Project Description for the Draft Environmental Impact Statement: A Technical Memorandum

SR-35 Columbia River Crossing Project

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Prepared for:
Southwest Washington Regional Transportation Council
1300 Franklin Street Floor 4
Vancouver, WA 98660

Washington State Department of Transportation
P.O Box 1709
Vancouver, WA 98668-1709

Oregon Department of Transportation
123 NW Flanders Street
Portland, OR 97209

Prepared and Submitted by:
Parsons Brinckerhoff Quade & Douglas, Inc.
400 SW Sixth Avenue, Suite 802
Portland, OR 97204

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Project Description for the Draft Environmental Impact Statement

This memorandum describes the existing conditions, history of the project, purpose and need for the project, and four alternatives being considered for evaluation in the SR-35 Columbia River Crossing Draft Environmental Impact Statement (DEIS). The following technical reports will be prepared for the DEIS: water resources and water quality; wetlands and vegetation; fish and wildlife; land use; visual aesthetics; air quality; noise; energy; hazardous materials; social, recreation and economic elements; and soils and geology. These technical reports will use the information contained in this technical memorandum for the evaluation of potential environmental impacts of each alternative.

1.1 Description of Existing Conditions

1.1.1 Project Area

The project area comprises the Columbia River and areas landward in the vicinity of White Salmon and Bingen, Washington to Hood River, Oregon (Figure 1). This location is approximately 64 miles east of Portland, Oregon along Interstate 84 (I-84) and a similar distance east of Vancouver, Washington along State Route 14 (SR-14). The state line follows the Columbia River in this area.

The northern end of the Hood River Bridge touches down on the southwestern edge of White Salmon, Washington. Bingen is located approximately one mile east of White Salmon. Both cities are in Klickitat County. The major east/west highway on the Washington side of the Columbia River is SR-14, a National Highway System route, which traverses both Washington cities.

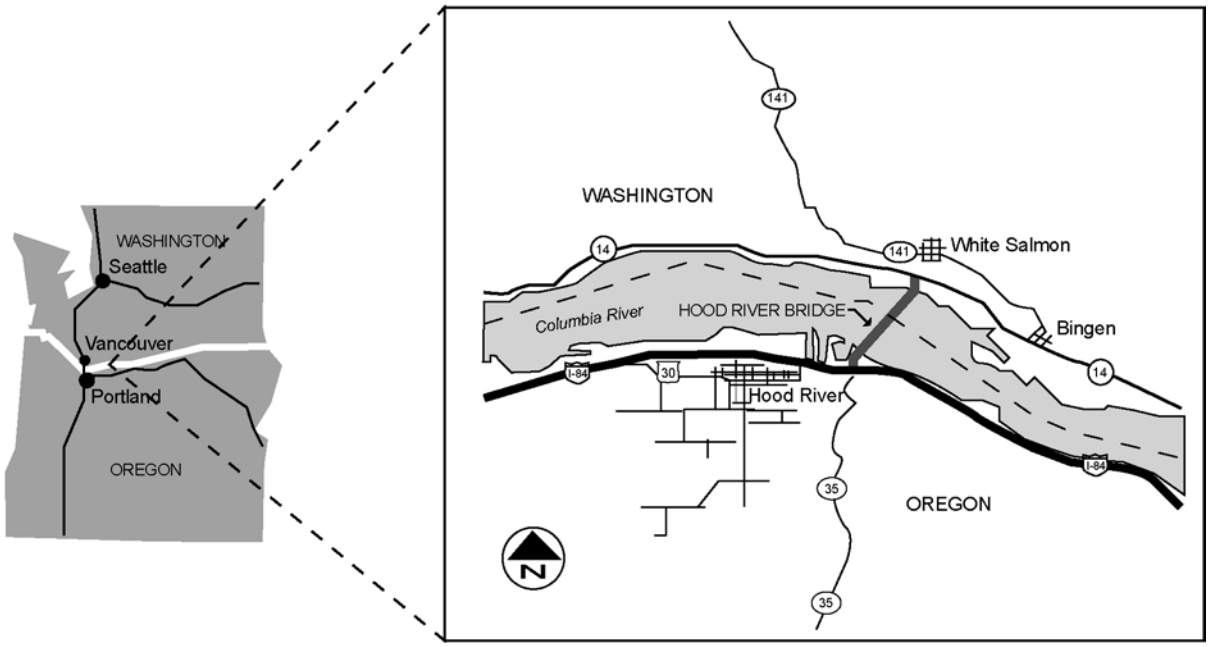
The southern end of the Hood River Bridge touches down in Hood River, Oregon (Hood River County). I-84 is the major east/west highway on the Oregon side of the Columbia River; it connects Portland, Oregon to points east, such as Pendleton, Oregon and Boise, Idaho. Another major highway in the Hood River vicinity is OR-35, which connects to US 26 (Mount Hood Highway) approximately 40 miles to the south.

