Agenda
Hearing Examiner Meeting
Monday, August 12, 2019
City Hall Council Chambers | 625 Swift Boulevard

Hearing Examiner: Gary McLean

Liaisons: Staff Liaison: Planning Manager Stevens

Public Hearing – 6:00 p.m.

Public Hearing Explanation:

New Business – Public Hearing:

1. Horn Rapids Apartments Site Plan Approval (M2019-100)
2. Snyder Street Water Intake Facility Upgrades - SMP2019-102

Adjournment

The next Hearing Examiner Meeting is TBD

This meeting is broadcast live on CityView Channel 192 and online at ci.richland.wa.us

Richland City Hall is ADA accessible. Requests for sign interpreters, audio equipment, and/or other special services must be received 48 hours prior to the meeting by calling the City Clerk's Office at 942-7388.

HEARING EXAMINER AGENDA ITEM COVERSHEET

Meeting Date: 8/12/2019

Agenda Category: New Business – Public Hearing

Prepared By:

Subject:
Horn Rapids Apartments Site Plan Approval (M2019-100)

Department:
Development Services

Recommended Motion:
Approval subject to conditions contained in the staff report.

Summary:
A site plan review application for the construction of eight (8) multi-family residential buildings containing up to 324 dwelling units together with a club house building and associated parking structures, paving and landscaping on a 14.8-acre site in the C-LB zone

Attachments:

1. FULL Staff Report (M2019-100)

CITY OF RICHLAND DEVELOPMENT SERVICES DIVISION
STAFF REPORT TO THE HEARING EXAMINER

GENERAL INFORMATION:

PROPOSAL NAME:	Horn Rapids Apartments
REQUEST:	Approval of a site plan application to construct eight multi-family residential buildings containing up to 324 dwelling units together with a club house building and associated parking structures, paving and landscaping on a 14.8-acre site in the C-LB zone
LOCATION:	On the west side of Kingsgate Way approximately 600-feet north of the intersection of Highway SR-240 and Kingsgate Way
APPLICANT:	Lee Petty (LCR Construction)
FILE NO.:	M2019-100
PROJECT TYPE:	Type II Site Plan Approval
HEARING DATE:	August 12, 2019
REPORT BY:	Shane O'Neill, Senior Planner
RECOMMENDED ACTION:	Approval subject to conditions

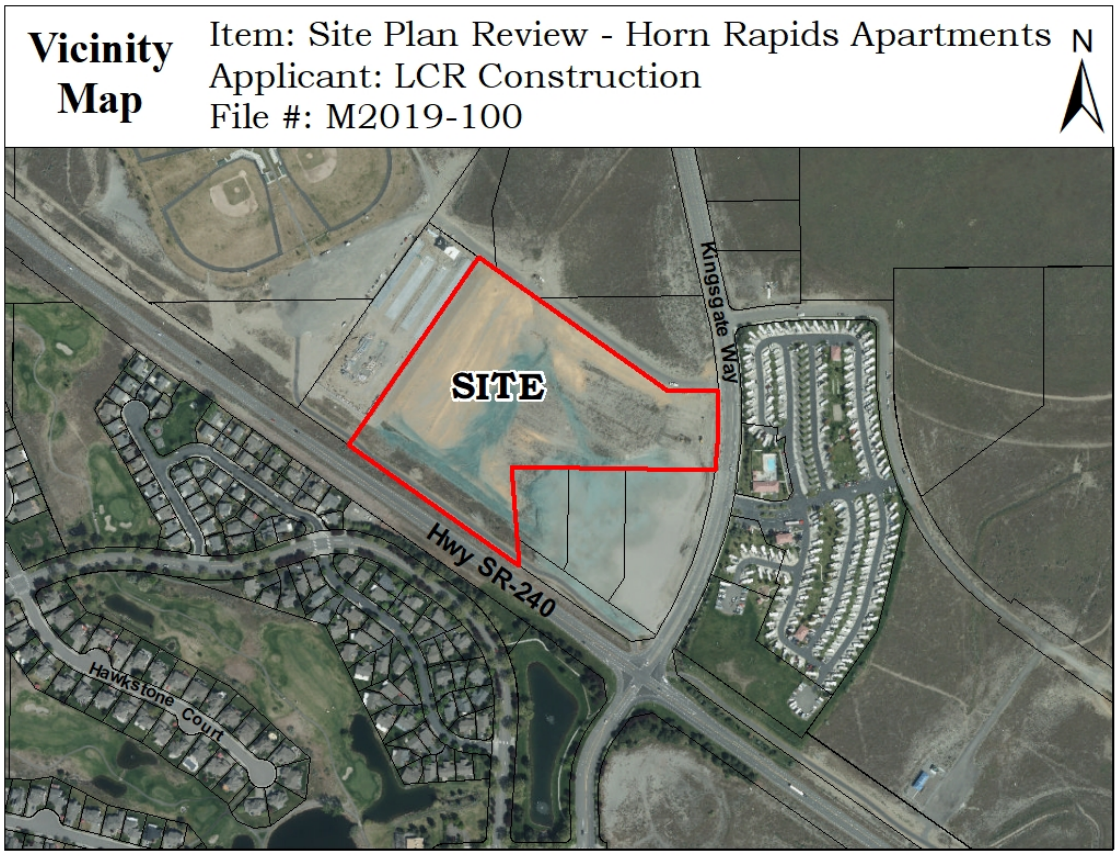


Figure 1 - Vicinity Map

DESCRIPTION OF PROPOSAL

LCR Construction, LLC wishes to develop a 14.8-acre site with eight (8) multi-family residential buildings containing up to 324 dwelling units, a clubhouse and several covered parking structures together with associated parking and landscaping areas. *Exhibit 2* illustrates the proposed site layout.

REASON FOR REQUEST

Richland Municipal Code (RMC) Chapter 23.48 requires site plan approval by the Hearing Examiner prior to issuance of any building permit for construction of any multi-family development containing twenty (20) or more dwelling units in the C-LB (Commercial Limited Business) zone.

Considering that multi-family residential development is a permitted use in the C-LB zone, RMC 23.48.010 precludes the site plan review process from resulting in denial of a development proposal. Zoning Code Section 23.48.040 outlines some aspects of a development which are subject to alteration/conditioning through the site plan review process. Language in RMC 23.48.040 provides clarity for those items potentially subject to modification as a result of this review:

23.48.040 Site plan – Conditions of approval
Site plan approvals may be made subject to any condition(s) which the hearing examiner determines to be necessary to protect the public health, safety and welfare or otherwise bring a proposed development into compliance with the purpose and intent of this title. Such conditions may include but are not limited to increased setbacks, and buffers, including landscaping, fences and walls; restrictions on the type and location of outdoor lighting; surfacing of parking areas and driveways; the installation of stormwater drainage facilities; the construction and location of service roads and alleys; the points of vehicular ingress or egress; the regulation of the time and type of various activities; vibration, noise, odors or similar nuisances, and the type, size and location of signs.

SITE DESCRIPTION & ADJACENT LAND USES

The site consists of one (1) parcel having the shape of an irregular polygon. Vicinity, land use and zoning maps included herein illustrate the parcel's boundary configuration. The site is located on the west side of Kingsgate Way approximately 600-feet north of the intersection of Highway SR-240 and Kingsgate Way.

The existing access to the site comes by way of an off-site connection to Kingsgate Way on an asphalt driveway secured by an easement granted to the landowner by the City of Richland, owner of adjacent land to the north.

Having been previously cleared and roughly graded, the site is relatively flat and is largely devoid of any significant vegetation. A small amount of grassy plants have begun to colonize the site since being graded. Native soils present are very loose coarse and fine sands with intermixed silt and gravel-sized stones.

SURROUNDING LAND USES:

North –	Hanford Legacy Park Baseball Fields
East –	Vacant
South –	Single-Family Residences
West –	Highway SR-240 & Single-Family Residences

BACKGROUND

A few years ago the subject parcel included an additional 4-acre swath of land immediately to the north. At that time the entire site was vacant. That 4-acre tract was the subject of a rezone application considered by the Hearing Examiner in 2017. The rezone application requesting a rezone from C-LB to C-3, was ultimately approved on April 18, 2017 by City of Richland Ordinance 11-17. Later that year the City issued a building permit (Permit # CC-17-01932) for the construction of a mini-storage facility on the northerly 4-acres. Earlier this year the City reviewed and approved a short plat application severing the 4-acre, C-3 tract from the remainder which comprises the subject site proposed for multi-family development.

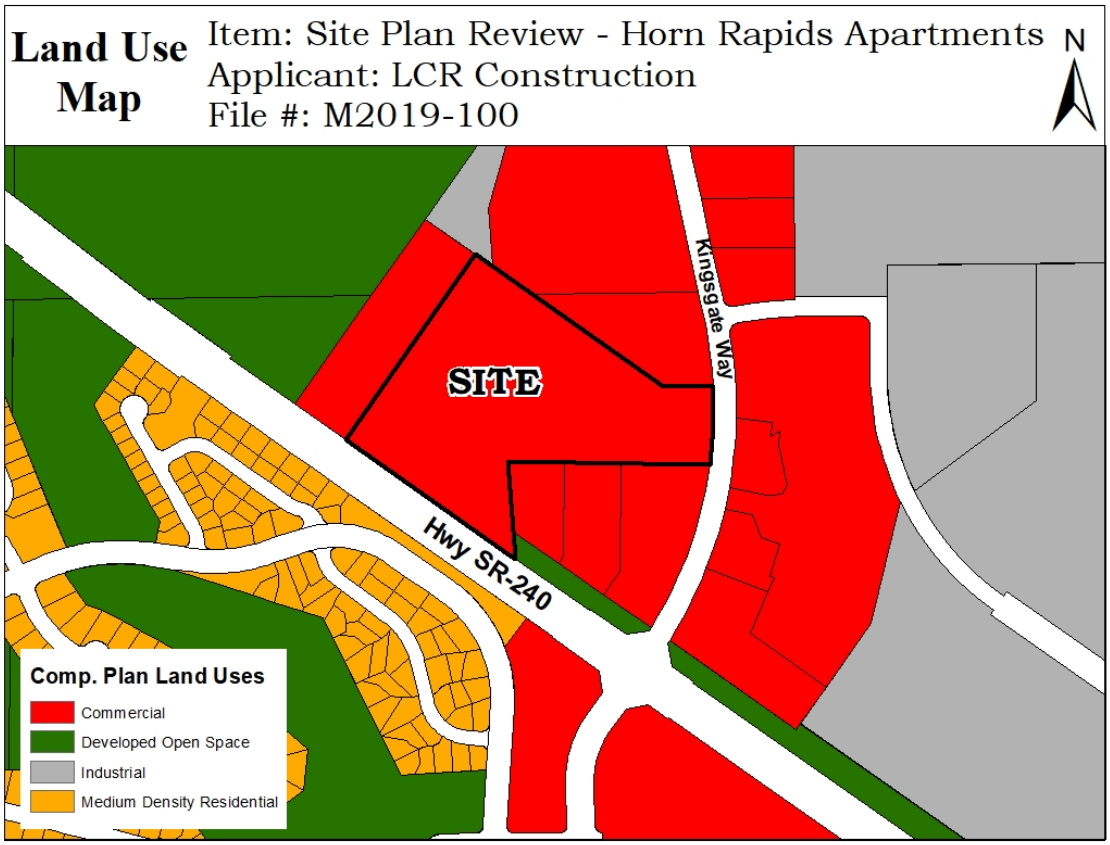


Figure 3 – Comprehensive Plan

COMPREHENSIVE PLAN

As illustrated in Figure 3 (above), Richland's Comprehensive Plan designates the site for commercial land uses. C-LB zoning complies with the intent of the commercial land use designation (RMC 23.22.010(A)).

CURRENT ZONING

The subject site is zoned C-LB (Limited Business). Surrounding lands are zoned as follows:

NORTH – C-3 (General Business)
EAST – C-3 (General Business)
SOUTH – PUD (Residential Planned Unit Development)
WEST – C-3 (General Business)

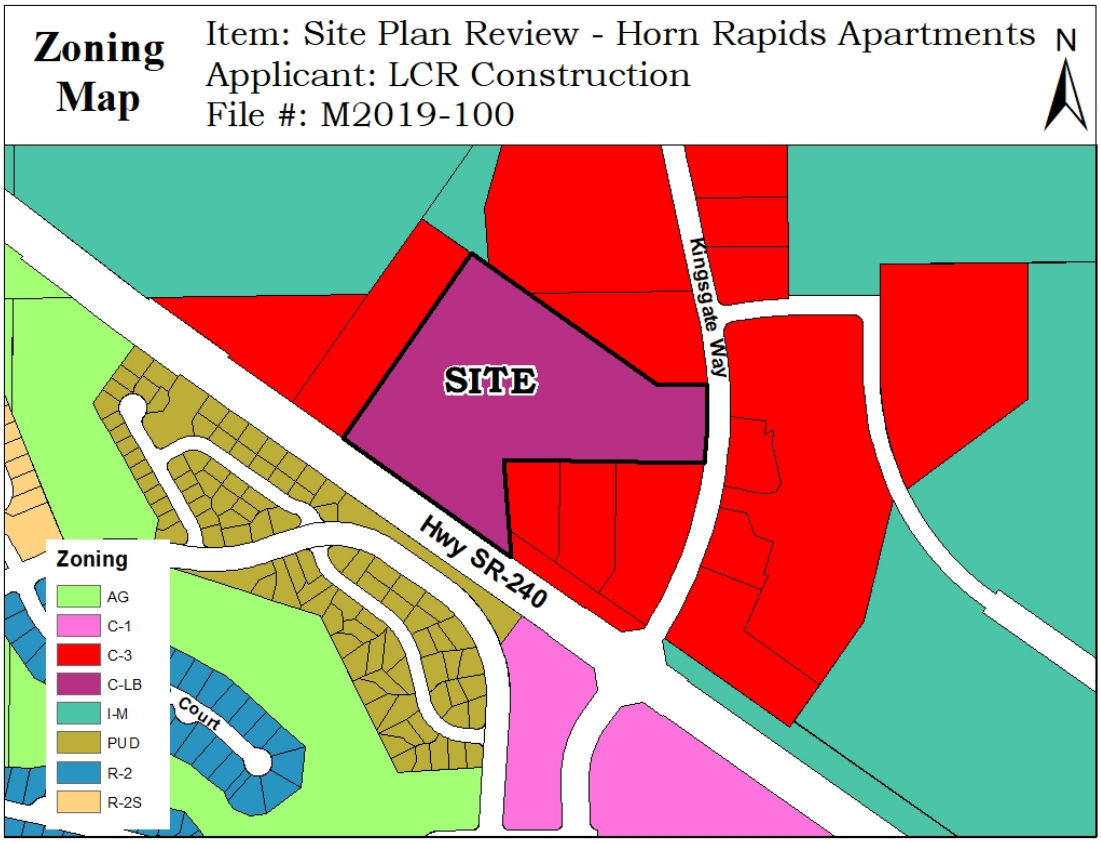


Figure 3 – Zoning Map

The Limited Business (C-LB) use district is designed to provide land for the location of professional and business offices, motels, hotels, and their associated accessory uses, and other compatible uses […] with regulations affording protection for developments in this and adjacent districts and in certain instances to provide a buffer zone between residential areas and other commercial and industrial districts [RMC 23.22.010(A)].

The commercial land use table (RMC 23.22.030) indicates the C-LB zone permits "apartment, condominium (3 or more units)". Likewise, RMC 23.22.040 provides a maximum residential density of 1 dwelling unit for every 1,500 square feet of land.

23.22.020 Performance standards and special requirements.
A. Commercial Limited Business. Residential uses permitted in the C-LB district must comply with the following standards except as provided by footnote (6) of RMC 23.22.040:

1. Minimum Yard Requirements.

a. Front Yard. Twenty feet except as provided by footnote (3) of RMC 23.18.040;

b. Side Yards. Each side yard shall provide one foot of side yard for each three feet or portion thereof of building height;
c. Rear Yards. Twenty-five feet.

2. Required Court Dimensions. Each court on which windows open from any room other than a kitchen, bathroom or a closet, shall have all horizontal dimensions measured at right angles from the windows to any wall or to any lot line other than a front lot line equal to not less than the height of the building above the floor level of the story containing the room, but no dimension shall be less than 20 feet.

3. Distance between Buildings. No main building shall be closer to any other main building on the lot than a distance equal to the average of their heights. This provision shall not apply if no portion of either building lies within the space between the prolongation of lines along any two of the opposite walls of the other building, but in any such situation the buildings shall not be closer to each other than a distance of 10 feet.

4. Percentage of Lot Coverage. Apartment buildings in a C-LB district shall cover not more than 33 percent of the area of the lot.

Referenced foot note 6 reads:
6. In any commercial limited business (C-LB), central business (CBD) or in any commercial winery (CW) zoning district that directly abuts a single-family zoning district, the following buffer, setback and building height regulations shall apply to all structures:

a. Within the commercial limited business (C-LB), the central business district (CBD) and the commercial winery (CW) districts, buildings shall maintain at least a 35-foot setback from any property that is zoned for single-family residential use. Single-family residential zones include R-1-12 – single-family residential 12,000, R-1-10 – single-family residential 10,000, R-2 – medium-density residential, R-2S – medium-density residential small lot, or any residential planned unit development that is comprised of single-family detached dwellings.

b. Buildings that are within 50 feet of any property that is zoned for single-family residential use in commercial limited business (C-LB) and the commercial winery (CW) districts and buildings that are within 50 feet of any property that is zoned for and currently developed with a single-family residential use in the central business district (CBD) (as defined in footnote (6)(a)) shall not exceed 30 feet in height. Beyond the area 50 feet from any property that is zoned for single-family residential use, building height may be increased at the rate of one foot in building height for each additional one foot of setback from property that is zoned for single-family residential use to the maximum building height allowed in the C-LB, CW and CBD zoning districts, respectively.

c. A six-foot-high fence that provides a visual screen shall be constructed adjacent to any property line that adjoins property that is zoned for single-family residential use, or currently zoned for and developed with a single-family residential use in the CBD district. Additionally, a 10-foot landscape strip shall be provided adjacent to the fence. This landscape strip may be used to satisfy the landscaping requirements established for the landscaping of parking facilities as identified in RMC 23.54.140.

d. In the C-LB and CW districts, a 20-foot setback shall be provided for any side yard that adjoins a street.

C-LB DIMENSIONAL & PARKING STANDARDS

The following standards apply in the C-LB zone per RMC 23.22.020 which preempt the standard dimensional requirements set forth in RMC 23.22.040:

Front yard setback:	20 feet (*compliance verified*)
Side yard setback:	One (1) foot of side yard for each three feet or portion thereof of building height; (*12' min., compliance verified*)
Rear yard setback:	No minimum required, except parking shall be set back a minimum of five feet to accommodate required landscape screening as required under RMC 23.54.140. (*compliance verified*)
Maximum building height:	55 feet
Off Street Parking:	1.5 spaces/dwelling unit; 1 space/studio dwelling (*compliance verified*)

ZONING REVIEW AUTHORITY

RMC Section 19.20.030 designates the Hearing Examiner as the hearing body responsible for conducting the review of site plan approval applications and RMC 23.48.020 triggers the need for site plan approval for multi-family residential developments containing 20 or more units in the C-LB zone.

PUBLIC NOTICE

Application Date:	July 1, 2019
Combined Notice of Application & Hearing Mailed:	July 23, 2019
Combined Notice of Application & Hearing Posted:	July 24, 2019
Combined Notice of Application & Hearing Published:	July 25, 2019
Public Hearing:	August 12, 2019

A combined notice of application, SEPA determination and notice of hearing was provided through posting of the property, mailing of notice to property owners within 300 feet of the site and publication in the *Tri-City Herald* newspaper. Copies of the notices and affidavits are included in *Exhibit 4*.

UTILITY AVAILABILITY

The City has domestic water, sewer and electrical power lines in place within reasonable proximity to serve the site and have adequate capacity to supply the proposed project.

Sewer

Municipal sewer service is currently stubbed to the property from the eight-inch main located in Kingsgate Way.

Water

Municipal water service is currently stubbed to the property from the twenty-inch main located in Kingsgate Way.

Power

Municipal power is available to serve the site from underground power lines located in the Kingsgate Way right-of-way.

TRANSPORTATION & ACCESS

As shown in the proposed site plan (*Exhibit 2*) the development will have multiple points of access, all of which originate from Kingsgate Way. The "primary" access point begins by the northeast corner of the property where there is an existing paved access easement benefitting Mr. Petty's site pursuant to Benton County Auditor's File # 2019-010046 (*Exhibit 8*). There will be two points of entry to the site stemming from the south side of the easement.

Secondary access to the site comes from an off-site shared-driveway connecting to Kingsgate Way on Parcel B of ROS# 1-2056 as shown on Sheet SP-2 in *Exhibit 2*. This off-site driveway will provide another two points of access to the apartments and is tentatively shown as serving future developments on Parcels 1, 2 & 3 (ROS# 1-2056) currently owned by CMCS Properties LLC out of Kennewick, WA.

In total, the site will have four (4) points of access stemming from two connections to Kingsgate Way.

The ITE Trip Generation Manual (10^{th} Edition) applies a peak pm trip generation rate of 0.56 trips/unit for multi-family residential developments. Accordingly, an apartment complex containing 324 dwelling units is forecast to generate an estimated 181.4 trips at the peak pm hour. This detail is contained in the respective SEPA checklist (*Exhibit 5*).

SEPA

The project requires compliance with the provisions of the State Environmental Policy Act. The applicants filed an environmental checklist. (*Exhibit 5*). City staff reviewed the checklist, plans and application materials and entered a Determination of Non-Significance into the record on August 6, 2019 (*Exhibit 7*).

AGENCY COMMENTS

No agency comments affecting this project's site plan have been received. Copies of all agency comments received by the City are included as *Exhibit 10*.

The City of Richland Utility and Civil Engineering Division provided detailed comments, which are attached as *Exhibit 9*.

PUBLIC COMMENTS

At the time this report was prepared, the City received no comments from the public.

ANALYSIS

The above zoning section of this report provides the applicable standards against which the proposed site plan is evaluated; it is the purpose of this section of the report to enter a detailed zoning review into the record.

