	13:31	13:40	9	65	Lori B	Down	Cloudy 59	4	11.8	Barge



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
4/19/2017	1	11:30	11:39	9	100	Runaway	Down	Cloudy 49	Calm	11.7	Sail
4/20/2017	2	9:00	9:14	14	100	Cap't Bob	Down	Cloudy 48	Calm	11	Barge
4/20/2017	1	5:58	6:09	11	100	In Your Dreams	Down	Cloudy 47	4	11.1	Sail
4/20/2017	3	12:12	12:22	10	100	Symmetry	Down	Cloudy 53	3	11	Sail
4/22/2017	4	21:49	21:59	10	65	Clearwater	Down	Cloudy 55	Calm	11.7	Barge
4/22/2017	3	18:57	19:06	9	65	Diane B	Down	Clear 58	7	11.8	Barge
4/22/2017	1	13:03	13:13	10	70	Granite Point		Rain 57	18	11	Barge
4/22/2017	2	16:04	16:15	11	70	Willamette	Down	Cloudy 58	5	11.7	Barge
4/23/2017	1	7:31	7:43	12	65	Cap't Bob	Down	Cloudy 51	9	12	Barge
4/24/2017	1	11:15	11:23	8	65	Symmetry	Up	Rain 45	12	12.1	Sail
4/25/2017	1	1:43	1:56	12	60	Sundial	Down	Cloudy 47	Calm	12.2	Barge
4/26/2017	1	18:48	19:04	16	80	Capt	Down	Cloudy 52	7	13.6	Barge
4/26/2017	2	20:40	20:58	18	100	Outlaw	Down	Cloudy 50	9	13.7	Sail
4/27/2017	1	9:48	9:58	10	100	Riva	Up	Cloudy 46	2	13.9	Sail
4/28/2017	1	23:00	23:13	13	136	Cascade	Down	Cloudy 47	2	14.3	Barge
4/28/2017	2	12:08	12:20	12	100	Wind Raven	Down	Partly Cloudy 53	4	14.4	Sail
4/28/2017	3	13:43	14:03	10	100	Iris	Down	Partly Cloudy 54	6	14.4	Sail
4/29/2017	3	16:20	16:30	10	70	Clearwater	Down	Cloudy 63	1	14.3	Barge
4/29/2017	1	10:04	10:18	14	70	Willamette	Down	Cloudy 50	Calm	14.5	Barge
4/29/2017	2	10:49	10:57	8	70	Panama Red	Down	Cldouy 52	Calm	14.5	Sail
4/30/2017	6	18:08	18:09	11	70	Deschutes	Down	Partly Cloudy 51	5	13.6	Barge
4/30/2017	1	3:47	3:59	12	60	Ryan Point	Down	Rain 51	Calm	14	Barge
4/30/2017	4	10:51	11:01	10	70	Sundial	Down	Cloudy 50	4	14	Barge
4/30/2017	2	9:04	9:15	11	70	Outlaw	Down	Cloudy 51	10	14	Sail
4/30/2017	5	11:44	12:05	10	70	Wind Raven	Up	Cloudy 52	5	13.9	Sail
4/30/2017	3	9:49	9:56	7	50	Mariner	Down	Cloudy 51	10	14	Barge
5/1/2017	1	13:48	13:56	8	70	Leni Cona	Up	Cloudy 51	Calm	12.9	Sail
5/2/2017	1	13:47	13:57	10	70	Crown Point	Down	Cloudy 57	2	11.9	Barge
5/3/2017	5	14:08	14:17	9	70	Cascade	Down	Clear 70	4	11.7	Barge
5/3/2017	3	11:56	12:05	9	70	Lindy Rose	Down	Clear 64	4	11.8	Barge
5/3/2017	4	12:56	13:05	9	70	Starry Night	Up	Clear 68	4	11.8	Sail
5/3/2017	1	10:00	10:09	9	100	Point Thomason	Down	Cloudy 59	2	11.7	Barge
5/3/2017	2	11:26	11:35	9	100	Vessel Type	Down	Clear 63	3	11.8	Other/unknown
5/4/2017	1	5:55	6:08	10	70	Diane B	Down	Clear 61	Calm	11.2	Barge
5/4/2017	3	13:42	13:52	10	70	Granite Point	Down	Clear 77	3	11.1	Barge
5/4/2017	2	10:09	10:18	9	75	Runaway	Up	Clear 67	3	11.1	Sail
5/5/2017	3	21:16	21:30	14	65	Kathryn B	Down	Cloudy 60	4	11.3	Barge
5/5/2017	2	11:33	11:41	8	74	Mary Biz	Down	Rain 55	5	11.1	Barge
5/5/2017	1	4:28	4:36	8	75	Julia Max	Down	Cloudy 56	Calm	11.1	Sail
5/6/2017	4	19:22	19:32	10	75	Clearwater	Down	Clear 58	6	12.2	Barge



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
5/6/2017	1	2:28	2:40	12	70	Sundial	Down	Cloudy 57	3	11.5	Barge
5/6/2017	3	15:27	15:36	9	75	Riva	Down	Cloudy 58	5	12.1	Sail
5/6/2017	2	6:59	7:09	10	80	Tanuki	Down	Clear 45	Calm	11.7	Sail
5/7/2017	3	10:02	10:15	13	60	Cap't Bob	Down	Clear 51	4	13.1	Barge
5/7/2017	2	5:38	5:48	10	60	Deschutes	Down	Clear 46	Calm	12.7	Barge
5/7/2017	1	1:15	1:24	10	60	Hurricane	Down	Clear 48	4	12.3	Barge
5/7/2017	4	19:28	19:38	10	65	Willamette	Down	Clear 62	6	13.6	Barge
5/8/2017	1	1:13	1:24	11	60	Crown Point	Down	Clear 62	1	13.8	Barge
5/9/2017	1	9:10	9:29	19	75	South Creek	Down	Clear 54	2	14.9	Barge
5/9/2017	2	13:31	13:38	7	50	Sundial	Down	Clear 66	2	14.8	Barge
5/10/2017	4	22:26	22:40	14	70	Granite Point	Down	Cloudy 65	2	14.6	Barge
5/10/2017	1	9:40	9:50	10	70	Hurricane	Down	Clear 54	Calm	14.8	Barge
5/10/2017	3	12:06	12:19	13	70	Ryan Point	Down	Clear 63	Calm	14.8	Barge
5/10/2017	2	10:32	10:42	10	70	Swift	Up	Clear 57	Calm	14.8	Sail
5/11/2017	1	2:12	2:24	12	136	Clearwater	Down	Cloudy 59	3	14.5	Barge
5/12/2017	1	18:03	18:18	15	70	Cascade	Down	Cloudy 52	1	14.4	Barge
5/13/2017	4	19:49	19:57	8	70	Cap't Bob	Down	Rain 49	6	14.5	Barge
5/13/2017	6	23:07	23:17	10	70	Clearwater	Down	Rain 47	3	14.6	Barge
5/13/2017	3	18:50	18:59	9	70	Deschutes	Down	Rain 49	1	14.5	Barge
5/13/2017	1	1:15	1:25	10		Diane B	Down	Rain 47	4	14.7	Barge
5/13/2017	5	21:02	21:11	9	70	Crown Point	Down	Rain 46	5	14.6	Barge
5/13/2017	2	13:39	13:47	8	70	Seaquel	Up	Cloudy 51	3	14.5	Other/unknown
5/14/2017	1	0:47	0:57	10	60	Ryan Point	Down	Cloudy 47	4	14.7	Barge
5/14/2017	3	19:42	19:50	8	60	Willamette	Down	Partly Cloudy 57	1	14.5	Barge
5/14/2017	2	14:17	14:24	7	60	Starry Night	Down	Partly Cloudy 56	1	14.6	Sail
5/15/2017	1	0:08	0:17	9	60	Sundial	Down	Cloudy 50	2	14.5	Barge
5/16/2017	1	10:41	10:55	14	136	Bumblebee	Down	Partly Cloudy 51	9	14.6	Sail
5/17/2017	2	13:54	14:04	10	60	Kathryn B	Down	Cloudy 55	Calm	14.9	Barge
5/17/2017	1	10:46	10:56	10	75	Runaway	Down	Cloudy 54	2	14.7	Sail
5/18/2017	2	18:21	18:37	16	75	Cascade	Down	Cloudy 67	2	14.9	Barge
5/18/2017	1	2:38	2:52	14	75	Granite Point	Down	Cloudy 49	Calm	14.7	Barge
5/19/2017	4	20:26	20:41	15	100	Clearwater	Down	Partly Cloudy 67	10	14.4	Barge
5/19/2017	1	4:15	4:26	11	70	Mary Biz	Down	Cloudy 55	1	14.8	Barge
5/19/2017	2	10:28	10:36	8	75	Runaway	Up	Clear 61	Calm	14.8	Sail
5/19/2017	3	14:07	14:17	10	100	Zia	Down	Partly Cloudy 69	2	14.9	Sail
5/20/2017	1	15:33	15:42	9	75	Anais	Down	Clear 66	3	14.2	Sail
5/21/2017	1	0:14	0:23	9	70	Sundial	Down	Clear 62	4	13.7	Barge
5/22/2017	1	13:41	13:54	13	75	Willamette	Down	Clear 83	4	12.9	Barge
5/22/2017	2	14:16	14:25	9	75	Lindy Rose	Up	Clear 84	9	12.9	Barge
5/24/2017	1	1:50	2:01	11	65	Granite Point	Down	Cloudy 52	2	12.6	Barge



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
5/24/2017	3	20:07	20:18	11	100	Anais	Up	Partly Cloudy 57	10	13	Sail
5/24/2017	2	18:40	18:51	11	100	Sans Saver	Down	Partly Cloudy 60	6	13	Other/unknown
5/25/2017	1	23:36	23:49	13	100	Cascade	Down	Cloudy 53	Calm	13	Barge
5/26/2017	1	4:59	5:12	13	100	Cap't Bob	Down	Clear 56	Calm	14.2	Barge
5/26/2017	2	9:06	9:17	11	100	Cascade	Down	Clear 56	1	14.3	Barge
5/26/2017	4	18:11	18:20	9	70	Renegade	Up	Clear 82	3	14.6	Sail
5/26/2017	3	13:09	13:26	17	100	Mach IV & Spotlace	Up	Clear 72	3	14.5	Other/unknown
5/26/2017	3	13:09	13:26	17	100	Spirit & Honey	Down	Clear 72	3	14.5	Other/unknown
5/27/2017	2	10:54	11:06	12	100	Clearwater	Down	Clear 66	Calm	14.6	Barge
5/27/2017	3	12:23	12:32	11	70	Defiance	Down	Clear 72	2	14.9	Barge
5/27/2017	1	6:30	6:40	10	100	Carol Marie	Down	Clear 57	Calm	14.2	Sail
5/29/2017	1	4:20	4:31	11	70	Deschutes	Down	Cloudy 55	Calm	13.8	Barge
5/29/2017	5	18:29	18:37	8	75	Runaway	Down	Clear 71	Calm	13.5	Sail
5/29/2017	2	8:00	8:07	7	50	Wind Raven	Down	Cloudy 54	6	13.8	Sail
5/29/2017	4	13:20	13:27	7	55	Mach IV	Down	Overcast 63	3	13.9	Other/unknown
5/29/2017	3	12:50	12:58	8	55	Spirit & Honey	Up	Cloudy 60	Calm	13.9	Other/unknown
5/31/2017	2	20:58	21:12	14	70	Diane B	Down	Cloudy 66	2	14.3	Barge
5/31/2017	1	19:05	19:18	13	100	Stacey T	Down	Cloudy 68	5	14.2	Barge
6/1/2017	1	9:42	9:56	14	100	Clearwater	Down	Cloudy 60	1	14.6	Barge
6/2/2017	1	23:35	23:48	13	100	Hurricane	Down	Cloudy 60	Calm	14.6	Barge
6/2/2017	3	12:20	12:33	13	100	Ryan Point	Down	Partly Cloudy 64	Calm	14.6	Barge
6/2/2017	2	5:17	5:26	9	100	Autumn Wind	Down	Cloudy 67	2	14.6	Sail
6/2/2017	4	13:52	14:01	9	75	Madrone	Down	Partly Cloudy 66	4	14.6	Sail
6/3/2017	3	17:52	18:04	12	60	Defiance	Down	Cloudy 63	5	14.4	Barge
6/3/2017	5	21:29	21:38	9	60	Deschutes	Down	Cloudy 61	10	14.5	Barge
6/3/2017	2	6:45	6:55	10	100	South Creek	Up	Overcast 56	3	14.7	Barge
6/3/2017	4	19:31	19:41	10	55	Sundial	Down	Partly Cloudy 64	2	14.4	Barge
6/3/2017	1	4:33	4:42	9	100	Aquilla	Down	Overcast 57	3	14.7	Sail
6/4/2017	1	1:03	1:14	11	65	Diane B	Down	Partly Cloudy 55	3	14.3	Barge
6/4/2017	2	15:03	15:11	8	75	Cha Cha	Down	Partly Cloudy 62	1	14.5	Sail
6/4/2017	3	15:58	16:05	7	50	Selkie	Up	Partly Cloudy 63	5	14.4	Sail
6/5/2017	2	19:01	19:13	12	60	Bruce M	Down	Clear 76	2	14	Barge
6/5/2017	1	12:39	12:46	7	45	Nahoma	Up	Clear 56	3	13.8	Other/unknown
6/6/2017	2	21:48	22:01	13	136	Sundial	Down	Clear 66	5	13.6	Barge
6/6/2017	1	18:03	18:19	16	80	Iia	Down	Clear 83	4	13.6	Other/unknown
6/6/2017	1	18:03	18:19	16	80	Iris	Up	Clear 83	4	13.6	Sail
6/7/2017	1	4:20	4:28	8	60	Diane B	Down	Cloudy 58	Calm	13.6	Barge
6/7/2017	2	18:06	18:18	12	60	Willamette	Down	Clear 74	1	13.4	Barge
6/8/2017	3	20:12	20:22	10	60	Clearwater	Down	Cloudy 57	6	13.5	Barge
6/8/2017	2	18:08	18:19	11	100	Stacey T	Up	Cloudy 61	6	13.4	Barge



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
6/8/2017	1	1:13	1:25	12	100	Scorpius	Up	Rain 60	2	13.5	Other/unknown
6/9/2017	1	13:08	13:18	10	65	Defiance	Down	Cloudy 57	1	13.5	Barge
6/9/2017	2	20:18	20:30	12	70	Deschutes	Down	Cloudy 53	2	13.5	Barge
6/10/2017	1	23:46	23:56	10	70	Willamette	Down	Cloudy 53	Calm	13.5	Barge
6/11/2017	1	8:02	8:12	10	70	Deschutes	Down	Cloudy 54	Calm	13.9	Barge
6/11/2017	2	11:14	11:23	9	50	Crown Point	Down	Cloudy 58	2	14	Barge
6/11/2017	3	15:30	15:37	7	45	Fantasy	Up	Partly Cloudy 66	5	14	Sail
6/12/2017	1	18:56	19:04	8	60	Defiance	Down	Cloudy 58	3	12.4	Barge
6/13/2017	2	10:10	10:19	9	95	Stacey T	Down	Cloudy 53	2	11.7	Barge
6/13/2017	3	22:20	22:30	10	75	Stacey T	Up	Cloudy 57	5	11.5	Barge
6/13/2017	1	1:37	1:47	10	65	Sundial	Down	Cloudy 53	Calm	12.2	Barge
6/14/2017	1	1:43	1:52	9	60	Cascade	Down	Cloudy 54	Calm	11	Barge
6/14/2017	2	5:41	5:51	10	60	Hurricane	Down	Cloudy 53	Calm	11	Barge
6/14/2017	3	10:43	10:52	9	100	South Creek	Down	57	Calm	11.6	Barge
6/15/2017	2	21:09	21:18	9	60	Clearwater	Down	Rain 62	2	11.7	Barge
6/15/2017	1	1:30	1:42	12	100	Crown Point	Down	Rain 57	4	11.5	Barge
6/16/2017	1	5:02	5:12	10	100	Chief	Down	Rain 59	Calm	12	Barge
6/16/2017	2	5:23	5:32	9	100	Mischief	Down	Rain 58	Calm	12	Sail
6/16/2017	3	9:50	9:58	8	75	Melekai	Down	Cloudy 60	1	12	Sail
6/17/2017	3	18:11	18:19	8	60	Cascade	Down	Cloudy 68	Calm	10.4	Barge
6/17/2017	1	2:43	2:54	11	100	Chief	Down	Cloudy 56	2	11.4	Barge
6/17/2017	2	6:04	6:14	10	100	Willamette	Down	Cloudy 55	1	11.1	Barge
6/18/2017	2	18:18	18:26	8	70	Clarkston	Down	Clear 75	7	9.9	Barge
6/18/2017	1	5:56	6:04	8	50	Lindy Rose	Down	Cloudy 59	Calm	10	Barge
6/21/2017	4	18:06	18:18	12	65	Clearwater	Down	Clear 72	7	9.3	Barge
6/21/2017	1	5:01	5:09	8	45	Minjana	Down	Clear 53	4	9.5	Other/unknown
6/23/2017	1	1:26	1:39	13	100	Lori B	Down	Clear 66	Calm	8.8	Barge
6/23/2017	2	20:37	20:47	10	100	Stacey T	Up	Clear 82	2	8.8	Barge
6/24/2017	1	9:20	9:36	16	100	Hurricane	Down	Clear 71	1	9.8	Barge
6/27/2017	2	12:49	12:59	10	70	Daubi	Down	Cloudy 62	4	7.3	Barge
6/27/2017	1	4:18	4:26	8	60	Sea Fever	Down	Cloudy 57	7	7.7	Sail
6/28/2017	2	18:58	19:10	12	100	Stacey T	Down	Partly Cloudy 69	2	6.4	Barge
6/28/2017	1	10:21	10:28	7	80	Mari Biz	Down	Cloudy 59	1	7.8	Other/unknown
6/29/2017	1	21:02	21:14	12	125	Stacey T	Up	Clear 74	5	6.4	Barge
6/30/2017	1	12:10	12:19	9	70	Bliss	Down	Clear 71	3	6.9	Sail
7/2/2017	1	9:58	10:06	8	80	Make It So	Down	Clear 59	4	5.5	Sail
7/5/2017	1	11:28	11:37	9	70	Bliss	Up	Clear 70	4	5	Sail
7/6/2017	1	18:31	18:39	8	43	Plansea	Up	Clear 87	2	5	Sail
7/7/2017	1	18:03	18:11	8	47	Plansea	Down	Cloudy 69	3	5	Sail
7/11/2017	1	9:48	9:55	12	100	Stacey T	Down	Clear 58	2	4.8	Barge