1.1.2 Existing Hood River Bridge

The Hood River Bridge was built in 1924. A lift span was added to the bridge in 1938 to respond to raised water elevations in the pool behind Bonneville Dam. The bridge is a steel structure with a narrow roadway deck width of approximately 18 feet 9 inches. There are no separated pedestrian or bicycle facilities, and pedestrians and bicyclists are prohibited.

The Hood River Bridge is owned and operated by the Port of Hood River. A tollbooth is located at the southern bridge approach; tolls are collected for both travel directions (two-way tolls). The current toll is 75 cents.

Figure 1. Vicinity Map of the Project Area



1.1.3 Bridge Condition

The Hood River Bridge is a movable span bridge. The span is lifted approximately once or twice a month. Structural conditions that are in need of attention include:

- Steel grating is loud
- Possible lead paint
- Substructure in need of replacement
- Seismic vulnerability
- Substandard roadway geometrics (height, width)
- No pedestrian or bicycle facilities
- Substandard horizontal clearance for navigation
- Lift span and navigation channel are not aligned with westerly winds, which cause navigational difficulties for barges.

1.2 History of Project

The Washington congressional delegation, with support from the Oregon congressional delegation, responded to local constituents' concerns about the functionality of the

existing bridge and obtained federal funding for this high priority project as part of the Transportation Equity Act for the 21st Century (TEA-21) federal transportation-financing bill. The Washington State legislature has recognized the potential for a new Columbia River crossing and has designated an SR-35 corridor that connects from SR-14 to the Columbia River but did not specify the exact crossing location.

In 1999, the Southwestern Washington Regional Transportation Council (RTC) in cooperation with the Washington State Department of Transportation (WSDOT) and Oregon Department of Transportation (ODOT) began a feasibility study to evaluate alternatives for a new or improved Columbia River crossing in the vicinity of Hood River, Oregon and Bingen/White Salmon, Washington.

In October 2000, a round of public meetings and stakeholder interviews were conducted to provide an understanding of the project and receive input regarding issues to be studied, crossing areas ("corridors"), locations and facilities ("alternatives"). Three committees were formed to advise the project team: a Resource/Regulatory Committee (RRC), comprised of representatives of state and federal agencies which will be reviewing alternatives analyses, documents, and permit applications pertinent to agency regulations; a Local Advisory Committee (LAC) made up of area residents, business owners, and agency staff; and a Steering Committee (SC) which includes local elected and appointed officials. A project Management Team (MT) comprised of lead RTC, ODOT, WSDOT, and consultant staff, meet monthly to oversee the project.

A Baseline Conditions report was completed in November 2000 and updated in February 2001. This report contains information on existing conditions related to: transportation, the economy, recreation, the environment, bridge condition, navigation, and river hydraulics.

A Notice of Intent to prepare an environmental impact statement (EIS) was published in the Federal Register on February 27, 2001. The Federal Highway Administration (FHWA) will be the lead agency, with the US Coast Guard and US Forest Service potentially participating as cooperating agencies. Scoping meetings for the public and agencies were held March 8, 2001 in Bingen, Washington and Troutdale, Oregon, respectively.

The range of comments received during the scoping period includes:

- Consideration of impacts on windsurfing
- Motorist, bicycle, and pedestrian safety crossing the existing Hood River Bridge and at the intersections of the approach road to the bridge
- Traffic congestion at the tollbooth and along the bridge approach road
- Impacts on the local economy; impacts on the environment, including tribal fishing sites within the study area
- Impacts of tolls on the local economy and financing of a new crossing.

Other concerns cited were impacts of crossing corridors on the natural environment, park land, threatened or endangered species, land use (especially the Port of Hood River, downtown Bingen, and the Port of Klickitat), the Columbia River Gorge National Scenic Area, and specific local businesses or recreation areas.

As a bi-state transportation project, the SR-35 Columbia River Crossing Project invokes both the Washington National Environmental Policy Act (NEPA)/State Environmental Policy Act (SEPA)/404 Merger and the Oregon Collaborative Environmental and Transportation Agreement to Streamline (CETAS) environmental streamlining processes. The project has received concurrence on the purpose and need statement, criteria for alternatives selection, and alternatives to evaluate in the EIS.

Additional studies or workshops have been completed to support the evaluation of alternatives:

- Cross-river traffic forecasts
- Origin-destination study (Intergovernmental Resource Center, 1991)
- Baseline Conditions Report
- Public opinion telephone and intercept study
- Bridge design workshop
- Financial feasibility study
- Cost estimates for bridge structures
- Cultural resource analysis
- Navigation Baseline Report (updated February 2003)
- Public open houses
- Advisory committee meetings with the LAC, SC and RRC.

These studies and workshops were conducted during 1999-2002 unless otherwise noted.

1.3 Purpose and Need for the Proposed Project

The purpose and need for the proposed project is summarized below. A detailed purpose and need statement (Regional Transportation Council, 2002) has received concurrence from the Oregon CETAS and Washington NEPA/SEPA/404 Merger per each state's environmental streamlining process.

