DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, PORTLAND DISTRICT
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Planning, Programs and Project
Management Division

FEB 23 2012

Ms. Heather Wills
Columbia River Crossing
700 Washington Street, Suite 300
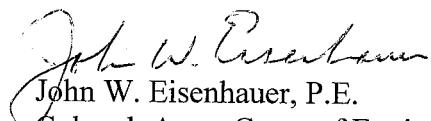Vancouver, Washington 98660

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 13th District United States Coast Guard, Jackson Federal Building, 915 Second Avenue, Seattle, WA 98174-1067, John McAvoy, FHWA, 610 East 10th 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.

Sincerely,

John W. Eisenhauer, P.E.
Colonel, Army Corps of Engineers
District Commander

Enclosure

![US Army Corps of Engineers logo]

**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).

<u>Authorized project:</u>

- 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.

<u>Minimum bridge prism reasoning:</u>

- 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.

Probability (%) of River Stage at Vancouver (feet CRD)
***Full calendar year data 1992-2011**
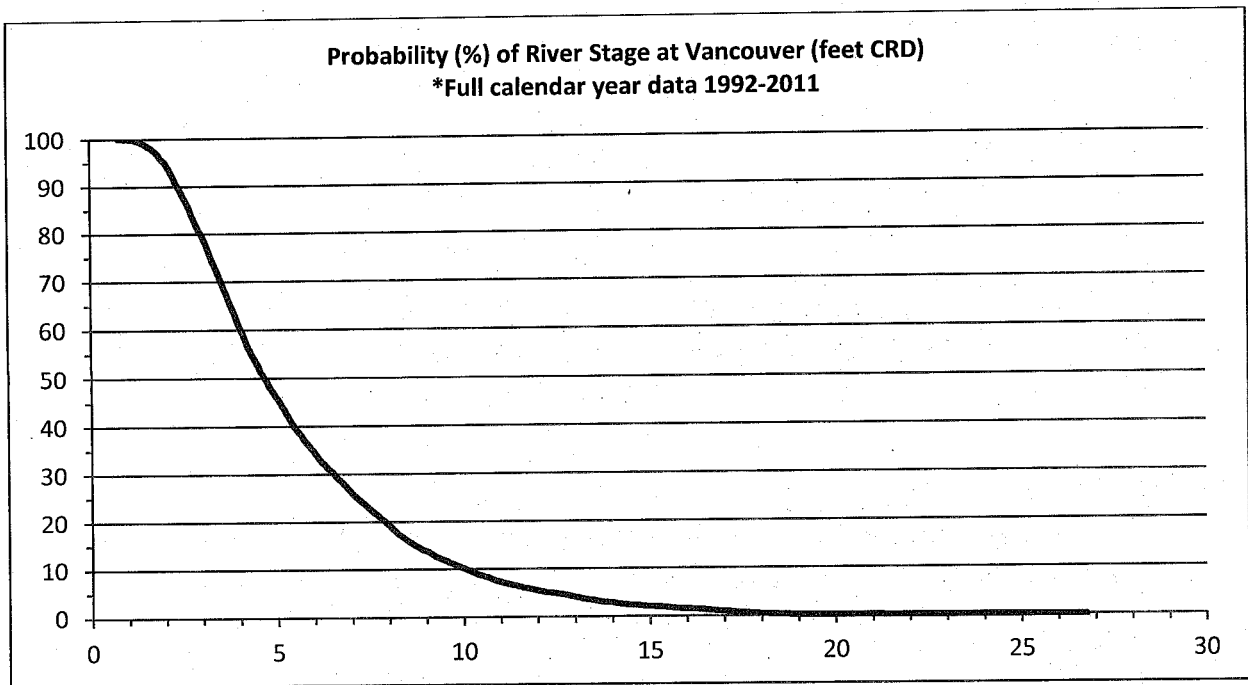
- The uncertainty of future water levels must be considered. As part of the Columbia River Treaty Review, the Corps is collecting new data and performing studies to evaluate maintaining or potentially changing current levels of regulation for flood risk protection in this region of the Columbia River 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.