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
7/11/2017	2	10:45	10:55	10	70	Stacey T	Down	Clear 60	1	4.4	Barge
7/11/2017	3	18:34	18:45	11	100	Stacey T	Up	Clear 76	9	3.8	Barge
7/13/2017	1	9:07	9:15	8	65	Whisper	Down	Cloudy 61	Calm	5	Sail
7/22/2017	1	5:28	5:38	10	70	Stacey T	Down	Clear 63	Calm	6.4	Barge
7/22/2017	2	19:15	19:25	9	70	Tanuki	Up	Clear 86	10	5	Sail
7/23/2017	1	11:15	11:23	8	70	First Lite	Down	Partly Cloudy 68	6	4	Sail
7/27/2017	1	9:37	9:47	10	80	Stacey T	Down	Overcast 60	5	5	Barge
7/27/2017	2	18:41	18:51	10	100	Make It So	Up	Clar 77	4	3.2	Sail
7/28/2017	1	18:33	18:43	10	75	Sea Faver	Up	Clar 78	9	1.8	Sail
7/29/2017	1	9:49	9:59	10	80	Anais	Down	Clear 63	1	3.9	Sail
8/8/2017	6	20:21	20:30	9	95	Stacey T	Up	Smokey 82	6	4.5	Barge
8/10/2017	10	12:47	12:57	10	80	Whisper	Up	Hazy 74	1	3.5	Sail
8/14/2017	1	11:29	11:39	10	80	Stacey T	Down	Cloudy 61	1	3.5	Barge
8/15/2017	1	21:46	21:55	9	136	Yaquina	Up	Cloudy 76	4	3.2	Dredge
8/16/2017	1	14:16	14:24	8	80	Stacey T	Up	Clear 75	1	2.9	Barge
8/19/2017	2	16:03	16:14	11	75	Anais	Up	Clear 75	10	3	Sail
8/19/2017	1	10:05	10:14	9	75	Vagabundo	Down	Clear 60	4	2	Sail
8/22/2017	2	5:41	5:52	11	90	Make It So	Down	Overcast 65	Calm	5.2	Sail
8/22/2017	1	4:32	4:46	14	136	Yaquina	Down	Overcast 68	Calm	4.1	Dredge
8/24/2017	1	9:19	9:29	10	70	Saragosso	Down	Cloudy 61	13	4.7	Barge
8/29/2017	1	22:56	23:07	11	75	Daubi	Down	Hazy 65	Calm	4	Barge
9/2/2017	1	17:30	17:37	7	75	Anais	Down	Clear 95	3	3	Sail
9/6/2017	1	10:00	10:12	12	75	South Creek	Down	Hazy 69	Calm	3	Barge
9/6/2017	3	18:00	18:07	7	75	Autumn Wind	Up	Hazy 76	Calm	4.1	Sail
9/6/2017	2	12:09	12:18	9	95	Make It So	Up	Hazy 73	2	2.3	Sail
9/7/2017	1	18:00	18:09	9	80	USCG Ironwood	Up	Hazy 69	1	4.3	Federal
9/11/2017	1	20:38	20:47	9	90	Stacey T	Down	78	3	4.2	Barge
9/20/2017	1	12:49	12:57	8	90	Stacey T	Down	Rain 57	Calm	2.3	Barge
9/21/2017	1	13:10	13:27	17	65	Wallace E	Down	Cloudy 54	Calm	2.4	Barge
9/27/2017	1	10:11	10:23	12	90	Scorpius	Down	Clear 65	2	1.7	Other/unknown
10/10/2017	1	19:30	19:39	9	70	Wallace E	Up	Cloudy 52	Calm	3.8	Barge
10/11/2017	1	10:03	10:15	12	70	Sarkasso	Up	Rain 46	Calm	2.5	Barge
10/16/2017	1	18:03	18:16	13	95	Triston	Up	Clear 64	Calm	3	Other/unknown
10/23/2017	1	13:42	13:51	9	90	Christy	Up	Clear 56	Calm	5	Barge
10/25/2017	1	12:42	12:51	9	115	Christy	Down	Overcast 56		3.1	Barge
11/6/2017	1	9:20	9:28	8	40	Washington	Up	Cloudy 42	Calm	4.3	Sail
11/8/2017	1	9:54	10:08	14	85	Ross Isle	Up	Overcast 48	12	4.5	Dredge
11/11/2017	1	7:38	7:47	9	65	Washington	Down	Cloudy 47	9	2.4	Sail
11/14/2017	1	9:03	9:20	16	136	Clarkston	Up	Cloudy 50	7	3	Barge
11/17/2017	1	18:29	18:46	17	100	Maverick	Down	Cloudy 48	Calm	6	Sail



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
12/6/2017	1	10:25	10:36	11	85	USCG Ironwood	Down	Cloudy 51	19	5	Federal
12/14/2017	1	11:13	11:26	13	136	South Creek	Down	Overcast 42	7	2.9	Barge
12/15/2017	1	14:03	14:13	10	90	Phoenix	Up	Cloudy 38	Calm	4.8	Sail
12/22/2017	1	9:43	9:54	11	90	Ross Isle	Down	Overcast 35	Calm	4	Dredge
1/13/2018	1	14:56	15:04	8	75	Anais	Down	Clear 56	2	8.5	Sail
1/17/2018	1	18:12	18:23	11	105	Stacey T		Rain 45	16	8	Barge
1/21/2018	1	14:29	14:37	8	75	Mosaic	Down	Clear 48	4	7	Sail
1/21/2018	2	14:59	15:07	8	75	Polar Express	Up	Clear 48	5	7.1	Sail
1/27/2018	1	14:18	14:29	11	95	Stacey T	Up	Cloudy 53	2	9	Barge
1/29/2018	2	18:08	18:18	10	95	Daubi	Down	Rain 51	5	9.3	Barge
1/29/2018	1	12:31	12:41	10	95	Polar Express	Down	Cloudy 48	11	8.5	Sail
1/30/2018	1	2:56	3:07	11	80	Sarah B	Down	Rain 46	2	8.5	Barge
1/31/2018	1	9:23	9:33	10	100	Stacey T	Down	Cloudy	3	8	Barge
1/31/2018	2	19:19	19:29	10	95	Stacey T	Up	Cloudy 45	1	9.5	Barge
2/6/2018	2	13:03	13:19	14	100	Stacey T	Down	Cloudy 47	Calm	8.4	Barge
2/6/2018	1	10:44	10:59	16	105	James T	Up	Cloudy 43	Calm	9.5	Barge
2/10/2018	1	9:02	9:13	11	80	South Creek		Clear 41	Calm	6.5	Barge
2/10/2018	2	15:34	15:45	11	80	James T	Down	Partly Cloudy 50	Calm	7	Barge
2/12/2018	1	18:39	18:56	17	80	Clarkston	Up	Clear 43	4	7.8	Barge
2/17/2018	2	21:25	21:37	12	100	Clarkston	Down	Rain 43	Calm	7.5	Barge
2/17/2018	1	7:10	7:18	8	80	James T	Up	Rain 46	Calm	6.8	Barge
2/18/2018	1	2:20	2:31	11	75	James T	Down	Rain 40	Calm	6.6	Barge
3/9/2018	1	12:29	12:39	10	80	Tanuki	Down	Cloudy 50	Calm	5.4	Sail
3/20/2018	1	13:05	13:14	9	70	Tanuki	Up	Clear 49	Calm	5.9	Sail
3/23/2018	1	9:47	9:56	9	70	Sargassa	Down	Cloudy 40	Calm	6.7	Barge
3/23/2018	2	3:32:00	13:42	10	80	Sargassa	Up	Cloudy 48	10	6.4	Barge
4/4/2018	1	9:27	9:38	11	85	South Creek	Down	Cloudy 46	1	5.5	Barge
4/4/2018	2	18:21	18:34	13	80	Phoenix	Down	Cloudy 53	2	4.7	Sail
4/5/2018	1	9:36	9:46	10	70	Bliss	Down	Cloudy 49	Calm	6.5	Sail
4/8/2018	2	16:56	17:04	8	80	Auam Craka	Down	Cloudy 53	3	8.9	Sail
4/8/2018	1	10:56	11:07	10	80	My Horse	Down	Rain 50	Calm	8.6	Sail
4/11/2018	1	9:03	9:12	9	70	Yankee Rose	Down	Cloudy 49	10	9.8	Sail
4/15/2018	1	2:22	2:36	14	60	Chief	Down	Rain 48	2	9.8	Barge
4/17/2018	1	18:13	18:25	12	80	Bruce M	Down	Cloudy 50	Calm	10.5	Barge
4/18/2018	2	21:18	21:35	12	70	Captain Bob	Down	Partly Cloudy 53	1	11	Barge
4/18/2018	1	13:22	13:29	7	70	Bliss	Up	Cloudy 53	5	10.7	Sail
4/19/2018	1	12:42	12:54	12	65	Yankee Rose	Up	Clear 57	5	11	Sail
4/20/2018	1	0:20	0:30	10	75	PJ Brix	Up	Clear 51	Calm	10.6	Barge
4/20/2018	3	10:02	9:52	10	70	Riva	Up	Clear 50	Calm	10.3	Sail
4/20/2018	4	10:30	10:40	10	70	Somehow	Down	Clear 53	Calm	10.3	Sail



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
4/20/2018	2	0:51	1:06	15	65	The Lincoln	Down	Clear 50	2	10.6	Barge
4/21/2018	1	8:22	8:33	11	85	Autumn Carra	Up	Partly Cloudy 49	1	9.6	Sail
4/22/2018	2	21:54	22:06	12	136	Rebel	Up	Clear 55	1	8	Barge
4/22/2018	1	13:35	13:48	14	80	First Light	Up	Clear 56	4	8.9	Sail
4/22/2018	1	13:34	13:48	14	80	Somehow	Down	Clear 56	4	8.9	Sail
4/23/2018	1	18:16	18:25	9	80	Rebel	Down	Clear 70	19	7.5	Barge
4/29/2018	2	11:24	11:32	8	75	Sargassa	Down	Cloudy 56	Calm	9.6	Barge
4/29/2018	1	1:02	1:16	14	60	Captain Bob	Down	Rain 51	Calm	8	Barge
4/29/2018	2	21:29	21:38	9	65	Granite	Down	Cloudy 51	Calm	9.9	Barge
5/1/2018	1	9:02	9:08	6	70	Celestial	Down	Cloudy 51	Calm	10.8	Sail
5/3/2018	1	5:54	6:06	12	70	Mischief	Down	Clear 52	Calm	9.7	Sail
5/4/2018	1	22:57	23:08	11	60	The Lincoln	Down	Clear 53	Calm	9.8	Barge
5/5/2018	1	10:43	11:06	12	65	My Horse	Down	Hazy 57	1	9.4	Sail
5/5/2018	2	16:22	16:30	8	70	Riva	Down	Clear 72	Calm	9.4	Sail
5/7/2018	1	10:39	10:49	10	70	Diane B	Down	Clear 58	Calm	10.3	Barge
5/8/2018	1	9:06	9:15	9	80	Anamcara	Down	Clear 56	1	11.2	Sail
5/10/2018	1	18:01	18:13	12	70	Raven	Up	Partly Cloudy 64	Calm	12.2	Sail
5/11/2018	1	5:17	5:28	11	60	Captain Bob	Down	Overcast 49	Calm	12.7	Barge
5/11/2018	3	14:14	14:26	12	70	Clearwater	Down	Partly Cloudy 63	6	13	Barge
5/11/2018	4	18:56	19:08	12	70	Defiance	Down	Clear 67	5	13	Barge
5/11/2018	2	14:14	14:26	12	70	Memets	Up	Partly Cloudy 63	6	13	Other/unknown
5/12/2018	1	3:37	3:48	11	65	Granite Point	Down	Cloudy 52	Calm	13.5	Barge
5/12/2018	6	17:52	18:02	10	70	Ryan Point	Down	Clear 70	2	14.3	Barge
5/12/2018	3	12:51	13:00	9	70	First Light	Up	Clear 63	Calm	13.9	Sail
5/12/2018	5	15:07	15:14	7	70	Zila	Up	Clear 77	5	14	Sail
5/12/2018	4	13:25	13:33	8	70	Sea Fever	Down	Clear 64	Calm	13.9	Sail
5/12/2018	2	4:36	4:48	12	65	Swipt	Up	Cloudy 51	Calm	13.7	Sail
5/13/2018	2	21:48	21:56	8	70	Rebel	Down	Clara 78	11	15	Barge
5/13/2018	1	10:44	10:53	9	70	Sundial	Down	Clear 64	Calm	14.7	Barge
5/14/2018	2	20:00	20:11	11	60	Defiance	Down	Clear 79	4	14.9	Barge
5/14/2018	1	18:27	18:35	8	80	Ironwood	Up	Clear 86	2	14.9	Federal
5/15/2018	1	5:54	6:07	13	65	Ryan Point	Down	Cloudy 56	Calm	15.3	Barge
5/16/2018	3	18:06	18:17	11	60	Willamette	Down	Cloudy 62	Calm	15.6	Barge
5/16/2018	4	22:26	22:39	13	60	Outlaw	Down	Cloudy 58	1	15.7	Sail
5/16/2018	1	2:51	3:01	10	70	American Empress	Up	Cloudy 57	Calm	15.1	Cruise/passenger
5/16/2018	2	13:45	13:53	8	60	Lena Kona	Down	Cloudy 60	Calm	15.5	Other/unknown
5/17/2018	1	9:02	9:20	18	136	Bruce M	Down	Overcast 54	Calm	16	Barge
5/17/2018	2	11:49	12:00	11	60	Willamette	Down	Cloudy 58	Calm	15.9	Barge
5/17/2018	4	13:34	13:44	10	70	Ironwood	Down	Cloudy 60	Calm	15.7	Federal
5/17/2018	3	12:23	12:35	12	60	UBI	Up	Cloudy 58	Calm	16	Other/unknown



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
5/18/2018	1	10:37	10:49	10	65	Lena Kona	Up	Cloudy 56	Calm	15.8	Other/unknown
5/18/2018	2	19:19	19:28	9	60	Robins Nest	Down	Partly Cloudy 64	3	15.8	Other/unknown
5/19/2018	2	11:15	11:31	13	75	Cascades	Down	Overcast 59	Calm	15.9	Barge
5/19/2018	1	9:25	9:37	12	74	The Lincoln	Down	Overcast 57	Calm	15.9	Barge
5/20/2018	1	0:17	0:26	9	65	Deschutes	Down	Cloudy 56	Calm	15.8	Barge
5/20/2018	2	15:45	15:53	8	65	Robins Nest	Up	Clear 67	Calm	15.5	Other/unknown
5/21/2018	1	9:40	9:54	14	65	Diane B	Down	Cloudy 55	Calm	15.5	Barge
5/22/2018	1	2:45	2:56	11	65	Captain Bob		Cloudy 58	Calm	15.5	Barge
5/22/2018	2	19:08	19:16	8	60	Iris	Up	Clear 81	2	15.5	Sail
5/23/2018	3	19:44	19:54	10	80	PJ Brix	Down	Cloudy 72	5	15	Barge
5/23/2018	2	11:27	11:37	10	80	South Creek	Down	Clear 67	Calm	14.9	Barge
5/23/2018	1	3:16	3:28	12	65	Willamette	Down	Clara 61	Calm	15.3	Barge
5/24/2018	1	9:45	9:57	12	85	South Creek	Up	Overcast 59	Calm	15.1	Barge
5/24/2018	2	13:03	13:17	14	71	Forever More	Down	Partly Cloudy 64	Calm	15.2	Sail
5/24/2018	2	13:03	13:17	14	71	The Lincoln	Down	Partly Cloudy 64	Calm	15.2	Barge
5/25/2018	4	23:24	23:38	14	70	Deschutes	Down	Partly Cloudy 54	Calm	15	Barge
5/25/2018	1	4:40	4:50	10	65	Moments	Down	Overcast 54	1	15.3	Sail
5/25/2018	2	9:15	9:24	9	60	Coyote	Down	Cloudy 55	Calm	15.3	Sail
5/25/2018	3	11:04	11:13	9	60	Coyote	Up	Cloudy 60	1	15.3	Sail
5/26/2018	1	7:08	7:20	8	65	Cascades	Down	Cloudy 53	1	15	Barge
5/26/2018	2	12:08	12:18	9	60	Eagle	Down	Cloudy 58	Calm	14.9	Sail
5/26/2018	3	20:30	20:38	8	75	American Empress	Down	Partly Cloudy 60	Calm	14.9	Cruise/passenger
5/28/2018	1	4:20	4:31	11	65	Sundial	Down	Clear 55	Calm	15	Barge
5/28/2018	2	14:09	14:16	7	65	Eagle	Up	Clear 65	1	15	Sail
5/29/2018	1	11:55	12:03	8	70	Forever More	Up	Cloudy 74	1	14.3	Sail
5/30/2018	2	21:15	21:27	12	70	Willamette	Down	Partly Cloudy 57	Calm	13.7	Barge
5/30/2018	1	14:00	14:08	8	61	Cielow Blue	Down	Clear 61	3	13.7	Sail
6/1/2018	3	1:57	13:07	8	60	Cielow Blue	Up	Cloudy 61	Calm	11.8	Sail
6/1/2018	2	3:20	3:35	15	60	The Lincoln	Down	Cloudy 53	Calm	12.3	Barge
6/1/2018	1	23:41	23:51	10	65	Tidewater	Down	Cloudy 54	Calm	12.3	Barge
6/2/2018	1	7:45	7:56	12	65	Granite Point	Down	Clear 57	Calm	12	Barge
6/2/2018	2	8:06	8:13	7	65	Matsayo	Up	Clear 57	Calm	12	Other/unknown
6/3/2018	1	4:25	4:35	10	65	Aquila	Down	Clear 54	Calm	11.6	Sail
6/3/2018	2	6:38	6:48	10	75	Autumn Wind	Down	Clear 53	Calm	11.6	Sail
6/4/2018	1	2:00	2:12	12	65	Cascades	Down	Partly Cloudy 54	Calm	11	Barge
6/4/2018	1	19:23	19:31	8	65	Crown Point	Down	Clear 70	Calm	9.5	Barge
6/8/2018	1	18:02	18:13	11	65	East Going	Up	Rain 58	Calm	7.6	Sail
6/10/2018	1	11:51	12:00	9	100	Tristan	Down	Cloudy 55	1	7.4	Other/unknown
6/11/2018	1	18:39	18:47	8	90	Stacy T	Down	Clear 80	Calm	7.9	Barge
6/12/2018	1	10:35	10:55	15	136	Stacy T	Down	Clear 60	Calm	8	Barge



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
6/12/2018	2	12:31	12:40	9	80	Vagabondo	Down	Clear 67	Calm	7.6	Sail
6/14/2018	3	18:27	18:39	12	126	Stacy T	Up	Cloudy 62	Calm	6.4	Barge
6/18/2018	1	9:34	9:44	10	85	South Creek	Down	Clear 64	Calm	6.1	Barge
6/24/2018	2	10:05	10:15	10	82	Stacy T	Down	Clear 63	1	5	Barge
6/24/2018	1	9:18	9:28	10	79	Dove	Down	Clear 62	Calm	5.2	Sail
6/27/2018	1	11:04	11:14	10	70	Aquila	Up	Clear 64	Calm	6.4	Sail
6/30/2018	9	20:33	20:45	12	80	Stacy T	Down	Cloudy 66	10	6	Barge
7/4/2018	1	9:15	9:25	10	75	Whisper	Down	Cloudy 69	Calm	4	Sail
7/12/2018	1	9:16	9:26	10	95	Make It So	Down	Clear 70	Calm	5.2	Sail
7/19/2018	1	9:35	9:45	10	85	Rowdy	Down	Cloudy 61	Calm	3.4	Sail
7/23/2018	1	11:10	11:27	17	81	Stacy T	Down	Clear 73	Calm	2	Barge
7/25/2018	1	10:25	10:35	10	99	Stacy T	Up	Clear 69	Calm	4.3	Barge
7/30/2018	1	13:56	14:06	10	65	Go Team	Up	Clear 85	Calm	3.2	Sail
8/11/2018	1	18:57	19:05	8	90	Make It So	Up	Cloudy 73	1	5	Sail
8/12/2018	1	20:50	21:00	10	100	Y Quena	Up	Cloudy 69	Calm	4.8	Dredge
8/13/2018	1	9:30	9:40	10	75	Whisper	Up	Clear 64	Calm	4.5	Sail
8/20/2018	1	10:33	10:43	10	68	Whisper		Overcast 63	Calm	0.5	Sail
8/21/2018	1	4:40	5:00	20	136	Y Quena	Down	Clear 68	Calm	3.4	Dredge
8/23/2018	1	9:41	9:51	10	100	Stacy T	Down	Smokey 60	Calm	2.8	Barge
8/23/2018	2	18:27	18:38:00	11	90	Stacy T	Up	Partly Cloudy 71	Calm	3.7	Barge
8/26/2018	2	9:21	9:35	14	90	Stacy T	Down	Cloudy 61	Calm	4	Barge
8/26/2018	4	17:36	17:34	8	80	Stacy T	Up	Cloudy 59	Calm	3.5	Barge
8/26/2018	1	9:00	9:09	9	75	Autumn Wind	Up	Cloudy 61	Calm	4	Sail
8/26/2018	3	12:30	12:40	10	85	Corker	Up	Cloudy 65	Calm	2.9	Sail
9/20/2018	1	3:12	3:23	11	100	Vixan	Down	Clear 55	Calm	2.7	Sail
9/25/2018	1	13:32	13:42	10	95	Stacy T	Down	Clear 72	2	0.7	Barge
9/26/2018	1	14:22	14:33	11	95	Stacy T	Up	Clear 75	Calm	1.1	Barge
9/27/2018	1	12:24	12:36	12	100	Stacy T	Down	Clear 67	Calm	1.5	Barge
9/27/2018	2	17:59	18:11	12	100	Stacy T	Up	Clear 80	Calm	3.2	Barge
9/28/2018	3	9:33	9:47	14	136	Huski	Up	Clear 60	Calm	3.1	Barge
10/4/2018	1	9:20	9:33	13	100	Huski	Down	Clear 53	Calm	1.5	Barge
10/21/2018	1	15:26	15:34	8	90	Corker	Up	Clear 63	Calm	2.5	Sail
10/29/2018	1	10:25	10:40	15	136	Make It So		Cloudy 52	Calm	3.7	Sail
10/31/2018	1	10:10	10:17	7	36	Andrew Foss	Up	Overcast 53	Calm	1.1	Barge
10/31/2018	2	12:43	12:50	7	36	Andrew Foss	Down	Overcast 55	Calm	3	Barge
11/6/2018	1	20:14	20:22	8	60	Make It So		Cloudy 50	Calm	3.7	Sail
12/21/2018	1	13:40	13:52	12	95	Make It So	Up	Clear 43	Calm	5.6	Sail
1/4/2019	1	19:05	19:17	12	100	Stacy T	Down	Cloudy 48	1	5.4	Barge
1/8/2019	1	9:19	9:31	12	100	Stacy T	Up	Rain 44	9	4.5	Barge
1/12/2019	2	21:29	21:37	9	80	Pacific Walk	Up	Cloudy 43	2	4.3	Barge