The purpose of this project is to improve multi-modal transportation of people and goods across the Columbia River between the Bingen/White Salmon, Washington and Hood River, Oregon communities.

The overall need for the SR-35 Columbia Crossing project is to rectify current and future transportation inadequacies and deficiencies associated with the existing Hood River Bridge. The bridge is inadequate and deficient in terms of capacity, system linkage, transportation demand, legislative directives, social demands and economic development, modal interrelationships, safety, and roadway and bridge standards.

In addition, goals and objectives were identified to balance environmental and transportation values over the long-term while meeting the purpose and need for the proposed action. The goals and objectives are to:

- Improve cross-river multi-modal transportation of people and goods.
- Meet current standards for river navigation if any new facility is constructed.
- Avoid, minimize, or compensate for impacts to the natural, built, and aesthetic environment.
- Avoid, minimize, or compensate for impacts to fish and wildlife and their habitats.
- Avoid, minimize, or compensate for impacts to recreational users and facilities.
- Be financially acceptable and support local economic development.
- Avoid, minimize, or compensate for impacts on cultural and historical resources.
- Maintain the integrity of the interstate highway system.

The proposed action would use mitigation sequencing to: (1) avoid impacts to the environment where practicable, (2) minimize impacts that cannot be avoided, and (3) compensate for impacts that cannot be avoided.

1.4 Description of Alternatives

Four alternatives were selected for evaluation in the environmental review process:

- No Action Alternative
- Alternative EC-1: West Connection to Dock Grade Road
- Alternative EC-2: West Alignment
- Alternative EC-3: East Alignment

1.4.1 No Action Alternative

The No Action Alternative assumes that the existing bridge would remain a lift-span bridge owned by the Port of Hood River. The Port of Hood River would be responsible for continued maintenance, capital improvements, and operation of the bridge. Under this

alternative, the bridge would not be seismically retrofitted. In addition, the bridge would continue to be structurally limited (weight restricted) and functionally limited in terms of height and width restrictions.

This alternative would assume that the bridge is closed in the future. Under the Port of Hood River's current maintenance and capital improvements program, the bridge may continue to operate for approximately 30 years. After this time, it is assumed that the bridge surpasses its operational life and is closed to all cross-river vehicular traffic.

Within the next five years, several short-term improvements are planned or recommended. These improvements are considered to be part of the No Action Alternative.

Planned and recommended short-term improvements to the existing bridge include:

- Replace existing steel grating with new steel grating that is quieter
- Install roundabout or traffic signal at the I-84 eastbound ramps and OR-35/Hood River Bridge approach road
- Convert the tollbooth to one-way tolls southbound
- Establish a bridge replacement fund through increased tolls.

1.4.2 Common Elements for All Bridge Replacement Alternatives

Each of the build alternatives (Alternatives EC-1, EC-2 and EC-3) involves constructing a new, fixed-span bridge for all transportation modes in the Existing Corridor. These alternatives also include demolishing the existing Hood River Bridge. Ownership of the new bridge would likely be either single ownership by ODOT or WSDOT or joint ownership by both state DOTs. The construction cost is expected to be approximately $130 million. Right-of-way acquisition and environmental mitigation are not included in this estimated cost.

All of the build alternatives tie into the existing bridge access road on the south end of the corridor at a point between the tollbooth and the four-way stop at Marina Way. The connections to SR-14 on the north end of the corridor vary by alternative (Figure 2).

Alternatives EC-1, EC-2 and EC-3 share common design criteria and short-term and mid-term improvements. Unique elements of each alternative are described in later sections.

1.4.2.1 Design Criteria

All of the build alternatives will meet the following design criteria:

- 56-foot roadway width with future expansion to a 66-foot width
- 35 mph design speed
- 80-foot vertical clearance at the navigation channel

- 300-foot minimum horizontal clearance at the navigation channel
- Over-crossing of the Burlington Northern Santa Fe (BNSF) Rail
- Three bridge type options are being considered for each build alternative (Figure 2)
    - Girder segmental with 300-foot typical span
    - Girder segmental with 600-foot parabolic span over the navigation channel
    - Girder segmental with 600-foot tied arch span over the navigation channel

The roadway consists of two 12-foot travel lanes, two 8-foot shoulders, and one 16-foot pedestrian/bike facility on one side (Figure 3). Depending on future demand, the roadway can be expanded to two 12-foot travel lanes, one 16-foot center lane for reversible peak hour travel, two 8-foot shoulders, and one 10-foot pedestrian/bike sidewalk on one side of the bridge. This expansion would require widening the superstructure to 66 feet.

1.4.2.2 Short-Term Improvements

All of the replacement bridge alternatives include the short-term improvements that would occur under the No Action Alternative within the next five years. These improvements would include replacing the steel grating, installing a roundabout or traffic signal at the I-84 eastbound ramps, and converting the tollbooth to one-way southbound toll collection.