Staff review of the site plan results in no findings of non-compliance with the minimum setback requirements of the C-LB zone and the performance standards thereof outlined in the *C-LB Dimensional & Parking Standards* section of this report. Further conditions to ensure compliance are unnecessary.

Building Height

The C-LB zone allows buildings up to 55-feet in height (RMC 23.22.040). Building height is the vertical distance from grade plane to the average height of the highest roof surface (RMC 23.06.455). The proposed building, as shown on sheet EV (*Exhibit 2*), are shown to be 35-feet, 9-inches tall. As illustrated in the application submittal, the buildings fall within the allowable height limit.

Parking

The minimum parking rate applied to multi-family developments is 1.5 stalls per dwelling unit (RMC 23.54.020(A)) and 1 stall/unit in the case of studio apartments. The site plan includes a club house and swimming pool together with surrounding patio area(s). These amenities qualify as a "recreational club" (RMC 23.06.800). Additional parking requirements for recreational clubs are found in RMC 23.42.210. The applicable parking requirement reads:

> *"…There shall be provided one space per 2,000 square feet of gross land area, plus one additional space per two employees. Should the development include an indoor recreational facility or assembly area there shall be provided one additional space per 40 square feet of gross useable floor area."*

Minimum parking requirements for all combined uses are calculated as follows:
276 standard units x 1.5 stalls = 414 stalls required
48 studio units x 1 stalls = 48 stalls required
rec. club land area = 12,500 ft^2 /2,000 ft^2 = 6.25 (6) stalls required
Rec. club bldg. = 4,613 ft^2/40 ft^2 = 15 stalls required
2 employees = 1 stall required
Total = 484 stalls required

The proposed site plan (Sheet SP-2, *Exhibit 2*) indicates 557 parking stalls will be provided; thereby exceeding the minimum requirement by 73 stalls.

Landscaping

Approval of the previously referenced rezone (Ordinance 11-17, *Exhibit 7*) for the adjacent mini-storage site was conditioned upon completion of a landscaping buffer along what is now the northwesterly property line of the site currently being reviewed for site plan approval. At the time the mini-storage facility was developed Planning Department staff agreed to defer the landscaping buffer contingent upon development of the subject site. Said landscaping buffer is intended to benefit the residential development by providing some visual appeal and some degree of attenuation from impacts generated by the storage facility. Said condition reads:

> *"A minimum 10 foot wide, irrigated landscape strip shall be provided along the southeastern side of the site together with a six foot block wall or fence. Said wall or fence shall be installed along the southeast border of the site with landscaping installed outside of the wall or fence. The intent of landscaping within this area is to provide screening for the adjacent future development on the parcel"*

Accordingly, sheet L1 of *Exhibit 2* provides indication the required landscaping will be installed concurrent with site development. The condition inserted above is further specified and entered as a condition of approval herein.

Many areas interior to the apartment complex are shown on Sheet L1 to be treated with additional landscaping which is an entirely optional site improvement. The respective Kingsgate Way right-of-way frontage is proposed to be landscaped with lawn and street trees. Site-wide there will be approximately 205,001 square feet of the site treated with landscaping.

Critical Areas

As identified in the City Comprehensive Plan Critical Areas Map, the Yakima River floodplain is the critical area nearest to the subject site. The floodplain critical area boundary nearest to the subject site lies approximately 3,500-feet southwest of the south property line of the site. Due to this degree of distance separation from critical areas, the project complies with Title 22 without further analysis.

Shoreline Master Program

The subject site lies far outside of the jurisdiction of the Shoreline Master Program. This project will have no effect on shorelines of statewide significance. Shoreline permitting requirements are not applicable in this case.

RECOMMENDED CONDITIONS OF APPROVAL

1. The site shall be developed in substantial conformance with the site plan, landscaping plan and building elevations submitted with the site plan review application, included in this staff report as *Exhibit 2*;

2. Site development shall conform to the set of requirements contained in the Public Works Development Comments dated August 1, 2019 included in this staff report as *Exhibit 9*, or as amended;
3. The site plan(s) submitted with subsequent building permit application(s) shall specify precise setbacks for each building respective to distances from the nearest property line(s);
4. A minimum 10 foot wide, irrigated landscape buffer shall be provided interior to and along the entire distance (800-feet) of the northwesterly property line. Said landscape buffer shall contain trees spaced thirty (30) feet apart and shall contain a variety of shrubs and grasses interspersed between the trees;
5. Landscaping within the 10-foot landscape strip along the western property boundary shall include tree plantings for each 30 linear feet along the landscape strip. Trees shall be species having an average mature spread of crown of greater than 15 feet and shall be a minimum of six to eight feet in height and have a diameter at breast height (dbh) caliper of at least one and one-half inches at planting. Diameter at breast height is measured at four and one-half feet from average grade within six feet of the tree trunk so as not to include mounding at the tree base. Trees having an average mature spread of crown less than 15 feet may be substituted by grouping the same so as to create the equivalent of a 15-foot crown spread;
6. A single freestanding sign is available to the property. Sign placement shall be restricted to the center 2/3 of the respective Kingsgate Way right-of-way frontage in a location outside the clear vision triangle;
7. The applicant shall prepare an emergency response plan in coordination with Benton County emergency services. Said emergency response plan shall be implemented prior to or simultaneously with the issuance of a certificate of occupancy for a project.
8. Prior to the submittal of the first building permit for the project, the applicant shall consult with Benton County emergency services to determine the following:
    i. The specific hazards to residential, day care and/or preschool populations that exist in the vicinity of the project site resulting from existing industrial land uses in the general area. Such hazards shall be determined and assessed through the review of risk management hazard plans that are on file with Benton County emergency services;
    ii. The parameters of the emergency services plan that are necessary to support the proposal. Such plan will at a minimum address the following:
        (A) Provisions for emergency notification;
        (B) Identification of evacuation routes;
        (C) Identification of special populations that may reside or be located within the proposed project (small children, seniors, individuals with mobility restrictions, etc.) for identification of specific provisions to address the safety of these special populations;
    iii. Identification of any plans for sheltering residential populations during an emergency event and any specific building or site design

features to be incorporated into the project to mitigate potential hazards created by nearby industrial facilities; and

iv. Identification of plans to inform the future residents of the residential project of the specific emergency notification procedures and actions that would be taken during an emergency event.

9. Following completion of the consultation process, the applicant shall obtain a written statement from Benton County emergency services that either:

   i. Indicates that the proposed project site is located outside of any known hazard area which represents a threat to residential, day care or preschool populations as identified in the risk management plans on file with Benton County emergency services and that the requirement for a specific emergency response plan is waived; or

   ii. Identifies the known hazards to residential, day care or preschool populations that are known to exist in or near the project site. Such report shall identify the specific mitigation measures that will be included in the emergency response plan. The applicant shall sign a statement acknowledging and agreeing to the mitigation measures included in the emergency response plan.

   iii. The applicant is required to provide any information requested by Benton County emergency services for the preparation of an emergency response plan;

10. Said statement from Benton County Emergency Services referenced in condition #9 (above) shall be submitted to the City concurrent with the first building permit for the project.

FINDINGS AND CONCLUSIONS

Staff has completed its review of the request for site plan approval (M2019-100) and recommends approval of the request subject to conformance to the conditions of approval identified above, based on the following findings:

1. The City of Richland's Comprehensive Plan designates the site for commercial land uses;

2. The subject site is located within the C-LB (Limited Business) zone;

3. C-LB zoning permits multi-family residential development at a maximum density of one (1) dwelling unit for every 1,500 square feet of respective land area;

4. The subject parcel is approximately 14.8-acres in area which would allow for development of up to 377 dwelling units;

5. The Site Plan Review (M2019-100) application proposes eight (8) multi-family residential buildings containing 324 dwelling units, one recreational club building, several covered parking structures and ten small accessory structures including pergolas and gazebos;

6. All multi-family developments containing 20 or more dwelling units in the C-LB zone require Site Plan Approval by the Hearing Examiner [RMC 23.48.020(B)];

7. LCR Construction LLC has filed a site plan approval application to develop a 14.8-acre site with eight (8) multi-family apartment buildings containing 324 dwelling units, detached garages and associated landscaping and parking improvements. The proposal is a use that is permitted outright in the C-LB zone;

8. All uses within the C-LB (Limited Business) zone are subject to the performance standards contained in RMC 23.22.020(A);

9. The review of site plan approval applications may not result in denial of permitted uses;

10. The Hearing Examiner is granted the authority to conduct the review of site plans for multi-family developments containing twenty (20) or more dwelling units in the in RMC 23.48.020(B);

11. Site Plan Review approvals are classified as a Type II application under RMC 19.20.010(B) and specifies that the Hearing Examiner shall make a final decision on an application unless appealed to City Council;

12. Public notice of the application and hearing was provided via mail to surrounding land owners within 300 feet of the site; through the posting of a sign on-site and through a legal advertisement in the *Tri-City Herald*, all in accordance with the notice provisions contained in RMC 19.40.010;

13. The applicant filed an environmental checklist with their application, which was reviewed by City staff who entered a Determination on Non-Significance into the record on August 6, 2019 using the optional DNS process pursuant to WAC 197-11-355;

14. The proposed development is consistent with the setback and building height requirements established for the C-LB (Limited Business) zone;

15. The proposed development would provide approximately 557 off-street parking spaces and so meets the parking standards identified in RMC 23.54.020;

16. The size of the property is adequate to support the proposed uses, as evidenced by the project's conformity to building setbacks and off-street parking requirements;

17. The physical conditions of the site are suitable for the proposed development;

18. Public facilities, consisting of sewer, water and street access are in place and available to serve the proposed development. All utility systems have adequate capacity to serve the proposed development;

19. The proposal, as conditioned, is consistent with the City's comprehensive plan and the provisions of the C-LB (Limited Business) zoning performance standards;

20. The proposal is exempt from the provisions of the City's sensitive areas ordinance and the shoreline management regulations given the absence of wetlands, water bodies, flood plains, steep slopes or geologically hazardous areas on site or in close proximity to the site;

21. No comments about the project from the public at large have been received by the City at the time this report was written.

EXHIBIT LIST

1. Application
2. Site Plan Submittals
3. Site Photos
4. Public Notices & Affidavits
5. Environmental Checklist
6. Determination of Non-Significance
7. Ordinance 11-17
8. Access Easement (AF# 2019-010046)
9. Public Works Development Comments
10. Agency Comments
11. Applicant Response to PW Comments

City of Richland
Development Services

625 Swift Blvd. MS-35
Richland, WA 99352
(509) 942-7794
(509) 942-7764

Exhibit 1

SITE PLAN REVIEW APPLICATION

☒ Multi-Family ☐ Commercial

Note: A Pre-Application meeting is required prior to submittal of an application.

APPLICANT INFORMATION			
Applicant Name: Lee Petty / LCR Construction			
Address: 2524 Robertson Drive	City: Richland	State: WA	Zip: 99354
Phone Number: 509.987.2747	Email: lcrlpetty@gmail.com		

PROPERTY INFORMATION	
Legal Description: See Sheet SP-0 Partial Survey	Size of Area (sq. ft.): Lot-1: 644,041 sf +/- 14.8 Acres Developed Area: +/- 13.1 Acres
Comprehensive Plan Designation: Commercial	Zoning Classification: C-LB
General Description of Property Location: 2665 Kingsgate Way, parcel ID# 281,670. The project is generally located at the NWC of Kingstgate Way & Hwy-240, Richland, WA	

DESCRIPTION OF PROPOSAL	
Development of +/- 13.1 acres of C-LB zoned land for up to 8-multi-family residential buildings, including up to 324 dwelling units, clubhouse, open space & and site amenities and supporting on-grade uncovered, covered and garage parking stalls, landscaping, storm drainage system and utilities.	
Gross Floor Area of Building: Total: +/- 125,000 sf	Approximate Time Table of Construction (start – end): Phase-I: August 2019 to January 2020. Phase-II: TBD
Total Dwelling Units: up to 324 units	Number of Required Parking Spaces: 501 stalls. See table SP-2 for more information
Comments or Additional Information:	

APPLICATION MUST INCLUDE

1. Completed Application and Filing Fee
2. 6 - Full Size Copies of proposed Site Plan
3. 1 – 11 x 17 reduction of Site Plan
4. Other information as determined by Administrator

I authorize employees and officials of the City of Richland the right to enter and remain on the property in question to determine whether a permit should be issued and whether special conditions should be placed on any issued permit. I have the legal authority to grant such access to the property in question.

I also acknowledge that if a permit is issued for land development activities, no terms of the permit can be violated without further approval by the permitting entity. I understand that the granting of a permit does not authorize anyone to violate in any way any federal, state, or local law/regulation pertaining to development activities associated with a permit.

I hereby certify under penalty of perjury under the laws of the State of Washington that the following is true and correct:

1. I have read and examined this permit application and have documented all applicable requirements on the site plan.
2. The information provided in this application contains no misstatement of fact.
3. I am the owner(s), the authorized agent(s) of the owner(s) of the above referenced property, or I am currently a licensed contractor or specialty contractor under Chapter 18.27 RCW or I am exempt from the requirements of the Chapter 18.27 RCW.
4. I understand this permit is subject to all other local, state, and federal regulations.

Note: This application will not be processed unless the above certification is endorsed by an authorized agent of the owner(s) of the property in question and/or the owner(s) themselves. If the City of Richland has reason to believe that erroneous information has been supplied by an authorized agent of the owner(s) of the property in question and/or by the owner(s) themselves, processing of the application may be suspended.

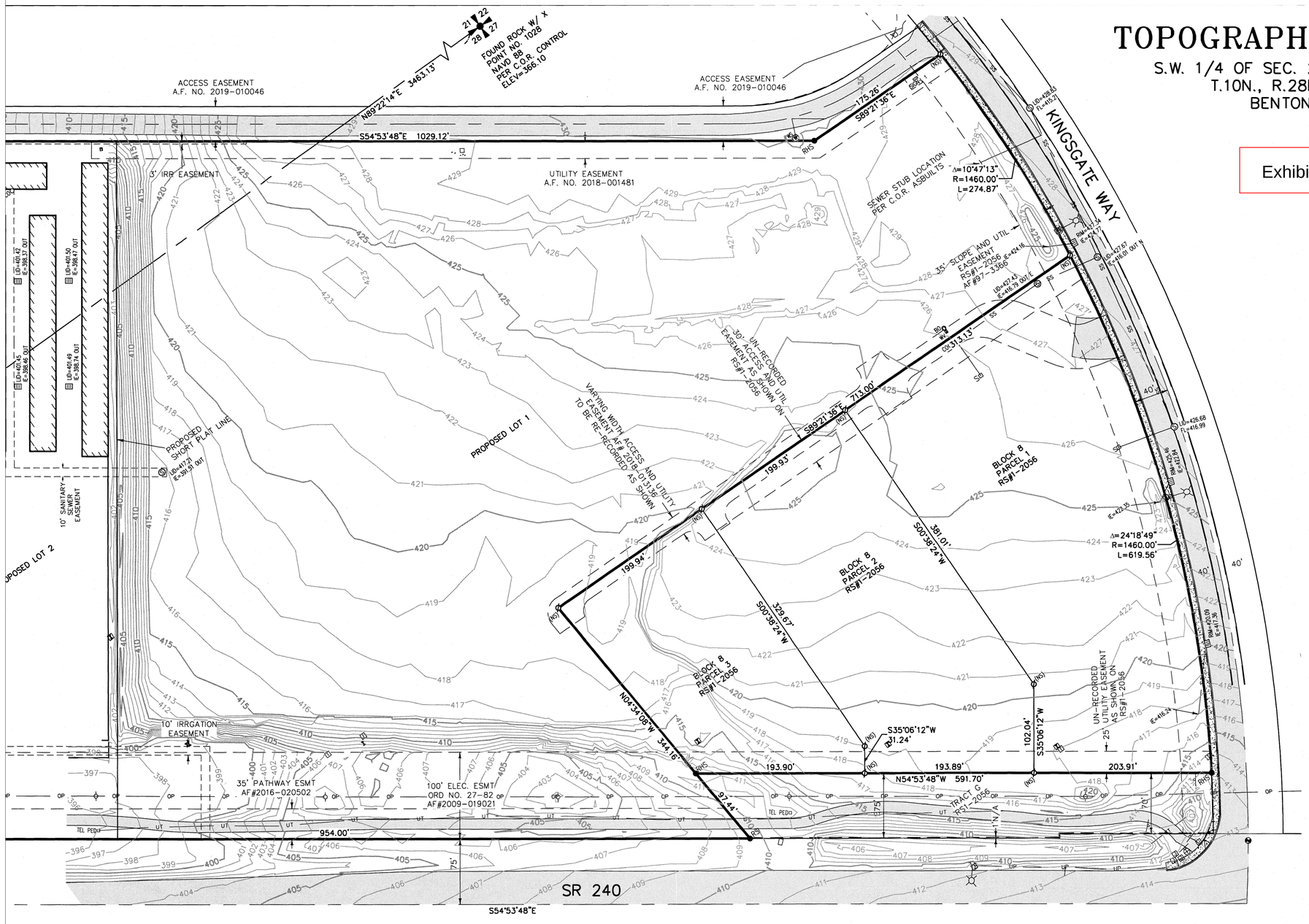
Applicant Printed Name: Carrie Sullivan

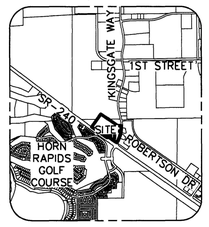
Applicant Signature: Carrie Sullivan Date 7-1-2019

TOPOGRAPHIC DESIGN SURVEY

S.W. 1/4 OF SEC. 21 AND THE N.W. 1/4 OF SEC. 28,
T.10N., R.28E., W.M., CITY OF RICHLAND,
BENTON COUNTY, WASHINGTON

Exhibit 2





VICINITY SKETCH

NOT TO SCALE

LEGEND

- RHS ● = FOUND 5/8" REBAR W/YELLOW PLASTIC CAP MARKED "STRATTON RHS 14120"
- RS ● = FOUND 5/8" REBAR W/YELLOW PLASTIC CAP MARKED "ROGERS 21384"
- (NS) Ø = NOT FOUND OR SET
- = FOUND CASED MONUMENT
- B.O.B. = BASIS OF BEARING
- = CONCRETE CURB AND GUTTER
- = IRRIGATION STUB
- = IRRIGATION VALVE
- = IRRIGATION CONTROL VALVE
- = LIGHT POLE, STREET
- = POWER JBOX
- = POWER POLE W/ GUY WIRE
- = SANITARY SEWER MANHOLE
- = SANITARY SEWER STUB
- = STORM CATCH BASIN
- TEL PED = TELEPHONE PEDESTAL
- BDO = WATER BLOW-OFF
- = WATER VALVE
- = WATER MANHOLE
- ARV = WATER AIR RELEASE VALVE
- = EASEMENT
- = PROPOSED EASEMENT
- = PROPERTY BOUNDARY
- = CENTERLINE
- U IRR = IRRIGATION LINE
- SS = SANITARY SEWER LINE
- OP = POWER LINE OVERHEAD
- UP = POWER LINE UNDERGROUND
- UT = TELEPHONE UNDERGROUND
- UW = WATERLINE UNDERGROUND
- = CONCRETE
- = ASPHALT
- = GRAVEL

SCALE 1" = 60'

0 60 120 180

BASIS OF BEARING
RS#1-2056

BASIS OF ELEVATION
CITY OF RICHLAND
CONTROL PNT NO.1028
NAVD 88 DATUM
ELEV=366.10'

EQUIPMENT USED
A THREE-SECOND TOTAL STATION
TOPCON HIPER RTK GPS

PARCEL A

LOT 1, BLOCK 8, ACCORDING TO THE BINDING SITE PLAT 2056, RECORDED UNDER AUDITOR'S FILE NO. 95-18807, ALSO SHOWN OF RECORD AS TRACT 3 OF SURVEY RECORDED UNDER AUDITOR'S FILE NO. 1998-022820, RECORDS OF BENTON COUNTY, WASHINGTON.

PARCEL B

LOT 2, BLOCK 8, ACCORDING TO BINDING SITE PLAN 2056, RECORDED UNDER AUDITOR'S FILE NO. 95-18807, ALSO SHOWN OF RECORD AS TRACT 3 OF SURVEY RECORDED UNDER AUDITOR'S FILE NO. 1998-022820, RECORDS OF BENTON COUNTY, WASHINGTON.

PARCEL C

LOT 3, BLOCK 8, ACCORDING TO THE BINDING SITE PLAN 2056, RECORDED UNDER AUDITOR'S FILE NO. 95-18807, ALSO SHOWN OF RECORD AS TRACT 3 OF SURVEY RECORDED UNDER AUDITOR'S FILE NO. 1998-022820, RECORDS OF BENTON COUNTY, WASHINGTON.

PARCEL D

THAT PORTION OF THE SOUTHWEST QUARTER OF SECTION 21, AND THAT PORTION OF THE NORTHWEST QUARTER OF SECTION 28, TOWNSHIP 10 NORTH, RANGE 28 EAST, W.M., CITY OF RICHLAND, BENTON COUNTY, WASHINGTON, DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF SECTION 28 MONUMENTED BY A FOUND SCRIBED "X" ON A STONE IN A CONCRETE BOX;

THENCE SOUTH 68°10'57" WEST 3278.94 FEET TO A POINT ON THE WEST RIGHT-OF-WAY OF A CITY STREET KNOWN AS KINGSGATE WAY AND THE NORTHEAST CORNER OF TRACT G AS SHOWN ON RECORD SURVEY #1-2515, RECORDS OF SAID COUNTY, SAID POINT BEING THE TRUE POINT OF BEGINNING;

SAID POINT OF BEGINNING LIES AT THE BEGINNING OF A CURVE TO THE LEFT, THE RADIUS POINT OF WHICH BEARS NORTH 57°57'05" WEST 1460.00 FEET;

THENCE NORTHERLY ALONG SAID CURVE AND SAID RIGHT-OF-WAY 894.43 FEET;

THENCE NORTH 89°21'36" WEST 175.26 FEET;

THENCE NORTH 54°53'48" WEST 1029.12 FEET;

THENCE SOUTH 35°06'12" WEST TO THE NORTH RIGHT-OF-WAY OF STATE HIGHWAY 240 A DISTANCE OF 800.00 FEET;

THENCE SOUTH 54°53'48" EAST ALONG SAID RIGHT-OF-WAY 954.00 FEET;

THENCE NORTH 04°34'08" WEST 97.44 FEET;

THENCE SOUTH 54°53'48" EAST 591.70 FEET TO THE SAID TRUE POINT OF BEGINNING;

EXCEPTING THEREFROM LOTS 1, 2, AND 3, BLOCK 8, ACCORDING TO THE BINDING SITE PLAN NO. 2056 THEREOF RECORDED UNDER AUDITOR'S FILE NO. 95-18807.