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
1/12/2019	1	16:55	17:08	13	70	Stuck		Partly Cloudy 46	3	3.5	Other/unknown
1/15/2019	1	10:32	10:43	11	85	Pheonix	Up	Cloudy 38	2	4.4	Sail
2/12/2019	1	18:22	18:43	21	136	James P	Up	Rain 48	6	4	Barge
2/18/2019	1	18:28	18:47	19	100	Daubi	Down	Rain 42	1	6.4	Barge
2/21/2019	1	13:22	13:38	16	100	Ross Isle	Up	Clear 41	4	3.7	Dredge
2/28/2019	1	18:00	18:14	14	100	Daubi	Down	Cloudy 37	9	3.3	Barge
3/11/2019	1	15:25	13:23	9	100	Stacy T	Down	Clear 46	6	3.5	Barge
3/14/2019	1	13:27	13:35	8	75	Go Team	Down	Partly Cloudy 51	1	3.4	Sail
3/15/2019	1	23:38	23:49	11	100	Stacy T	Up	Clear 46	4	2.2	Barge
3/17/2019	1	13:52	14:00	8	80	Go Team	Up	Clear 58	2	4	Sail
3/20/2019	2	18:34	18:47	13	85	Stacy T	Down	Partly Cloudy 67	15	5.9	Barge
3/20/2019	1	12:46	12:56	10	85	Moon Dance	Down	Clear 65	9	2.8	Sail
3/21/2019	1	19:52	20:03	11	85	Stacy T	Up	Cloudy 54	1	6	Barge
3/31/2019	1	12:24	12:32	8	85	Go Team	Down	Clear 59	1	4	Sail
3/31/2019	2	20:30	20:38	8	75	Darma	Down	Clear 64	1	4	Sail
4/1/2019	2	9:05	9:13	8	90	Clearwater	Down	Overcast 52	2	4.5	Barge
4/1/2019	1	3:05	3:18	13	136	Pacific Walk	Down	Overcast 51	2	4.7	Barge
4/3/2019	1	9:32	9:45	13	100	Ross Isle	Down	Cloudy 55	3	4.3	Dredge
4/5/2019	1	2:34	2:44	10	70	Darma	Up	Rain 50	2	5.9	Sail
4/6/2019	1	12:55	13:11	16	136	Willamette	Down	Cloudy 56	5	5.8	Barge
4/10/2019	1	11:45	11:59	15	90	Go Team	Up	Cloudy 51	4	12.7	Sail
4/11/2019	4	22:14	22:29	15	75	Defiance	Down	Cloudy 51	1	15	Barge
4/11/2019	1	1:22	1:35	13	75	Crown Point	Down	50	2	13.7	Barge
4/12/2019	1	4:44	4:56	12	65	Sundial	Down	Cloudy 48	1	15.1	Barge
4/12/2019	3	11:02	11:01	11	75	Madonna	Down	Cloudy 52	2	15.3	Sail
4/13/2019	3	18:20	18:31	11	65	Cascades	Down	Cloudy 49	4	13.8	Barge
4/13/2019	2	13:30	13:41	11	65	Ryan Point	Down	Rain 47	7	14.2	Barge
4/13/2019	1	10:30	10:38	8	70	Aquilla	Up	Rain 48	Calm	14.3	Sail
4/14/2019	1	7:08	7:21	13	65	Willamette		Cloudy 42	1	12.7	Barge
4/14/2019	3	10:46	10:56	10	65	Crown Point	Down	Cloudy 47	2	12.4	Barge
4/14/2019	4	13:14	13:22	8	65	Daumer	Up	Rain 45	2	12.3	Other/unknown
4/14/2019	2	9:23	9:30	7	65	Summer Wind		Cloudy 45	4	12.5	Other/unknown
4/15/2019	1	1:35	1:47	12	65	Defiance		Cloudy 43	6	12	Barge
4/15/2019	3	11:51	12:01	10	65	Riva	Down	Cloudy 47	6	10.9	Sail
4/19/2019	1	12:54	13:09	15	136	Riva	Up	Cloudy 57	4	7.9	Sail
4/22/2019	2	18:13	18:30	17	136	Clearwater	Up	Rain 59	3	8	Barge
4/22/2019	1	10:20	10:34	14	137	Stacy T	Down	Clear 51	4	8.6	Barge
4/26/2019	2	13:24	13:34	10	76	Iris	Down	Clear 60	2	9.5	Sail
4/26/2019	3	20:26	20:46	20	136	Lincoln	Down	Clear 54	7	8.8	Barge
4/27/2019	1	23:47	23:58	11	70	Sundial	Down	Clear 49	6	8.5	Barge



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
4/30/2019	1	11:29	11:39	10	70	Descutes	Down	Clear 57	4	6.6	Barge
5/1/2019	1	6:00	6:07	7	70	Inimahahn	Down	Clear 44	3	7.1	Other/unknown
5/4/2019	1	19:39	19:48	9	70	Crown Point	Down	Clear 71	5	6.8	Barge
5/5/2019	1	19:48	19:55	7	70	Daumer	Down	Clear 69	7	6.8	Other/unknown
5/6/2019	1	10:34	10:42	8	70	Easy Going	Down	Clear 59	3	6.5	Sail
5/7/2019	1	23:05	23:13	8	90	Willamette	Up	Clear 64	5	6.2	Barge
5/7/2019	2	23:22	23:29	7	66	First Light	Up	Clear 64	4	6.2	Sail
5/9/2019	1	11:56	12:10	14	136	Lincoln	Up	Clear 76	2	6.4	Barge
5/10/2019	1	19:45	20:01	16	136	Lincoln	Down	Clear 84	Calm	5.6	Barge
5/16/2019	2	14:05	14:20	15	75	Daubi	Down	Cloduy 59	3	8.9	Barge
5/18/2019	1	22:18	22:28	10	75	Willamette	Down	Rain 55	5	9.5	Barge
5/19/2019	1	15:05	15:13	8	75	Somehow	Down	Cloudy 60	5	10	Sail
5/25/2019	1	3:58	4:07	9	70	Aquilla	Down	Cloudy 51	2	6.6	Sail
5/28/2019	1	21:46	21:57	11	95	Stacy T	Up	Clear 62	5	6.5	Barge
6/1/2019	1	4:26	4:33	7	70	Naughty Boy	Down	Clear 55	7	8.8	Other/unknown
6/2/2019	1	9:25	9:32	7	65	Kimberly C	Up	Cloudy 56	2	8.8	Barge
6/2/2019	2	12:26	12:33	7	65	Kimberly C	Down	Clear 62	8	8.9	Barge
6/7/2019	1	12:03	12:12	9	70	First Light	Down	Cloudy 54	1	7.9	Sail
6/16/2019	1	21:53	22:03	10	75	Juno	Up	Cloudy 66	2	4.9	Other/unknown
6/20/2019	1	1:08	1:18	10	100	Stacy T	Down	Cloudy 55	5	3.6	Barge
6/22/2019	1	7:00	7:15	15	70	Willamette	Down	Cloudy 56	4	4.5	Barge
6/23/2019	2	15:00	15:12	12	136	Stacy T	Up	Cloudy 64	2	2.8	Barge
6/23/2019	1	10:23	10:31	8	70	Rama	Down	Cloudy 58	2	4	Sail
6/30/2019	2	19:22	19:36	14	120	Invader	Up	Partly Cloudy 80	6	3.4	Barge
6/30/2019	1	5:01	5:09	8	71	Pheonix	Down	Clear 59	1	5.2	Sail
7/1/2019	2	9:50	10:03	13	120	South Creek	Down	Clear 64	2	3.8	Barge
7/1/2019	1	9:50	10:03	13	120	Juno	Down	Clear 64	2	3.8	Other/unknown
7/3/2019	1	13:10	13:24	14	136	Invader	Down	Partly Cloudy 65	Calm	2.7	Barge
7/5/2019	1	10:31	10:41	10	100	Make It So	Down	Overcast 61	3	4.3	Sail
7/21/2019	1	11:37	11:45	8	80	Sweet Dreams	Up	Clear 71	3	3.5	Sail
7/25/2019	1	3:20	3:35	15	100	Dauby	Up	Clear 63	5	2.7	Barge
7/25/2019	3	12:58	13:09	11	100	Stacy T	Down	Clear 77	12	2	Barge
7/27/2019	12	10:09	10:20	11	100	Stacy T	Up	Cloudy 65	2	2.9	Barge
7/29/2019	1	6:38	6:50	12	90	Duaby	Up	Clear 61	3	4.2	Barge
8/2/2019	1	12:52	13:06	14	110	Husky	Up	Cloudy	5	3.9	Barge
8/10/2019	1	10:06	10:18	12		Yaquina	Up	Rain 65	3	2.5	Dredge
8/13/2019	1	4:02	4:15	13	110	Yaquina	Down	Clear 64	3	4.5	Dredge
8/13/2019	2	13:57	14:14	17	100	Yaquina	Up	Clear 81	3	1	Dredge
8/17/2019	1	9:45	9:54	9	70	Riversong	Down	Cloudy 63	4	3.2	Sail
8/17/2019	2	19:27	19:38	11	100	Yaquina	Down	Cloudy 68	3	3.5	Dredge



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
8/19/2019	1	11:08	11:22	14	136	Clarkston	Down	Cloudy 65	2	3	Barge
8/24/2019	1	23:42	23:51	9	75	First Light	Up	Cloudy 66	4.5		Sail
8/29/2019	1	9:33	9:44	11	90	Bruce M	Down	Cloudy 63	Calm	3.1	Barge
8/30/2019	2	19:56	20:12	16	100	Daubi	Down	Clear 74	7	4.6	Barge
8/30/2019	1	13:09	13:18	9	100	Shadow Fax	Up	Cloudy 72	1	2.2	Other/unknown
9/5/2019	1	20:35	20:46	11	100	Defiance	Up	Cloudy 79	1	2.7	
9/27/2019	1	19:35	19:48	13	110	Defiance	Down	Cloudy 57	4	2.7	Barge
10/2/2019	1	9:43	9:57	13	90	Husky	Up	Clear 46	3	3.8	Barge
10/5/2019	1	9:41	10:02	21	100	Husky	Down	Overcast 50	Calm	1	Barge
10/6/2019	1	12:05	12:12	7	75	Make It So	Up	Clear 62	5	1.2	Sail
10/18/2019	1	11:51	12:06	15	100	Stacy T	Down	Cloudy 56	4	2.5	Barge
10/22/2019	1	11:30	11:43	13	100	Stacy T	Up	Partly Cloudy 59	4	1.7	Barge
10/26/2019	1	20:59	21:11	12	100	Doubi	Up	Rain 58	Calm	4.5	Barge
10/26/2019	1	12:59	13:12	13	100	Stacy T	Down	Partly Cloudy 53	2	0.3	Barge
10/29/2019	1	18:04	18:14	10	70	Stacy T	Up	Clear 43	9	3.6	Barge
10/30/2019	1	23:19	23:31	12	120	Rebel	Up	Clear 38	5	2.9	Barge
11/2/2019	1	8:40	9:04	24	85	Husky		Clear 42	Calm	1.5	Barge
11/3/2019	1	7:15	7:26	11	100	Stacy T	Down	Clear 42	1	0.7	Barge
11/5/2019	1	13:46	13:56	10	70	Stacy T	Up	Overcast 46	2	3	Barge
11/6/2019	1	9:14	9:22	8	90	Stacy T	Down	Fog 45	1	0.5	Barge
11/6/2019	2	18:10	18:23	13	100	Stacy T	Up	Clear 52	4	2.3	Barge
11/12/2019	1	18:43	18:52	9	75	Stacy T	Up	Cloudy 49	2	4.5	Barge
11/26/2019	1	12:52	13:12	20	100	Stacy T	Down	Cloudy 42	2	2	Barge
12/1/2019	1	16:44	16:53	9	80	Stacy T	Up	Cloudy 39	4	2.1	Barge
12/5/2019	2	11:27	11:39	12	90	Sara B	Up	Clear	10	3.7	Barge
12/5/2019	3	18:08	18:20	12	90	Sara B	Down	Clear 47	Calm	2.6	Barge
1/8/2020	1	12:49:00 PM	1:03:00 PM	00:14	100	Bruce M.	Up	Overcast	4	5.3	Barge
1/14/2020	1	10:39:00 AM	10:49:00 AM	00:10	80	Richard O.	Down	Clouds	5	7.3	Barge
1/14/2020	2	2:15:00 PM	2:24:00 PM	00:09	80	Richard O.	Up	Clouds	9	6.8	Barge
1/19/2020	1	12:02:00 PM	12:09:00 PM	00:07	70	Pama	Up	Clear	2	6.5	Other/unknown
1/23/2020	1	11:20:00 AM	11:30:00 AM	00:10	70	Richard O.	Down	Rain	13	5.4	
1/26/2020	1	5:27:00 PM	5:38:00 PM	00:11	78	Stacy T.	Down	Clouds	0	8.5	Barge
1/27/2020	2	10:29:00 AM	10:38:00 AM	00:09	85	Stacy T.	Up	Clouds	10	7.4	Barge
1/27/2020	1	9:50:00 AM	9:58:00 AM	00:08	70	Reba	Down	Clouds	7	7.5	Sail
1/28/2020	1	12:45:00 PM	12:55:00 PM	00:10	100	Stacy T.	Down	Clouds	4	8.0	Barge
1/29/2020	1	2:55:00 AM	3:08:00 AM	00:13	70	Captain Bob	Down	Clouds	10	9.0	Barge
1/29/2020	2	1:47:00 PM	1:58:00 PM	00:11	90	Stacy T.	Up	Rain	12	8.9	Barge
2/1/2020	1	14:22	14:31	00:09	65	Shadowfox	Down	Clouds	2	7.9	Other/unknown
2/5/2020	1	18:51	19:02	00:11	70	Darma	Down	Clouds	0	6.9	
2/7/2020	1	02:39	02:53	00:14	80	Christy	Up	Clouds	4	7.6	Barge



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
2/7/2020	2	10:01	10:11	00:10	80	Easy Going	Down	Clouds	7	7.8	Sail
2/9/2020	1	08:45	09:09	00:24	85	Christy/Richard O	Down	Clouds	3	9.5	Barge
2/17/2020	1	10:23	10:31	00:08	90	Pied Piper	Down	Clear	2	5.5	Sail
2/29/2020	1	12:12	12:21	00:09	70	Shadowfox	Up	Clouds	0	4.4	Other/unknown
3/5/2020	1	20:29	20:41	00:12	100	Stacy T.	Down	Clouds	3	3.0	Barge
3/6/2020	1	18:05	18:16	00:11	100	Stacy T.	Up	Rain	2	4.3	Barge
3/12/2020	1	13:22	13:31	00:09	75	Go Team	Down	Clear	5	3.2	Sail
3/23/2020	1	10:25	10:35	00:10	72	Norman O.	Up	Clouds	5	3.0	Barge
3/23/2020	2	11:45	12:00	00:15	72	Norman O.	Down	Clouds	4	2.5	Barge
3/25/2020	1	21:55	22:06	00:11	100	Maverick	Up	Clouds	2	3.6	Sail
3/26/2020	1	12:02	12:17	00:15	136	Stacy T.	UP	Clouds	2	2.9	Barge
3/26/2020	2	22:24	22:36	00:12	110	Maverick	Down	Clouds	1	3.5	Sail
4/4/2020	1	22:07	22:17	00:10	90	Richard O.	Up	Clouds	2	2.5	Barge
4/15/2020	1	10:19	10:32	00:13	90	Windellero	Up	Clouds	2	3.2	Other/unknown
4/17/2020	1	18:12	18:21	00:09	80	Stacy T.	Up	Clouds	5	2.9	Barge
4/23/2020	1	02:18	02:36	00:18	136	Maverick	Up	Clouds	2	3.3	Sail
4/23/2020	2	18:17	18:32	00:15	105	Maverick	Down	Hazy	2	4.8	Sail
5/7/2020	1	18:36	18:52	00:16	90	Korker	Down	Clear	9	7.4	Other/unknown
5/8/2020	1	10:54	11:03	00:09	70	Willamette	Down	Clear	22	8.0	Barge
5/8/2020	3	19:48	19:56	00:08	75	Go Team	Up	Clear	10	7.9	Sail
5/8/2020	2	12:54	13:02	00:08	80	Riversong	Down	Clear	12	7.4	Sail
5/10/2020	1	11:05	11:18	00:13	76	First Light	Down	Clear	1	8.4	Sail
5/10/2020	2	13:06	13:18	00:12	70	Korker	Up	Clear	11	7.7	Other/unknown
5/13/2020	1	10:41	10:55	00:14	95	Stacy T.	Down	Clouds	1	8.3	Barge
5/15/2020	1	03:34	03:46	00:12	75	Captain Bob	Down	Clouds	0	9.6	Barge
5/16/2020	1	11:23	11:33	00:10	95	Stacy T.	Up	Clouds	1	8.6	Barge
5/16/2020	2	23:45	23:55	00:10	70	Willamette	Down	Rain	5	8.1	Barge
5/17/2020	1	07:45	08:00	00:15	136	Stacy T.	Down	Fog	2	8.6	Barge
5/20/2020	1	21:12	21:26	00:14	75	Captain Bob	Down	Clouds	4	9.5	Barge
5/22/2020	1	13:09	13:18	00:09	78	Uphoria	Down	Rain	2	9.9	Other/unknown
5/23/2020	1	12:53	13:08	00:15	55	Amy	Down	Clouds	5	9.9	Sail
5/24/2020	1	19:08	19:16	00:08	75	Uphoria	Up	Clouds	2	9.6	Other/unknown
5/25/2020	2	15:00	15:08	00:08	61	Amy	Up	Clouds	6	9.4	Sail
5/25/2020	1	13:34	13:42	00:08	65	Riva	Down	Overcast	1	9.5	Sail
5/28/2020		12:37	12:52	00:15	95	Ross Isle		Clouds	4	8.7	
	1						Up				Dredge
5/29/2020	1	23:16	23:27	00:11	80	Captain Bob	Down	Clear	3	9.6	Barge
5/30/2020	3	11:58	12:12	00:14	60	First Light	Up	Clouds	2	10.1	Sail



Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level	Type1
5/30/2020	2	05:59	06:10	00:11	70	Riva	Up	Clear	1	9.9	Sail
5/30/2020	1	04:24	04:33	00:09	75	Shadow Fax	Down	Clear	6	9.9	Other/unknown
6/1/2020	1	05:55	06:04	00:09	70	Riva	Down	Clear	4	10.9	Sail
6/3/2020	1	20:25	20:37	00:12	70	Willamette	Down	Clouds	10	11.5	Barge
6/4/2020	1	01:39	01:50	00:11	65	Defiance	Down	Clouds	5	11.3	Barge
6/4/2020	2	13:43	13:52	00:09	65	Riva	Up	Clouds	2	10.6	Sail
6/5/2020	1	10:30	10:41	00:11	60	Deschutes	Down	Clouds	2	10.8	Barge
6/5/2020	2	18:23	18:34	00:11	80	PJ Brix	Up	Rain	3	10.5	Barge
6/5/2020	3	19:47	20:01	00:14	80	PJ Brix	Down	Clouds	1	10.7	Barge
6/6/2020	1	21:35	21:45	00:10	75	Willamette	Down	Clouds	6	10.8	Barge
6/7/2020	1	00:05	00:17	00:12	75	Granite Point	Down	Rain	3	10.8	Barge
6/9/2020	1	09:02	09:23	00:21	86	Lori B.	Down	Clouds	5	10.1	Barge
6/21/2020	1	07:45	07:55	00:10	90	Christy T.	Down	Clouds	2	8.6	Barge
6/22/2020	2	13:14	13:24	00:10	75	Christy T.	Up	Clear	2	7.5	Barge
6/22/2020	1	10:15	10:23	00:08	68	Hole in Water	Down	Clear	2	8.0	Sail
6/26/2020	1	11:16	11:26	00:10	70	Ever After	Down	Clear	2	8.2	Sail
6/26/2020	2	13:29	13:43	00:14	65	Randy S.	Down	Clear	2	8.0	Marine construction
6/30/2020	1	18:14	18:24	00:10	90	Corker	Down	Clear	11	7.7	Sail
7/1/2020	1	09:11	09:23	00:12	86	Ross Isle	Down	Clouds	2	7.9	Dredge
7/3/2020	1	13:10	13:20	00:10	65	Amy	Down	Clouds	0	8.1	Sail
7/31/2020	1	04:17	04:36	00:19	136	Maverick	Up	Clear	0	6.1	Sail
7/31/2020	3	19:44	20:00	00:16	136	Maverick	Down	Clouds	7	4.0	Sail
7/31/2020	2	18:22	18:32	00:10	90	Pied Piper	UP	Clouds	3	4.3	Sail
8/1/2020	1	04:32	04:42	00:10	70	Richard O.	Up	Clear	1	5.8	Barge
8/4/2020	1	11:19	11:37	00:18	136	Lassen	Up	Clear	1	3.7	Sail
8/5/2020	1	11:13	11:26	00:13	125	Christy T.	Down	Clear	2	4.6	Barge
8/5/2020	2	18:19	18:31	00:12	125	Christy T.	Up	Clouds	7	4.0	Barge
8/14/2020	1	09:31	09:41	00:10	96	Christy T.	Down	Clear	3	1.1	Barge
8/14/2020	2	13:10	13:21	00:11	95	Christy T.	Up	Clear	11	1.2	Barge
8/15/2020	1	17:59	18:15	00:16	136	Yaquina	Up	Clear	4	2.5	Dredge
8/18/2020	1	05:55	06:04	00:09	110	Pied Piper	Down	Clouds	7	5.7	Sail
8/23/2020	1	14:45	15:00	00:15	115	Yaquina	Down	Clear	4	3.2	Dredge
8/23/2020	2	19:11	19:20	00:09	85	Pied Piper	Up	Clear	6	3.5	Sail
8/27/2020	1	10:20	10:34	00:14	100	Ruth	Down	Clear	4	1.5	Barge
8/28/2020	1	13:13	13:25	00:12	55	Windafelo	Down	Clear	6	1.9	Other/unknown
9/1/2020	1	18:59	19:08	00:09	86	Pied Piper	Down	Clear	10	3.7	Sail
10/3/2020	1	14:01	14:10	00:09	70	Runaway	Up	Clear	1	1.0	Sail
10/4/2020	1	08:15	08:31	00:16	136	Christy T.		Fog	3	3.5	Barge
10/12/2020	1	11:06	11:20	00:14	136	Deschutes	Down	Clouds	4	0.8	Barge
10/12/2020	2	11:47	11:59	00:12	100	Olaf J.	Down	Clouds	5	1.2	Marine construction



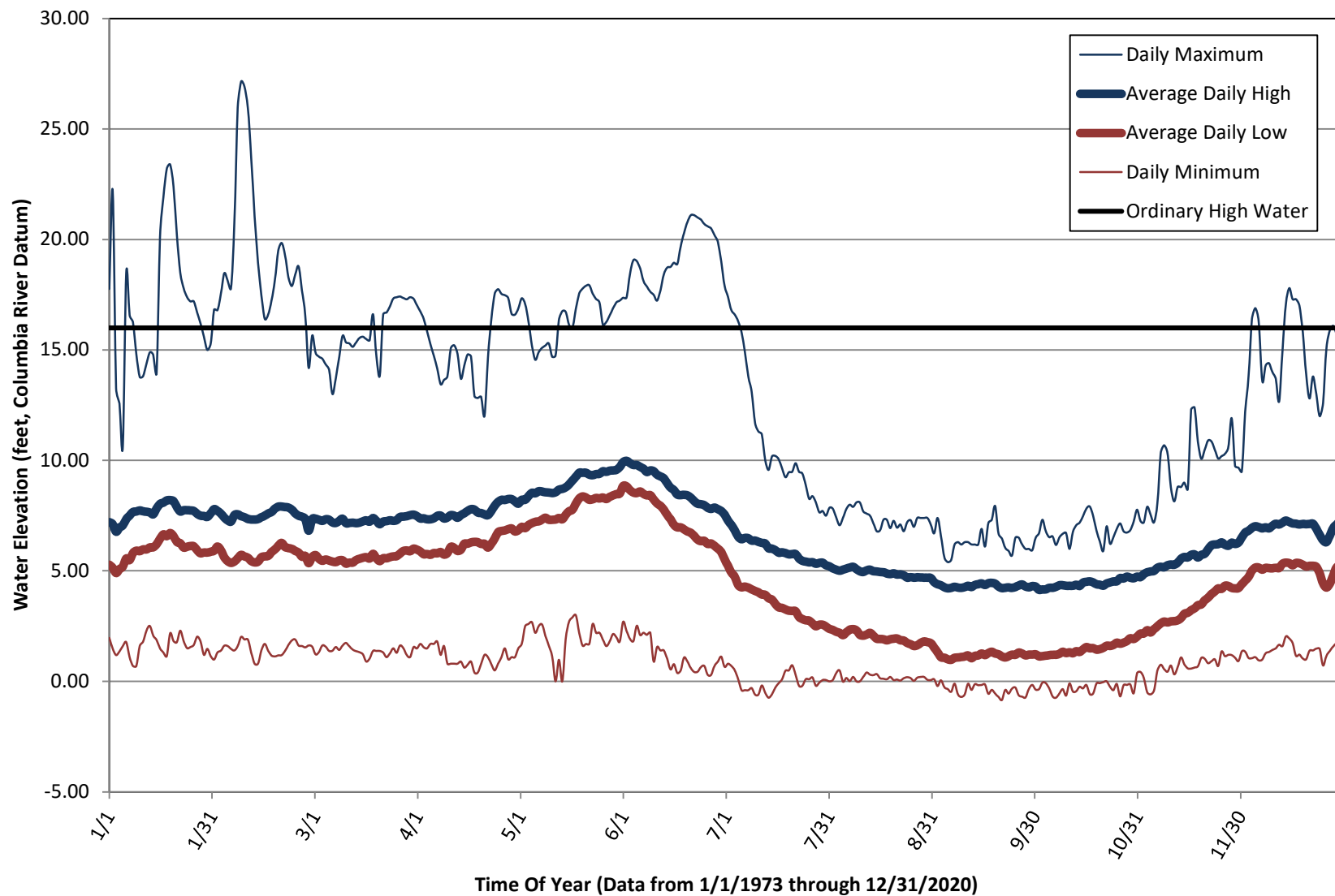
Date	lift #	gates closed	gates open	total time (min)	lift elevation (feet)	vessel name	up or down	weather temp (degrees)	wind (mph)	water level
10/23/2020	1	18:11	18:33	00:22	136	Daubi	Down	Clouds	3	1.3
10/24/2020	1	09:59	10:12	00:13	90	Daubi	Down	Clouds	2	1.0
10/29/2020	1	13:55	14:09	00:14	90	Terilyn	Up	Clear	2	1.5
11/2/2020	2	09:44	09:55	00:11	95	Christy T.	Down	Clear	6	2.8
11/2/2020	3	22:08	22:18	00:10	95	Christy T.	Up	Clear	4	3.3
11/2/2020	1	03:38	03:55	00:17	136	Hurricane	Up	Clear	2	1.9
11/3/2020	1	10:50	11:10	00:20	100	Teri lynn		Rain	8	2.9
11/4/2020	1	20:29	20:45	00:16	136	Chief	Down	Clouds	5	4.5
11/18/2020	1	13:26	13:40	00:14	125	Christy T.	Up	Clouds	4	5.3
11/22/2020	1	01:27	01:37	00:10	75	Bella	Up	Fog	0	4.7
11/23/2020	1	09:02	09:15	00:13	75	Teri lynn	Up	Rain	3	3.5
11/23/2020	2	12:14	12:35	00:21	110	Teri lynn	Down	Clear	1	4.8
12/13/2020	1	15:31	15:39	00:08	70	Bella	Down	Rain	2	6.1
12/14/2020	1	10:23	10:33	00:10	85	Christy T.	Down	Clouds	2	3.6
12/14/2020	2	12:46	12:54	00:08	80	Christy T.	Up	Clouds	2	3.4
12/17/2020	1	02:56	03:06	00:10	70	Gloria	Up	Clear	3	4.5
12/18/2020	1	10:08	10:18	00:10	90	Sara B.		Clouds	7	5.4
12/22/2020	1	10:36	10:48	00:12	100	South Creek	Up	Clouds	4	7.4
12/23/2020	1	05:30	05:45	00:15	110	Terry Linn	Up	Fog	1	7.3
12/23/2020	2	12:26	12:54	00:28	100	Terry Linn	Down	Clear	5	6.9
12/27/2020	1	18:19	18:29	00:10	100	Christy T.	Up	Clouds	6	6.0
12/29/2020	1	18:33	18:42	00:09	110	Sara B.	Down	Clouds	5	5.9
12/30/2020	1	03:06	03:20	00:14	80	Richard O.	Up	Clouds	3	5.6
5/24/2020	2	20:47	20:55	00:08	60	Willamette	Down	Clouds	8	9.8



## APPENDIX F COLUMBIA WATER LEVEL



## Columbia River Water Elevation at the Interstate Bridges



Note: The water level went above the ordinary high water mark (16' above CRD) less than 1.2% of the time (189 days / 17,113 days) between 1973 and 2020.



Columbia River Water Elevation at the Interstate Bridges, Daily Statistics (feet, Columbia River Datum)

	Daily Maximum	Daily Minimum	Average Daily High	Average Daily Low	Average Monthly Max	Average Montly Min	Ordinary High Water
1-Jan	17.77	1.97	7.21	5.28	16.98	1.62	16
2-Jan	22.20	1.48	7.12	5.14	16.98	1.62	16
3-Jan	13.27	1.19	6.78	4.91	16.98	1.62	16
4-Jan	12.58	1.36	6.96	5.08	16.98	1.62	16
5-Jan	10.65	1.60	7.06	5.20	16.98	1.62	16
6-Jan	18.48	1.78	7.34	5.57	16.98	1.62	16
7-Jan	16.59	1.10	7.51	5.49	16.98	1.62	16
8-Jan	16.25	0.70	7.67	5.81	16.98	1.62	16
9-Jan	14.80	0.70	7.69	5.91	16.98	1.62	16
10-Jan	13.78	1.60	7.74	5.90	16.98	1.62	16
11-Jan	13.82	1.80	7.70	5.98	16.98	1.62	16
12-Jan	14.38	2.30	7.67	5.97	16.98	1.62	16
13-Jan	14.90	2.51	7.64	6.07	16.98	1.62	16
14-Jan	14.78	2.07	7.57	6.07	16.98	1.62	16
15-Jan	13.97	1.87	7.83	6.21	16.98	1.62	16
16-Jan	20.10	1.50	8.03	6.45	16.98	1.62	16
17-Jan	21.90	1.31	8.09	6.66	16.98	1.62	16
18-Jan	23.20	1.14	8.19	6.57	16.98	1.62	16
19-Jan	23.40	2.18	8.21	6.71	16.98	1.62	16
20-Jan	22.40	1.83	8.16	6.58	16.98	1.62	16
21-Jan	20.20	1.78	7.89	6.32	16.98	1.62	16
22-Jan	18.50	2.30	7.69	6.25	16.98	1.62	16
23-Jan	17.80	1.83	7.75	6.06	16.98	1.62	16
24-Jan	17.40	1.51	7.75	6.10	16.98	1.62	16
25-Jan	17.20	1.55	7.74	6.13	16.98	1.62	16
26-Jan	17.20	1.65	7.71	6.12	16.98	1.62	16
27-Jan	16.70	2.02	7.59	5.94	16.98	1.62	16
28-Jan	16.20	1.81	7.50	5.80	16.98	1.62	16
29-Jan	15.60	1.20	7.49	5.84	16.98	1.62	16
30-Jan	15.00	1.47	7.44	5.83	16.98	1.62	16
31-Jan	15.29	1.14	7.61	5.87	16.98	1.62	16
1-Feb	16.82	0.99	7.80	5.91	19.39	1.46	16
2-Feb	16.80	1.31	7.72	6.10	19.39	1.46	16
3-Feb	17.53	1.39	7.60	5.94	19.39	1.46	16
4-Feb	18.47	1.61	7.42	5.62	19.39	1.46	16
5-Feb	18.15	1.60	7.29	5.44	19.39	1.46	16
6-Feb	17.79	1.47	7.23	5.37	19.39	1.46	16
7-Feb	20.73	1.40	7.53	5.43	19.39	1.46	16
8-Feb	25.98	1.60	7.57	5.58	19.39	1.46	16
9-Feb	27.15	2.01	7.47	5.73	19.39	1.46	16
10-Feb	26.92	1.90	7.43	5.65	19.39	1.46	16
11-Feb	25.96	1.90	7.35	5.60	19.39	1.46	16
12-Feb	23.68	1.30	7.33	5.45	19.39	1.46	16
13-Feb	21.05	0.80	7.33	5.39	19.39	1.46	16
14-Feb	18.97	0.80	7.35	5.42	19.39	1.46	16
15-Feb	17.48	1.40	7.43	5.62	19.39	1.46	16
16-Feb	16.41	1.70	7.50	5.66	19.39	1.46	16
17-Feb	16.60	1.39	7.60	5.68	19.39	1.46	16
18-Feb	17.24	1.17	7.67	5.85	19.39	1.46	16
19-Feb	18.17	1.13	7.82	5.98	19.39	1.46	16
20-Feb	19.50	1.18	7.91	6.13	19.39	1.46	16
21-Feb	19.85	1.19	7.91	6.27	19.39	1.46	16
22-Feb	19.30	1.38	7.90	6.08	19.39	1.46	16
23-Feb	18.30	1.65	7.87	6.04	19.39	1.46	16
24-Feb	17.90	1.85	7.78	6.00	19.39	1.46	16
25-Feb	18.40	1.90	7.61	5.91	19.39	1.46	16
26-Feb	18.79	1.63	7.50	5.83	19.39	1.46	16
27-Feb	17.71	1.60	7.45	5.64	19.39	1.46	16
28-Feb	16.55	1.54	7.35	5.68	19.39	1.46	16
29-Feb	14.19	1.63	6.82	5.35	19.39	1.46	16
1-Mar	15.66	1.57	7.36	5.64	15.66	1.38	16
2-Mar	14.87	1.22	7.36	5.71	15.66	1.38	16



	Daily Maximum	Daily Minimum	Average Daily High	Average Daily Low	Average Monthly Max	Average Monthly Min	Ordinary High Water
3-Mar	14.70	1.33	7.32	5.55	15.66	1.38	16
4-Mar	14.60	1.63	7.26	5.46	15.66	1.38	16
5-Mar	14.35	1.57	7.34	5.51	15.66	1.38	16
6-Mar	14.10	1.38	7.32	5.47	15.66	1.38	16
7-Mar	13.00	1.39	7.19	5.43	15.66	1.38	16
8-Mar	13.75	1.56	7.17	5.40	15.66	1.38	16
9-Mar	14.70	1.42	7.27	5.48	15.66	1.38	16
10-Mar	15.65	1.63	7.36	5.48	15.66	1.38	16
11-Mar	15.35	1.74	7.16	5.33	15.66	1.38	16
12-Mar	15.30	1.59	7.17	5.38	15.66	1.38	16
13-Mar	15.15	1.44	7.19	5.38	15.66	1.38	16
14-Mar	15.35	1.37	7.16	5.50	15.66	1.38	16
15-Mar	15.55	1.32	7.18	5.55	15.66	1.38	16
16-Mar	15.60	1.22	7.25	5.59	15.66	1.38	16
17-Mar	15.50	0.90	7.29	5.62	15.66	1.38	16
18-Mar	15.45	1.04	7.23	5.56	15.66	1.38	16
19-Mar	16.62	1.38	7.39	5.77	15.66	1.38	16
20-Mar	14.70	1.38	7.27	5.57	15.66	1.38	16
21-Mar	13.85	1.38	7.12	5.44	15.66	1.38	16
22-Mar	16.62	1.31	7.24	5.58	15.66	1.38	16
23-Mar	16.70	1.10	7.25	5.57	15.66	1.38	16
24-Mar	16.98	1.27	7.30	5.62	15.66	1.38	16
25-Mar	17.33	1.50	7.26	5.66	15.66	1.38	16
26-Mar	17.39	1.30	7.30	5.67	15.66	1.38	16
27-Mar	17.42	1.63	7.44	5.79	15.66	1.38	16
28-Mar	17.35	1.50	7.46	5.91	15.66	1.38	16
29-Mar	17.30	1.19	7.48	5.92	15.66	1.38	16
30-Mar	17.39	1.11	7.53	5.89	15.66	1.38	16
31-Mar	17.32	1.55	7.55	6.01	15.66	1.38	16
1-Apr	17.02	1.49	7.48	5.96	15.21	1.08	16
2-Apr	16.74	1.70	7.37	5.88	15.21	1.08	16
3-Apr	16.40	1.54	7.38	5.75	15.21	1.08	16
4-Apr	15.84	1.50	7.34	5.77	15.21	1.08	16
5-Apr	15.25	1.70	7.34	5.73	15.21	1.08	16
6-Apr	14.73	1.70	7.39	5.82	15.21	1.08	16
7-Apr	14.16	1.80	7.49	5.79	15.21	1.08	16
8-Apr	13.45	1.20	7.50	5.85	15.21	1.08	16
9-Apr	13.65	1.60	7.38	5.74	15.21	1.08	16
10-Apr	13.80	0.80	7.42	5.81	15.21	1.08	16
11-Apr	15.07	0.80	7.53	6.09	15.21	1.08	16
12-Apr	15.22	0.80	7.51	6.05	15.21	1.08	16
13-Apr	14.83	0.80	7.40	5.91	15.21	1.08	16
14-Apr	13.70	0.90	7.53	5.96	15.21	1.08	16
15-Apr	14.30	0.62	7.61	6.23	15.21	1.08	16
16-Apr	14.80	0.76	7.72	6.24	15.21	1.08	16
17-Apr	14.70	0.90	7.80	6.29	15.21	1.08	16
18-Apr	12.92	0.40	7.78	6.31	15.21	1.08	16
19-Apr	12.83	0.40	7.64	6.30	15.21	1.08	16
20-Apr	12.87	0.80	7.62	6.23	15.21	1.08	16
21-Apr	12.03	1.20	7.56	6.23	15.21	1.08	16
22-Apr	14.64	1.10	7.52	6.06	15.21	1.08	16
23-Apr	16.38	0.78	7.72	6.23	15.21	1.08	16
24-Apr	17.54	0.50	7.95	6.47	15.21	1.08	16
25-Apr	17.75	0.80	8.12	6.75	15.21	1.08	16
26-Apr	17.54	1.10	8.22	6.81	15.21	1.08	16
27-Apr	17.48	1.50	8.21	6.83	15.21	1.08	16
28-Apr	17.36	1.00	8.25	6.89	15.21	1.08	16
29-Apr	16.64	1.10	8.25	6.92	15.21	1.08	16
30-Apr	16.60	1.10	8.15	6.79	15.21	1.08	16
1-May	16.88	1.50	8.04	6.85	16.44	1.94	16
2-May	17.34	1.70	8.23	6.99	16.44	1.94	16
3-May	17.08	2.50	8.22	6.94	16.44	1.94	16