1.4.2.3 Mid-Term Improvements

The replacement bridge alternatives would also include mid-term improvements that would be implemented over the next 6 to 10 years. These improvements include:

- Signalize the I-84 westbound ramps at the Hood River Bridge access road
- Convert the four-way stop at Marina Way and Hood River Bridge approach road to a roundabout or traffic signal
- Restrict or close turns at the private driveway onto the Hood River Bridge access road
- Replace the tollbooth and establish an automated toll collection system
- Signalize the SR-14/Hood River Bridge access road intersection.

1.4.3 Alternative EC-1: West Connection to Dock Grade Road

Starting from the southern approach, Alternative EC-1 would be directly adjacent to the west side of the existing bridge until midway across the river, where it would shift west to connect to Dock Grade Road on the Washington side. The SR-14 intersection at Dock Grade would be signalized and widened to accommodate turn lanes. The grade of SR-14

would need to be raised approximately six feet, and Dock Grade would need to be realigned at the intersection for safety reasons. The length of the bridge is approximately 4,510 feet. Figure 4 illustrates the south end of Alternative EC-1 and Figure 5 illustrates the north end.

This alternative also includes all of the elements previously described that are common to all build alternatives.

1.4.4 Alternative EC-2: West Alignment

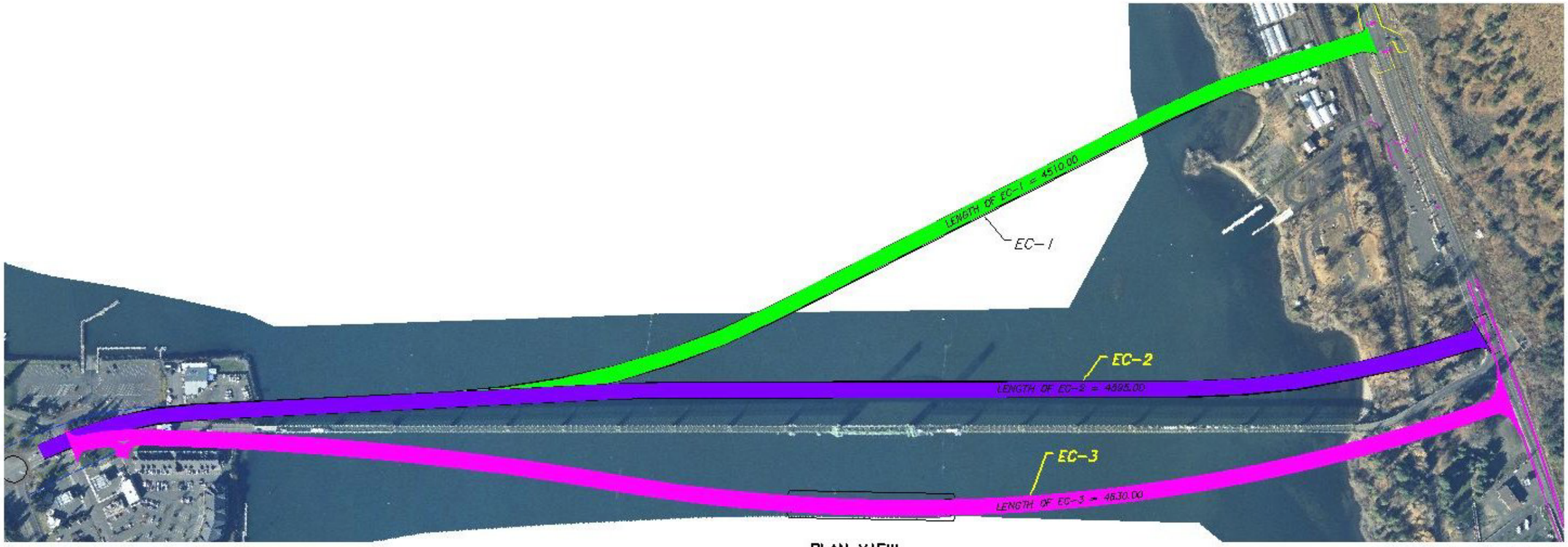
Alternative EC-2 would be directly adjacent to the west side of the existing bridge for the entire length of the crossing. The SR-14 intersection would be signalized and widened to accommodate turn lanes. The length of the bridge is approximately 4,595 feet. Figure 4 illustrates the south end of Alternative EC-2 and Figure 6 illustrates the north end.

This alternative also includes all of the elements previously described that are common to all build alternatives.

1.4.5 Alternative EC-3: East Alignment

Alternative EC-3 would be directly adjacent to the east side of the existing bridge. A slight bow to the east would occur over the navigation channel, and then the alternative would connect to SR-14 directly adjacent to the existing bridge. The SR-14 intersection would be signalized and widened to accommodate turn lanes. The length of the bridge is approximately 4,630 feet. Figure 4 illustrates the south end of Alternative EC-3 and Figure 7 illustrates the north end.