DEREK C. INGALSBE
STATE OF WASHINGTON
46886
REGISTERED
PROFESSIONAL LAND SURVEYOR

5/17/19

TOPOGRAPHIC SURVEY FOR
LCR CONSTRUCTION, LLC

STRATTON SURVEYING
STRATTON SURVEYING & MAPPING, PC
313 NORTH MORAIN STREET
KENNEWICK, WA 99336
(509) 735-7364
FAX: (509) 735-6560
stratton@strattonsurvey.com

3187TP5.DWG	© 2019
DATE: 05/17/19	SHT. 1 OF 1
DRAWN BY: DCI	JOB # 3187

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PRELIMINARY NOT FOR CONSTRUCTION

Site Plan Review
July 01, 2019

Partial Survey (Refernce Only)

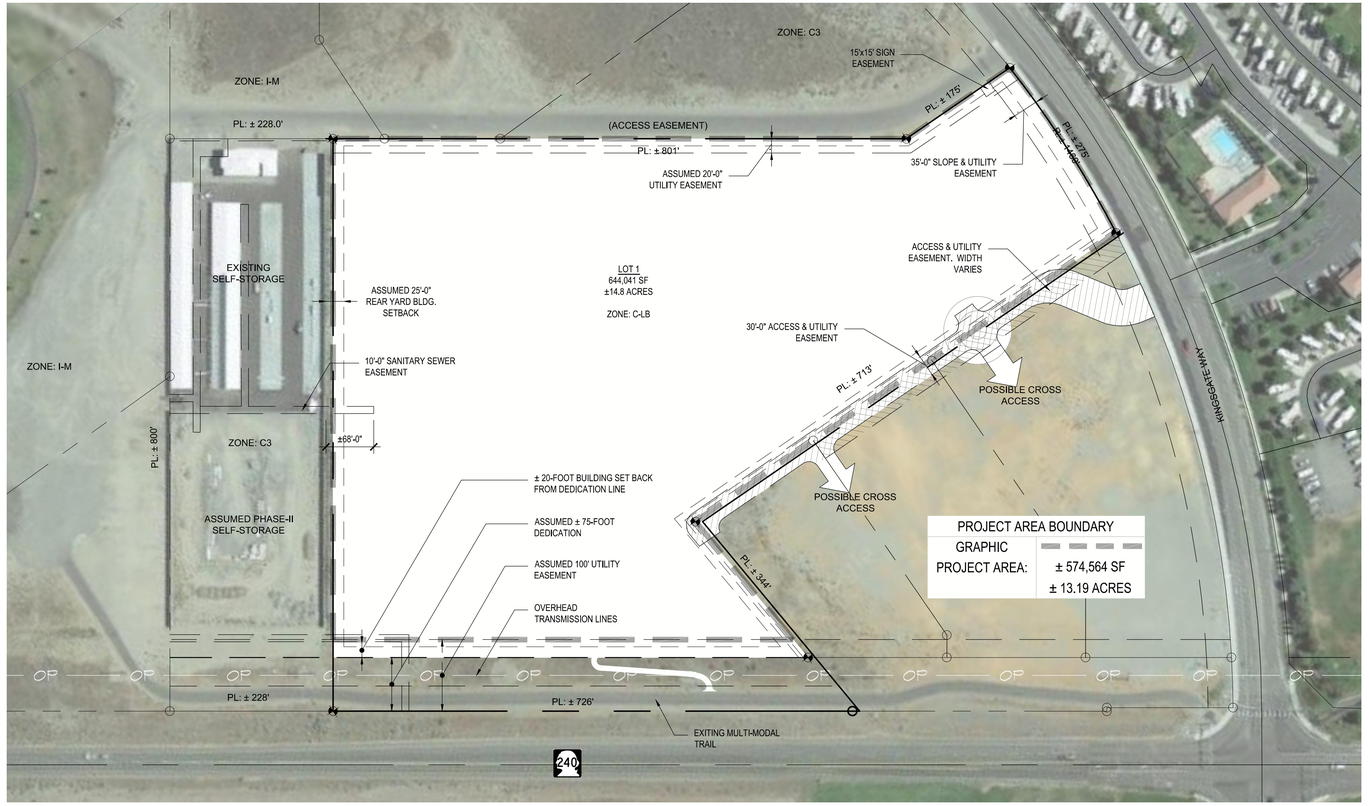
Horn Rapids Apartments
Hwy 240 & Kingsgate Way, WA
RICHLAND, WA

ENCLAVE DEVELOPMENT

B W A BERNARDO | WILLS ARCHITECTS PC
153 SOUTH JEFFERSON SPOKANE WASHINGTON 99201 509.838.4511 FAX 509.838.4605 WWW.BERNARDOWILLS.COM

Project No: 19.02.051
Drawn by:
Date: Noted

SP-0



NORTH

Zoning Plan, Use Standards & Assumptions

Scale: 1"=100'-0"

Site & Development Standards (C-LB)

MINIMUM LOT AREA	NONE
MAXIMUM DENSITY – MULTIFAMILY DWELLINGS (UNITS/SQUARE FEET)	1 : 1,500
MINIMUM FRONT YARD SETBACK	20-FEET
MINIMUM SIDE YARD SETBACK	0-FEET
MINIMUM REAR YARD SETBACK	0-FEET [8]
MAXIMUM BUILDING HEIGHT	55-FEET
MINIMUM DWELLING UNIT SIZE (IN SQUARE FEET, EXCLUDING PORCHES, DECKS, BALCONIES AND BASEMENTS)	500 FEET

[8] *NO MINIMUM REQUIRED, EXCEPT PARKING SHALL BE SET BACK A MINIMUM OF FIVE FEET TO ACCOMMODATE REQUIRED LANDSCAPE SCREENING AS REQUIRED UNDER RMC 23.54.140.*

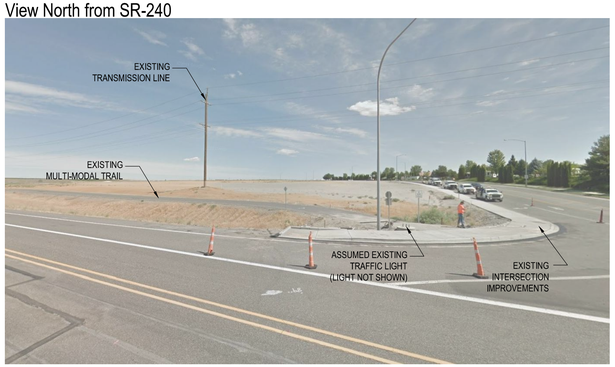
Performance Standards & Special Requirements

RESIDENTIAL USES PERMITTED IN THE C-LB DISTRICT MUST COMPLY WITH THE FOLLOWING STANDARDS EXCEPT AS PROVIDED BY FOOTNOTE (6) OF RMC 23.22.040:

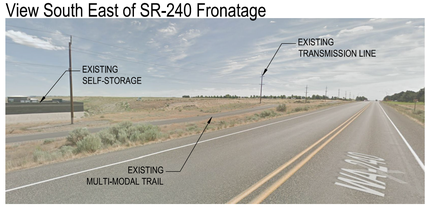
1. MINIMUM YARD REQUIREMENTS.
   a. FRONT YARD: 20-FEET EXCEPT AS PROVIDED BY FOOTNOTE (3) OF RMC 23.18.040
   b. SIDE YARDS: EACH SIDE YARD SHALL PROVIDE 1-FOOT OF SIDE YARD FOR EACH 3-FEET OR PORTION THEREOF OF BUILDING HEIGHT
   c. REAR YARDS: 25-FEET
2. REQUIRED COURT DIMENSIONS: EACH COURT ON WHICH WINDOWS OPEN FROM ANY ROOM OTHER THAN A KITCHEN, BATHROOM OR A CLOSET, SHALL HAVE ALL HORIZONTAL DIMENSIONS MEASURED AT RIGHT ANGLES FROM THE WINDOWS TO ANY WALL OR TO ANY LOT LINE OTHER THAN A FRONT LOT LINE EQUAL TO NOT LESS THAN THE HEIGHT OF THE BUILDING ABOVE THE FLOOR LEVEL OF THE STORY CONTAINING THE ROOM, BUT NO DIMENSION SHALL BE LESS THAN 20-FEET.
3. DISTANCE BETWEEN BUILDINGS: NO MAIN BUILDING SHALL BE CLOSER TO ANY OTHER MAIN BUILDING ON THE LOT THAN A DISTANCE EQUAL TO THE AVERAGE OF THEIR HEIGHTS, THIS PROVISION SHALL NOT APPLY IF NO PORTION OF EITHER BUILDING LIES WITHIN THE SPACE BETWEEN THE PROLONGATION OF LINES ALONG ANY TWO OF THE OPPOSITE WALLS OF THE OTHER BUILDING, BUT IN ANY SUCH SITUATION THE BUILDINGS SHALL NOT BE CLOSER TO EACH OTHER THAN A DISTANCE OF 10-FEET.
4. PERCENTAGE OF LOT COVERAGE: APARTMENT BUILDINGS IN A C-LB DISTRICT SHALL COVER NOT MORE THAN 33 PERCENT OF THE AREA OF THE LOT.

Existing Conditions

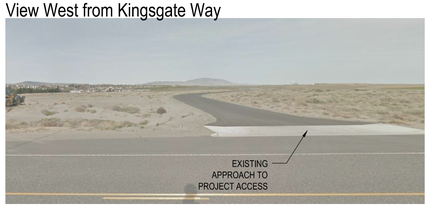
View North from SR-240



View South East of SR-240 Fronatage

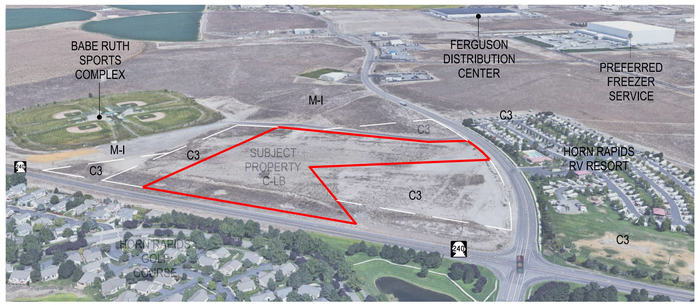


View West from Kingsgate Way



View North from SR-240 & Kingsgate Way

Property, Zoning & Context Analysis



Context Map

Scale: None

Zoning Overview (C-LB)

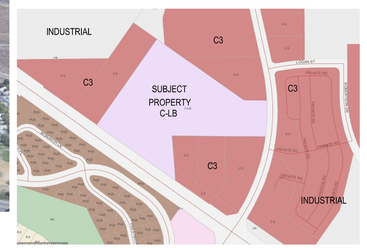
THE LIMITED BUSINESS USE DISTRICT (C-LB) IS A ZONE CLASSIFICATION DESIGNED TO PROVIDE AN AREA FOR THE LOCATION OF BUILDINGS FOR PROFESSIONAL AND BUSINESS OFFICES, MOTELS, HOTELS, AND THEIR ASSOCIATED ACCESSORY USES, AND OTHER COMPATIBLE USES SERVING AS AN ADMINISTRATIVE DISTRICT FOR THE ENHANCEMENT OF THE CENTRAL BUSINESS DISTRICTS, WITH REGULATIONS TO AFFORD PROTECTION FOR DEVELOPMENTS IN THIS AND ADJACENT DISTRICTS AND IN CERTAIN INSTANCES TO PROVIDE A BUFFER ZONE BETWEEN RESIDENTIAL AREAS AND OTHER COMMERCIAL AND INDUSTRIAL DISTRICTS. THIS ZONING CLASSIFICATION IS INTENDED TO BE APPLIED TO SOME PORTIONS OF THE CITY THAT ARE DESIGNATED EITHER COMMERCIAL OR HIGH-DENSITY RESIDENTIAL UNDER THE CITY OF RICHLAND COMPREHENSIVE PLAN.

Property Summary

THE SUBJECT PROPERTY IS COMPRISED OF THE LOT(S) BELOW:

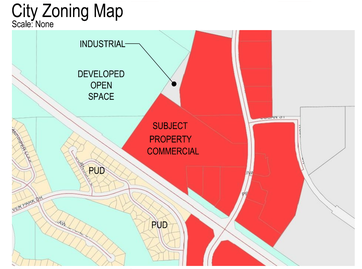
PARCEL ADDRESS	PROPERTY ID	ZONING / LAND USE	PARCEL AREA (ASSESSED)
None	LOT 1	C-LB / COMM	±644,041 SF. ±14.79 AC.

PROPERTY AREA (ASSESSED): ±644,041 SF.
ACRES TOTAL: ±14.79 AC.



City Zoning Map

Scale: None



Comprehensive Plan Map

Scale: None

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Site Plan Review
July 01, 2019

Site Zoning & Information

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FAX 509.838.4605 WWW.BERNARDOWILLS.COM
B W A BERNARDO | WILLS ARCHITECTS PC

Horn Rapids Apartments
Hwy 240 & Kingsgate Way, WA
RICHLAND, WA

ENCLAVE DEVELOPMENT

Project No: 19.02.051
Drawn by:
Date: Noted

SP-1

Site Graphic Legend & Symbols

- VAN ACCESSIBLE PARKING STALL(S) & SIDE AISLE PER ANSI 117.1, DOJ GUIDELINES FOR ACCESSIBILITY AND CITY of RICHLAND ENGINEERING STANDARDS.
- REFUSE AND RECYCLING ENCLOSURE PER CITY of RICHLAND STANDARDS
- EV — DUAL-HEAD ELECTRIC VEHICLE CHARGING STATION INFRASTRUCTURE PER WAC 51-50 SECTION 421
- PEDESTRIAN CROSSING / ACCESSIBLE ROUTE OF TRAVEL ACROSS A VEHICULAR WAY PER ANSI 117.1, DOJ GUIDELINES FOR ACCESSIBILITY AND CITY of RICHLAND ENGINEERING STANDARDS.
- 10' x 25' LOADING /UNLOADING SPACE PER CITY of RICHLAND STANDARDS
- SUBJECT PROJECT SIGNAGE
- JOINT DEVELOPMENT SIGNAGE
- TYP. 9'x20' PARKING STALLS PER CITY of RICHLAND STANDARDS
- TYP. 8-UNIT GARAGE BLDG w/ 10'x20' STALL. ADA STALL WHERE OCCURS. OUTLINE INDICATES POSSIBLE EXTENTS OF GARAGE PARKING
- PRE-MANUFACTURED COVERED / CARPORT PARKING OVER TYP. PARKING STALL
- PROPOSED SITE AMENITY FEATURES : PAVILIONS, GAZEBOS, TRELLIS, ETC., NUMBER AND TYPE VARIES
- FH — POSSIBLE FIRE HYDRANT LOCATIONS. FINAL FIRE HYDRANT NUMBER AND LOCATION TO BE DETERMINED BY THE ENGINEER OF RECORD, CITY FIRE ENGINEER AND FIRE MARSHALL.
- TYP. FIRE APPARATUS WHEEL TRACK AND 'BUCK SWING' TEMPLATE

Building & Parking Information

RESIDENTIAL

BUILDING NAME	BUILDING AREA	BUILDING DIMENSIONS	UNIT MIX STUDIO	1:1	2:2	3:2	TOTAL UNITS	REQ'D PARKING
BLDG A	± 11,540 SF	±180' x ±72'	48	0	0	0	48	48 STALLS
BLDG B	± 16,035 SF	±250' x ±72'	6	24	12	6	48	69 STALLS
BLDG C	± 12,060 SF	±189' x ±72'	6	12	12	6	36	51 STALLS
BLDG D	± 12,850 SF	±200' x ±72'	0	24	6	6	36	54 STALLS
BLDG E	± 12,850 SF	±200' x ±72'	0	24	6	6	36	54 STALLS
BLDG F	± 18,000 SF	±250' x ±72'	6	30	6	6	48	69 STALLS
BLDG G	± 18,000 SF	±250' x ±72'	6	30	6	6	48	69 STALLS
BLDG H	± 8,880 SF	±140' x ±72'	0	12	6	6	24	36 STALLS
TOTALS	± 110,215 SF		72	156	54	42	324	450 STALLS
			22%	48%	17%	13%	100 %	

UNIT DENSITY: PROJECT AREA = 13.1 ACRES — 24.7 UNITS / ACRE

CLUBHOUSE

AREAS	AREA / EMPLOYEE	PARKING RATIO BY USE	REQ'D PARKING
GATHERING AREAS	± 1,760 SF	RMC: 23.42.210 1:40 SF GFA	44
RECREATION AREA	± 12,500 SF	1:2,000 SF	6
EMPLOYEES	± 2	1:2 EMPLOYEES	1
TOTAL:	± 14,260 SF		51
PROJECT TOTAL	± 124,475 SF		501 STALLS

PROVIDED ON SITE PARKING:

GARAGES	17 %	88 STALLS	
CAR PORTS	52 %	279 STALLS	
UNCOVERD	31 %	165 STALLS	
ON SITE TOTAL:			532 STALLS
ON STREET PARKING:			25 STALLS
TOTAL PROVIDED PARKING			557 STALLS

PARKING PER UNIT: 1.72 STALLS / UNIT
REQUIRED MINIMUM ADA PARKING (2%): 11 ADA STALLS
ELECTRIC VEHICLE CHARGING STATION (WAC 51-50 SEC 421) (5%): 27 EV STATIONS

ALLOWABLE BUILDING HEIGHT = 55'-0"
PROVIDED BUILDING HEIGHT = ±36' - 0" (ALL BUILDINGS)

NORTH

Preferred Concept Site Plan
Scale: 1"=50'-0"

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Site Plan Review
July 01, 2019

Preferred Site Plan

Horn Rapids Apartments
Hwy 240 & Kingsgate Way, WA
RICHLAND, WA

ENCLAVE DEVELOPMENT

Project No: 19.02.051
Drawn by:
Date: Noted

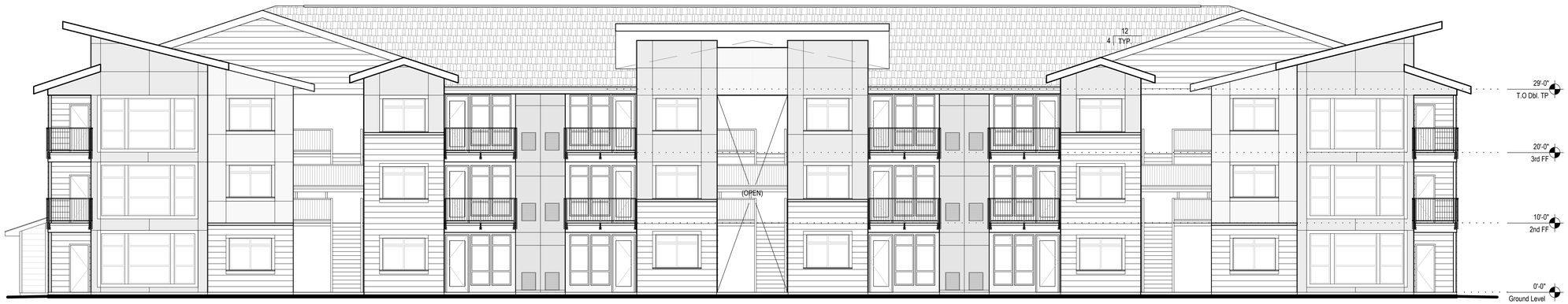
SP-2

Elevation Material Legend

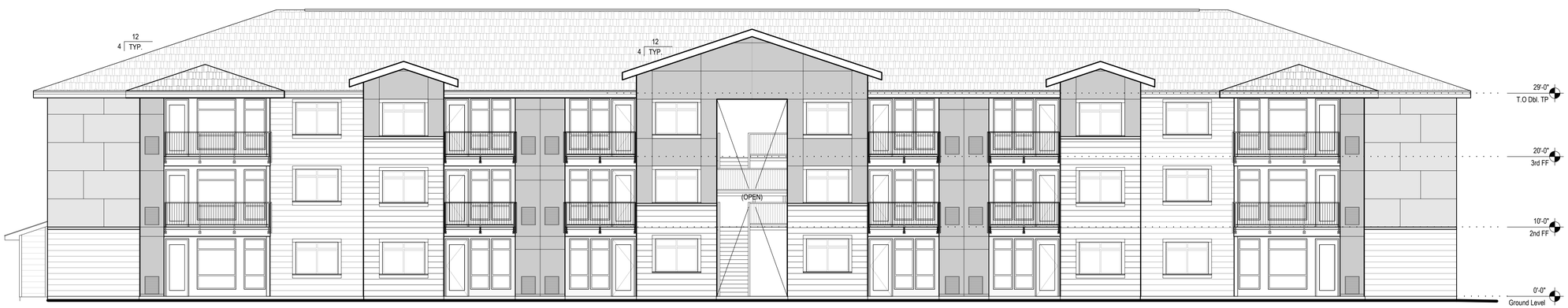
NOTES:
1. BASIS OF DESIGN PRODUCTS, ASSEMBLIES AND SYSTEMS INDICATED BELOW ARE "...OR EQUAL..." IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EQUIVALENT PERFORMANCE, SUITABILITY AND COMPATIBILITY OF ALTERNATE PRODUCTS, ASSEMBLIES OR SYSTEMS.
2. PROVIDE ALL FINISHES, PARTS, COMPONENTS, FLASHINGS, AND ACCESSORIES FOR FULL, COMPLETE AND WARRANTED INSTALLATION OF PRODUCTS, SYSTEMS, ASSEMBLIES AND FINISHES IN ACCORDANCE WITH THE MANUFACTURE.