	Daily Maximum	Daily Minimum	Average Daily High	Average Daily Low	Average Monthly Max	Average Monthly Min	Ordinary High Water
4-May	16.28	2.60	8.39	7.08	16.44	1.94	16
5-May	15.21	2.68	8.54	7.16	16.44	1.94	16
6-May	14.56	2.20	8.51	7.23	16.44	1.94	16
7-May	14.90	2.50	8.61	7.24	16.44	1.94	16
8-May	15.10	2.58	8.60	7.32	16.44	1.94	16
9-May	15.20	2.06	8.56	7.41	16.44	1.94	16
10-May	15.30	1.62	8.55	7.32	16.44	1.94	16
11-May	14.70	1.14	8.53	7.32	16.44	1.94	16
12-May	14.74	0.00	8.56	7.33	16.44	1.94	16
13-May	16.36	0.98	8.68	7.40	16.44	1.94	16
14-May	16.76	0.00	8.72	7.34	16.44	1.94	16
15-May	16.73	1.90	8.78	7.54	16.44	1.94	16
16-May	16.14	2.70	8.92	7.70	16.44	1.94	16
17-May	16.01	2.90	9.10	7.78	16.44	1.94	16
18-May	16.85	3.00	9.26	8.05	16.44	1.94	16
19-May	17.55	2.20	9.44	8.28	16.44	1.94	16
20-May	17.78	1.62	9.44	8.37	16.44	1.94	16
21-May	17.91	1.70	9.45	8.32	16.44	1.94	16
22-May	17.93	1.70	9.35	8.22	16.44	1.94	16
23-May	17.55	2.60	9.33	8.24	16.44	1.94	16
24-May	17.31	2.20	9.39	8.30	16.44	1.94	16
25-May	17.15	2.20	9.40	8.28	16.44	1.94	16
26-May	16.16	1.90	9.51	8.32	16.44	1.94	16
27-May	16.26	1.60	9.49	8.25	16.44	1.94	16
28-May	16.56	1.80	9.54	8.35	16.44	1.94	16
29-May	16.88	2.14	9.55	8.42	16.44	1.94	16
30-May	17.15	2.00	9.58	8.48	16.44	1.94	16
31-May	17.24	1.80	9.71	8.50	16.44	1.94	16
1-Jun	17.37	2.70	9.92	8.85	19.19	1.22	16
2-Jun	17.37	2.30	9.99	8.83	19.19	1.22	16
3-Jun	18.46	1.92	9.88	8.66	19.19	1.22	16
4-Jun	19.07	1.82	9.79	8.55	19.19	1.22	16
5-Jun	19.02	2.52	9.80	8.53	19.19	1.22	16
6-Jun	18.69	2.10	9.71	8.60	19.19	1.22	16
7-Jun	18.12	2.20	9.63	8.49	19.19	1.22	16
8-Jun	17.87	2.11	9.48	8.42	19.19	1.22	16
9-Jun	17.64	2.20	9.55	8.43	19.19	1.22	16
10-Jun	17.50	0.90	9.51	8.24	19.19	1.22	16
11-Jun	17.24	1.56	9.36	8.06	19.19	1.22	16
12-Jun	17.70	1.40	9.28	7.95	19.19	1.22	16
13-Jun	18.42	1.40	9.19	7.78	19.19	1.22	16
14-Jun	18.73	1.02	8.97	7.53	19.19	1.22	16
15-Jun	18.77	0.54	8.77	7.33	19.19	1.22	16
16-Jun	18.95	0.78	8.66	7.09	19.19	1.22	16
17-Jun	18.89	0.38	8.46	6.97	19.19	1.22	16
18-Jun	19.70	0.50	8.43	6.97	19.19	1.22	16
19-Jun	20.30	1.08	8.45	6.88	19.19	1.22	16
20-Jun	20.80	0.90	8.42	6.78	19.19	1.22	16
21-Jun	21.10	0.60	8.32	6.73	19.19	1.22	16
22-Jun	21.10	0.43	8.16	6.58	19.19	1.22	16
23-Jun	21.00	0.44	8.05	6.42	19.19	1.22	16
24-Jun	20.90	0.65	8.02	6.35	19.19	1.22	16
25-Jun	20.70	0.70	7.98	6.36	19.19	1.22	16
26-Jun	20.60	0.30	7.86	6.22	19.19	1.22	16
27-Jun	20.50	0.30	7.81	6.24	19.19	1.22	16
28-Jun	20.20	0.70	7.87	6.13	19.19	1.22	16
29-Jun	19.90	0.90	7.80	6.01	19.19	1.22	16
30-Jun	19.00	1.12	7.71	5.86	19.19	1.22	16
1-Jul	17.90	0.66	7.55	5.52	11.29	-0.01	16
2-Jul	17.40	0.80	7.29	5.23	11.29	-0.01	16
3-Jul	16.80	0.70	7.08	4.93	11.29	-0.01	16
4-Jul	16.60	0.50	6.84	4.73	11.29	-0.01	16



	Daily Maximum	Daily Minimum	Average Daily High	Average Daily Low	Average Monthly Max	Average Monthly Min	Ordinary High Water
5-Jul	16.30	0.10	6.55	4.36	11.29	-0.01	16
6-Jul	15.80	-0.40	6.44	4.25	11.29	-0.01	16
7-Jul	14.90	-0.40	6.50	4.29	11.29	-0.01	16
8-Jul	13.80	-0.40	6.48	4.24	11.29	-0.01	16
9-Jul	13.10	-0.30	6.37	4.17	11.29	-0.01	16
10-Jul	11.70	-0.60	6.38	4.09	11.29	-0.01	16
11-Jul	11.31	-0.60	6.32	4.03	11.29	-0.01	16
12-Jul	11.18	-0.18	6.27	3.93	11.29	-0.01	16
13-Jul	10.02	-0.52	6.24	3.92	11.29	-0.01	16
14-Jul	9.57	-0.74	6.03	3.76	11.29	-0.01	16
15-Jul	10.18	-0.58	6.01	3.70	11.29	-0.01	16
16-Jul	10.21	-0.28	5.93	3.51	11.29	-0.01	16
17-Jul	10.05	-0.08	5.82	3.35	11.29	-0.01	16
18-Jul	9.64	0.10	5.84	3.32	11.29	-0.01	16
19-Jul	9.24	0.48	5.81	3.26	11.29	-0.01	16
20-Jul	9.47	0.50	5.75	3.20	11.29	-0.01	16
21-Jul	9.49	0.73	5.76	3.19	11.29	-0.01	16
22-Jul	9.88	0.30	5.77	3.17	11.29	-0.01	16
23-Jul	9.49	-0.20	5.57	2.92	11.29	-0.01	16
24-Jul	9.41	-0.20	5.46	2.82	11.29	-0.01	16
25-Jul	8.89	0.10	5.43	2.76	11.29	-0.01	16
26-Jul	8.27	0.10	5.39	2.75	11.29	-0.01	16
27-Jul	8.39	0.18	5.39	2.62	11.29	-0.01	16
28-Jul	8.10	-0.20	5.33	2.50	11.29	-0.01	16
29-Jul	7.66	-0.06	5.36	2.56	11.29	-0.01	16
30-Jul	7.71	0.06	5.37	2.56	11.29	-0.01	16
31-Jul	7.50	0.06	5.26	2.48	11.29	-0.01	16
1-Aug	7.85	0.00	5.21	2.37	7.39	0.15	16
2-Aug	7.82	0.06	5.12	2.33	7.39	0.15	16
3-Aug	7.43	0.37	5.06	2.25	7.39	0.15	16
4-Aug	7.07	0.50	5.01	2.20	7.39	0.15	16
5-Aug	7.40	-0.01	5.05	2.10	7.39	0.15	16
6-Aug	7.80	0.15	5.11	2.22	7.39	0.15	16
7-Aug	8.00	0.01	5.15	2.34	7.39	0.15	16
8-Aug	7.90	0.20	5.19	2.37	7.39	0.15	16
9-Aug	8.10	0.00	5.08	2.31	7.39	0.15	16
10-Aug	8.10	0.00	4.99	2.11	7.39	0.15	16
11-Aug	7.70	0.20	4.95	2.07	7.39	0.15	16
12-Aug	7.60	0.40	5.03	2.12	7.39	0.15	16
13-Aug	7.50	0.31	5.06	2.20	7.39	0.15	16
14-Aug	7.16	0.28	4.98	2.07	7.39	0.15	16
15-Aug	6.80	0.33	4.98	1.93	7.39	0.15	16
16-Aug	6.84	0.14	4.95	1.92	7.39	0.15	16
17-Aug	7.32	0.12	4.95	1.91	7.39	0.15	16
18-Aug	7.31	0.10	4.88	1.86	7.39	0.15	16
19-Aug	6.94	0.20	4.86	1.91	7.39	0.15	16
20-Aug	7.27	0.06	4.89	1.93	7.39	0.15	16
21-Aug	6.96	0.08	4.84	1.95	7.39	0.15	16
22-Aug	7.10	0.04	4.84	1.87	7.39	0.15	16
23-Aug	6.80	0.14	4.80	1.85	7.39	0.15	16
24-Aug	7.20	0.19	4.70	1.74	7.39	0.15	16
25-Aug	7.30	0.15	4.72	1.68	7.39	0.15	16
26-Aug	7.00	0.02	4.70	1.60	7.39	0.15	16
27-Aug	7.40	0.17	4.71	1.63	7.39	0.15	16
28-Aug	7.40	0.20	4.71	1.74	7.39	0.15	16
29-Aug	7.40	0.20	4.70	1.81	7.39	0.15	16
30-Aug	7.40	0.07	4.70	1.77	7.39	0.15	16
31-Aug	7.10	0.06	4.68	1.73	7.39	0.15	16
1-Sep	6.70	0.10	4.49	1.53	6.35	-0.38	16
2-Sep	7.40	-0.21	4.40	1.32	6.35	-0.38	16
3-Sep	6.60	0.05	4.36	1.10	6.35	-0.38	16
4-Sep	5.60	-0.27	4.26	1.07	6.35	-0.38	16



	Daily Maximum	Daily Minimum	Average Daily High	Average Daily Low	Average Monthly Max	Average Monthly Min	Ordinary High Water
5-Sep	5.40	-0.35	4.22	1.00	6.35	-0.38	16
6-Sep	5.50	-0.47	4.23	0.98	6.35	-0.38	16
7-Sep	6.20	-0.10	4.28	1.07	6.35	-0.38	16
8-Sep	6.30	-0.59	4.25	1.08	6.35	-0.38	16
9-Sep	6.20	-0.70	4.23	1.10	6.35	-0.38	16
10-Sep	6.30	-0.59	4.27	1.13	6.35	-0.38	16
11-Sep	6.30	-0.10	4.33	1.18	6.35	-0.38	16
12-Sep	6.20	-0.38	4.27	1.05	6.35	-0.38	16
13-Sep	6.20	-0.13	4.36	1.16	6.35	-0.38	16
14-Sep	6.20	-0.17	4.40	1.17	6.35	-0.38	16
15-Sep	6.90	-0.16	4.44	1.26	6.35	-0.38	16
16-Sep	6.10	-0.14	4.36	1.19	6.35	-0.38	16
17-Sep	7.17	-0.56	4.44	1.28	6.35	-0.38	16
18-Sep	7.31	-0.38	4.46	1.34	6.35	-0.38	16
19-Sep	7.94	-0.55	4.43	1.26	6.35	-0.38	16
20-Sep	6.69	-0.70	4.29	1.23	6.35	-0.38	16
21-Sep	6.47	-0.84	4.22	1.13	6.35	-0.38	16
22-Sep	6.04	-0.39	4.24	1.09	6.35	-0.38	16
23-Sep	5.90	-0.55	4.25	1.14	6.35	-0.38	16
24-Sep	5.70	-0.33	4.23	1.21	6.35	-0.38	16
25-Sep	6.50	-0.28	4.27	1.20	6.35	-0.38	16
26-Sep	6.50	-0.63	4.34	1.31	6.35	-0.38	16
27-Sep	6.20	-0.69	4.39	1.26	6.35	-0.38	16
28-Sep	6.00	-0.73	4.30	1.18	6.35	-0.38	16
29-Sep	6.00	-0.34	4.26	1.21	6.35	-0.38	16
30-Sep	5.94	-0.16	4.31	1.21	6.35	-0.38	16
1-Oct	6.50	-0.37	4.29	1.23	6.86	-0.30	16
2-Oct	6.72	-0.35	4.15	1.14	6.86	-0.30	16
3-Oct	7.32	-0.06	4.16	1.14	6.86	-0.30	16
4-Oct	6.80	-0.08	4.16	1.16	6.86	-0.30	16
5-Oct	6.53	-0.31	4.24	1.19	6.86	-0.30	16
6-Oct	6.56	-0.68	4.24	1.21	6.86	-0.30	16
7-Oct	6.18	-0.74	4.28	1.20	6.86	-0.30	16
8-Oct	6.51	-0.55	4.35	1.25	6.86	-0.30	16
9-Oct	6.68	-0.35	4.36	1.34	6.86	-0.30	16
10-Oct	6.71	-0.64	4.32	1.28	6.86	-0.30	16
11-Oct	6.00	-0.09	4.33	1.32	6.86	-0.30	16
12-Oct	6.76	-0.46	4.33	1.28	6.86	-0.30	16
13-Oct	7.07	-0.44	4.37	1.37	6.86	-0.30	16
14-Oct	7.19	-0.24	4.32	1.34	6.86	-0.30	16
15-Oct	7.48	-0.32	4.47	1.45	6.86	-0.30	16
16-Oct	7.82	-0.16	4.51	1.56	6.86	-0.30	16
17-Oct	7.92	-0.57	4.52	1.50	6.86	-0.30	16
18-Oct	7.49	-0.55	4.48	1.51	6.86	-0.30	16
19-Oct	6.82	-0.09	4.40	1.44	6.86	-0.30	16
20-Oct	6.33	-0.08	4.37	1.46	6.86	-0.30	16
21-Oct	5.90	-0.03	4.33	1.52	6.86	-0.30	16
22-Oct	7.02	0.00	4.43	1.62	6.86	-0.30	16
23-Oct	6.23	-0.24	4.48	1.61	6.86	-0.30	16
24-Oct	6.53	-0.40	4.52	1.65	6.86	-0.30	16
25-Oct	6.90	-0.11	4.53	1.76	6.86	-0.30	16
26-Oct	7.15	-0.68	4.68	1.71	6.86	-0.30	16
27-Oct	6.80	-0.17	4.66	1.75	6.86	-0.30	16
28-Oct	6.74	-0.16	4.74	1.83	6.86	-0.30	16
29-Oct	6.85	-0.14	4.69	1.95	6.86	-0.30	16
30-Oct	7.23	-0.54	4.67	1.92	6.86	-0.30	16
31-Oct	7.77	0.37	4.74	2.02	6.86	-0.30	16
1-Nov	7.27	0.43	4.72	2.17	9.66	0.66	16
2-Nov	7.20	0.16	4.85	2.16	9.66	0.66	16
3-Nov	7.90	-0.49	4.94	2.32	9.66	0.66	16
4-Nov	7.55	-0.59	4.98	2.22	9.66	0.66	16
5-Nov	7.20	-0.42	5.00	2.36	9.66	0.66	16



	Daily Maximum	Daily Minimum	Average Daily High	Average Daily Low	Average Monthly Max	Average Monthly Min	Ordinary High Water
6-Nov	8.04	0.48	5.14	2.49	9.66	0.66	16
7-Nov	10.33	0.75	5.19	2.62	9.66	0.66	16
8-Nov	10.69	0.56	5.16	2.71	9.66	0.66	16
9-Nov	10.34	0.44	5.26	2.67	9.66	0.66	16
10-Nov	8.80	0.72	5.29	2.72	9.66	0.66	16
11-Nov	8.15	0.32	5.28	2.72	9.66	0.66	16
12-Nov	8.80	0.64	5.38	2.76	9.66	0.66	16
13-Nov	8.80	1.08	5.55	2.87	9.66	0.66	16
14-Nov	9.00	0.77	5.63	3.06	9.66	0.66	16
15-Nov	8.70	0.59	5.61	3.11	9.66	0.66	16
16-Nov	12.30	0.58	5.72	3.23	9.66	0.66	16
17-Nov	12.40	0.63	5.75	3.31	9.66	0.66	16
18-Nov	10.85	0.68	5.61	3.45	9.66	0.66	16
19-Nov	10.08	1.06	5.73	3.48	9.66	0.66	16
20-Nov	10.48	1.03	5.78	3.67	9.66	0.66	16
21-Nov	10.90	0.82	5.98	3.79	9.66	0.66	16
22-Nov	10.86	0.91	6.16	3.95	9.66	0.66	16
23-Nov	10.49	1.00	6.20	4.07	9.66	0.66	16
24-Nov	10.09	0.70	6.21	4.21	9.66	0.66	16
25-Nov	10.19	1.35	6.29	4.19	9.66	0.66	16
26-Nov	10.30	1.14	6.18	4.33	9.66	0.66	16
27-Nov	10.60	1.20	6.14	4.32	9.66	0.66	16
28-Nov	11.91	1.19	6.28	4.23	9.66	0.66	16
29-Nov	9.76	1.07	6.22	4.21	9.66	0.66	16
30-Nov	9.68	0.92	6.28	4.23	9.66	0.66	16
1-Dec	9.50	1.36	6.52	4.40	14.70	1.36	16
2-Dec	12.20	1.34	6.74	4.56	14.70	1.36	16
3-Dec	13.80	1.06	6.82	4.73	14.70	1.36	16
4-Dec	16.40	1.05	6.95	5.02	14.70	1.36	16
5-Dec	16.90	1.10	7.02	5.15	14.70	1.36	16
6-Dec	16.30	0.95	6.99	5.15	14.70	1.36	16
7-Dec	13.60	0.99	6.93	5.06	14.70	1.36	16
8-Dec	14.30	1.27	6.97	5.14	14.70	1.36	16
9-Dec	14.40	1.33	6.92	5.12	14.70	1.36	16
10-Dec	14.00	1.42	7.05	5.12	14.70	1.36	16
11-Dec	13.70	1.50	7.13	5.14	14.70	1.36	16
12-Dec	12.67	1.66	7.11	5.13	14.70	1.36	16
13-Dec	15.00	1.60	7.19	5.32	14.70	1.36	16
14-Dec	17.10	2.04	7.28	5.37	14.70	1.36	16
15-Dec	17.80	1.94	7.22	5.36	14.70	1.36	16
16-Dec	17.30	1.73	7.15	5.26	14.70	1.36	16
17-Dec	17.30	1.15	7.14	5.36	14.70	1.36	16
18-Dec	17.00	1.21	7.10	5.35	14.70	1.36	16
19-Dec	15.80	1.04	7.13	5.28	14.70	1.36	16
20-Dec	13.90	1.00	7.12	5.20	14.70	1.36	16
21-Dec	12.80	1.39	7.13	5.23	14.70	1.36	16
22-Dec	13.80	1.40	7.14	5.23	14.70	1.36	16
23-Dec	13.00	1.48	6.92	5.19	14.70	1.36	16
24-Dec	12.00	1.47	6.63	4.89	14.70	1.36	16
25-Dec	12.60	0.72	6.39	4.43	14.70	1.36	16
26-Dec	15.10	1.16	6.30	4.25	14.70	1.36	16
27-Dec	15.90	1.38	6.60	4.42	14.70	1.36	16
28-Dec	16.10	1.58	6.94	4.80	14.70	1.36	16
29-Dec	15.70	1.70	7.11	5.17	14.70	1.36	16
30-Dec	15.00	1.49	7.22	5.23	14.70	1.36	16
31-Dec	14.83	1.51	7.08	5.27	14.70	1.36	16