This alternative also includes all of the elements previously described that are common to all build alternatives.



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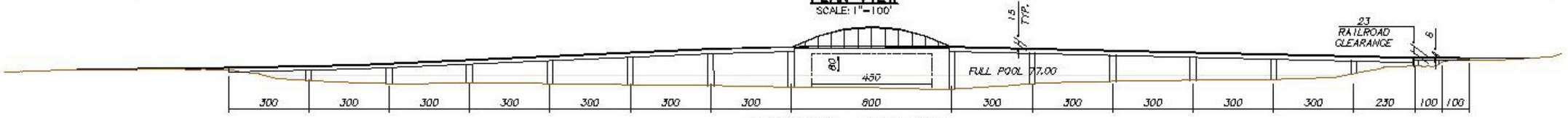

ELEVATION – TIED ARCH
(ALIGNMENT EC-3 SHOWN, OTHERS SIMILAR)
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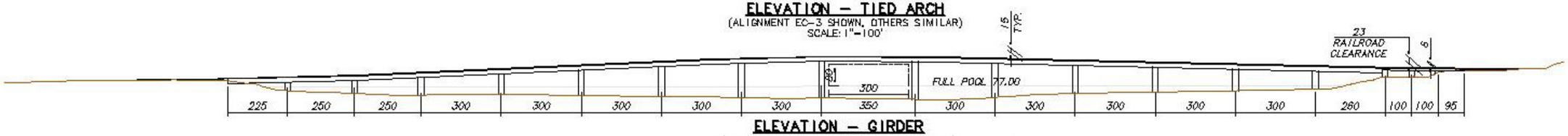

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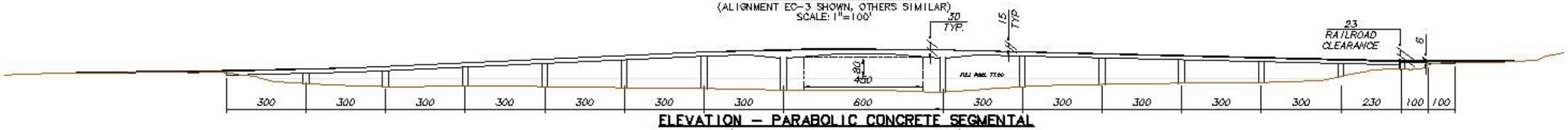

ELEVATION – PARABOLIC CONCRETE SEGMENTAL
(ALIGNMENT EC-3 SHOWN, OTHERS SIMILAR)
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CONCEPTUAL BRIDGE FEATURES
SR-35 COLUMBIA RIVER CROSSING

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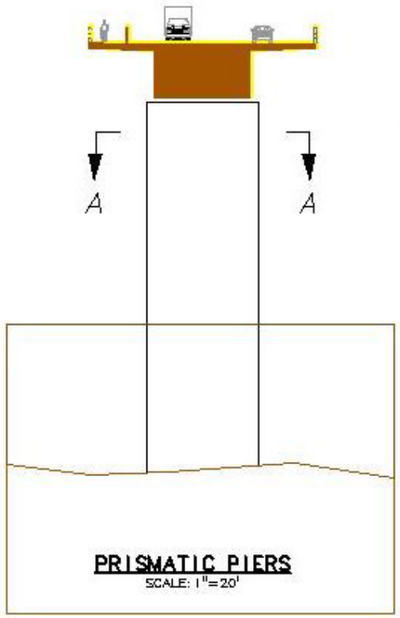

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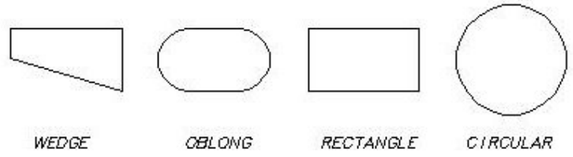

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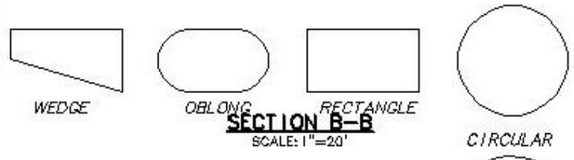

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SECTION C-C
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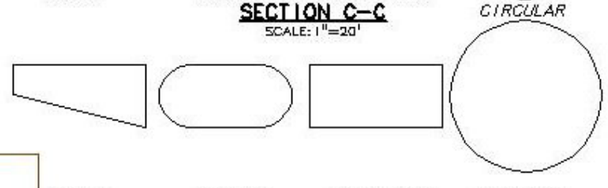