MARK	GRAPHIC	PRODUCT INFORAMTION
M1		LAP SIDING SYSTEM: MANUFACTURE: JAMES HARIDIE or EQUAL MODEL: 8 ¼" FINISH: WOOD GRAIN COLOR: PAINT, TBD
M2		CEMENTITIOUS-FIBER PANELING SYSTEM: MANUFACTURE: JAMES HARDIE OR EQUAL MODEL: 'REVEAL' PANEL SYSTEM INSTALLATION: RAIN SCREEN TEXTURE: SMOOTH FINISH: PAINT FASTENER: EXPOSED, PAINT
M3		ASPHALTIC SHINGLE SYSTEM: MANUFACTURE: TBD MODEL: ARCHITECTURAL COLOR: TBD
M4		VINYL GLAZING SYSTEM: (TYP. U.O.N) MANUFACTURE: TBD FINISH: FACTORY COLOR: TBD
M5		ALUMINUM STOREFRONT SYSTEM: MANUFACTURE: COLOR / FINISH: CLEAR ANODIZED
M6		CEMENTITIOUS-FIBER FASCIA & TRIM SYSTEM: (TYP.O.U.N.) MANUFACTURE: JAMES HARDIE OR EQUAL MODEL: 'REVEAL' PANEL SYSTEM TEXTURE: WOOD GRAIN FINISH: PAINT
M7		EXPOSED WOOD: FINISH: TBD

1 Concept Exterior Elevation Character - End (36-Unit Example)
SCALE: ⅛""=1'-0"



2 Concept Exterior Elevation Character - Front (36-Unit Example)
SCALE: ⅛""=1'-0"



3 Concept Exterior Elevation Character - Rear (36-Unit Example)
SCALE: ⅛""=1'-0"

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Site Plan Review
July 01, 2019

Concept Typical
Exterior / Elevations

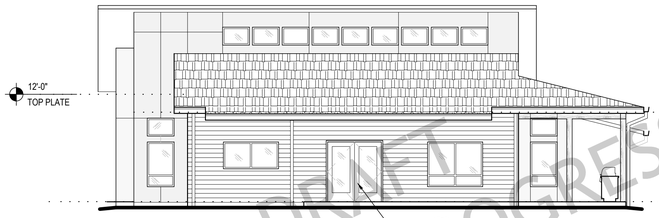
Horn Rapids Apartments
Hwy 240 & Kingsgate Way, WA
RICHLAND, WA

B W A BERNARDO | WILLS ARCHITECTS PC

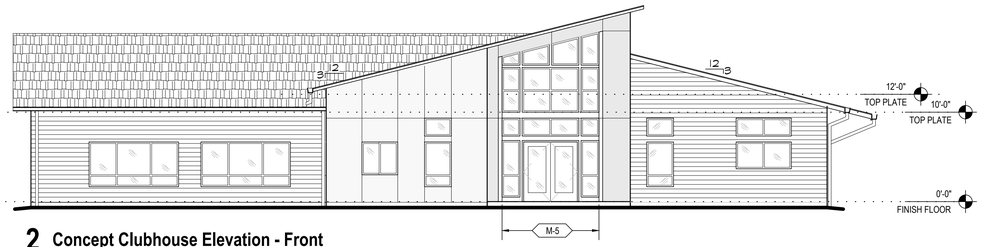
ENCLAVE DEVELOPMENT

Project No: 19.02.051
Drawn by:
Date: Noted

EV

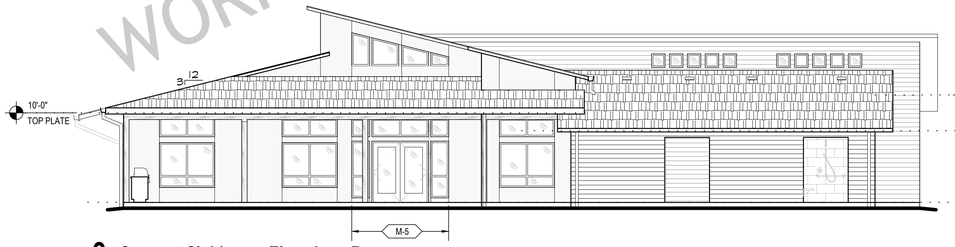


1 Concept Clubhouse Elevation - Side Left
SCALE: ⅛"=1'-0"

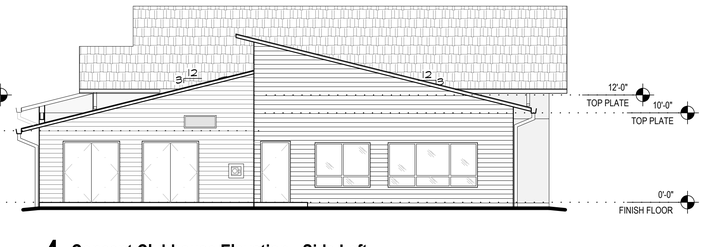


2 Concept Clubhouse Elevation - Front
SCALE: ⅛"=1'-0"

DRAFT
WORK IN PROGRESS



3 Concept Clubhouse Elevation - Rear
SCALE: ⅛"=1'-0"



4 Concept Clubhouse Elevation - Side Left
SCALE: ⅛"=1'-0"

Elevation Material Legend

NOTES:
1. BASIS OF DESIGN PRODUCTS, ASSEMBLIES AND SYSTEMS INDICATED BELOW ARE " ..OR EQUAL .." IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EQUIVALENT PERFORMANCE, SUITABILITY AND COMPATIBILITY OF ALTERNATE PRODUCTS, ASSEMBLIES OR SYSTEMS.
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M3		ASPHALTIC SHINGLE SYSTEM: MANUFACTURE: TBD MODEL: ARCHITECTURAL COLOR: TBD
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M5		ALUMINUM STOREFRONT SYSTEM: MANUFACTURE: COLOR / FINISH: CLEAR ANODIZED
M6		CEMENTITIOUS-FIBER FASCIA & TRIM SYSTEM: (TYP,O.U.N.) MANUFACTURE: JAMES HARDIE OR EQUAL MODEL: VARIES TEXTURE: WOOD GRAIN FINISH: PAINT
M7		EXPOSED WOOD: FINISH: TBD

Assembly / Gathering Space
(RMC 23.42.210)

SEE SP-2 'SITE PLAN' FOR AREAS

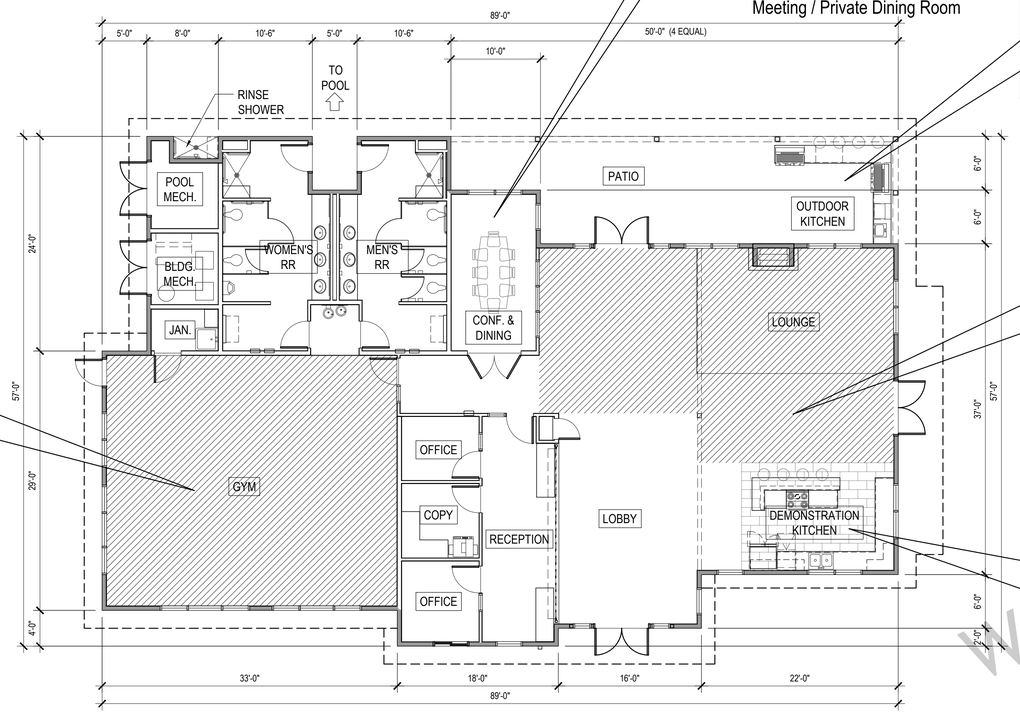
Meeting / Private Dining Room

Outdoor BBQ Area Charachter

Gym

Common Living Area Character

Demo. Kitchen Charachter



1 Concept Clubhouse Plan
SCALE: ⅛"=1'-0"

DRAFT
WORK IN PROGRESS

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Site Plan Review
July 01, 2019

Concept Clunhouse Plans & Elevations

Horn Rapids Apartments
Hwy 240 & Kingsgate Way, WA
RICHLAND, WA

ENCLAVE DEVELOPMENT

Project No: 19.02.051
Drawn by:
Date: Noted

BP-4

Looking North

Looking West

SITE

Looking South

Kingsgate Way Site Frontage

Looking East

Exhibit 4

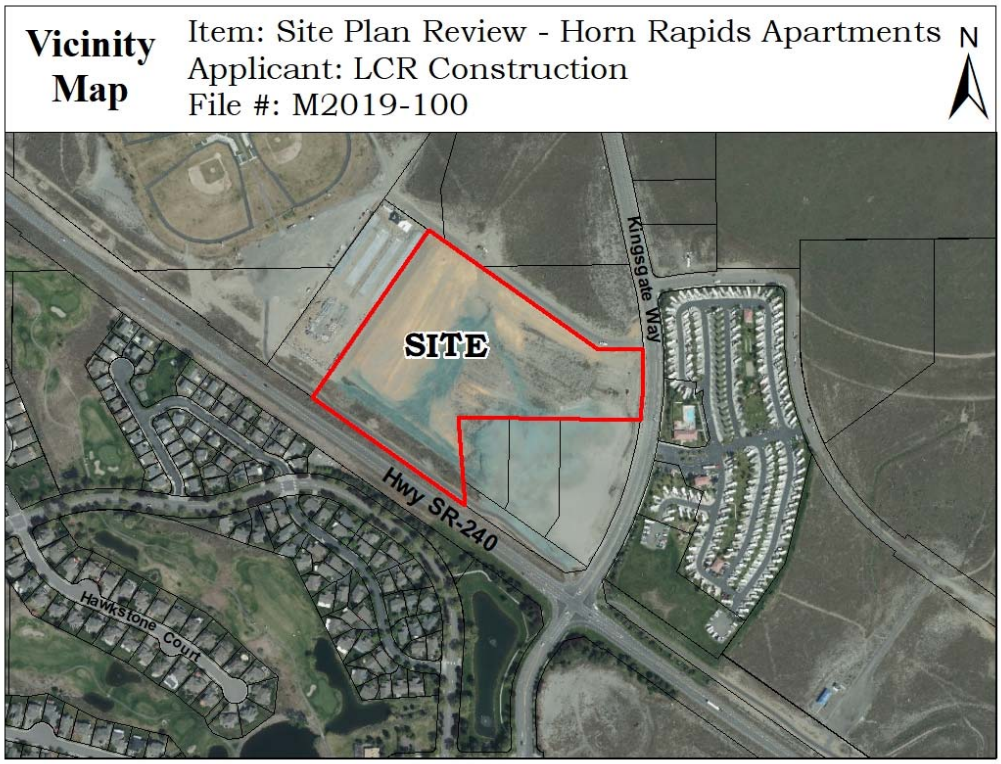
CITY OF RICHLAND
NOTICE OF APPLICATION, PUBLIC HEARING & OPTIONAL DNS (M2019-100 & EA2019-117)

Notice is hereby given that LCR Construction has submitted a Site Plan Review application for the development of an approximately 13-acre site, with eight (8) multi-family residential buildings containing up to 324 dwelling units, a clubhouse and covered parking structures together with associated parking and landscaping areas. The site, located approximately 600-feet north of the intersection of Highway SR-240 and Kingsgate Way, is zoned C-LB (Commercial Limited-Business). The property is located in the southwest quarter of Section 21, Township 10 North, Range 28 East, W.M., Benton County, WA (APN#1-28082000007000).

A public hearing on the proposed site plan review will be held before the Hearing Examiner on Monday, August 12, 2019 at 6:00 pm in the Council Chambers, 625 Swift Blvd., Richland WA 99352.

Environmental Review: The proposal is subject to environmental review. The City of Richland is lead agency for the proposal under the State Environmental Policy Act (SEPA) and has reviewed the proposed project for probable adverse environmental impacts and expects to issue a determination of non-significance (DNS) for this project. The optional DNS process in WAC 197-11-355 is being used. This may be your only opportunity to comment on the environmental impacts of the proposed development. The environmental checklist and related file information are available to the public and can be viewed at www.ci.richland.wa.us.

Any person desiring to express their views or to be notified of any decisions pertaining to this application should notify Shane O'Neill, Senior Planner, 625 Swift Blvd., Richland, WA 99352. Comments may also be faxed to (509) 942-7764 or emailed to soneill@ci.richland.wa.us. Written comments should be received no later than 5:00 p.m. on Monday, August 5, 2019 to be incorporated into the staff report. Comments received after that date will be entered into the record during the hearing.



AFFIDAVIT OF POSTING

STATE OF WASHINGTON)
) ss.
COUNTY OF BENTON)

COMES NOW, **Shane O'Neill**, who, being first duly sworn upon oath deposes and says:

1. I am an employee in the Planning & Development Department for the City of Richland.

2. On the 24th day of July, 2019, I posted the attached NOTICE OF PUBLIC HEARING, File Number's M2019-100 at the following location:

On the west side of Kingsgate Way approximately 700 feet north of the intersection of Highway SR-240 and Kingsgate Way.

Print Name: Shane O'Neill

SIGNED AND SWORN to before me this 24th day of July, 2019 by SHANE O'NEILL.

Signature of Notary

October L. Follett
Printed Name

Notary Public in and for the State of Washington,
Residing in Benton County
My appointment expires: 11-1-2020

OCTOBER L FOLLETT NOTARY PUBLIC STATE OF WASHINGTON Commission Expires 11-01-2020

AFFIDAVIT OF MAILING

STATE OF WASHINGTON)
) ss.
COUNTY OF BENTON)

COMES NOW, Briana Ghbein, who, being first duly sworn upon oath deposes and says:

1. I am an employee in the Planning & Development Department for the City of Richland.

2. On the 23rd day of July, 2019, I mailed a copy of the attached NOTICE OF APPLICATION, PUBLIC HEARING, AND OPTIONAL DNS (M2019-100 & EA2019-117) to the attached list of individuals via regular USPS on the date indicated above. The Notice of Application is for a Site Plan Review for LCR Construction to develop an approximately 13-acre site with eight multi-family residential buildings containing up to 324 dwelling units. The project also includes a clubhouse and covered parking structures with associated parking and landscaping areas. The Richland Hearing Examiner will conduct a public hearing and review of the application on Monday, August 12, 2019 in the Richland City Council Chambers, 625 Swift Boulevard.

Signed: Briana Ghbein

SIGNED AND SWORN to before me this 23rd day of July, 2019 by Jennifer Schuster.

JENNIFER SCHUSTER NOTARY PUBLIC STATE OF WASHINGTON COMMISSION EXPIRES 4-25-23 207956

Notary Public in and for the State of Washington,

Jennifer Schuster
Print Name
Residing at 625 Swift Blvd, Richland
My appointment expires: 4-25-23

Address list attached.

Owner	Mail Address	City	State	Zip
PHAM LONG DUC	2824 MONARCH LN	RICHLAND	WA	99354-2185
CMCS PROPERTIES LLC	PO BOX 6980	KENNEWICK	WA	99336
HORN RAPIDS STORAGE LLC	12111 HILLCREST DRIVE	PASCO	WA	99301
RICHLAND RV PARK LLC	10602 NE 38TH PL STE 100	KIRKLAND	WA	98083
HORINE MARY A	2574 PRESTWICK DR	RICHLAND	WA	99354
DRANE GORDON E	2572 PRESTWICK DR	RICHLAND	WA	99354-2182
MOSLEY JOHN D & MARIE E	3806 W 47TH AVE	KENNEWICK	WA	99337
WISNESS STEVEN H & JAN M	2683 MAIDSTONE ST	RICHLAND	WA	99354-2191
KARY KENNETH H & DONNA R	2830 MONARCH LN	RICHLAND	WA	99354-2185
TAYLOR CHRISTINE R	393 N RIVER DR	MENOMINEE	MN	49858
KUNKLE KARL	2836 MONARCH LN	RICHLAND	WA	99354
MAPES DUSTIN MARSHALL & LAURA JOY	2832 MONARCH LANE	RICHLAND	WA	99354
MILES WILLIAM MICHAEL	MADELYN R MILES	RICHLAND	WA	99354-2185
GLENEAGLE AT HORN RAPIDS ASSOC	2848 MONARCH LN	RICHLAND	WA	99354-2185
PODRATZ FRANCES E	5043 SWALLOW CT	WEST RICHLAND	WA	99353-9547
MARSH LINDA T	2838 MONARCH LN	RICHLAND	WA	99354-2185
RAMOS PHYLLIS	2600 PRESTWICK DRIVE	RICHLAND	WA	99354
WEIER CARRIE A	2586 PRESTWICK DRIVE	RICHLAND	WA	99354
BRAUSEN TRUSTEE PATRICK J	2594 PRESTWICK DR	RICHLAND	WA	99354
JACKSON LELAND	2850 MONARCH LN	RICHLAND	WA	99354
HORN RAPIDS MASTER HOMEOWNERS	2600 CLUBHOUSE LN	RICHLAND	WA	99352-2189
FAVROW JR KEVIN W & TIFFANI	2848 MONARCH LN	RICHLAND	WA	99354-2185
COX MICHAEL T & ELIZABETH M	2842 MONARCH LN	RICHLAND	WA	99354
MEININGER SEAN & ANDREA	2844 MONARCH LN	RICHLAND	WA	99354
ROBLEE JAKE M & MICHELLE M	2846 MONARCH LN	RICHLAND	WA	99354
HORN RAPIDS HOLDINGS LLC	P O BOX 97010	KIRKLAND	WA	98083

Exhibit 9

SEPA ENVIRONMENTAL CHECKLIST

EA2019-117
HORN RAPIDS APARTMENTS
SITE PLAN REVIEW

ncies use this checklist to help determine whether the environmental impacts
l are significant. This information is also helpful to determine if available
inimization or compensatory mitigation measures will address the probable
impacts or if an environmental impact statement will be prepared to further analyze
posal.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. You may use "not applicable" or "does not apply" only when you can explain why it does not apply and not when the answer is unknown. You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Instructions for Lead Agencies:

Please adjust the format of this template as needed. Additional information may be necessary to evaluate the existing environment, all interrelated aspects of the proposal and an analysis of adverse impacts. The checklist is considered the first but not necessarily the only source of information needed to make an adequate threshold determination. Once a threshold determination is made, the lead agency is responsible for the completeness and accuracy of the checklist and other supporting documents.

Use of checklist for nonproject proposals:

For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B plus the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (part D). Please completely answer all questions that apply and note that the words "project,applicant," and "property or site" should be read as "proposal,proponent," and "affected geographic area," respectively. The lead agency may exclude (for non-projects) questions in Part B - Environmental Elements –that do not contribute meaningfully to the analysis of the proposal.

A. Background

1. Name of proposed project, if applicable: Horn Rapids Apartments

2. Name of applicant: LCR Construction

3. Address and phone number of applicant and contact person:
Lee Petty, 2524 Robertson Dr., Richland, WA 99354

4. Date checklist prepared: 7-12-2019

5. Agency requesting checklist: LCR Construction

6. Proposed timing or schedule (including phasing, if applicable): ASAP

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? None anticipated If yes, explain.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

No environmental info has been prepared for this proposal. An erosion control plan will be included in the construction documents.

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

City Site plan review- A public hearing item.

10. List any government approvals or permits that will be needed for your proposal, if known.
Building permit from City of Richland, City site plan review

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that

ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

Development of +/- 13.1 acres of C-LB zoned land for up to 8-multi-family residential buildings, including up to 324 dwelling units, clubhouse, open space & and site amenities and supporting on-grade uncovered, covered
and garage parking stalls, landscaping, storm drainage system and utilities.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

2665 KINGSGATE WAY, PARCEL ID# 281,670. THE PROJECT IS GENERALLY LOCATED AT THE NWC OF KINGSGATE WAY & HWY-240, RICHLAND, WA

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site:

(circle one): Flat, rolling, hilly, steep slopes, mountainous, other _____ROLLING

b. What is the steepest slope on the site (approximate percent slope)?
3%

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat,
muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.
SANDY SILTS

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so,
describe.

None anticipated, we have dug utilities in the right of way and no unstable soils were encountered.

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.
We anticipate to grade the area similar to existing contours, the 13 acres of developed land will be graded to allow for buildings and roads with no major cut or fill locations. All material will come from onsite or adjacent lots. Approximately 10,000 cys of material to be spread around the site.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.
Wind erosion/ fugitive dust is possible. We will install the necessary temporary erosion control measures during construction.

g. About what percent of the site will be covered with impervious surfaces after project
construction (for example, asphalt or buildings)?
60%

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:
Hydroseed or grass areas not covered by pavement or buildings

2. Air

a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.
Construction vehicle emissions from construction equipment during construction. Resident's vehicle emissions

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.
None known

c. Proposed measures to reduce or control emissions or other impacts to air, if any:
NONE

3. **Water**

a. Surface Water:

1) Is there any surface water body on or in the immediate vicinity of the site (including
year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

NO

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described
waters? If yes, please describe and attach available plans. NO

3) Estimate the amount of fill and dredge material that would be placed in or removed
from surface water or wetlands and indicate the area of the site that would be affected.
Indicate the source of fill material. None

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known. NO

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan. NO

6) Does the proposal involve any discharges of waste materials to surface waters? If so,
describe the type of waste and anticipated volume of discharge.
NO

b. Ground Water:

1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.
NO

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the

system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

No waste will be discharged into the ground. The project will tie into the existing city sanitary sewer system.

c. Water runoff (including stormwater):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

We anticipate storm water runoff which will be collected in an underground storm system onsite

2) Could waste materials enter ground or surface waters? If so, generally describe.