Date	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021		
January																																																				
1		5.50	10.60	6.20	10.10	5.60	6.10	5.40	6.70	13.20	7.40	7.15	7.00	5.30	5.60	8.29	5.29	5.46	4.65	7.67	5.08				5.61		17.77	7.44	14.13	5.84	3.82		7.99	6.64	4.78	13.53	6.62	4.71	8.11	8.06	7.95	7.59	6.52	5.93	7.60	4.82	6.07	7.53	5.08	4.91		
2		6.40	9.00	6.30	8.90	4.80	5.40	5.80	7.30	12.10	7.25	7.00	7.20	6.40	4.90	7.67	4.94	4.87	4.44	6.87	5.78				4.69	8.81	22.20	6.68	13.00	5.82	3.64		6.72	8.52	5.73	4.56	13.49	7.52	5.19	10.29	7.82	7.11	6.85	6.49	5.96	7.53	4.67	5.85	7.54	5.20	4.39	
3		6.80	9.70	6.50	8.80	5.70	5.50	6.80	6.70	11.40	6.70	6.60	7.80	6.70	5.60	7.54	5.05	5.91	4.49	4.99	6.47			5.49	3.84	9.46		6.35	11.34	6.30	3.85		5.62	8.39	5.72	4.49	13.27	8.80	5.84	10.15	7.41	7.71	5.59	6.27	5.95	7.33	4.78	5.20	7.78	5.98	4.63	
4		6.90	8.70	7.10	8.10	5.70	7.30	6.80	6.60	10.80	7.85	7.85	8.80	6.40	5.50	7.01	5.69	5.84	5.68	5.38	6.56			5.74	6.24	3.88	9.67		6.61	10.84	7.35	4.40		5.02	8.13	6.13	4.84	12.58	9.89	6.53	9.96	6.97	7.47	6.10	6.05	5.18	7.66	5.14	5.33	7.53	6.38	4.77
5		6.80	8.40	7.40	9.10	5.80	8.50	6.40	6.70	9.60	8.45	10.60	9.60	6.70	6.30	6.82	5.62	6.67	5.78	6.23	6.32			5.83	6.81	4.15	9.54		7.14	10.00	7.29	5.11		5.12	7.30	5.71	5.08	10.65	9.49	7.38	9.39	6.93	6.64	6.12	5.76	4.60	7.85	5.61	5.48	7.33	6.86	5.01
6		6.10	6.80	7.80	9.10	5.70	8.60	6.10	6.70	9.50	8.40	14.30	9.30	6.40	6.30	6.58	5.45	6.98	6.12	5.83	6.20			6.47	6.61	4.68	9.90	18.48	7.82	9.11	7.49	5.32		5.52	6.49	5.76	5.82	9.63	9.98	7.46	9.56	7.26	5.92	5.81	6.01	4.79	7.45	6.27	5.93	6.71	6.39	5.57
7		5.00	7.50	8.50	10.40	5.80	9.10	5.20	6.90	8.90	8.32	16.25	8.95	7.20	6.70	6.62	5.54	7.59	7.52	6.48	6.15			6.95	6.24	4.42	10.43	16.59	8.20	8.54		5.60	7.42	5.91	7.02	6.66	8.78	9.33	7.05	11.81	7.43	5.64	5.56	6.67	5.05	7.06	6.32	5.86	5.93	5.79	5.99	
8		5.80	7.20	9.60	12.60	5.70	9.20	3.90	6.90	8.90	8.24	16.25	8.40	7.40	7.40	6.74	5.53	8.11	9.38	6.00	6.23			7.38	6.80	4.75	11.10	15.15	7.10	7.91	7.55	6.37		8.42	5.26	6.80	7.28	8.70	8.75	7.77	13.63	7.14	4.95	5.60	7.08	5.42	6.66	6.60	6.11	6.23	5.80	6.44
9		6.00	7.20	9.70	12.80	5.10	9.30	3.50	7.70	8.20	8.16	14.80	8.00	7.40	7.40	6.31	5.21	9.12	11.32	5.95	5.60			7.19	6.72	4.87	11.12	14.19	7.48	7.90	8.24	6.41		8.12	5.35	7.08	6.86	8.93	8.19	8.20	12.90	6.74	4.85	6.03	8.36	5.40	6.18	6.43	7.15	7.02	5.96	6.30
10		5.40	7.40	9.90	12.80	4.30	9.50	3.72	8.80	8.10	8.10	13.60	8.00	7.00	8.00	6.37	5.43	10.43	12.20	6.14	5.44			7.19	6.55	5.07	10.55	13.78	8.00	7.73	8.85	6.72		8.52	4.66	6.51	6.89	12.09	7.88	8.35	11.55	6.41	4.90	5.56	8.09	5.60	6.09	6.35	7.81	6.27	5.62	7.46
11		5.60	7.58	8.90	11.90	4.50	9.50	4.58	8.80	7.80	7.55	12.00	8.15	6.40	7.40	5.98	7.28	10.34	11.90	6.70	5.85			6.80	6.65	5.92	10.57	13.76	7.89	7.48	8.93	6.50		7.72	4.59	6.22	7.03	13.82	7.40	8.44	9.83	6.58	4.37	5.57	7.85	6.18	6.14	6.65	8.00	6.83	5.29	7.74
12		6.60	7.76	7.60	11.40	5.40	9.20	5.44	9.50	7.10	6.95	11.20	7.40	6.30	7.00	6.56	7.16	10.03	11.48	7.84	5.27			6.18	6.52	6.95	11.10	13.27	8.06	6.87	8.90	6.05		7.02	5.12	5.77	6.39	14.38	7.04	8.28	8.86	7.12	5.85	5.20	7.59	6.35	6.08	6.55	8.33	8.07	4.86	8.42
13		6.90	7.94	9.40	11.30	5.40	9.00	6.30	10.30	6.80	6.70	11.10	7.10	5.90	6.90	6.34	7.91	10.56	9.62	8.14	4.80			6.16	6.08	6.30	11.21	12.78	9.00	7.12	8.94	5.47		6.62	5.13	5.83	6.00	14.90	6.87	8.04	8.49	7.06	6.68	4.98	7.10	6.22	5.53	7.39	7.74	8.55	4.52	7.83
14		8.30	8.10	10.90	11.60	5.30	8.30	5.60	11.20	6.90	6.60	10.60	7.15	6.20	6.20	6.53	9.24	9.31	8.35	8.35	4.90			6.35	5.92	6.19	10.45	12.37	10.39	8.54	9.29	4.85		6.02	5.28	5.71	5.91	14.78	6.63	6.90	8.06	6.92	6.67	5.28	6.38	5.66	5.17	6.76	6.85	7.98	4.71	7.54
15		9.10	13.50	11.30	12.40	5.30	8.40	6.60	12.10	6.90	6.20	9.90	7.20	6.50	6.40	6.49	10.83	8.07	6.63	9.30	5.25			5.96	5.34	8.90	10.77	12.32	10.36	8.93	9.42	4.54		5.32	5.17	5.86	13.97	6.70	7.16	8.43	7.29	7.45	5.50	6.07	5.27	5.70	6.93	6.59	7.61	4.93	6.97	
16		9.40	20.10	10.90	12.20	5.40	8.20	6.00	12.90	7.00	6.90	8.90	7.90	6.30	6.40	6.52	10.41	8.54	6.47	9.67	6.00			5.70	4.67	9.12	11.83	11.82	10.32	10.53	9.69	4.30		6.52	5.27	6.31	4.90	12.21	7.11	6.41	8.30	6.85	10.59	5.24	6.12	5.38	6.30	7.14	6.31	7.66	5.50	7.36
17		9.40	21.90	9.50	12.80	5.80	8.00	6.00	12.80	7.30	8.50	8.00	8.30	6.70	6.40	5.78	9.75	7.99	6.32	10.15	5.99			5.21	4.19	8.87	12.21	11.03	10.23	11.20	9.68	4.03		6.22	5.43	6.18	4.83	12.26	7.08	6.67	7.30	7.19	12.50	5.92	5.96	5.13	7.09	7.43	6.08	7.98	6.28	6.91
18		9.80	23.20	8.20	12.80	5.90	8.20	6.00	11.60	7.40	9.00	8.40	8.20	7.10	6.80	5.50	9.07	7.66	6.18	9.41	6.07			4.93	4.81	8.11	12.51	11.37	9.99	12.87	9.29	4.18		5.42	5.85	6.33	5.87	12.97	6.91	6.07	6.40	7.29	13.44	6.30	5.26	5.21	8.91	7.22	7.63	8.45	6.42	6.73
19		9.70	23.40	7.40	12.80	5.90	8.80	5.40	9.80	6.70	8.90	8.60	8.15	7.20	7.50	5.42	8.75	7.71	5.82	8.58	5.96			6.28	4.46	7.60	13.08	11.39	9.58	13.31	9.05	4.76		5.02	5.80	6.70	5.62	12.66	7.24	6.13	5.93	7.12	13.48	8.97	4.84	4.86	9.73	7.90	8.05	8.39	7.01	6.45
20		8.80	22.40	7.80	11.80	6.10	8.90	5.20	8.60	7.50	8.65	8.55	8.40	7.20	7.70	5.33	8.29	7.26	5.21	8.63	6.20			7.44	4.55	6.93	13.85	10.80	8.92	13.31	8.96	4.64		4.92	5.66	6.78	5.53	13.43	6.94	6.12	5.68	7.26	13.24	11.25	4.96	4.36	9.62	8.16	8.15	7.94	7.35	6.27
21		7.80	20.20	6.40	9.80	5.80	8.20	4.80	8.00	7.40	8.30	8.00	8.05	7.00	7.20	5.38	7.83	7.23	4.71	8.28	6.46			6.44	3.60	6.47	14.60	11.17	8.82	13.39	9.18	5.10		5.62	5.52	6.81	5.48	13.42	6.09	6.23	5.59	6.77	12.00	12.40	5.00	4.41	9.72	8.70	7.53	8.08	6.98	6.88
22		7.30	18.50	6.80	9.40	5.80	7.70	4.60	7.20	7.50	7.80	7.80	6.85	7.40	7.40	5.21	7.31	6.81	5.39	7.90	6.68			6.41	3.10	6.52	14.95	10.75	8.64	13.44	8.96	4.73		5.92	5.46	6.35	5.63	12.02	6.00	6.28	5.68	6.96	11.18	12.24	5.33	4.54	9.04	8.78	6.96	7.74	7.14	6.88
23		7.50	17.80	7.30	9.30	5.20	7.80	5.90	7.30	7.90	10.00	7.20	7.10	7.40	8.10	5.66	6.53	6.75	6.17	7.42	6.39			6.65	5.08	7.11	14.84	9.95	9.37	13.75	8.23	4.98		6.22	5.54	6.91	5.49	11.05	6.00	6.27	5.53	5.91	11.10	11.36	5.78	4.44	8.18	8.52	6.84	7.28	6.96	7.69
24		6.60	17.40	7.30	8.60	5.40	8.20	6.70	7.30	7.40	11.75	7.75	8.10	6.90	8.20	6.73	5.59	6.84	5.60	7.59	6.59			6.06	5.78	7.25	14.65	9.12	9.63	13.74	7.96	5.07		7.52	5.51	7.64	5.77	9.65	5.95	6.39	5.51	5.65	10.90	10.55	5.59	4.03	7.48	8.42	6.56	8.44	6.30	8.78
25		6.40	17.20	7.30	7.90	5.50	8.20	7.20	6.70	6.60	11.60	8.30	8.70	6.90	8.00	6.30	5.42	6.55	6.92	7.73	6.82			5.89	6.12	7.32	14.19	9.58	9.24	13.25	8.15	5.03		7.22	5.58	6.93	5.53	9.31	6.00	5.72	5.71	6.84	10.92	10.27	6.33	4.45	7.09	8.44	6.63	8.70	5.93	8.91
26		5.40	17.20	11.00	7.80	5.50	7.50	7.30	6.10	5.70</																																										



Date	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
April																																																		
1		4.10	12.20	8.10	8.40	4.20	7.60	6.70	4.50	6.15	9.40	15.90	9.75	5.20	9.77	5.63	5.33	7.14	6.23	6.42	4.44	5.22	5.68		6.79	12.03	7.20	11.28	5.15	3.91	5.42	7.23	4.67	6.76	7.49	8.60	3.75	5.38	8.10	10.68	15.64	6.57	10.94	6.87	5.65	17.02	6.66	5.34	4.55	
2		4.60	13.20	8.60	8.70	4.20	7.40	5.70	4.50	6.60	9.40	15.90	8.80	6.80	8.80	5.32	5.43	6.83	5.71	6.92	4.87	5.24	4.81		7.18	11.23	6.35	10.31	4.72	3.97	5.72	7.46	4.39	5.74	7.33	8.37	4.03	6.08	7.06	11.95	15.68	5.49	9.84	6.21	6.07	16.74	6.53	5.31	4.38	
3		5.80	14.10	8.10	8.60	4.40	8.50	5.40	4.70	6.95	9.35	15.80	8.15	7.10	8.75	5.18	6.63	6.94	5.51	6.47	5.27	6.36	4.03		7.47	11.32	5.72	9.58	5.65	3.97	5.02	7.66	5.10	5.43	6.93	7.78	4.18	5.19	7.02	12.95	15.58	4.97	9.29	6.48	5.32	16.40	6.36	5.49	4.08	
4		6.50	14.40	6.60	7.90	4.40	8.80	5.90	4.80	6.80	9.30	14.50	8.60	7.40	8.93	4.44	7.03	7.01	6.19	6.77	5.65	7.27	3.70		8.09	10.18	4.63	9.10	5.90	4.14	4.12	7.02	5.12	5.11	6.70	7.92	4.74	5.01	6.39	13.18	15.40	5.61	8.57	6.70	5.80	15.84	6.29	5.53	4.78	
5		6.00	14.20	6.30	7.80	4.80	8.50	5.90	5.10	6.35	8.90	13.10	8.40	7.30	8.88	3.89	6.63	7.64	6.36	7.83	5.72	8.08	4.10		8.77	10.07	4.27	8.84	5.52	4.66	3.92	6.46	5.06	5.19	6.61	8.02	5.04	4.83	5.84	14.07	14.38	6.42	7.86	7.10	6.00	15.25	6.38	6.37	5.34	
6		5.90	13.00	4.90	7.90	5.00	8.50	5.70	5.10	6.20	8.90	12.10	7.35	7.20	8.31	3.50	7.43	7.55	6.84	9.02	4.97	8.63	5.20		8.91	9.76	4.66	8.46	7.28	5.28	3.72	6.98	5.51	6.09	7.03	8.09	5.58	5.13	5.39	14.43	12.59	7.21	7.73	7.25	6.92	14.73	6.61	7.31	5.42	
7		5.00	12.30	5.80	7.90	5.60	8.90	5.30	5.10	6.30	9.90	12.00	8.35	7.00	7.86	3.46	7.13	7.51	6.54	9.35	5.23	8.64	5.12		9.23	8.96	5.03	7.83	8.35	5.23	3.82	6.37	5.74	6.56	8.76	7.11	5.90	5.57	4.00	13.83	12.95	8.46	7.26	7.20	7.74	14.16	7.60	8.30	5.33	
8		4.30	12.30	6.50	9.40	5.10	8.90	5.30	4.30	6.75	9.60	10.90	8.75	6.70	7.80	3.87	6.03	7.90	5.91	9.10	5.00	8.88	5.49		8.70	8.90	4.91	7.52	8.73	5.28	4.22	6.58	6.39	5.99	9.24	6.59	6.05	6.00	4.37	12.70	12.91	8.84	6.77	6.86	8.51	13.45	9.02	9.88	5.52	
9		4.30	12.00	6.40	9.60	5.10	7.90	5.80	5.50	6.60	8.60	8.90	8.40	6.70	7.52	4.44	4.83	7.39	6.64	9.08	4.98	8.95	5.98		7.51	9.14	5.19	6.84	8.13	5.03	4.92	6.26	6.14	6.23	8.75	6.43	6.21	6.12	3.79	11.42	12.20	9.29	6.39	6.13	8.67	13.65	9.58	11.27	5.78	
10		4.50	11.80	7.10	9.55	4.50	7.50	7.30	5.60	6.35	7.65	8.30	9.50	6.90	7.11	4.91	4.23	7.71	7.78	9.20	5.13	8.64	5.54		8.10	8.73	5.23	6.67	6.19	5.26	5.82	6.22	5.38	5.66	9.34	6.06	5.67	6.91	4.10	11.16	10.92	9.86	6.92	5.69	8.26	13.80	10.10	13.66	6.03	
11		4.30	11.60	6.70	9.50	3.60	7.70	7.80	6.20	6.00	8.10	8.90	10.40	7.40	7.41	4.84	4.33	7.31	7.60	8.74	4.63	8.11	5.56		9.36	8.69	5.83	6.52	6.89	5.47	6.72	6.27	5.05	6.15	10.57	6.45	4.78	7.65	5.04	11.04	10.15	9.36	7.22	5.65	7.94	13.15	9.95	15.07	6.11	
12		4.00	11.80	6.50	8.60	3.30	7.70	7.80	6.20	5.30	9.60	8.90	10.70	7.20	7.98	4.88	4.83	6.58	6.46	8.46	4.54	8.12	5.96		10.77	8.32	5.84	5.83	7.48		6.82	6.29	4.71	5.54	10.94	6.30	4.22	7.55	5.30	10.57	10.62	9.77	7.21	4.78	7.72	12.78	9.74	15.22	5.56	
13		4.50	11.90	5.30	8.90	3.50	7.10	8.00	5.50	5.10	11.00	9.30	10.15	6.20	7.46	5.73	5.43	5.44	6.58	8.77	4.75	7.54	5.62		11.23	7.81	5.76	5.95	7.56	4.37	7.62	6.86	4.78	5.56	10.29	6.79	4.36	7.84	5.45	10.19	9.98	9.50	7.14	5.01	7.49	13.43	9.65	14.83	4.77	
14		4.70	11.80	6.00	11.40	3.60	7.30	7.50	5.90	5.60	13.70	9.50	9.60	6.30	8.07	6.21	5.93	5.47	5.55	8.61	5.46	6.72	5.40		11.31	6.15	5.93	7.06	9.19	3.26	9.62	7.18	5.05	4.70	10.31	7.11	3.81	7.39	5.59	9.81	10.06	8.16	7.45	5.37	8.35	13.51	10.12	13.15	4.00	
15		4.40	10.90	7.30	12.40	4.20	7.30	7.70	6.40	5.50	14.30	9.00	10.20	7.00	8.28	6.54	6.53	5.55	5.04	8.36	5.15	6.16	4.70		11.41	7.01	5.68	7.40	10.12	2.74	10.32	7.70	5.58	4.19	10.88	7.21	4.02	7.69	5.74	9.52	9.56	8.09	7.17	5.20	8.54	13.27	10.57	11.76	3.49	
16		4.80	9.60	7.40	12.20	4.40	7.40	7.70	6.40	5.65	14.80	8.40	10.70	7.40	7.92	6.18	6.93	5.53	5.35	8.46	6.47	4.90	4.48		11.71	7.60	4.79	7.42	10.01	2.52	12.42	8.23	6.11	4.38	11.63	7.56	4.66	7.29	5.92	10.23	9.17	8.25	7.66	5.17	9.25	12.94	10.78	10.64	3.28	
17		6.00	10.30	6.90	12.30	3.70	6.70	7.00	7.30	5.90	14.70	8.20	11.30	8.20	7.62	6.22	7.13	6.71	5.47	8.43	7.63	5.66	3.94		11.87	8.33	4.39	7.25	8.65	3.13	12.92	8.43	5.99	3.71	11.93	7.71	5.27	6.26	6.02	10.16	9.47	7.87	8.35	5.77	9.56	12.38	10.73	9.46	3.56	
18		6.20	10.80	5.90	11.60	3.50	6.30	7.70	7.30	5.50	12.70	8.10	11.10	8.90	7.78	6.47	6.93	7.25	5.48	8.39	6.71	6.06	3.43		12.28	8.54	4.55	7.71	9.43	3.43	12.92	9.13	6.08	3.58	12.08	8.24	5.12	6.28	6.03	10.99	10.00	6.81	8.04	5.77	9.28	11.83	10.95	8.93	4.43	
19		6.60	10.90	5.10	10.80	3.60	6.40	6.30	6.80	5.65	11.35	8.00	11.45	8.60	7.78	5.14	5.00	7.55	5.94	7.72	6.96	5.76	3.75		12.83	9.28	4.03	7.44	10.07	3.94	12.02	8.87	5.71	3.75	12.04	7.58	4.82	5.91	5.94	11.21	10.64	6.08	8.04	5.99	9.42	11.80	11.02	8.91	4.54	
20		5.40	11.20	4.90	10.10	3.80	7.40	6.40	6.80	5.35	11.10	7.60	12.15	8.70	6.58	4.78	5.03	8.13	6.12	7.15	6.45	6.13	4.12		12.87	10.75	3.73	7.04	10.35	4.20	10.82	8.43	6.34	4.42	10.63	7.92	4.83	5.77	5.76	11.08	11.00	5.74	8.08	6.46	9.16	11.25	10.50	9.04	4.80	
21		4.50	11.20	5.70	9.90	4.20	7.90	6.40	5.80	5.05	11.35	6.80	11.75	8.80	6.39	4.30	5.01	8.24	6.48	6.43	6.12	6.35	4.71		12.03	11.91	4.16	10.98	4.29	9.42	7.47	6.62	4.26	11.68	7.53	5.19	6.42	5.64	10.72	11.29	6.36	7.79	6.81	8.98	11.46	9.81	8.39	5.00		
22		3.90	10.70	6.10	9.90	4.40	8.20	6.20	5.80	5.35	11.45	6.00	11.60	8.10	7.27	4.07	5.36	8.24	6.52	6.26	5.40	6.48	4.96		11.63	14.64	4.35	10.13	3.96	8.82	7.48	6.76	4.88	10.36	7.34	5.53	7.33	4.93	10.19	11.45	6.89	7.67	5.68	9.56	11.82	9.22	8.70	5.19		
23		3.60	11.00	7.20	10.40	4.30	7.60	5.40	6.40	6.30	10.90	7.80	11.75	6.40	7.67	4.20	4.82	7.97	7.51	6.35	5.29	6.49	6.01		14.18	16.38	5.29	11.40	3.81	7.92	7.03	5.66	5.56	9.62	6.77	5.62	7.81	5.26	9.84	12.23	7.24	7.61	5.19	10.21	12.12	8.10	9.05	5.75		
24		3.20	10.90	8.40	10.40	4.50	7.80	5.80	7.00	5.40	9.60	8.70	11.40	6.80	8.40	4.57	4.30	7.75	7.89	7.12	5.40	6.66	6.45		16.71	17.54	6.27	11.53	4.30	7.92	7.59	4.89	6.09	9.45	6.46	6.77	5.50	9.22	6.26	8.80	12.53	6.84	8.81	4.89	10.42	12.38	8.06	9.21	5.74	
25		2.70	10.40	9.40	9.00	3.90	8.40	6.60	7.60	5.70	10.30	10.00	11.08	7.90	9.73	4.99	3.78	8.28	8.74	8.03	4.58	6.13	7.05		17.19	17.75	6.97	10.93	4.72	8.12	7.21	4.36	5.91	10.00	5.44	5.35	10.02	6.00	8.28	13.05	6.98	9.56	4.17	10.52	12.73	8.10	9.84	6.07		
26		2.90	9.80	9.60	8.60	3.00	8.50	7.20	7.50	5.65	9.90	11.40	10.75	7.20	9.46	5.14	4.16	8.35	9.21	8.99	4.62	6.59	6.90		17.54	17.44	7.10	10.11	5.24	7.82	7.78	3.99	6.24	9.99	5.69	5.48	9.39	6.73	8.16	14.77	6.94	9.90	4.04	10.47	13.61	8.27	9.			