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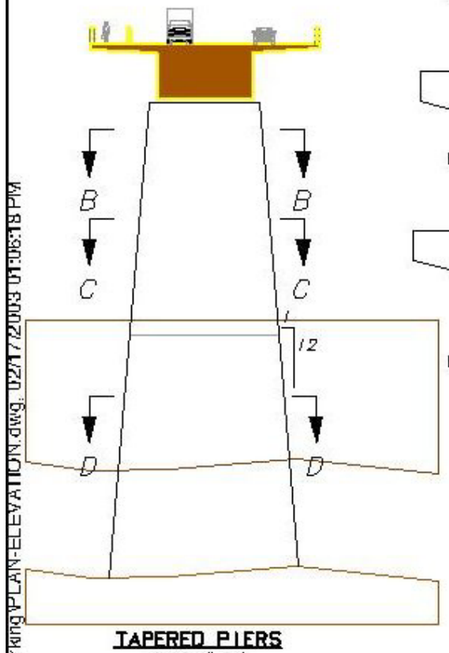

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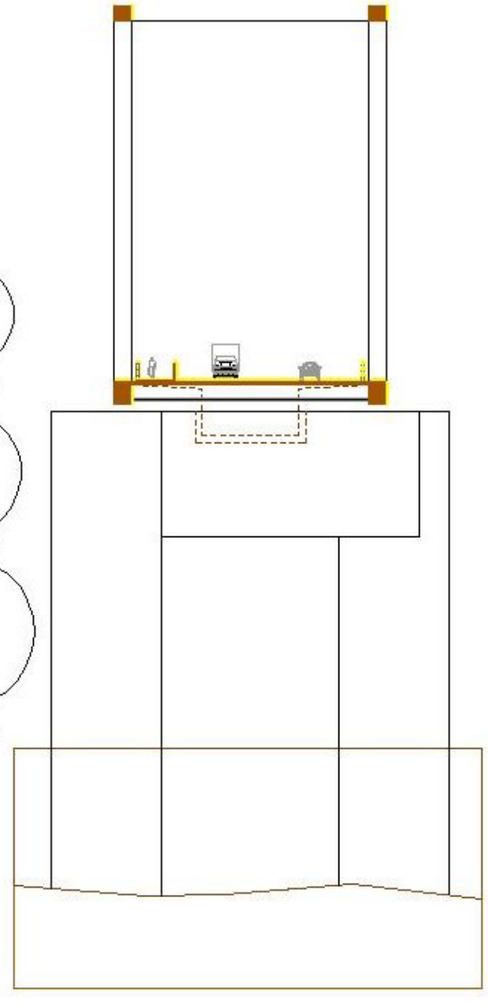

SECTION THROUGH TIED ARCH
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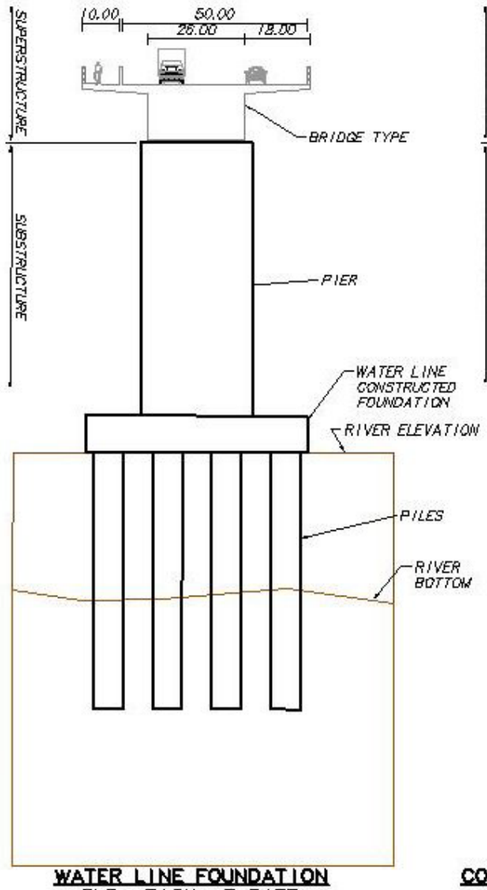

WATER LINE FOUNDATION ELEVATION AT PIER
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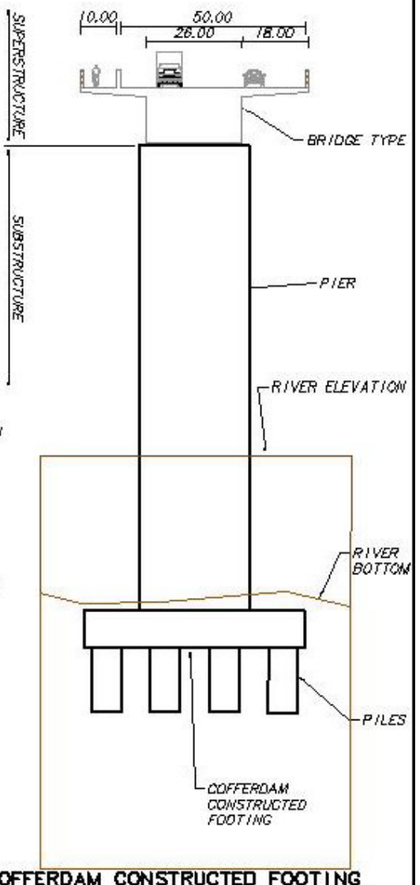