NO

3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

NO

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:

Surface and ground water will absorb into the landscaping areas which will include storm ponds. There will also be underground infiltration systems which will tie into the underground storm system.

4. **Plants**

a. Check the types of vegetation found on the site:

____deciduous tree: alder, maple, aspen, other
____evergreen tree: fir, cedar, pine, other
____shrubs
___x_grass
____pasture
____crop or grain
____ Orchards, vineyards or other permanent crops.
____ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
____water plants: water lily, eelgrass, milfoil, other
____other types of vegetation

b. What kind and amount of vegetation will be removed or altered?

WILD GRASS

c. List threatened and endangered species known to be on or near the site.
None known

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance
vegetation on the site, if any:
Please see attached proposed landscaping plan with suggested plants.

e. List all noxious weeds and invasive species known to be on or near the site.
Puncture vine might be in the area

5. **Animals**

a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site.
-No animals have been observed onsite. Coyotes have been seen in the area along with hawks.

Examples include:

birds: hawk, heron, eagle, songbirds, other:
mammals: deer, bear, elk, beaver, other:
fish: bass, salmon, trout, herring, shellfish, other _____

b. List any threatened and endangered species known to be on or near the site.
None

c. Is the site part of a migration route? If so, explain.
Richland lies within the Pacific Flyway

d. Proposed measures to preserve or enhance wildlife, if any:
OBSERVE AND NOTIFY IF ANY ARE SEEN

e. List any invasive animal species known to be on or near the site.
None known

6. **Energy and Natural Resources**

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet
the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.
Electric energy will be used for heating the buildings. The design and construction will meet or exceed the requirements of the Washington State Energy Code.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

NO

c. What kinds of energy conservation features are included in the plans of this proposal? Energy-efficient building materials will be used on the buildings as well as energy-efficient appliances in the apartments

List other proposed measures to reduce or control energy impacts, if any:

none

7. Environmental Health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal?
The apartments will likely contain limited quantities of solvents and cleaners used in a typical household. Minor smells in negligible quantities from cooking vents or BBQ's.
If so, describe.

1) Describe any known or possible contamination at the site from present or past uses.

None known, undeveloped site

2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.

None known, undeveloped site

3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.

During construction, common construction materials, epoxy's and compounds will be present during construction, including diesel fuel and gasoline, motor oil. All chemicals will be handled in accordance with their MSDS requirements

4) Describe special emergency services that might be required.

EMS, Fire, Police

5)

Proposed measures to reduce or control environmental health hazards, if any:

none

b. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)? No noise exists onsite. The adjacent roads have traffic

2) What types and levels of noise would be created by or associated with the project on a
short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

Short term construction equipment and construction work. Excavators, graders, trucks during site work activities. Building noise-hammers, generators, etc during construction work.

Work hours are 7:00- 4:00

Once the project is complete the noise level should be minimal, vehicle traffic mainly.

3) Proposed measures to reduce or control noise impacts, if any: Perform work during normal work hours.

8. **Land and Shoreline Use**

a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.

The land is zoned for commercial use. It is undeveloped. Three of the adjacent lots are undeveloped, one lot has a mini storage on it. The proposed project will not affect the adjacent properties.

RV park to the East and SF residents to the South

b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?

No, the site has not been used for farmlands or forest.

1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how:

Not anticipated

c. Describe any structures on the site.

There are no known structures on site. It is undeveloped land.

d. Will any structures be demolished? If so, what?
NO
e. What is the current zoning classification of the site?
C-LB
f. What is the current comprehensive plan designation of the site?
Commercial
g. If applicable, what is the current shoreline master program designation of the site?
NA
h. Has any part of the site been classified as a critical area by the city or county? If so, specify.
NO

i. Approximately how many people would reside or work in the completed project?
Up to 340
j. Approximately how many people would the completed project displace? NONE

k. Proposed measures to avoid or reduce displacement impacts, if any:
NA

L. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:
None.The proposal would keep the same zoning designation, which would be in line with the projected land use.

m. Proposed measures to reduce or control impacts to agricultural and forest lands of long-term commercial significance, if any:
None. This project should not impact agricultural or forest lands.

9. **Housing**

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.
Up to 324 market-rate apartments

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.
None, undeveloped site
c. Proposed measures to reduce or control housing impacts, if any:
no impacts anticipated

10. **Aesthetics**

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

Maximum height for zoning is 55', we anticipate building heights between 35'-40'. We anticipate the exterior finish will be lap siding and wall panel.

b. What views in the immediate vicinity would be altered or obstructed?
The project should not alter or obstruct any views in the vicinity.

b. Proposed measures to reduce or control aesthetic impacts, if any:
The design could use some native plants in the landscaping. The project will not change the elevations of the existing land with large imports or exports of material. The proposed buildings colors and materials can be similar to it's surroundings.

11. **Light and Glare**

a. What type of light or glare will the proposal produce? What time of day would it mainly
occur? The proposed project will have parking lot lighting and some exterior lights on the buildings. These would come on at dusk. They will not be high impact lighting. There should be no glare during the day from the proposed buildings. The lighting will be directed downwards and not produce glare off of the site.

b. Could light or glare from the finished project be a safety hazard or interfere with views?
No, there are no adjacent structures that would be affected by the light or glare. The lighting at night would cast downward so it should not be a safety hazard. This project is not close to a major road. The highway is far enough away the lights should not affect it.

c. What existing off-site sources of light or glare may affect your proposal?
None, there are no structures or projects off-site or nearby.

d. Proposed measures to reduce or control light and glare impacts, if any:
-All lights will be installed per code, the lighting will be directed downward. The proposed building materials do not cause glare.

12. **Recreation**

a. What designated and informal recreational opportunities are in the immediate vicinity?
The project is anticipated to have direct access to the Vantage Pathway Highway trail. Baseball fields and a golf course are within 2 miles of the site.
Onsite, the project is anticipated to contain a Pool area, multi-sport courts, and open spaces.

b. Would the proposed project displace any existing recreational uses? If so, describe.
NO

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:
No impact-

13. **Historic and cultural preservation**

a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers ? If so, specifically describe.
None known

b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.
None known.

c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.
Notice of application and SEPA will be publicly advertised. If encountered any evidence will follow the

c. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.
No loss or disturbance anticipated

14. **Transportation**

a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any.
The road accessing the site is already constructed. It will come off of Kingsgate Way. Kingsgate Way intersects with HWY 240. An existing traffic signal is already at the intersection. Please see attached site plan.

b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?

No, public transit does not service this area yet. This project could help encourage a route in the area.

c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate?
The project anticipates to have 557 parking stalls. No spaces are being eliminated

d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private). ___
NO IMPROVEMENTS ARE ANTICIPATED TO EXISTING ROADS. WE PLAN TO CONSTRUCT A NON-MOTORIZED PATH TO CONNECT TO THE EXISTING VANTAGE HIGHWAY PATH ALONG HWY 240.

e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.
The project is not in the vicinity of water, rail or air transportation. Building materials may be delivered to the suppliers by these modes of transportations, but not directly to the project.

f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?

Estimated trips would be 324, estimated for number of units and occupants traveling to and from work each day. Trucks to the site could be delivery trucks for packages. No data or transportation models were used.

g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.
None anticipated, none known in the area.

h. Proposed measures to reduce or control transportation impacts, if any:
We do not believe the proposed project will affect the existing traffic conditions. There is a stoplight at the nearest main intersection.

PURSUANT TO THE 10TH EDITION OF THE ITE TRIP GENERATION MANUAL, MULTI-FAMILY DEVELOPMENTS GENERATE 0.56 VEHICLE TRIPS / UNIT @ PEAK PM. THIS MEANS THE PROJECT WILL GENERATE APPROX 181.4 TRIPS @ PEAK PM HOUR.

SEP 7.12.19

15. **Public Services**

a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.
Yes. The project is a new apartment complex, so the influx of people living in the area could result in additional protection and people for health and schools.

b. Proposed measures to reduce or control direct impacts on public services, if any.
The project will be designed for easy access for fire and police protection if needed in the complex. The parking lot and roadways give easy access to all units.

16. **Utilities**

a. Circle utilities currently available at the site:
electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other ELECTRIC, PHONE AND SEWER

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.
The project will use electric service, city water, sanitary sewer system and phone. Water and sanitary sewer have already been stubbed out to the site. Minimal effort is needed to connect the proposed utilities. They should all be onsite, no cutting into existing roads is needed.

C. Signature

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: _____

Name of signee Lee Petty

Position and Agency/Organization LCR Construction

Date Submitted: 7-12-19

COMMUNITY DEVELOPMENT DEPARTMENT

THIS APPLICATION WAS REVIEWED BY THE PLANNING DIVISION OF THE COMMUNITY DEVELOPMENT DEPARTMENT. ANY COMMENTS OR CHANGES MADE BY THE DEPARTMENT ARE ENTERED IN THE BODY OF THE CHECKLIST AND CONTAIN INITIALS OF THE REVIEWER

7.12.19

7.12.19

Reviewer Signature Date

D. supplemental sheet for nonproject actions

(**IT IS NOT NECESSARY** to use this sheet for project actions)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?
NA

Proposed measures to avoid or reduce such increases are:
Construct per city codes

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

NO AFFECT

Proposed measures to protect or conserve plants, animals, fish, or marine life are:

NA

3. How would the proposal be likely to deplete energy or natural resources?
NA

Proposed measures to protect or conserve energy and natural resources are:

NA

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?

NONE

Proposed measures to protect such resources or to avoid or reduce impacts are:
NA

5. How would the proposal be likely to affect land and shoreline use, including whether it
would allow or encourage land or shoreline uses incompatible with existing plans?
NO AFFECT

Proposed measures to avoid or reduce shoreline and land use impacts are:

NA

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

NA

Proposed measures to reduce or respond to such demand(s) are:

NA

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.
NA

Exhibit 6

File No. EA2019-117

CITY OF RICHLAND
Determination of Non-Significance

Description of Proposal: A Site Plan Review application for the development of an approximately 13-acre site, with eight (8) multi-family residential buildings containing up to 324 dwelling units, a clubhouse and covered parking structures together with associated parking and landscaping areas.

Proponent: LCR Construction

Location of Proposal: The project site is located approximately 600-feet north of the intersection of Highway SR-240 and Kingsgate Way (APN 1-28082000007000).

Lead Agency: City of Richland

The lead agency for this proposal has determined that it does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public on request.

( ) There is no comment for the DNS.

( ) This DNS is issued under WAC 197-11-340(2); the lead agency will not act on this proposal for fourteen days from the date of issuance.

(**X**) This DNS is issued after using the optional DNS process in WAC 197-11-355. There is no further comment period on the DNS.

Responsible Official: Mike Stevens
Position/Title: Planning Manager
Address: 625 Swift Blvd., Richland, WA 99352
Date: August 6, 2019

Signature _____

Exhibit 7

2017-011017 ORD
04/26/2017 04:29:23 PM Pages: 6 Fee: $78.00
Richland City Clerks Office
Benton County, Benton County Auditor's Office

COPY

WHEN RECORDED RETURN TO:

Richland City Clerk's Office
505 Swift Boulevard, MS-05
Richland, WA 99352

ORDINANCE NO. 11-17

AN ORDINANCE of the City of Richland amending Title 23: Zoning Regulations of the Richland Municipal Code and the Official Zoning Map of the City by amending Sectional Map No. 55B so as to change the zoning on 4 acres from Commercial Limited Business (C-LB) to General Business (C-3); said property is located on the north side of SR-240 approximately 1,200 feet northwest of Kingsgate Way (Douglas).

WHEREAS, on February 23, 2017, the Richland Hearing Examiner held a properly advertised public hearing to consider a petition to change the zoning of the property hereafter described; and

WHEREAS, on March 10, 2017, the Richland Hearing Examiner issued a written report recommending approval of the requested rezone; and

WHEREAS, the Richland City Council has considered the record created at the February 23, 2017 public hearing, and has considered the written recommendation of the Richland Hearing Examiner.

NOW, THEREFORE, BE IT ORDAINED by the City Council of the City of Richland as follows:

Section 1. It is hereby found, as an exercise of the City's police power, that the best land use classification for the land described below is General Business (C-3) when consideration is given to the interest of the general public.

Section 2. Contingent upon the recording, as in Section 4 hereof, and within 90 days of the passage of this ordinance, a properly executed, delivered and accepted Property Use and Development Agreement shall be signed by the petitioner and the City. This agreement shall be substantially in the form attached hereto as Exhibit B and is intended to restrict the use and development of the property more particularly described as follows:

The land in the County of Benton, State of Washington, described as follows:

A portion of the Southwest ¼ of Section 21, Township 10 North, Range 28 East, W.M., City of Richland, Benton County, Washington, described as follows:

The Westerly 218.00 feet as measured perpendicular to the Westerly line of a Parcel described by Statutory Warranty Deed recorded under Auditor's File number 2016-001134, records of said County and State.

Containing 4.0 acres, more or less, according to the description above and as depicted on the attached Exhibit A.

Such land is rezoned from Commercial Limited Business (C-LB) to General Business (C-3).

Section 3. Title 23 of the City of Richland Municipal Code and the Official Zoning Map of the City, as adopted by Section 23.08.040 of said Title, are amended by amending Sectional Map No. 55B, which is one of a series of maps constituting said Official Zoning Map, as shown on the attached Sectional Map No. 55B and bearing the number and date of passage of this ordinance, and by this reference made a part of this ordinance and of the Official Zoning Map of the City.

Section 4. Upon receipt of a properly executed Property Use and Development Agreement, as contemplated in Section 2 hereof, the City Manager is authorized to accept the same for and on behalf of the City, and upon such acceptance is authorized and directed to indicate such acceptance thereon, and, to cause said agreement to be recorded in the records of the Benton County Auditor, and to file said recorded agreement with the City Clerk.

Section 5. The City Clerk is directed to file with the Auditor of Benton County, Washington, a copy of this ordinance and the attached amended Sectional Map No. 55B, duly certified by the Clerk as a true copy.

Section 6. This ordinance shall take effect on the day following the date of its publication in the official newspaper of the City of Richland.

COPY

PASSED by the City Council of the City of Richland, at a regular meeting on the 18th day of April, 2017

ROBERT J. THOMPSON
Mayor

ATTEST:

MARCIA HOPKINS
City Clerk

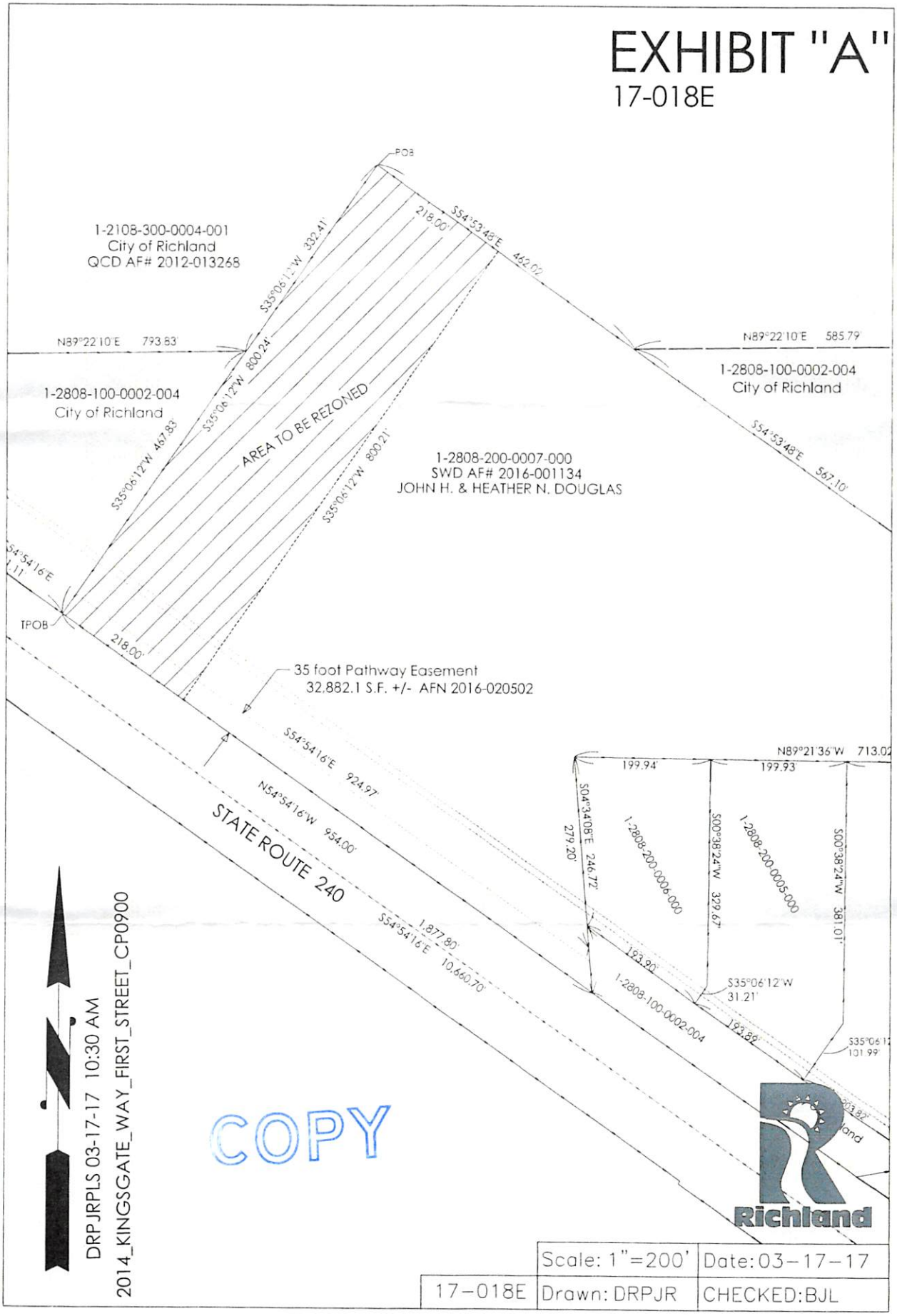
APPROVED AS TO FORM:

HEATHER KINTZLEY
City Attorney

Date Published: April 23, 2017

COPY

EXHIBIT "A"
17-018E



DRPJRPLS 03-17-17 10:30 AM
2014_KINGSGATE_WAY_FIRST_STREET_CP0900

	Scale: 1"=200'	Date: 03-17-17
17-018E	Drawn: DRPJR	CHECKED: BJL

EXHIBIT B

PROPERTY USE AND DEVELOPMENT AGREEMENT

THIS AGREEMENT made and entered into this 26th day of April, 2017, by and between the CITY OF RICHLAND and John H. Douglas (Petitioner).

W-I-T-N-E-S-S-E-T-H:

WHEREAS, the City of Richland is currently entertaining an application by John H. Douglas, (hereinafter "Petitioner") for a change of zone covering a 4 acre site being a portion of Benton County Tax Parcel # 1-8082000007000 located at 2880 Kingsgate Way (hereinafter "Property") and more particularly described in Ordinance No. 11-17.

NOW, THEREFORE, it is agreed that if the subject Property is rezoned from C-LB – Commercial Limited Business to C-3 – General Business. Petitioner for himself and for and on behalf of his heirs, successors and assigns, covenants and agrees as follows:

1) Prior to development of the subject property the petitioner shall submit to the City of Richland Planning Department for review, a site landscaping plan. Said landscaping plan shall be approved by City Planning staff prior to issuance of a building permit for new construction on the property. Said plan shall consist of the following elements:
   A. An irrigated landscape strip, 10 feet in width along the SR-240 frontage. The intent of landscaping in this area is to comply with the provisions of RMC 23.54.140 regarding landscaping of parking areas;
   B. A minimum 10 foot wide, irrigated landscape strip shall be provided along the southeastern side of the site together with a six foot block wall or fence. Said wall or fence shall be installed along the southeast border of the site with landscaping installed outside of the wall or fence. The intent of landscaping within this area is to provide screening for the adjacent future development on the parcel;

2) All on-site driving surfaces shall be hard-surfaced with either asphalt or concrete.

3) To assure that probable, specific, identifiable impacts on nearby properties will be adequately mitigated, uses permitted in the C-3 (General Business) zone are restricted to mini-warehouses as defined by RMC 23.06.655. Performance standards and special requirements of the C-3 zone as set forth in RMC 23.22.020(C) remain in effect.

4) Other permitted commercial uses of the site include those land uses listed as permitted in the C-2 (Retail Business) zone (RMC23.22.030); subject to all performance standards and special requirements applicable to permitted uses in the C-2 zone.

COPY

EXHIBIT B

5) Pursuant to RMC 23.42.170 use of the site for mini-warehouses is subject to the following requirements:
   A. Any outdoor storage shall be conducted entirely within storage yards separate from buildings. Such storage yards shall conform to the standards set forth in RMC 23.42.180.
   B. Lighting used to illuminate any interior traffic aisle, off-street parking area, loading or unloading area, or storage area, shall be shielded or so arranged as to reflect light away from adjoining premises.
   C. Mini-warehouses shall be designed, landscaped, screened, or otherwise treated in a manner that will be aesthetically pleasing and compatible with surrounding uses.
   D. Traffic aisles shall be of sufficient width so as to allow for loading and unloading, maneuvering and circulation of vehicles, and shall in no case be less than 20 feet in width.
   E. Use of mini-warehouse compartments or yards for any purpose other than the storage of goods is prohibited.

6) Dumpster locations, refuse areas and mechanical equipment shall be located and/or screened from view of adjacent properties; including on-site residential development.

This agreement shall be placed of record and the terms and conditions thereof shall be a covenant running with the land and included in each deed and real estate contract executed by Petitioners with respect to the subject Property or any part thereof, until such time as the terms of the agreement are fulfilled. The City of Richland shall be deemed a beneficiary of this covenant without regard to whether it owns any land or interest therein in the locality of the subject Property and shall have the right to enforce this covenant in any court of competent jurisdiction.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hands the day and year first above written.