Date	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021		
July																																																				
1		5.10	17.90	8.00	8.90	5.00	6.80	4.00	7.00	8.30	13.20	5.80	12.70	5.80	4.64	4.10	5.10	6.15	7.95	7.35	6.30	6.48	4.84			9.71	9.91	6.70	9.96	7.21	4.20	9.22	5.62	6.67	6.09	5.94	6.08	9.75	6.15	8.97	12.96	12.40	7.85	8.54	5.75	5.74	7.45	6.32	5.80	8.64		
2		5.30	17.40	6.40	8.70	4.60	6.50	4.00	7.10	8.00	13.20	5.90	12.30	5.80	4.50	3.97	5.14	5.85	7.01	7.71	5.78	6.42	4.83			8.49	9.11	6.96	9.17	6.54	4.16	9.02	5.49	7.00	6.07	4.97	5.26	9.60	5.73	7.64	13.62	12.58	7.78	8.11	6.00	6.42	6.66	4.85	6.13	8.63		
3		5.20	16.80	6.20	8.30	4.50	5.80	3.80	5.90	7.60	12.90	5.80	12.25	6.50	4.68	3.01	4.75	5.85	7.09	7.95	5.30	6.45	4.22			7.85	9.35	6.54	8.73	6.45	4.58	8.92	4.94	6.82	5.79	4.94	5.02	10.11	5.24	6.86	13.76	12.02	7.62	7.88	6.14	6.23	6.33	4.83	5.79	9.04		
4		4.20	16.60	7.00	6.70	4.80	5.70	4.30	5.30	7.60	12.85	6.20	11.05	6.20	4.61	4.13	4.43	5.39	6.84	7.39	4.75	6.02	4.22			8.06	9.36	5.50	8.30	6.02	5.00	8.22	4.03	6.05	5.62	4.76	5.08	10.09	5.34	6.32	13.68	11.36	7.33	7.37	5.95	5.97	6.26	4.50	5.77	9.12		
5		4.40	16.30	7.20	6.60	3.90	5.50	4.40	5.30	7.10	12.35	6.50	9.00	5.40	4.19	3.84	4.16	5.08	6.38	6.91	4.56	5.60	4.27			8.03	9.28	6.48	7.87	5.85	4.30	8.32	3.98	5.55	5.04	4.58	4.82	9.18	5.35	5.00	13.54	10.97	7.11	7.34	5.73	5.89	6.36	4.25	5.60	8.30		
6		3.20	15.80	7.20	6.60	3.40	6.60	4.80	5.70	7.00	11.75	7.10	8.30	4.85	4.25	4.04	4.62	5.00	6.67	7.18	4.44	5.21	4.67			7.81	8.88	5.58	7.37	5.69	4.06	7.52	4.20	5.28	6.00	4.73	5.18	8.26	5.55	5.41	11.99	11.10	7.51	7.08	5.65	5.68	6.30	4.86	5.15	7.39		
7		4.50	14.90	8.30	7.40	3.00	6.60	5.10	6.20	8.00	11.15	7.80	8.60	4.20	4.36	4.26	4.79	4.63	6.88	7.40	4.45	5.36	5.29			7.82	8.92	6.04	7.11	6.43	3.76	7.22	4.26		5.25	4.95	5.16	7.11	5.53	5.21	11.87	10.86	7.47	6.39	5.77	5.75	6.29	4.86	4.73	6.91		
8		4.20	13.80	9.40	7.00	3.30	6.30	5.20	6.30	8.65	11.15	8.00	8.40	4.15	4.36	4.57	5.09	3.89	6.72	7.94	4.36	5.31	5.30			7.92	8.43	6.17	7.05	6.56	3.54	7.12	4.56	4.98	5.70	5.95	4.99	7.11	5.65	5.88	11.88	10.00	6.87	6.84	5.66	5.46	6.45	4.95	4.79	6.62		
9		3.90	13.10	10.00	8.00	3.60	4.70	5.20	6.30	8.80	10.30	7.00	8.10	3.85	5.02	5.01	4.81	3.47	6.49	7.73	4.21	4.93	5.40			7.57	7.80	6.79	7.57	5.56	3.28	6.62	4.64	4.99	5.66	6.52	5.13	6.89	5.71	6.50	11.90	9.49	7.03	7.05	5.45	4.87	6.18	5.39	4.86	5.96		
10		4.40	11.70	9.40	7.70	3.00	6.20	5.90	6.40	8.80	9.50	7.40	8.15	3.95	4.36	5.69	4.73	3.52	6.68	7.28	4.24	5.40			7.25	7.54	6.80	7.86	5.24	3.26		5.82	4.95	5.12	6.54	5.69	6.76	5.51	6.77	11.63	9.51	6.14	7.10	5.44	4.70	6.24	5.56	4.86	6.20			
11		4.40	10.60	8.90	7.80	3.00	6.20	5.60	6.60	8.60	9.20	7.00	7.10	4.00	5.02	5.95	4.87	3.43	6.27	7.51	4.10	4.94			7.86	7.84	6.47	7.65	5.39	3.32	6.99	6.13	4.89	4.83	6.81	5.91	5.93	6.77	11.31	9.53	5.59	7.82	5.03	4.43	5.56	6.06	5.03	6.11				
12		4.30	10.10	7.80	7.90	3.50	5.90	6.10	6.60	6.80	9.20	7.60	6.80	3.95	5.07	5.57	4.82	3.67	6.49	7.51	5.18	4.26	5.22			7.40	7.99	5.98	8.61	5.54	3.26	7.28	6.33	4.63	4.82	6.97	6.48	5.40		6.91	11.18	9.46	5.31	7.82	5.03	4.38	5.70	6.78	5.07	5.77		
13		4.90	9.00	7.00	7.90	3.80	6.70	6.10	6.40	5.75	9.25	8.10	6.50	3.85	4.89	4.72	5.45	3.93	6.24	7.45	4.69	4.64	5.17			7.81	8.11	6.26	8.72		3.00	7.79	6.44	5.19	4.77	6.39	6.67	5.41		6.45	10.02	9.43	5.62	8.37	5.11	4.21	5.17	6.92	5.47	5.13		
14		4.80	8.00	6.90	7.70	3.80	6.90	5.30	5.10	6.10	8.60	7.90	6.20	3.90	4.17	5.04	5.24	4.15	6.03	7.22	5.11	4.56	5.00			7.94	7.05	6.36	8.05		2.78	7.07	5.72	4.80	4.90	6.21	6.58	5.19		6.32	9.57	9.26	5.50	7.37	5.53	4.35	5.73	6.57	5.51	5.15		
15		4.20	7.20	6.20	8.00	4.10	6.70	4.30	5.10	6.85	8.50	7.50	5.95	3.80	5.14	4.64	5.07	4.40	5.51	7.27	5.28	4.85	5.19			7.91	7.40	6.32	8.81		5.75	2.70	6.98	6.26	5.31	5.18	5.57	6.74	4.68		5.88	10.18	9.33	5.95	6.81	5.94	4.20	5.46	6.87	5.26	5.44	
16		4.60	7.30	7.10	8.00	4.00	5.70	4.20	5.20	7.30	8.00	7.70	5.75	4.15	5.48	3.79	4.60	4.57	5.44	6.25	4.95	5.22	4.92			7.45	7.92	6.46	9.00		5.53	2.96	6.98	5.59	4.98	5.51	5.35	6.55	5.19		4.86	6.04	10.21	9.37	5.95	6.82	5.46	4.35	5.16	6.10	5.48	5.42
17		5.10	7.50	6.40	7.60	3.70	5.40	4.80	5.20	7.80	7.90	7.80	5.45	4.20	6.03	3.32	3.58	4.59	5.27	6.47	4.97	5.29	4.96			7.51		6.60	7.89		5.39	3.42	6.27	5.26	5.06	5.65	5.73	6.39	4.87		4.88	5.82	9.10	10.05	5.94	6.62	5.05	4.89	5.54	5.92	5.37	5.38
18		5.40	7.80	6.70	7.40	3.50	6.50	4.90	4.10	7.15	7.70	7.20	5.65	4.55	6.08	4.73	3.29	4.63	5.74	6.62	4.77	5.84	4.83			7.07	8.88	6.23	7.33		5.21	3.78	6.73	5.59	5.02	5.89	5.75	5.44	4.96		5.34	5.58	8.71	9.64	5.94	6.50	4.87	5.15	5.57	5.37	5.35	5.61
19		5.10	8.40	6.60	7.10	4.30	6.80	5.20	4.40	5.70	7.45	7.20	5.60	4.95	5.96	4.03	3.76	4.64	5.78	5.04	4.62	5.91	5.15			6.38	9.24	6.31	7.33		5.22	4.70	7.03	3.95	4.65	6.21	5.34	4.85	4.77		5.38	5.10	8.91	8.82	6.13	6.50	4.92	5.57	5.89	5.16	4.86	5.97
20		4.70	8.40	6.20	7.40	4.30	6.50	5.60	3.80	5.80	7.80	7.00	5.45	5.00	5.86	3.90	3.95	5.27	6.16	4.76	4.38	5.94	4.65			6.19	9.47	6.16	6.73		4.99	4.42	6.61	4.06	4.85	6.32	5.10	4.84	5.10		5.60	5.51	8.52	8.65	6.33	5.92	4.66	5.59	6.33	5.08	4.47	6.03
21		4.10	8.40	5.60	7.70	4.10	6.60	4.90	4.00	6.30	7.80	7.10	5.15	4.70	6.17	4.29	3.94	5.16	6.24	4.34	4.45	6.05	6.16			5.93	8.96	6.56	6.39		5.22	4.54	6.70	4.17	4.34	6.20	5.42	4.74	4.52		6.07	5.00	8.36	9.49	6.84	5.71	4.50	5.56	6.53	4.72	4.26	6.82
22		4.00	8.20	6.30	7.80	4.00	6.50	4.30	4.90	6.00	7.70	7.20	4.50	4.25	6.37	4.76	3.88	4.70	6.36	4.50	4.56	6.43	6.33			6.03	8.64	6.52	6.20		5.12	4.54	6.70	4.38	3.85	6.97	5.96	4.74	4.35		6.04	4.98	7.61	9.88	6.73	6.10	4.40	5.41	6.58	4.90	4.06	6.74
23		2.00	7.70	6.10	8.10	3.70	6.50	4.20	4.90	5.85	7.70	7.10	4.75	3.30	6.27	4.32	3.90	3.75	6.13	4.55	4.52	6.07	6.03			6.02	8.47	6.90	6.43		4.17	4.22	7.03	4.16	4.27	6.55	5.63	4.82	4.39		5.83	4.90	7.50	9.49	6.99	5.78	4.25	4.68	6.60	4.69	3.95	6.40
24		4.30	7.50	5.20	7.70	3.40	6.40	4.40	4.60	6.15	6.80	6.60	4.40	3.25	5.65	4.66	3.60	3.67	5.72	5.41	3.88	5.87	5.90			6.20	8.42	6.26	6.06		4.79	4.14	6.53	4.47	4.32	5.90	5.86	4.85	4.82		5.41	5.24	6.96	9.41	6.39	5.84	4.03	4.59	6.04	5.44	3.79	5.73
25		4.60	8.40	5.30	6.30	3.80	6.40	4.80	4.80	6.15	6.10	6.30	4.60	3.00	5.13	4.59	3.68	4.36	5.24	5.42	4.57	5.44	5.13			6.66	8.18	6.04	6.08		4.98	3.78	6.47	4.47	4.32	5.33	5.96	4.39	4.96		5.53	5.47	6.99	8.89	5.78	6.13	4.14	4.70	6.32	5.71	4.17	5.44
26		4.70	7.90	5.00	6.50	4.00	5.90	4.90	4.90	5.95	6.40	6.40	5.10	3.20	4.43	4.67	4.56	4.43	4.68	5.23	4.19	5.55	4.90			6.77	7.83	5.79	6.97		4.94	3.78	5.89	4.51	4.19	5.60	5.67	4.49	5.02		5.12	5.51	6.75	8.27	6.01	6.37	4.39	4.83	5.87	5.2		



Date	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021		
October																																																				
1		4.10	5.00	4.00	4.80	5.00	4.70	3.10	5.00	5.10	4.30	4.20	3.80	4.47	4.19	4.29	3.44	4.42	3.90	4.56	5.18	4.64	3.32			4.85	6.50	3.76	4.44	4.89	3.30	3.03	3.93	4.37	4.21	2.96	4.22	3.99	3.29	3.83	4.90	4.08	5.72	3.50	5.22	4.18	3.09	4.34	4.94	4.47		
2		3.50	5.00	4.00	4.90	4.50	4.40	3.90	4.40	4.60	4.40	4.40	2.90	4.85	4.35	3.17	3.30	4.52	3.87	4.06	4.29	4.56	3.24			4.55	6.72	3.94	3.90	4.34	3.68	2.93	4.27	4.07	3.73	3.00	4.33	4.17	3.60	3.83	4.58	4.00	5.58	3.46	4.39	4.02	3.55	4.06	4.62	4.41		
3		2.70	5.10	4.40	4.00	3.80	4.90	4.20	4.32	3.70	4.25	4.40	4.30	4.85	4.76	4.01	2.88	4.41	4.42	4.00	3.57	4.25	3.75			4.08	7.32	4.51	3.45	3.74	3.72	3.28	4.12	3.89	4.02	3.55	3.91	4.72	3.58	3.79	4.84	4.01	5.38	3.65	4.04	4.01	3.84	4.11	4.59	4.41		
4		1.90	5.00	5.40	4.30	3.60	5.50	5.10	4.92	3.45	4.65	5.00	4.40	4.27	4.46	3.94	2.89	4.08	4.88	4.33	3.19	4.35	3.82			3.91	6.80	4.34	3.55	3.28	3.24	4.11	3.65	3.82	4.34	3.99	3.87	4.30	3.87	3.41	4.61	3.85	5.04	3.84	3.67	4.26	4.09	4.13	3.70	4.54		
5		2.70	4.60	5.80	5.20	3.60	5.50	5.20	4.44	4.10	5.15	5.60	4.15	4.21	4.73	4.09	2.62	4.03	5.33	4.41	2.96	4.27	4.17			3.85	6.53	4.81	3.94	3.14	3.78	4.56	3.14	3.40	4.81	4.42	3.96	3.33	3.99	3.97	4.63	3.31	4.92	3.81	3.55	4.66	4.64	3.83	2.82	4.39		
6		2.70	4.20	6.10	5.40	3.20	5.70	5.60	5.04	4.75	6.00	5.50	4.10	3.94	4.94	5.14	2.71	3.62	5.31	4.19	2.55	4.04	4.30			2.99	6.56	5.26	4.43	2.65	3.64	3.83	3.15	3.06	4.91	4.39	3.23	3.02	4.03	4.63	4.31	2.98	5.16	4.73	3.44	3.92	4.67	4.49	2.67	4.01		
7		2.70	4.20	5.80	5.40	3.40	5.70	5.60	3.99	4.75	5.70	5.40	4.25	3.67	5.70	5.70	3.34	2.98	5.43	4.47	2.75	4.07	3.51			2.93	6.18	5.89	4.59	2.85	3.32	4.47	3.89	2.84	5.02	4.67	3.49	2.68	4.22	5.23	4.02	2.86	5.36	5.24	3.67	3.66	4.66	3.97	2.66	4.09		
8		3.30	4.40	6.10	5.30	3.50	5.00	5.50	3.99	4.50	5.00	5.30	4.80	3.64	5.41	5.73	3.24	2.95	5.24	4.65	3.69	3.78				3.60	6.51	5.62	4.72	3.15	3.28	4.47	4.65	3.50	4.78	4.88	3.60	2.34	4.68	5.33	3.88	2.86	5.36	5.60	3.71	3.31	4.49	4.12	2.91	3.89		
9		4.00	3.30	5.40	5.30	3.40	4.90	5.50	3.80	4.70	4.70	5.15	5.00	3.23	4.57	5.45	3.26	2.87	4.88	5.10	3.79	3.66	4.19			4.09	6.68	5.28	3.80	2.88	5.19	4.72	4.06	4.16	5.02	4.46	2.55	4.24	5.77	4.24	2.86	5.17	5.66	3.74	3.23	5.02	4.61	3.08	3.68			
10		4.10	4.10	5.20	5.10	3.40	4.50	4.90	4.18	4.70	4.10	5.00	5.55	3.64	3.88	4.91	4.12	3.05	4.63	5.14	3.87	3.32	4.02			4.23	6.71	4.91		3.95	3.44	5.06	4.50	3.26	4.09	4.98	4.78	2.64	3.64	5.71	4.85	3.04	4.72	5.42	4.27	3.24	4.71	4.75	3.16	3.40		
11		4.60	4.00	5.30	6.00	3.95	4.50	4.80	4.20	4.90	3.60	4.75	5.75	4.46	3.19	4.43	4.44	3.77	4.34	5.30	3.83	3.24	3.83			5.15	5.92	4.26	4.52	4.39	3.48	4.30	4.58	3.50	3.93	4.72	4.58	2.84	3.54	4.68	5.45	3.36	4.23	4.98	4.07	3.35	4.29	4.64	3.38	4.08		
12		5.00	3.90	3.00	4.90	4.60	4.50	4.30	4.20	5.45	4.25	5.00	6.35	4.61	3.35	4.24	4.93	4.54	3.62	5.43	4.28	3.87	3.45			5.22	6.76	4.15	4.45	4.49	2.98	3.67	4.52	3.79	3.53	4.67	4.96	2.93	3.54	4.50	5.03	3.58	4.04	4.58	3.97	3.74	4.43	4.53	3.35	4.19		
13		5.30	4.00	3.20	4.80	5.00	4.90	3.10	4.50	5.70	4.25	4.95	5.70	4.64	3.76	3.83	4.67	5.31	3.71	4.31	4.56	4.40	3.63			5.63	7.07	4.15	4.30	4.72	3.28	2.83	4.10	4.16	3.78	4.10	4.50	3.30	4.00	4.08	4.84	3.78	3.86	4.91	4.14	5.29	4.05	3.92	3.88	4.61		
14		4.70	4.50	3.00	4.80	4.80	4.40	3.10	4.10	5.70	5.05	3.40	5.30	4.36	4.28	3.59	4.40	5.28	3.71	3.66	4.58	4.08	3.75			6.05	6.72	3.79	3.89	4.56	3.28	2.76	3.99	4.32	4.22	3.89	4.18	3.70	4.47	3.54	5.12	4.17	3.75	4.40	4.39	7.19	3.65	3.30	3.95	5.14		
15		5.20	5.00	3.70	4.80	4.90	4.70	3.30	4.20	5.80	5.45	2.80	4.55	4.74	4.97	3.60	4.46	5.32	4.87	3.11	4.28	4.12				5.91	7.48	4.04	3.25	4.83	3.96	2.85	4.41	5.27	4.74	3.01	3.94	4.97	4.81	3.27	4.95	4.92	3.91	3.91	5.01	7.35	3.14	3.23	4.13	4.65		
16		4.60	5.60	4.00	4.60	4.70	5.10	3.70	3.80	6.00	5.45	3.10	4.55	5.29	5.28	3.38	3.90	5.47	4.63	3.23	3.97	4.12				5.15	7.60	3.69	2.75	5.15	4.40	3.07	4.22	5.04	4.48	3.39	4.56	4.80	4.81	2.75	4.56	5.50	4.40	3.67	5.13	7.82	3.62	2.72	4.79	4.81		
17		4.70	5.60	4.80	4.20	4.50	5.20	3.70	3.40	5.10	5.55	3.50	4.30	5.72	5.38	3.10	3.42	5.78	4.76	2.81	3.95	3.81				5.32	7.76	4.19	2.32	5.09	4.60	3.66	3.92	5.38	4.75	3.24	3.82	5.14	5.26	2.74	4.12	5.20	4.90	3.81	4.77	7.92	4.07	2.52	4.92	5.42		
18		3.90	5.40	4.70	4.20	4.50	5.20	4.60	3.00	4.55	5.50	3.90	3.30	5.53	5.08	2.92	3.71	5.26	5.17	3.32</																																