COFFERDAM CONSTRUCTED FOOTING ELEVATION AT PIER
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CONCEPTUAL BRIDGE FEATURES
SR-35 COLUMBIA RIVER CROSSING

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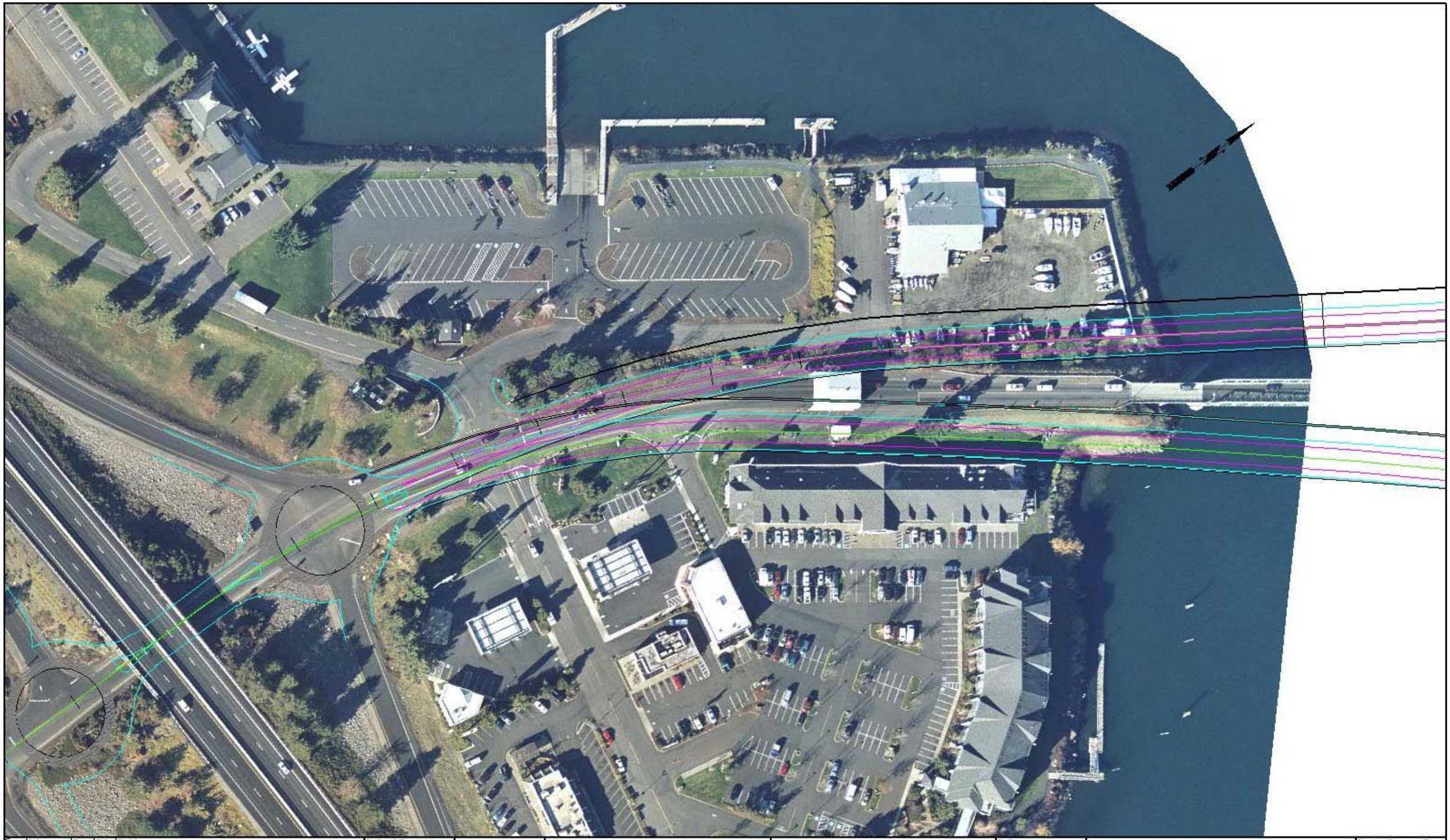