CITY OF RICHLAND

Cindy Reents
City Manager

John H. Douglas
Petitioner

APPROVED AS TO FORM:

COPY

Heather Kintzley
City Attorney

2019-010046 EAS
04/23/2019 10:41:06 AM Pages: 6 Fee: $104.00
City Surveyor
Benton County, Benton County Auditor's Office

Exhibit 8

WHEN RECORDED RETURN TO:

City Surveyor
City of Richland
625 Swift Blvd
Richland, WA 99352

EXCISE TAX NOT REQUIRED
BENTON CO EXCISE TAX DEPT
BY [illegible] DEPUTY
4-2379 Easement

Portion of Parcel #1-2108-300-0004-001 / 1-2808-100-0002-004

ACCESS EASEMENT

The Grantor, **CITY OF RICHLAND**, a Washington municipal corporation, for and in consideration of the transfer of interest in a portion of real property for an **access easement**, and upon receipt of good and valuable consideration, in hand paid, grants to **John H. Douglas** ("Grantee"), said easement over the following described property situated in the County of Benton, State of Washington, described as follows:

> That portion of the Southwest ¼ of Section 21, and that portion of the Northwest ¼ of Section 28, Township 10 North, Range 28 East, W.M., City of Richland, Benton County, Washington, described as follows:
>
> Commencing at the Northeast corner of Section 28 monumented by a found scribed "X" on a stone in a concrete box; Thence South 68°10'57" West a distance of 3278.94 feet to a point on the Westerly right-of-way of a City Street known as Kingsgate Way and the Northeast corner of Tract "G" as shown on Record of Survey Number 2515, as recorded in Volume 1 of Surveys on Page 2515 records if said County, said point lies at the beginning of a curve to the left, the radius point which bears North 57°57'05" West a distance of 1460.00 feet; Thence Northerly along said curve and said right-of-way a distance of 894.43 feet to the Northeast corner of a Parcel described by (Statutory Warranty Deed recorded under Auditor's File Number 2016-001134, records of said County and State)said corner is also the **TRUE POINT of BEGINNING**; Thence North 89°21'36" West a distance of 175.26 feet along the Northerly line of said Parcel leaving said Westerly right-of-way; Thence North 54°53'48" West a distance of 567.10 feet along the

Unofficial Copy

Northerly line of said Parcel to a point on the South line of said Southwest ¼ of said Section 21and a point hereafter known as **Point "A"**; Thence North 89°22'10" East a distance of 68.49 feet along said South line, leaving said Northerly line of said Parcel; Thence South 54°53'48" East a distance of 421.56 feet leaving said South line of said Section 21 to the beginning of a 250.00 foot radius tangent curve to the left; Thence Southeasterly a distance of 150.37 feet along the arc of said curve through a central angle of 34°27'48" to its point of tangency; Thence South 89°21'36" East a distance of 26.29 feet to the beginning of a 50.00 foot radius tangent curve to the left; Thence Northeasterly a distance of 85.08 feet along the arc of said curve through a central angle of 97°29'36" to a point on said Westerly right-of-way of Kingsgate Way and the beginning of a 1460.00 foot radius tangent curve concave to the Southwest and having a radial bearing of South 83°08'48" West; Thence Southeasterly a distance of 97.00 feet along the arc of said curve and said right-of-way through a central angle of 03°48'24" back to the true point of beginning.

Containing 29,317.6 square feet, more or less, according to the bearings and distances listed above and as depicted on the attached **Exhibit "A"**.

Together with:

Commencing at the aforementioned **Point "A"** and the **TRUE POINT of BEGINNING**; Thence North 54°53'48" West a distance of 462.02 feet, along the Northerly line of said Parcel described by Statutory Warranty Deed recorded under Auditor's File Number 2016-001134, to the Northwest corner of said Parcel; Thence North 35°06'12" East a distance of 40.00 feet leaving said Northerly line; Thence South 54°53'48" East a distance of 517.62 feet to a point on the South line of said Southwest ¼ of Section 21; Thence South 89°22'10" West a distance of 68.49 feet along said South line back to the true point of beginning.

Containing 19,592.8 square feet, more or less, according to the bearings and distances listed above and as depicted on the attached **Exhibit "A"**.

Unofficial Copy

For the purpose of providing access over a City of Richland park access road in Hanford Legacy Park for traffic associated with the development and operation of a mini-storage facility adjacent to Hanford Legacy Park as described in **Exhibit "B"**. Grantee and Grantee's invitees and licensees shall have the right to go upon said premises at any time for such purposes.

Conditions:

1. Grantee shall be solely responsible for removing snow on the road described in **Exhibit "A"**.

2. The City of Richland will be responsible for all road maintenance other than snow removal.

3. City shall have the right to close the road as necessary to perform maintenance, or for any other safety or business reason as determined in City's discretion. City shall not be liable for any consequential damages related to City's determination to close the road for any purpose.

4. Grantee shall pay a one-time fee of $0.17 per square foot of the property described in **Exhibit "A"**. The fee shall be paid prior to issuance of any building permits on Grantee's property identified as Auditor's Fee Number 1-2808-200-0007-000. Payment shall be submitted to the Parks and Public Facilities Department, 500 Amon Park Drive, Richland, WA 99352.

5. Grantee shall defend, indemnify and hold Grantor harmless from and against any and all claims, liabilities, losses, damages and costs (including reasonable attorney fees) resulting solely from or related to Grantee's use of this easement.

Executed this 22nd day of April, 2019.

[*Signature pages to follow*]

Unofficial Copy

Grantee – John H. Douglas

By: John H Douglas
John H. Douglas, Owner

STATE OF WASHINGTON)
: SS.
County of Benton)

On this 5 day of April, 2019, before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared **John H. Douglas**, to me known to be the owner of the benefitting property, who executed the foregoing instrument and acknowledged the said instrument to be his free and voluntary act and deed, for the uses and purposes therein mentioned, and on oath stated that he is authorized to execute the said instrument.

Witness my hand and official seal hereto affixed the day and year first above written.

OCTOBER L FOLLETT
Commission Expires
NOTARY
PUBLIC
11-01-2020
STATE OF WASHINGTON

October Follett

October L. Follett print name
Notary Public in and for the State of Washington
Residing at: Benton County, Washington
My Appointment Expires: 11-1-2020.

17-054
Drpjrpls

Unofficial Copy

Grantor - City of Richland

By: _____

Cynthia D. Reents
City Manager

STATE OF WASHINGTON)
: SS.
County of Benton)

On this 22 day of April, 2019, before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared **Cynthia D. Reents**, to me known to be the **City Manager** of the **City of Richland**, Washington, the municipal corporation that executed the foregoing instrument and acknowledged the said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that she is authorized to execute the said instrument.

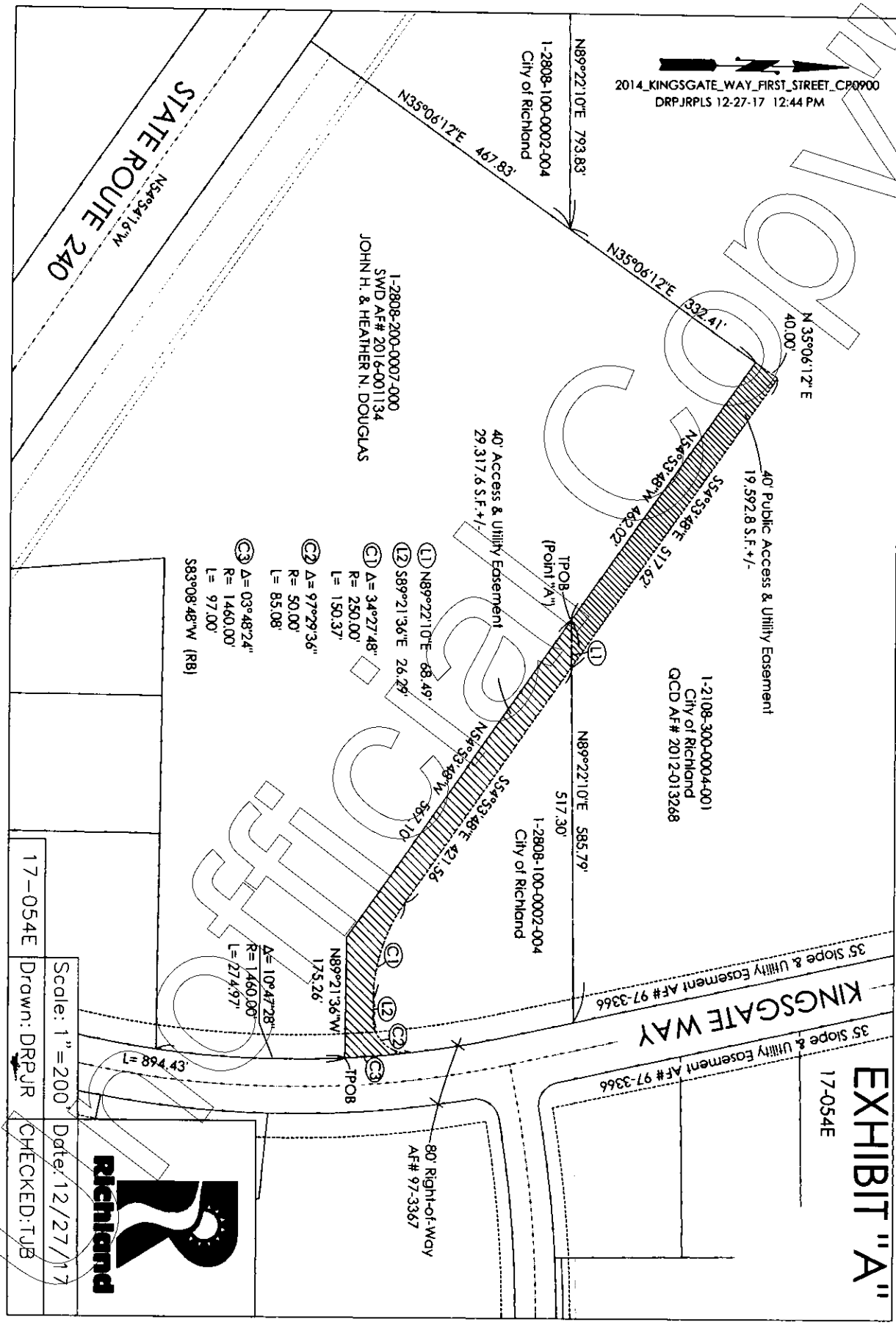
Witness my hand and official seal hereto affixed the day and year first above written.

Debra C Barham

DEBRA C. BARHAM *print name*
Notary Public in and for the State of Washington
Residing at: Benton County, Washington
My Appointment Expires: 11/16/2020.

DEBRA C BARHAM
NOTARY PUBLIC
STATE OF WASHINGTON
Commission Expires
11-16-2020

Unofficial Copy



Official Copy

Exhibit 9

CITY OF RICHLAND
PUBLIC WORKS ENGINEERING
DEVELOPMENT COMMENTS

DATE:	August 1, 2019
TO:	SHANE O'NEILL, SENIOR PLANNER
SITE PLAN REVIEW BY:	JASON REATHAFORD, ENGINEERING TECH 4 PETE ROGALSKY, PUBLIC WORKS DIRECTOR
PROJECT NAME:	HORN RAPIDS APARTMENTS
PROJECT LOCATION:	CORNER OF SR240 & KINGSGATE WAY / CURRENTLY ADDRESSED AS 2665 KINGSGATE WAY

The Public Works Engineering Division has reviewed the Site Plan received in this office on July 17, 2019 for the above referenced property and has the following conditions.

General Conditions:

1. All final plans for public improvements shall be submitted prior to pre-con on a 24" x 36" hardcopy format and also electronically in .dwg format compatible with the City's standard CAD software. Addendums are not allowed, all information shall be supplied in full size (and electronic) format. When construction of the infrastructure has been substantially completed, the applicant shall provide paper and electronic record drawings in accordance with the City's published "Record Drawing Requirements". The electronic as-built record drawings shall be submitted in an AutoCAD format compatible with the City's standard CAD software. Electronic copies of the construction plans are required prior to the pre-con meeting along with the multiple sets of paper drawings. The final record drawings shall be submitted and approved by the City before the final punchlist inspection will be performed. All final punchlist items shall be completed or financially guaranteed prior to acceptance of the project.

2. Any and all necessary permits that may be required by jurisdictional entities outside of the City of Richland shall be the responsibility of the developer to obtain.

3. A copy of the construction drawings shall be submitted for review to the appropriate jurisdictions by the developer and his engineer. All required comments / conditions from all appropriate reviewing jurisdictions (e.g.: Benton County, any appropriate irrigation districts, other utilities, etc.) shall be incorporated into one comprehensive set of drawings and resubmitted (if necessary) for final permit review and issuance.

4. Any work within the public right-of-way or easements or involving public infrastructure will require the applicant to obtain a right-of-way construction permit prior to beginning work, per RMC Chapter 12.08. The applicant shall pay a plan review fee based on a cost-per-sheet of engineering infrastructure plans. This public infrastructure plan review fee shall apply each time a project is submitted for review. This fee will be different for commercial projects versus subdivision projects. Please visit the Public Works Private Development page on the City's webpage to find the current per-sheet fee. A permit fee in the amount equal to 3% of the construction costs of the work within the right-of-way or easement will be collected at the time the construction permit is issued. A stamped, itemized Engineers estimate (Opinion of probable cost) and a copy of the material submittals shall be submitted along with the approved plan submittal.

5. When the construction is substantially complete a review set of "record drawings" shall be prepared by a licensed surveyor and include all changes and deviations. Please reference the

Public Works document "RECORD DRAWING REQUIREMENTS & PROCEDURES" for a complete description of the record drawing process. After approval by the City of the review copy, a final copy of the record drawings shall be submitted along with a CAD copy. The electronic as-built record drawings shall be submitted in an AutoCAD format compatible with the City's standard CAD software. All final punchlist items shall be completed or financially guaranteed prior to final acceptance of the project.

6. Public utility infrastructure located on private property will require recording of a City standard form easement prior to acceptance of the infrastructure and release of the final occupancy. The City requires preparation of the easement legal description by the developer two weeks prior to the scheduled date of final occupancy. Once received, the City will prepare the easement document and provide it to the developer. The developer shall record the easement at the Benton County Assessor and return a recorded original document to the City prior to application for final occupancy.

7. A pre-construction conference will be required prior to the start of any work within the public right-of-way or easement. Contact the Public Works Engineering Division at 942-7500 to schedule a pre-construction conference.

8. All plan sheets involving construction of public infrastructure shall have the stamp of a current Washington State licensed professional engineer.

9. An irrigation source and distribution system, entirely separate from the City's domestic water system, shall be provided for this development. *Construction plans will not be accepted for review until adequate and viable proof of an irrigation source is made available by the developer*. The designing Engineer shall submit plans for the proposed irrigation system to the Irrigation District with jurisdiction over the property at the same time that they are submitted to the City for construction review. Plans shall be reviewed and accepted by said irrigation district prior to issuance of a Right-of-Way permit by the City. Easements shall be provided for this system where needed.

Design Standards:

10. Public improvement design shall follow the following general format:
    - A. All materials and workmanship shall be in conformance with the latest revision of the City of Richland Standard Specifications and Details and the current edition of the State of Washington Standard Specifications for Road, Bridge, and Municipal Construction. Please confirm that you have the latest set of standard specs and details by visiting the City's web page.
    - B. Any sewer or storm manholes that are installed outside of public Right of Way shall have an acceptable 12-foot wide gravel access road (minimum) provided from a public street for maintenance vehicles.
    - C. 10-feet horizontal spacing shall be maintained between domestic water and sanitary sewer mainlines and service lines.
    - D. Water mains larger than 8-inches in diameter shall be ductile iron.
    - E. Water mains installed outside of the City Right of Way or in very rocky native material shall be ductile iron and may need restrained joints.
    - F. All water mains outside areas zoned R1 shall be ductile iron.
    - G. Fire hydrant location shall be reviewed and approved by the City Fire Marshal.
    - H. Sewer mains over 15-feet deep shall be constructed out of SDR26 PVC or C900 PVC. The entire main from manhole to manhole shall be the same material. Private sewer service lines over 15-feet deep shall also be constructed of the same material, then transition to regular sewer piping above 15-feet.
    - I. Water valves and manholes installed on private property shall be placed so as to avoid parked cars whenever feasible.
    - J. Trash compactors (high capacity dumpsters) shall be plumbed to the sanitary sewer system.

K. All utilities shall be extended to the adjacent property (properties) at the time of construction.
L. An overall, composite utility plan shall be included in the submitted plan set if the project is phased. This comprehensive utility plan benefits all departments and maintenance groups involved in the review and inspection of the project.
M. A detailed grading plan shall be included in the submitted plan set.
N. For public utilities not located within public street rights-of-way the applicant shall provide maintenance access acceptable to the City and the applicant shall provide an exclusive 10-foot wide public utility easement (minimum) to be conveyed to the City of Richland.
O. Final design of the public improvements shall be approved at the time of the City's issuance of a Right-of-way Construction Permit for the proposed construction.
P. All public improvements shall comply with the State of Washington and City of Richland requirements, standards and codes.
Q. All intersections with public streets shall meet horizontal, vertical and intersectional design requirements for sight distance (A.K.A. the Vision Clearance Triangle).
R. All driveways for commercial projects shall construct City standard commercial driveways. Radius-style driveways are not allowed.
S. The final engineered construction plans shall identify locations for irrigation system, street lighting, gas service, power lines, telephone lines, cable television lines, street trees and mail boxes. All electrical appurtenances such as transformers, vaults, conduit routes, and street lights (including their circuit) need to be shown in the plan view.
T. Construction plans shall provide or reference all standard drawings or special details that will be necessary to construct all public improvements which will be owned, operated, maintained by the City or used by the general public (Commercial Driveway, Curb, Gutter, Sidewalk, Water, Sewer, Storm, Street and Street lighting etc.).
U. The contractor shall be responsible for any and all public infrastructure construction deficiencies for a period of one year from the date of the letter of acceptance by the City of Richland.

11. If the project will be built in phases the applicant shall submit a master plan for the sanitary sewer, domestic water, storm drainage, electrical, street lighting and irrigation system for the entire project prior to submitting plans for the first phase to assure constructability of the entire project. This includes the location and size of any storm retention ponds that may be required to handle runoff.

12. If the City Fire Marshal requires a secondary emergency vehicle access, it shall be included in the construction plan set and be designed to the following standards:
    A. 2-inches compacted gravel, minimum (temp. SEVA only).
    B. 2% cross-slope, maximum.
    C. 5% slope, maximum. Any access road steeper than 5% shall be paved or be approved by the Fire Marshal.
    D. Be 20-feet in width.
    E. Have radii that are accommodating with those needed for City Fire apparatus.

    Secondary emergency vehicles accesses (SEVA's) shall be 20-feet wide, as noted. Longer secondary accesses can be built to 12-feet wide with the approval of the City of Richland Fire Marshal, however turn-outs are required at a spacing acceptable to the Fire Dept. Temporary SEVA's shall be constructed with 2-inches of compacted gravel, at a minimum. Permanent SEVA's shall be paved with 2-inches of asphalt over 4-inches of gravel, at a minimum.

13. SURVEY MONUMENT DESTRUCTION:
    All permanent survey monuments existing on the project site shall be protected. If any monuments are destroyed by the proposed construction, the applicant shall retain a professional land surveyor to replace the monuments and file a copy of the record survey with the City.

A. No survey monument shall be removed or destroyed (*the physical disturbance or covering of a monument such that the survey point is no longer visible or readily accessible*) before a permit is obtained from the Department of Natural Resources (DNR). WAC 332-120-030(2) states "It shall be the responsibility of the governmental agency or others performing construction work or other activity (including road or street resurfacing projects) to adequately search the records and the physical area of the proposed construction work or other activity for the purpose of locating and referencing any known or existing survey monuments." (RCW 58.09.130).
B. Any person, corporation, association, department, or subdivision of the state, county or municipality responsible for an activity that may cause a survey monument to be removed or destroyed shall be responsible for ensuring that the original survey point is perpetuated. (WAC 332-120-030(2)).
C. Survey monuments are those monuments marking local control points, geodetic control points, and land boundary survey corners. (WAC 332-120-030(3)).

When a monument must be removed during an activity that might disturb or destroy it, a licensed Engineer or Land Surveyor must complete, sign, seal and the file a permit with the DNR.
It shall be the responsibility of the designing Engineer to identify the affected monuments on the project plans and include a construction note directing them to the DNR permit.

Traffic & Streets:

14. This project may require changes to Kingsgate Way at the driveway entrances. The applicant shall design the driveways as directed by the City Traffic Engineer to ensure the safe and efficient use of these driveways and Kingsgate Way. The applicant shall also modify Kingsgate Way as directed by the City Traffic Engineer to ensure the safe and efficient use of the driveways. Potential modifications may include pavement markings and/or acceleration/deceleration lanes as warranted and determined by the City Traffic Engineer.

15. Unless already improved, this project shall complete the Kingsgate Way frontage to City standards at the time of project construction, including sidewalks, street lights, storm drainage provisions, etc.

16. A sidewalk shall be installed alongside or parallel to the south side of the "private access easement" roadway along the north boundary of the project. In addition, a sidewalk shall be installed along or parallel to the southerly access road to Kingsgate Way. These sidewalks shall be ADA compliant.

17. The "private access easement" road along the north side of the project boundary shall be widened to a minimum of 27-feet of asphalt across the project frontage. This will allow for parking along the south side of the roadway and also for two way traffic. Striping and signage for this roadway shall be identified during construction plan review and installed by the developer prior to project acceptance.

18. The pedestrian path connection to the Vantage Highway pathway shown on Sheet SP-2 and located along the south property boundary of the project shall be redesigned to access the path from the southwest corner of the site. This is to serve the likely pedestrian demand for convenient access to the City's planned park to the west of this site. This pathway section constructed shall be ADA compliant.

19. The vision-clearance triangle needs to be shown at all driveways on the construction plans in accordance with RMC Chapter 12.11.020. If the intersection is in a curve, it will have to be evaluated per AASHTO guidelines. Landscaping plans shall be submitted for review, and shall conform to the vision-clearance chapter of municipal code.

20. The existing access points shown on the site plan are acceptable for this project, but any proposed changes to said driveways will be subject to approval by the City Traffic Engineer.

21. All private roadways shall be constructed to provide for adequate fire truck & solid waste collection truck access & turnaround movements.