Columbia River Water Elevation at the Interstate Bridges, daily Minimum (feet, Columbia River Datum)

Date	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
January																																																			
1		4.20	9.40	3.90	8.50	2.70	4.40	2.00	3.70	11.90	6.60	5.25	5.90	4.10	2.50	5.81	3.77	3.84	2.56	4.88	2.47				3.56		17.27	4.71	13.00	3.89	1.97		5.83	4.91	3.09	12.74	5.03	3.43	5.46	4.24	6.56	6.74	5.35	2.18	6.48	3.58	3.62	5.68	2.40	2.03	
2		4.30	8.10	3.90	7.60	1.70	3.70	1.60	4.00	11.40	6.25	5.05	5.50	4.60	2.30	6.21	2.81	3.39	1.83	4.17	2.50	3.33			2.47	7.63	21.63	4.62	11.34	3.81	1.48		6.58	3.97	2.40	13.01	4.81	3.67	8.11	5.47	5.74	4.85	4.83	2.23	6.25	3.04	4.52	5.24	2.58	2.07	
3		5.20	8.30	5.20	7.20	1.90	3.20	3.20	4.40	11.30	5.70	4.70	5.65	5.60	2.80	6.05	3.10	3.78	2.20	4.99	3.23	3.36			2.14	8.34		4.55	10.66	4.61	1.19		6.59	3.95	2.03	12.51	5.43	4.07	9.53	5.54	5.54	4.24	4.59	2.38	5.94	2.99	3.96	5.32	2.62	2.13	
4		5.50	8.10	5.70	6.80	3.00	3.20	5.30	4.50	10.30	6.15	5.15	7.25	5.20	3.00	6.24	3.66	4.00	2.93	3.63	4.43	3.81	3.63	1.67	8.90		4.22	10.00	4.97	1.36	3.12	6.41	4.35	2.91	10.65	8.44	4.08	9.14	5.30	6.09	4.57	4.52	2.37	6.12	3.23	3.77	5.34	3.18	2.43		
5		5.70	7.50	5.00	7.40	3.00	5.70	5.10	4.40	9.10	7.40	7.40	8.60	5.00	2.80	5.76	4.20	4.63	3.41	4.48	3.95	4.04			1.60	8.93		4.46	8.91	6.27	1.97	2.92	6.31	4.20	2.64	9.38	8.71	5.23	8.30	5.09	4.92	4.52	4.21	1.98	6.29	3.51	3.71	5.25	3.26	2.01	
6		5.00	5.40	6.90	8.30	3.30	5.80	3.50	5.40	7.60	7.55	10.60	8.70	4.80	3.70	5.66	3.99	5.20	3.75	4.16	4.04	4.36			2.18	8.86	17.35	6.02	8.39	5.95	2.05	3.12	5.43	4.23	2.85	8.12	9.27	6.25	8.60	5.75	3.88	3.99	3.83	1.78	6.36	3.84	4.12	5.26	4.07	2.36	
7		3.80	5.30	7.40	7.00	2.70	7.10	1.10	4.90	7.60	7.37	14.30	8.25	4.40	3.80	5.38	3.99	6.03	4.36	3.99	4.54	4.85			1.84	9.07	15.55	6.39	7.83	5.80	2.28	4.22	4.86	4.71	3.36	7.67	8.18	5.71	9.16	6.02	3.59	3.40	3.50	2.19	5.59	4.01	3.85	4.18	3.45	3.32	
8		3.10	5.80	8.90	11.80	3.40	7.40	0.70	5.80	7.20	7.14	14.80	7.75	5.60	4.10	5.84	4.20	6.38	6.41	4.49	4.56	5.16	4.45			1.85	10.23	14.21	5.51	7.17	6.24	2.53	6.82	4.01	5.43	3.95	7.96	7.90	5.93	11.81	5.61	3.35	3.09	3.83	2.65	5.50	3.91	3.90	3.58	3.07	3.76
9		4.90	5.40	8.90	12.20	2.20	7.40	0.70	6.30	7.00	6.91	13.60	7.35	5.90	4.30	5.60	3.96	6.81	8.84	4.83	4.16	5.22			1.73	10.67	13.45	5.54	7.12	6.12	2.80	7.12	4.07	4.94	3.80	7.86	7.44	6.86	11.55	5.17	2.78	2.90	5.13	2.85	5.17	3.78	4.34	4.99	3.45	3.86	
10		4.20	5.40	9.30	11.80	1.60	7.40	2.22	7.40	6.80	6.70	11.80	7.25	5.80	4.50	4.97	3.67	8.88	10.71	4.63	3.47	4.95	3.64	1.86	9.47	13.20	6.11	7.03	7.66	2.89	7.52	3.31	5.09	3.18	8.54	7.16	7.03	9.83	4.58	3.31	3.23	6.20	3.56	4.76	3.49	4.76	4.60	3.49	4.10		
11		4.00	5.80	8.00	11.20	1.80	7.80	2.98	7.80	5.90	6.00	11.20	7.35	5.50	4.80	4.45	5.22	9.79	11.30	4.84	4.25	5.01	4.61	2.26	9.07	13.36	6.44	6.15	8.20	3.06	6.22	2.66	4.68	3.61	12.09	6.15	7.20	8.37	4.57	2.44	3.25	6.22	3.82	4.76	3.35	5.91	4.46	3.54	5.41		
12		4.70	5.46	6.40	10.60	2.30	8.00	3.74	7.80	4.80	5.70	9.70	6.50	5.20	4.40	4.62	6.31	9.54	9.83	6.18	4.00	4.26	4.51	3.29	10.55	12.70	6.70	5.50	8.25	3.11	5.42	2.80	4.57	3.63	13.55	6.12	7.56	7.74	4.55	3.02	3.28	5.61	3.92	4.86	3.92	6.46	6.13	3.21	5.67		
13		5.10	5.49	7.70	10.50	2.90	7.90	4.50	8.00	5.40	5.50	9.70	6.10	4.60	4.30	5.10	7.05	9.73	8.04	7.35	2.84	4.10	4.52	4.48	10.52	12.34	7.08	5.70	8.45	2.71	5.02	2.95	4.36	2.80	14.38	5.99	6.85	7.58	4.96	4.68	2.83	5.49	4.72	4.20	4.18	6.35	7.46	2.51	6.23		
14		7.00	5.50	9.90	10.80	2.40	7.40	3.60	10.90	5.60	5.50	9.90	6.20	4.60	4.30	5.04	7.40	7.96	6.83	7.26	2.88	4.29	3.94	4.51	9.84	11.80	8.12	6.61	8.54	2.44	4.62	3.14	4.12	4.13	13.97	5.66	5.87	6.86	5.24	5.39	2.56	5.04	4.13	3.89	5.23	5.23	6.89	2.07	6.36		
15		7.40	8.00	11.10	12.20	2.30	6.70	3.20	11.70	5.50	5.00	8.90	6.20	4.70	4.20	5.20	9.36	6.20	5.43	3.24	3.85			5.06	9.84	11.72	9.64	7.80	8.71	1.87	3.92	3.15	3.91		12.21	5.61	6.13	7.41	5.14	6.18	2.43	4.57	3.49	4.00	5.04	5.03	6.29	2.12	5.65		
16		8.00	18.20	10.40	12.00	2.20	6.20	4.70	12.50	5.50	5.20	7.60	6.20	4.81	4.20	5.78	9.86	7.36	5.75	9.00	3.48	2.93			8.41	10.82	10.12	9.35	8.35	9.12	1.50	4.32	3.02	4.23	2.56	11.19	5.85	5.36	7.24	5.03	6.78	2.18	4.70	2.99	4.48	4.91	4.82	5.98	2.67	5.51	
17		8.10	21.10	8.50	11.90	2.20	6.20	4.10	12.20	5.60	6.90	6.90	6.75	4.80	4.80	4.91	8.64	6.93	5.53	8.95	3.78			7.96	11.63	10.51	9.56	10.07	8.64	1.31	5.02	2.88	4.19	1.85	10.92	5.89	5.47	6.09	5.13	10.59	2.42	4.38	3.10	4.53	5.91	4.66	6.21	3.14	5.37		
18		8.20	22.70	7.40	12.10	2.70	7.00	4.00	10.20	5.20	6.90	7.10	6.90	5.10	4.80	4.50	7.90	6.62	5.31																																



[illegible]



Date	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021		
July																																																				
1		1.70	17.60	6.90	7.90	1.40	4.80	1.90	4.60	6.80	12.95	4.40	12.20	2.95	1.93	2.10	1.95	2.74	6.13	6.43	2.53	4.33	2.70		7.64	8.14	5.78	8.93	3.97	0.66	8.32	2.88	3.40	3.98	3.60	3.23	8.23	4.23	7.50	12.08	11.87	6.38	7.58	2.20	2.87	4.86	4.42	2.56	7.42			
2		1.80	17.00	5.00	7.20	0.80	4.70	1.10	4.10	6.50	12.90	4.20	12.00	2.95	2.14	1.77	1.70	2.34	5.98	6.34	2.15		2.14		7.09	8.04	5.71	8.36	3.19	0.82	8.42	2.82	3.92	4.14	3.17	1.88	8.41	2.73	5.88	12.96	11.66	6.62	6.98	2.55	3.23	4.94	2.53	2.42	7.36			
3		2.30	16.60	5.00	5.50	0.70	3.60	1.10	3.40	6.20	12.55	5.10	11.05	4.05	2.29	0.92	1.52	2.39	6.11	6.95	1.91	4.11	1.66		6.40	8.06	4.01	7.89	3.03	1.10	7.52	1.70	3.05	3.38	2.71	2.23	8.87	2.46	5.17	13.27	11.11	6.36	6.26	2.71	3.18	4.10	2.46	2.00	7.76			
4		1.30	16.50	6.60	4.90	0.50	3.70	1.70	3.40	6.05	12.30	5.10	9.30	3.60	1.40	0.60	1.47	1.82	5.31	6.01	1.81	3.31	3.46		6.68	8.27	4.51	7.52	2.91	1.22	7.62	1.12	2.85	2.82	2.76	2.27	8.98	2.26	3.83	13.43	10.06	5.93	6.20	2.38	2.88	4.05	2.18	2.02	7.58			
5		1.20	16.10	6.00	4.90	0.10	3.60	1.70	3.10	5.60	11.75	5.10	7.20	2.65	0.88	1.32	0.92	1.80	4.63	5.84	1.58	2.94	1.37		7.02	7.95	4.13	6.50	2.94	0.68	6.72		2.54	2.03	1.73	2.15	7.70	2.13	3.50	11.84	10.08	5.67	5.66	2.30	2.93	4.75	1.13	1.89	6.36			
6		1.70	15.40	6.10	4.80	-0.40	3.90	2.00	3.10	5.70	10.90	5.50	7.70	2.35	0.90	0.84	1.20	2.19	5.18	5.74	1.21	3.05	2.18		6.06	7.80	3.95	6.26	3.11	0.34	5.62	1.31	2.97	3.14	2.43	2.85	6.27	2.96	3.12	11.48	10.51	6.25	4.61	2.56	2.53	4.16	1.74	1.66	5.01			
7		0.90	14.20	7.20	4.90	-0.40	4.60	2.00	3.90	6.70	10.65	6.40	7.50	2.00	1.02	0.98	1.67	2.03	5.36	6.16	1.02	3.59	2.68		6.87	7.93	4.00	5.50	4.28	0.14	5.42	0.71	2.75	2.27	2.70	2.13	5.86	2.90	3.47	11.55	9.80	6.08	4.84	2.22	2.99	4.20	1.51	1.53	4.82			
8		0.60	13.30	8.30	5.10	-0.40	3.80	1.50	4.50	7.80	10.30	5.80	6.90	1.40	1.00	1.53	1.78	1.49	4.79	6.56	0.94		2.80		6.26	7.33	4.08	6.09	3.89	-0.04	5.22	0.88	2.50	3.23	3.76	1.98	5.48	3.35	3.39	11.44	8.81	5.22	5.29	1.93	2.92	4.32	1.94	1.34	4.75			
9		1.10	12.40	9.20	5.50	-0.30	3.10	1.40	4.50	8.25	9.50	4.30	7.20	1.00	2.29	1.79	1.40	0.51	4.56	5.78	0.87	3.87	2.99		6.17	6.32	4.85	6.47	2.92	-0.10		1.83	2.46	3.44	4.34	2.50	5.34	3.62	4.25	11.28	8.76	5.22	4.86	1.71	2.49	3.92	2.07	1.28	4.41			
10		2.00	11.10	8.50	5.80	-0.60	3.10	2.40	4.40	8.30	8.30	4.10	6.30	1.05	1.03	2.28	1.45	0.89	5.23	5.27	1.08		3.30		6.54	6.79	4.75	5.96	2.97	0.26		3.19	2.85	2.89	3.88	2.82	4.63	3.51	4.12	11.05	8.59	4.17	4.50	1.54	1.73	3.99	2.22	1.35	4.58			
11		2.10	10.00	7.80	5.70	-0.60	4.80	2.30	4.40	6.15	8.75	3.70	5.25	1.10	2.69	2.36	1.58	0.19	4.88	5.47	2.30		2.60		6.26	6.91	4.00	6.06	3.05	0.18	4.95	3.04	2.02	2.90	4.47	2.82	4.14	4.24	10.53	8.97	3.61	5.14	1.39	1.30	3.16	2.79	1.43	4.52				
12		2.10	9.50	6.70	6.00	0.00	4.70	2.50	3.70	4.70	8.50	4.50	4.98	1.40	3.55	1.94	1.36	1.00	5.05	5.43	1.78	1.75	2.79		6.41	7.30	3.50	6.80	3.37	-0.18	5.66	2.99	2.06	2.63	4.25	3.29	3.58		3.95	9.40	8.95	3.36	5.18	1.43	1.45	3.21	3.46	1.71	3.19			
13		2.80	8.10	5.70	6.00	0.30	5.20	2.70	2.70	4.10	8.00	6.00	4.72	1.05	3.06	1.87	2.13	1.29	4.92	5.59	1.38	2.52	2.86		6.63	6.31	4.15	6.87		-0.52	5.97	2.73	2.71	2.41	3.73	3.94	3.75		3.60	8.81	8.42	3.26	5.65	1.78	1.40	2.94	3.40	2.14	3.26			
14		2.00	6.40	4.90	6.10	0.40	5.20	1.30	2.70	4.50	7.70	6.60	4.45	1.00	2.92	2.09	2.04	1.63	3.70	5.68	2.14	2.41	2.54		6.58	5.88	4.39	6.62	3.69	-0.74	5.42	2.42	1.86	2.70	3.86	4.04	2.72		3.50	8.63	8.83	3.53	4.93	2.07	1.69	3.13	3.11	1.94	3.75			
15		0.90	6.10	5.50	6.80	0.40	4.90	0.80	2.60	5.40	7.50	5.40	4.20	0.75	2.70	1.95	1.99	1.64	2.93	4.96	2.34	2.29	2.15		6.65	6.47	4.44	7.31	3.54	-0.58	5.58	2.95	2.55	3.42	3.24	3.94	2.26		3.27	9.06	8.20	3.41	4.26	2.47	1.47	3.21	3.58	1.74	3.59			
16		1.60	5.60	4.70	6.60	0.50	2.90	0.80	2.50	5.70	7.00	6.40	4.05	1.20	3.69	1.55	1.33	0.98	2.53	4.48	2.31	2.31	1.97		6.06	7.08	4.52	7.25	2.66	-0.28	4.63	2.25	1.61	3.35	2.61	4.31	2.54		1.76	3.66	8.84	8.21	3.51	4.34	1.98	1.59	2.84	3.43	2.09	3.20		
17		2.80	5.90	4.40	6.50	0.10	2.90	1.40	2.30	6.40	6.30	5.80	4.05	1.40	3.19	1.21	0.52	0.80	2.69	3.88	2.56	2.79	1.66		6.25		3.91	6.74	2.75	-0.08	4.29	2.56	1.87	3.37	2.58	4.31	1.96		2.48	2.94	7.92	9.12	3.05	4.05	1.68	2.03	2.39	3.19	1.87	3.33		
18		3.20	5.90	4.60	6.30	0.10	3.00	1.90	2.00	4.85	6.20	5.80	4.50	1.80	3.15	0.77	0.58	0.98	2.92	2.86	2.31	3.42	1.74		5.43	7.75	3.70	6.15	2.7																							



[illegible]