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HOOD RIVER BRIDGE STUDY
OPTIONS EC-1, EC-2, AND EC-3
SOUTH END

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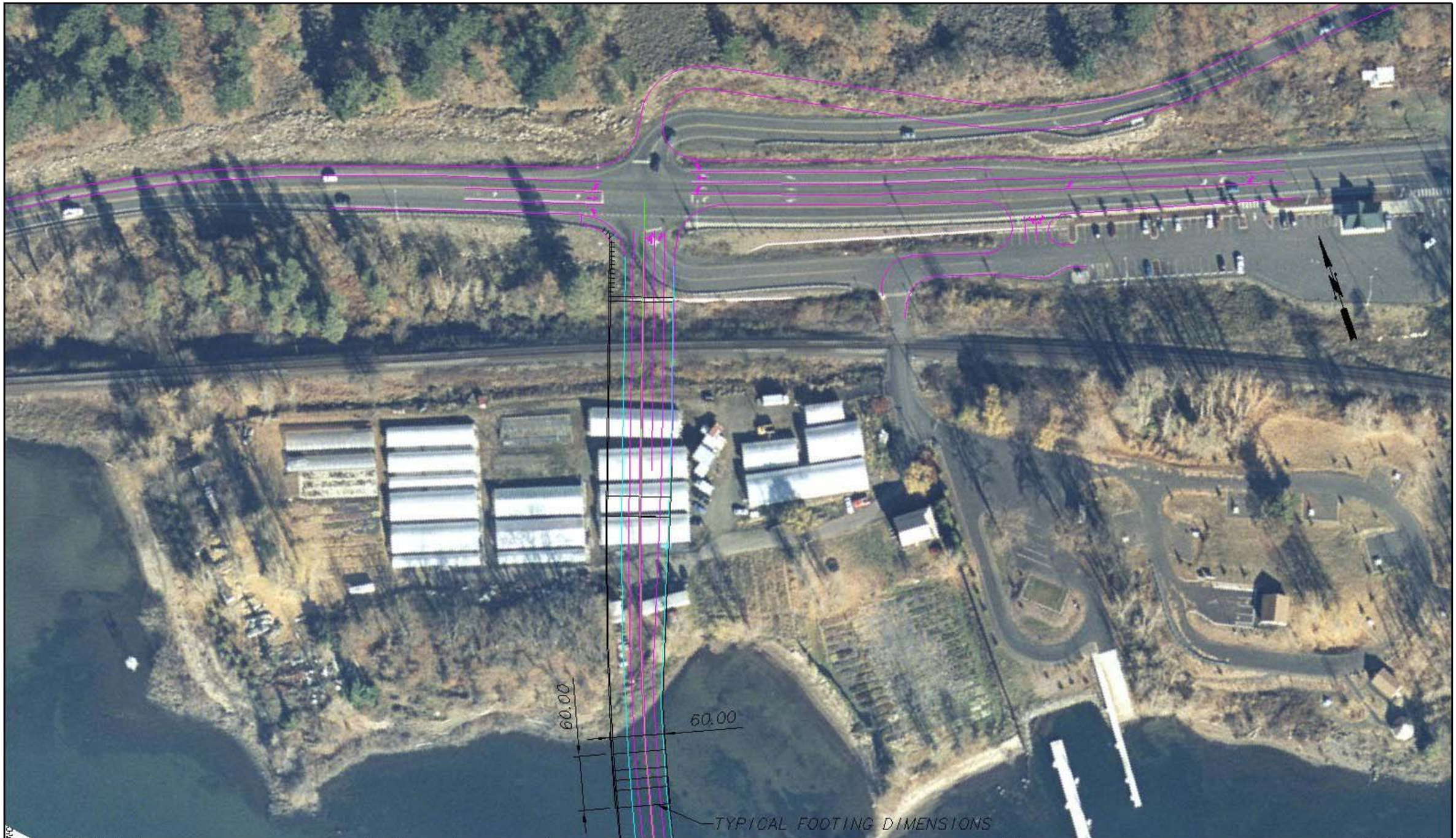

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HOOD RIVER BRIDGE STUDY
OPTION EC-1
NORTH END

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HOOD RIVER BRIDGE STUDY
OPTION EC-2
NORTH END

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HOOD RIVER BRIDGE STUDY
OPTION EC-3
NORTH END

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1.4.6 Construction Activities for Replacement Bridge Alternatives

All replacement bridge alternatives involve constructing a new bridge while traffic continues to use the existing bridge. Once the new bridge is able to support cross-river traffic, the existing bridge would be demolished.

A range of construction, substructure and superstructure options may be used on the proposed project. Two alternative types of pile systems are under consideration: driven steel piles and drilled shafts. Depending on the geotechnical conditions of the site, driven pile may not be feasible. However, both pile systems are considered at this time. Pier-footing schemes may include either water line foundations or cofferdam construction. Both schemes would require the use of barge-mounted equipment. The superstructure would either be concrete or steel. Concrete superstructures would be cast-in-place, pre-cast, or a combination of the two methods. Steel superstructures would be fabricated with steel plate or steel box girders. A third steel superstructure could include a steel tied arch for the main navigation span. This steel tied arch can be used in combination with either concrete or steel girders. A full description and example photographs that demonstrate these construction activities are provided in the *Bridge Construction Assumptions* (Southwest Washington Regional Transportation Council et al., 2003).

The range of construction, substructure and superstructure options are based on conceptual-level design and knowledge of the environment, and is not presumed to be all-inclusive. This range was developed based on the type of bridges under consideration, typical construction methods for the region, and available information. As the designed is advanced, these options will be further developed.