22. Any private roads narrower than 34-feet shall have parking restricted on one side, and any roads 28-feet or narrower shall have parking restricted on both sides. Street signs indicating restricted parking shall be installed at the developer's expense.

23. If the project is to be constructed in phases, all dead-end streets longer than 150-feet that will be continued later need to have temporary turn-arounds built at the end of them. The radius of these turn-arounds shall be 45-feet minimum, and shall be constructed of 2-inches of compacted top course gravel for slopes less than 5%, or of 2-inches of asphalt atop 2-inches of gravel for slopes greater than 5%. If the temporary turn around is not located within the project boundary an easement with a 50-foot radius will be required.

Domestic Water:

24. The developer will be required to demonstrate that all phases are capable of delivering adequate fire flows prior to construction plans being accepted for review. This may require looping of the watermain from off-site locations, or oversizing of the main where needed.

25. The fire hydrant layout shall be approved by the City Fire Marshal.

26. In accordance with RMC Chapter 18.13 and WAC 246-290 regarding Cross Connections, premise isolation backflow assemblies are required to be installed on the domestic water services of all new commercial/industrial buildings, and also of all buildings undergoing a tenant improvement, remodel, addition, etc., immediately downstream of the City's water meter. This will be a requirement on the construction plans. Please note this on the plans, and indicate where the backflow device is to be installed. Yearly test reports shall be provided to the City's Water Quality Inspector. The backflow device shall be on the state approved list, available through the Washington State Dept. of Health.

27. A 10-foot wide exclusive water easement shall be provided for any city water main that is outside of the public Right-of-Way.

Sanitary Sewer:

28. A 10-foot wide exclusive sanitary sewer easement shall be provided for any sewer main that is outside of the public Right-of-Way. Wider easements are required for mains that are buried deeper than 10-feet. If any manholes are located outside of the public Right-of-Way, maintenance truck access to said structure may be required.

29. Sanitary sewer shall be extended to the adjoining properties adjacent to the project.

Storm Water:

30. This project may require coverage under the Washington State General NPDES Permit for Construction projects. The Developer shall be responsible for compliance with the permit conditions. The City has adopted revised standards affecting the construction of new stormwater facilities in order to comply with conditions of its NPDES General Stormwater Permit program. This project, and each phase thereof, shall comply with the requirements of the City's stormwater program in place at the time each phase is engineered. The project will require detailed erosion control plans.

31. The proposed storm drainage and grading of all areas within the proposed development shall be shown on the plans (most grading and drainage plans must be prepared by a licensed civil engineer). If site contains at least 1,000 sq.ft. of new asphalt, and/or contains 30% or more impervious surfaces, storm drainage calculations from a licensed civil engineer are required. Stormwater shall be kept on-site (on the developing property that generated it). Stormwater shall not be flowed onto adjacent properties, or to the public Right-of-Way, without first obtaining written permission.

32. The private on-site storm drainage system shall be designed following the core elements defined in the latest edition of the Stormwater Management Manual for Eastern Washington. The Hydrologic Analysis and Design shall be completed based on the following criteria: Washington, Region 2, Benton County; SCS Type 1A – 24 Hour storm for storm volume. Calculations shall be stamped by a registered professional Civil Engineer. Prior to discharging any storm drainage waters from paved surfaces into drainage ditches, groundwater or a public system, an oil/water separator must be installed. The applicant's design shall provide runoff protection to downstream property owners.

33. All construction projects that don't meet the exemption requirements outlined in Richland Municipal Code, Section 16.06 shall comply with the requirements of the Washington State Department of Ecology issued Eastern Washington NPDES Phase II Municipal Stormwater Permit. All construction activities subject to this title shall be required to comply with the standards and requirements set forth in the Stormwater Management Manual for Eastern Washington (SWMMEW) and prepare a Stormwater Site Plan. In addition, a Stormwater Pollution Prevention Plan (SWPPP) or submission of a completed erosivity waiver certification is required at the time of plan submittal.

34. If any existing storm drainage or ground water seepage drains onto the proposed site, said storm drainage shall be considered an existing condition, and it shall be the responsibility of the property developer to design a system to contain or treat and release the off-site storm drainage.

35. Prior to or concurrent with the submittal of the first phase the developer shall provide a Geotechnical report including the percolation rate of the soils in the area of any storm retention ponds. If the project constructs a storm retention pond then the engineer will need to demonstrate that the pond will drain itself within 24 hours after the end of a storm event, and not have standing water in it longer than that. Engineering solutions are available for retention ponds that do not perk within 24 hours.

36. The amount of post-development storm runoff from the proposed site shall not exceed the amount of pre-development runoff.

37. Stormwater collection pipes shall be extended to the adjoining properties adjacent to the project.

38. If the storm drain pond slopes are greater than 25% or deeper than 4-feet, then a 6-foot fence will be required around the perimeter of the pond with a minimum 12-foot wide gate for maintenance vehicles. A maintenance road from the public Right of Way to the bottom of the pond is also needed (2-inches of compacted gravel, minimum). The City's maintenance of the pond in the future will consist of trimming weeds to maintain compliance with fire and nuisance codes, and maintaining the pond for functionality.

39. The developer shall be responsible for landscaping the storm pond and for its maintenance through the one-year infrastructure warranty period. At a minimum the landscaping plan should be consistent with the City's intended maintenance standard as described above. If the developer wishes for the pond to be landscaped and visually appealing, then the homeowners association should be considered for maintenance responsibilities. This will require an irrigation

meter and sprinkler system (including a power source), and responsibility for maintaining the landscaping.

40. The developer of record shall maintain the public storm drainage system for one year from the date of final acceptance by The City of Richland (as determined by the issuance of the "Letter of Final Acceptance"). Said developer shall also thoroughly clean the entire system, including structures, pipelines and basins prior to the City warranty inspection, conducted 11 months after the Letter of Final Acceptance.

Solid Waste:

41. Any solid waste enclosures installed as part of this project shall be constructed to City standard details.

42. Solid waste enclosures must be shown on the construction plans and will have to be placed so that they are accessible by City solid waste collection vehicles.

Project Acceptance Requirements:

43. When the construction is substantially complete a paper set of "record drawings" shall be prepared by a licensed surveyor and include all changes and deviations. Please reference the published Public Works document "RECORD DRAWING REQUIREMENTS & PROCEDURES" for a complete description of the record drawing process. All final punchlist items shall be completed or financially guaranteed prior to final acceptance of the project.

44. Public utility infrastructure located on private property will require recording of a City standard form easement prior to acceptance of the infrastructure and release of a certificate of occupancy. The City requires preparation of the easement legal description by the developer two weeks prior to the scheduled date of final occupancy. Off-site ("third party") easements for City infrastructure are the responsibility of the developer to obtain. Once received, the City will prepare the easement document and provide it to the developer. The developer shall record the easement at the Benton County Assessor and return a recorded original document to the City prior to application for final occupancy.

45. Any off-site easements or permits necessary for this project shall be obtained and secured by the applicant and supplied to the City at the time of construction and prior to final acceptance by the City.

46. Any private roads narrower than 34-feet shall have parking restricted on one side, and any roads 27-feet or narrower shall have parking restricted on both sides. Street signs indicating restricted parking shall be installed at the developers expense.

47. All landscaped areas that are in the public Right of Way shall be the responsibility of the property owners to maintain.

48. Property with an unpaid L.I.D. assessment towards it must be paid in full or segregated per Richland Municipal Code 3.12.095.

Copy

Exhibit 10

Washington State Department of Transportation

South Central Region
2809 Rudkin Road
Union Gap, WA 98903-1648
509-577-1600 / FAX: 509-577-1603
TTY: 1-800-833-6388
www.wsdot.wa.gov

July 31, 2019

City of Richland
P.O. Box 190
Richland, WA 99352

Attention: Shane O'Neil, Senior Planner

Subject: M2019-100 – Horn Rapids Apartments
SR 240 milepost 26.75 left, Kingsgate Way intersection vicinity

We have reviewed the proposed project and have the following comments.

- The subject property is adjacent to State Route 240 (SR 240), a partially-controlled limited access facility with a posted speed limit of 55 miles per hour. WSDOT has acquired all access rights to the highway. Direct access is restricted to public intersections.

- SR 240 is an existing facility and the proponent and future residents should be aware they are developing in an area with traffic noise. They should also expect that traffic noise may continue to grow into the future. If the proponent is concerned with traffic noise affecting this development, it is their responsibility to dampen or deflect it.

- Stormwater and surface runoff generated by this project must be retained and treated on site in accordance with regulating agencies' standards. Any storm water discharge into WSDOT rights-of-way must have an approved utility permit.

- Any proposed lighting should be directed down towards the site, and away from SR 240.

Thank you for the opportunity to review and comment on this proposal. If you have any questions regarding our comments, please contact Jacob Prilucik at (509) 577-1635.

Sincerely,

Paul Gonseth, P.E.
Planning Engineer

PG: jjp/mnk

cc: SR 240, File #7
Kara Shute, Area 3 Maintenance Superintendent

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
1250 W Alder St • Union Gap, WA 98903-0009 • (509) 575-2490

July 26, 2019

Shane O'Neill
City of Richland
PO Box 190
Richland, WA 99352

Re: M2019-100

Dear Shane O'Neill:

Thank you for the opportunity to comment on the notice of application for the development of approximately 13.1 acres with up to 8 multi-family residential buildings, proposed by Lee Petty for LCR Construction. We have reviewed the application and have the following comment.

WATER QUALITY

Project with Potential to Discharge Off-Site
If your project anticipates disturbing ground with the potential for stormwater discharge off-site, the NPDES Construction Stormwater General Permit is recommended. This permit requires that the SEPA checklist fully disclose anticipated activities including building, road construction and utility placements. Obtaining a permit may take 38-60 days.

The permit requires that a Stormwater Pollution Prevention Plan (Erosion Sediment Control Plan) shall be prepared and implemented for all permitted construction sites. These control measures must be able to prevent soil from being carried into surface water and storm drains by stormwater runoff. Permit coverage and erosion control measures must be in place prior to any clearing, grading, or construction.

In the event that an unpermitted Stormwater discharge does occur off-site, it is a violation of Chapter 90.48 RCW, Water Pollution Control and is subject to enforcement action.

More information on the stormwater program may be found on Ecology's stormwater website at: http://www.ecy.wa.gov/programs/wq/stormwater/construction/. Please submit an application or contact **Lloyd Stevens, Jr.** at the Dept. of Ecology, (509) 574-3991, with questions about this permit.

Sincerely,

Gwen Clear

Gwen Clear
Environmental Review Coordinator
Central Regional Office
(509) 575-2012
crosepacoordinator@ecy.wa.gov

Department of Energy

Bonneville Power Administration
2211 North Commercial Avenue
Pasco, Washington 99301

TRANSMISSION BUSINESS LINE

July 29, 2019

In reply refer to: Site Plan (M2019-100)
Located within a Portion of Section 21 and 28, Township 10 North, Range 28 East, W.M., Benton County, Washington

Shane O'Neill
Senior Planner
City of Richland
505 Swift Boulevard
Richland, WA 99352

Dear Shane:

Bonneville Power Administration (BPA) has had the opportunity to review Site Plan (M2019-100). The application is for the development of approximately 13.1 acres for multi-family residential buildings, 324 dwelling units with site amenities and open space. The site is generally located at Kingsgate Way and WA-240 in Richland, WA, county parcel numbers 128082000006000, 128082000005000 and 128082000004000.

In researching our records, we have found that this proposal will not directly impact BPA facilities in that area. BPA does not have any objections to the approval of this request at this time.

Thank you for the opportunity to review this application. If you have any questions regarding this request or need additional information, please feel free to contact me. I can be reached at (503) 230-5510 or by email at mjdeklyen@bpa.gov.

Sincerely,

Mike Deklyen
Field Realty Specialist

BENTON COUNTY
EMERGENCY SERVICES

651 Truman Avenue
Richland, Washington 99352
(509) 628-2600

TO: Shane O'Neil

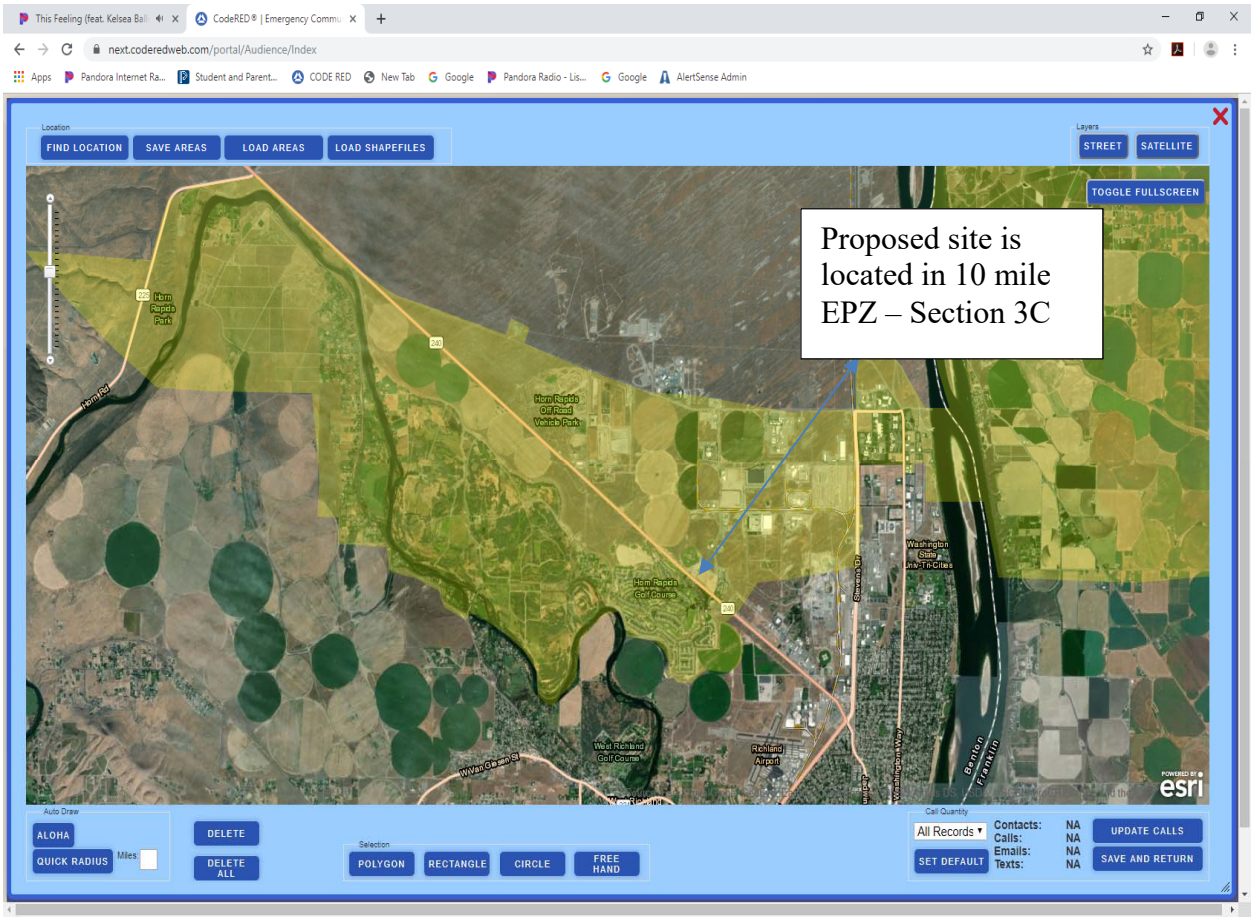
FROM: Deanna Davis, EM Manager

DATE: August 6, 2019

SUBJECT: Review of Site Plan for Multi-Family Units located Kingsgate/240

Upon review of the site plan for the proposed 324 Multi-Family apartment complex to be located North Side of 240 and West of Kingsgate at 2665 Kingsgate, several items are to be noted. This proposed site is located within the 10-mile Emergency Planning Zone for an emergency at the Columbia Generating Station or the 300 Area of the Hanford Site. The site is specifically located in section 3C which is described as the area south of the Hanford Site and North of Battelle Blvd, between Stevens Drive and the Columbia River. It also includes the Horn Rapids Off Road Vehicle Park and the Richland Landfill. It does not include businesses or parks accessed from Hwy 240 via Logston Blvd or Roberston Road or businesses on the west side of Stevens Drive south of Curie Street. – see the map on the next page

Special consideration should be taken to provide emergency notification and instructions to the residents who would eventually reside in the proposed multi-family units. The applicant should create an emergency plan that acknowledges the risks and identifies methods of notifications and should coordinate with Benton County Emergency Management regarding the emergency plan.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Google
AlertSense Admin
Location
FIND LOCATION
SAVE AREAS
LOAD AREAS
LOAD SHAPEFILES
Layers
STREET
SATELLITE
TOGGLE FULLSCREEN
Proposed site is located in 10 mile EPZ – Section 3C
Horn Rapids Park
Horn Rd
Horn Rapids Off Road Vehicle Park
Horn Rapids Golf Course
Washington State Univ-Tri-Cities
Stevens Dr
West Richland Golf Course
Richland Airport
Washington Way
Benton Franklin
POWERED BY esri
Auto Draw
ALOHA
QUICK RADIUS
Miles
DELETE
DELETE ALL
Selection
POLYGON
RECTANGLE
CIRCLE
FREE HAND
Call Quantity
All Records
SET DEFAULT
Contacts: NA
Calls: NA
Emails: NA
Texts: NA
UPDATE CALLS
SAVE AND RETURN

Exhibit 11

ONeill, Shane

From: Mike Stanicar <mstanicar@bwarch.com>
Sent: Friday, August 2, 2019 12:49 PM
To: ONeill, Shane
Cc: Stevens, Mike; Lee Petty; Austin Morris; Brian Bochman
Subject: RE: Horn Rapids Apartments Site Plan Review (M2019-100)
Attachments: M2019-100 Horn Rapids Apts.doc

Thanks Shane. I made a cursory review of the conditions and don't see and show stoppers. I'll circulate the rest for the team for their review and comment. I do have some concerns which warrant further dialog or clarification for the items below:

Item #16
According to the survey, the existing access easement roadway falls steeply starting approximately 140-feet from the NWC of the proposal. The existing roadway loses 16 to 17-feet, almost 12% slope, to the property line. In our opinion, ADA compliance along this rout likely falls into the category of "technically infeasible." The Google image below shows the slope looking down toward the self-storage and athletic fields.

Item#18
- There is a significant grade transition at the SWC of the project. As suggested in the conditions, it would require approximately 400-feet of ramp at 5% slope to meet ADA. The grade difference eases to the west; which is why it is shown at its current location.
- If the City is steadfast about the connection at the SWC of the project, the connection would really no longer make sense for the project. In that circumstance, it would be my recommendation to the developers to remove the trail connection.
- A third way would be to exit the project at the location currently shown (SEC), traverse across the slope of the project frontage, and connect to the trial near SWC corner rather than doubling back. This puts trail connection near the proposed park, as suggested, but works with the natural grade of the site to provide a mild grade more suitable for walking, wheel chairs, strollers, and other forms of human power transportation.

Items #22 & 46
Please confirm that the referenced parking restriction is concerning a parallel/on-street type parking configuration.

I'll forward a revised plan as soon as the reset of the development team has had a chance to review and weigh with any additional comments.

Have a great weekend,

Mike

MIKE STANICAR AIA | Associate Principal

Bernardo|Wills Architects PC | 153 South Jefferson Street, Spokane, WA 99201
MAIN 509.838.4511 DIRECT 509.458.8042 | www.bernardowills.com

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From: ONeill, Shane <soneill@CI.RICHLAND.WA.US>
Sent: Friday, August 02, 2019 8:40 AM
To: Mike Stanicar <mstanicar@bwarch.com>; Lee Petty <lcrlpetty@gmail.com>
Cc: Stevens, Mike <mstevens@CI.RICHLAND.WA.US>
Subject: Horn Rapids Apartments Site Plan Review (M2019-100)

Lee & Mike,
I am forwarding the set of development conditions put forward by the Public Works Office. The format, including some of its content, is often applied to preliminary plat applications so everything is pretty boiler-plate until we get to the Traffic & Streets section on page 4. That is where the conditions become more specifically tailored to this project. If you are able to edit the site plan to adjust for some of these requirements, i.e. #18, I am still able to enter a revised site plan as the staff report has not been finalized yet. No need to produce more hard-copies.

Keep in mind that the staff report will have a few additional conditions of approval, which at this time do not affect the content of the site plan.

Feel free to call me if you have questions.
Thank you,

Shane O'Neill
Senior Planner
City of Richland
P: 509.942.7587

HEARING EXAMINER AGENDA ITEM COVERSHEET

Meeting Date: 8/12/2019

Agenda Category: New Business – Public Hearing

Prepared By:

Subject:
Snyder Street Water Intake Facility Upgrades - SMP2019-102

Department:
Development Services

Recommended Motion:
Staff recommends approval of Shoreline Management Substantial Development Permit No. SMP2019-102 subject to the attached conditions of approval.

Summary:
Snyder Street Water Intake Facility Upgrades - SMP2019-102

The City of Richland Public Works Department is proposing to complete necessary upgrades to the existing water intake facility located at the eastern terminus of Snyder Street.

Attachments:

1. SMP2019-102 Complete Staff Report

CITY OF RICHLAND DEVELOPMENT SERVICES DIVISION
STAFF REPORT TO THE HEARING EXAMINER

GENERAL INFORMATION:

PROPOSAL NAME:	Snyder Street Intake Screen Upgrades
LOCATION:	The site is located on the right bank of the Columbia River at river mile 340.5 at the eastern terminus of Snyder Street, just north of the Snyder Boat Launch and Leslie Groves Park, Richland, WA. The site is on the border of Sections 25 and 36 of Township 10 North, Range 28 East., W.M., Benton County, WA.
APPLICANT:	City of Richland Public Works Dept.
FILE NO.:	SM2019-102 & EA2019-114
DESCRIPTION:	A Shoreline Substantial Development Permit to upgrade the existing water intake structure located at the eastern terminus of Snyder Street, Richland, WA. Specifically, the project consists of replacing the two traveling belt screens with four 60-inch-diameter stainless steel barrel screens, which will protrude approximately 30 feet eastward into the river from the existing intake structure. The existing facility will be retrofitted, including removal of the traveling belt screens and motors, sluice gates and hoists, and trash racks. Additional improvements to the existing intake structure include retrofits on all three levels of the facility: the intake deck; interior intermediate deck; and forebay.
PROJECT TYPE:	Type 2 Shoreline Substantial Development Permit
HEARING DATE:	August 12, 2019
REPORT BY:	Mike Stevens, Planning Manager
RECOMMENDED ACTION:	Approval

Figure 1 - Vicinity Map

Snyder Street **Water Intake Facility**

DESCRIPTION OF PROPOSAL

The City of Richland's Snyder Intake facility was constructed in 1963 and feeds raw water from the McNary Pool of the Columbia River to the City's North Richland Wellfield and Water Treatment Plat (WTP). The U.S. Army Corps of Engineers (USACE) recently identified that the facility's traveling belt screens do not meet current National Marine Fisheries Service (NMFS) screen criteria for fish protection. As a condition of receiving a renewed easement for the intake facility, the City must update the existing traveling belt screens by the end of 2020.

The existing intake requires a future pumping capacity of 90 million gallons per day (MGD), but the existing traveling belt screens would only be able to accommodate approximately 15 to 20 MGD if replaced with a smaller mesh size. The Snyder Intake provides over 90 percent of the City's drinking water; consequently, a reduction in pumping capacity is not feasible and was a major consideration in the screen replacement alternatives evaluated. After evaluating alternatives, the City proposed upgrades to the intake structure to meet NMFS standards while maintaining the required pumping capacity of the intake.

The proposed design will replace the two traveling belt screens with four 60-inch-diameter stainless steel barrel screens, which will protrude approximately 30 feet eastward into the river from the existing intake. To accommodate the proposed barrel screens, the existing facility will be retrofitted, including removal of the traveling belt screens and motors, sluice gates and hoists, and trash racks. Each former trash rack opening will accommodate connection of two barrel screens, which will be secured to the river bottom with pre-cast concrete anchors. In addition to securing the screens, the concrete anchors will support hydroburst equipment for cleaning the barrel screens. Electrical controls for the hydroburst equipment will be installed within and adjacent to the existing electrical control room on the intake deck.

Improvements on the intake structure will involve retrofits on all three levels of the facility: the intake deck; interior intermediate deck; and forebay. The door, door frame, and roof of the existing electrical control room will be replaced. Concrete repair and access hatch installation will be completed on the intake deck. Improvements to the interior intermediate deck include installation of handrail and grate over the forebay. The forebay will be separated with a cast-in-place concrete wall equipped with a sluice gate. Warning signs and buoys will be installed surrounding the submerged equipment. Project construction will involve modifications to the existing Snyder Intake (estimated over an area of 2,165 square feet), and in-water work in the Columbia River (2,630 square feet) totaling a work area of approximately 4,795 square feet.

SITE DESCRIPTION & ADJACENT LAND USES

The project site is located within the Snyder Street right-of-way. Property to the north of the project site is utilized as open space and is primarily undeveloped with exception of a paved parking areas and a 12’ wide pedestrian pathway which extends north from the Snyder Street right-of-way. South of the project site is the Snyder Street Boat Launch and Leslie Groves Park.

ZONING

The site is located within the Snyder Street right-of-way and within the Columbia River. As a result, the site does not contain a zoning classification. Property to the north of the Snyder Street right-of-way is zoned Natural Open Space (NOS) and property located to the south is zoned Parks & Public Facilities (PPF).

COMPREHENSIVE PLAN

The site is located within the Snyder Street right-of-way and within the Columbia River. As a result, the site does not contain land use designations. Property to the north of the Snyder Street right-of-way is designated as Natural Open Space

(NOS) and property located to the south is designated as Developed Open Space (DOS).

CRITICAL AREAS

The City of Richland Public Works Department hired RH2 who worked in consultation with the U.S. Army Corps of Engineers to prepare a Biological Assessment for the project. The conclusions of the Biological Assessment are that the Snyder Street Intake Screen Upgrades project effect determination for Chinook, steelhead, and bull trout is **may affect, not likely to adversely affect** and that no other listed or proposed species are present in the action area. As a result of the conclusion of the Biological Assessment and project mitigation and/or requirements placed by other entities, such as the U.S. Army Corps of Engineers and Washington State Department of Fish & Wildlife the project will result in overall compliance with the City's critical areas regulations.

SEPA

The City of Richland is the lead agency for the proposal under the State Environmental Policy Act (SEPA). The City utilized the Optional DNS Process as allowed per WAC 197-11-355. The City reviewed the proposed project for probably adverse environmental impacts and issued a SEPA Determination of Non-Significance for the project on August 7, 2019 which is included herein as Exhibit 3.

PUBLIC NOTIFICATION TIMELINE:

Application Date	June 14, 2019
Combined Notice of Application & Hearing Mailed	N/A
Combined Notice of Application & Hearing Posted	June 28, 2019
Combined Notice of Application & Hearing Published	July 26, 2019
Public Hearing	August 12, 2019

A combined notice of application, Optional DNS (SEPA) and notice of hearing were provided through posting of the property and publication in the *Tri-City Herald* newspaper. No private properties are located within 300' of the project site, as a result, the combined notice of application, Optional DNS and notice of hearing was not distributed via US Mail. A copy of the notice is included in Exhibit 3 – Public Notices. Written comment(s) received by the City are included herein as Exhibit 4.

SHORELINE MASTER PROGRAM

In accordance with the City's Shoreline Master Program (SMP), the following describes how the proposed project complies with or is consistent with the applicable shoreline management policies.

26.10.010 Natural Environment

The shoreline landward of the ordinary high water mark (OHWM) directly north of the Snyder Intake facility is designated as Natural Environment. The purpose of the Natural Environment shoreline designation is to protect and preserve shorelines that are free of development and human activity. The project is consistent with the management policies of the Natural Environment designation because it does not involve additional development, vegetation removal, or any activities that will degrade the ecological function of the shoreline area within the Natural Environment designation. No impacts to this section of shoreline are anticipated to result from this project.

26.10.030 Recreation Environment

The shoreline landward of the OHWM directly south of the Snyder Intake facility is designated as Recreation Environment. The purpose of the Recreation Environment shoreline designation is to provide both water-oriented and non-water-oriented recreation opportunities for the community. The project is compatible with the management policies of this designation because it involves modifications to an existing utility facility, the nature of which will not impact scenic views, the aesthetic quality, or long-term recreation usability of the shoreline. Construction activities may cause temporary impacts to recreation users of the nearby Snyder Boat Launch; however, these potential impacts are expected to be avoided and minimized both with construction timing and staging of the project on the City's existing intake structure and on a barge anchored in the river.

In addition to this SSDP, the City is seeking several permits and approvals from regulatory agencies with jurisdiction. In-water construction activities will be timed within an agency pre-approved in-water work window. At this point, the City is including both a summer and winter work window in permit applications; however the preferred construction timing would target the winter work window (December 15th to February 28th). This window is preferred for several reasons, including: 1) it captures low use timing for Endangered Species Act (ESA) listed salmonids in the river; 2) it coincides with low recreation and boat usage timing, which is highest in the summer; and 3) it captures lower water demand and facility operation needs.

RMC 26.10.090 Aquatic Environment

The shoreline waterward of the OHWL at the Snyder Intake facility is designated as Aquatic Environment, which is where project activities will primarily occur. The Aquatic Environment shoreline designation is intended to protect, restore, and manage the resources of the areas waterward of the OHWL. Although the project will involve temporary construction impacts and the addition of permanent structures within the Aquatic Environment, the project is consistent with the management policies of the Aquatic Environment designation. Project design and planned construction activities have been carefully executed to avoid and minimize impacts to the aquatic environment to the maximum extent practicable. The following avoidance and minimization measures are planned:

- Retrofitting the facility to accommodate the barrel screens and prevent significant equipment work or fabrication underwater.
- Selecting prefabricated equipment for the concrete anchors, barrel screen assemblies, and connection flanges.
- Avoiding significant excavation, dredging, or fill in the river.
- Timing in-water construction with agency approved in-water work windows.
- Utilizing professional divers with hand tools for equipment installation.
- Staging materials and equipment on the existing intake structure and on a barge anchored nearby in the river.
- Preventing removal of shoreline vegetation.
- Employing construction best management practices (BMPs) for work on the structure and in the river, primarily to prevent turbidity, spills, and construction material byproducts and debris from impacting the river.

With the presence of listed salmonids in the river, the work will be reviewed by NMFS and the U.S. Fish and Wildlife Service (USFWS), as well as USACE and the Washington Department of Fish and Wildlife (WDFW). All construction work will conform to the permit requirements and conditions issued by these and other agencies with jurisdiction over this project.

Figure 2 – Shoreline Environment Map

RMC 26.20.010 Shorelines of Statewide Significance

As a Shoreline of Statewide Significance, the Columbia River provides benefits to the entire state. As a result, projects proposed on its shoreline must address decision criteria listed in RMC 26.20.010(B) of the City's SMP. A narrative addressing how the proposed project complies with these criteria was provided by the applicant with staff input.

1. Recognize and protect state-wide over local interests

The Columbia River at the location of the City's Snyder Intake provides multiple benefits for both the local community and the entire State. The shoreline at this location is used by the local community for recreation (e.g., park usage, boating and other watercraft usage, fishing, walking trails, etc.), aesthetic and personal enjoyment, a transportation corridor, and more. The river itself is a major source of drinking water for both the City and the City of West Richland (45 percent of its drinking water is supplied by the Snyder Intake). Since the Snyder Intake has been in use for more than 50 years, its operation is vital to the local community. In addition to the local community, the Columbia River provides multiple benefits for other statewide and federal interests, including fish, wildlife, and ESA species

habitats, recreation, aesthetic and person enjoyment, transportation corridor, hydroelectric power, drinking water, fisheries resources, and more.

The proposed project will address NMFS requirements for intake facilities operating in the Columbia River to better protect ESA-listed species, a major resource of the river. Improvements are required for the City to operate this facility as a condition of its land lease with USACE. The proposed barrel screens will replace the traveling belt screens. The barrel screens were selected as the preferred alternative because of their ability to both meet the NMFS screen criteria and maintain existing pumping capacity of the facility. Additionally, the screen configuration selected addresses maintenance and operational needs for the City, considers all uses of the river, not just the City's, and optimizes the continued withdrawal of raw water.

Design of the project has considered state programs, policies, and recommendations, and has involved coordination with WDFW, the Washington State Department of Natural Resources, and the Washington State Department of Health. Additionally, because the Columbia River is regulated at the local, state, and federal levels, project design has been conducted in consultation with both the City and several federal agencies (e.g., USACE, NMFS, USFWS), in a manner that complies with applicable local and federal requirements and regulations. Project design and construction methods/timing is being completed to avoid and minimize impacts to the shoreline and aquatic environment of the Columbia River, including the natural resources, fisheries, wildlife, threatened and endangered species, and government and tribal interests associated with these areas. In this way, the project recognizes the multi-governmental interests associated with the Columbia River shoreline and aims to protect those interests while also upgrading the facility to meet federal requirements.

2. Preserve the natural character of the shoreline

The Snyder Intake is an existing facility on the Columbia River. The project proposes upgrades to comply with federal requirements for operation of the facility on federally owned lands. Design has been completed in a manner that minimizes the impact to the shoreline and aquatic environment. Upgrades of the facility to accommodate the proposed barrel screens will involve work that is limited on and within the existing intake structure, and installation of new prefabricated concrete anchors and screen assemblies on the Columbia River riverbed near the existing intake. The in-water structures will add approximately 260 sf of area to the intake structure, all underwater. No dredging, filling, or significantly invasive construction methods are proposed to install this equipment, thereby minimizing impacts to the aquatic shoreline environment. No shoreline vegetation removal or work on the existing riprap or adjacent natural shoreline is planned. No new landward structures are proposed. Design work

and planned construction minimization measures will effectively preserve the natural character of the shoreline at the project location.

3. Result in long-term over short-term benefit

The project is not motivated by short-term benefits; the Snyder Intake has been serving raw water to the City for over 50 years and its continued operation is necessary to supply drinking water to the City. The proposed improvements are intended to meet both the City's need to receive a renewed USACE easement for the facility's operation, and the City's need to maintain pumping capacity for current and future water demands. The facility's screen upgrades will inherently provide a long-term benefit to salmonid species by providing better protection for juveniles who might be using the river around the intake. The project is designed to maximize long-term benefit for the City's public infrastructure with minimal impact to the shoreline environment.

4. Protect the resources and ecology of the shoreline

The proposed design protects the resources and ecology of the shoreline to the maximum extent practicable. Retrofitting the existing facility and utilizing prefabricated equipment for the barrel screen assemblies means significant underwater work and fabrication of equipment, pouring of concrete, dredging or fill, or other invasive construction methods will not be necessary. Staging construction work from a barge will prevent undue impacts to the nearby shoreline environment. Conducting work during low-use times for ESA-listed species and recreation users will prevent significant impacts to fisheries and other wildlife, as well as people using the shoreline. Limiting the footprint of the permanent concrete anchors means new in-water structures in the river are minimized while still accommodating the City's and USACE's operational needs. The project has been designed to protect the aquatic environment; however, additional specific permit conditions will be followed as identified by the regulatory agencies with jurisdiction.

5. Increase public access to public owned areas of the shoreline

The project location does not include formal public access to the shoreline but is directly adjacent to the Snyder Boat Launch and Leslie Groves Park, both of which provide public access to the shoreline. Public access of the shoreline will not be affected by the proposal. Even during construction, typical access areas and pathways near the facility will remain accessible to recreation users. The completed project will not prevent public access to the shoreline as the facility will essentially operate the same as it does today.

6. Increase recreational opportunities

The proposed project will have no lasting effect on public recreational opportunities. The river and shoreline near the project location provide numerous recreational opportunities such as boating, windsurfing, fishing, hiking, and others; these recreational activities will not be affected significantly by the proposal. Users of the Snyder Boat Launch during construction activities may be in proximity to construction equipment and experience construction noise, but this impact is anticipated to be minor and short-term. To alert water users of the presence of submerged pipelines, the City plans to install signage and buoys on the eastern face of the facility.

RMC 26.20.020 Ecological Functions, No Net Loss

The proposed improvements will retrofit an existing intake facility in the Columbia River. Design of these improvements has been completed, and construction activities planned, to avoid and minimize impacts to the river. As a result, temporary and permanent impacts to the ecological functions of the Columbia River shoreline are anticipated to be minimal. No net loss of ecological shoreline function will result from this project.

RMC 26.20.080 Water Quality, Stormwater, and Nonpoint Pollution

The project does not involve any long-term impairment of water quality, additional impervious surfaces affecting stormwater, or nonpoint pollution. During construction, temporary turbidity increases in the river will result from retrofitting the facility and installing the screen assemblies. On and within the intake facility, cast-in-place concrete will be used to repair the intake deck and construct a forebay separating wall; this work will be confined to the facility, such that water quality impacts are not expected. Construction debris could enter the river during work on the intake; the contractor will be required to employ netting or other means to prevent debris from entering the river. Additionally, the contractor will need to comply with local, state, and project-specific BMPs for construction and in-water work. Together, these measures prevent and minimize any potential impacts to the water quality of the shoreline environment.

RMC 26.30.110 Utilities

This section of the SMP governs new or substantially expanded utility facilities. The existing intake facility will be upgraded to accommodate the barrel screens. No feasible upland alternative exists; the intake structure must continue to operate in the shoreline to fulfill its purpose, and the proposed barrel screens are the optimal alternative to meet federal requirements and maintain capacity of the facility. The City and RH2 Engineering, Inc., analyzed alternative screen configurations and determined the proposed design is the most feasible. The project has been designed to minimize environmental impacts and changes to

the existing shoreline environment. Construction BMPs will protect the shoreline against erosion and temporary water quality impacts to the river.

RMC 26.40.060 In-Stream Structures

The project will involve the installation of additional in-stream structures (four barrel screens and their associated piping and concrete anchor systems) to the existing intake facility in the Columbia River. The footprint for these structures is approximately 260 sf, which represents the minimal footprint possible to still anchor the screens and meet flow velocity stresses. These structures are essential to the continued operation of the intake facility and to meet the City's water demands. The in-stream structures will result in no net loss of ecological functions of the shoreline.

Conclusion

The project complies with the City's shoreline development requirements and protects the ecological functions and resources utilizing the shoreline. Impacts to the shoreline are temporary and minor given proposed design and construction minimization measures. No permanent impacts to the shoreline will result from the project.

SUGGESTED FINDINGS OF FACT

Staff recommends approval of the Shoreline Substantial Development Permit (SM2019-102) Snyder Street Intake Upgrades based on the following:

1. The City of Richland Public Works Department applied for the proposed Shoreline Management Substantial Development Permit on June 14, 2019;

2. Public notice of the application and the public hearing was provided as required under Richland City code and other public agencies were given an opportunity to review the application including the Washington State Departments of Ecology and Fish and Wildlife and the US Army Corps of Engineers;

3. The site is located within the Natural, Recreation, and Aquatic environments as identified in the Richland Shoreline Master Program;

4. The project site is located within the Snyder Street right-of-way and as such, the site does not contain a zoning or land use designation;

5. The Optional DNS Process was utilized for SEPA review. The City issued a Determination of Non-significance on August 7, 2019;

6. The proposed conditions of approval are necessary and desirable to ensure that the project meets all applicable City regulations;

7. As conditioned, the project is consistent with the provisions of Richland's Shoreline Master Program;

8. Based on the above findings and conclusions, approval of the Shoreline Substantial Development Permit request would be in the best interest of the City of Richland.

PROPOSED CONDITION(S) OF APPROVAL

Staff is recommending the following condition(s) of approval be attached to the substantial development permit to ensure that the project conforms to all applicable City codes and standards:

1. A copy of all required local, state and federal permits shall be obtained prior to initiating construction of the proposed improvements.

2. A copy of all local, state and federal permits shall be provided to the City of Richland Development Services Department (Planning Division) within 14 days of issuance.

EXHIBIT LIST

1. Application Materials
2. Public Notice
3. SEPA Checklist and DNS
4. Public & Agency Comment Letters

Exhibit 1

City of Richland
Development Services

505 Swift Blvd. MS-35
Richland, WA 99352
(509) 942-7794
(509) 942-7764

Shoreline Master Program
Substantial Development Application

Note: A Pre-Application meeting is advised prior to submittal of an application.

PROPERTY OWNER INFORMATION	☐ Contact Person
Owner: United States, managed by U.S. Army Corps of Engineers - Walla Walla District	
Address: 201 North 3rd Avenue, Walla Walla, WA 99362-1876	
Phone: (509) 527- 7020	Email: cenww-pa@usace.army.mil

APPLICANT/CONTRACTOR INFORMATION (if different)	☑ Contact Person
Company: City of Richland Public Works	UBI# 036001852
Contact: Pete Rogalsky	
Address: 840 Northgate Avenue, P.O. Box 190, MS-26, Richland, WA 99352	
Phone: (509) 942- 7558	Email: progalsky@ci.richland.wa.us

PROPERTY INFORMATION		
Legal Description: Not Applicable		Parcel #Within ROW - no tax parcel number
Current Zoning: Border of Natural Open Space and Parks and Public Facilities	Current Land Use Designation: Border of Natural Open Space and Developed Open Space	Shoreline Designation: Terrestrial: Natural and Recreation River: Aquatic Environment

DESCRIPTION OF PROJECT (Size of structure(s), amount of grading/filling, impacts to wetlands and/or buffers etc.)
See attached Project Narrative.

APPLICATION MUST INCLUDE

1. Completed Application and Filing Fee
2. Title Insurance company certificate, issued no more than 30 days prior to application, showing ownership of the property and all lien holders
3. A site plan, drawn to scale, showing all details of the proposal – include property lines, easements, building locations(s) and dimensions, parking areas, access driveways, landscaping areas, critical area features, fences, signs, storm water control features, existing wells and drainfields, fire hydrants, significant cut or fill areas, etc.-see WAC 173-27-180
4. Preliminary layout of building interior (uses and sizes of rooms)
5. Any other information the Administrator deems necessary to determine compliance with applicable codes
6. SEPA Checklist

I authorize employees and officials of the City of Richland the right to enter and remain on the property in question to determine whether a permit should be issued and whether special conditions should be placed on any issued permit. I have the legal authority to grant such access to the property in question.
I also acknowledge that if a permit is issued for land development activities, no terms of the permit can be violated without further approval by the permitting entity. I understand that the granting of a permit does not authorize anyone to violate in any way any federal, state, or local law/regulation pertaining to development activities associated with a permit.
I hereby certify under penalty of perjury under the laws of the State of Washington that the following is true and correct:

1. I have read and examined this permit application and have documented all applicable requirements on the site plan.
2. The information provided in this application contains no misstatement of fact.
3. I am the owner(s), the authorized agent(s) of the owner(s) of the above referenced property, or I am currently a licensed contractor or specialty contractor under Chapter 18.27 RCW or I am exempt from the requirements of the Chapter 18.27 RCW.
4. I understand this permit is subject to all other local, state, and federal regulations.

Note: This application will not be processed unless the above certification is endorsed by an authorized agent of the owner(s) of the property in question and/or the owner(s) themselves. If the City of Richland has reason to believe that erroneous information has been supplied by an authorized agent of the owner(s) of the property in question and/or by the owner(s) themselves, processing of the application may be suspended.

Applicant Printed Name: Peter Rogalsky

Applicant Signature: _____ Date 6/11/2019

CITY OF RICHLAND
SNYDER INTAKE SCREEN UPGRADES

Substantial Shoreline Development Permit Narrative

Prepared by RH2 Engineering, Inc. – May 2019

PROJECT DESCRIPTION

The City of Richland's (City) Snyder Intake facility was constructed in 1963 and feeds raw water from the McNary Pool of the Columbia River to the City's North Richland Wellfield and Water Treatment Plant (WTP). The U.S. Army Corps of Engineers (USACE) recently identified that the facility's traveling belt screens do not meet current National Marine Fisheries Service (NMFS) screen criteria for fish protection. As a condition of receiving a renewed easement for the intake facility, the City must update the existing traveling belt screens by the end of 2020.

The existing intake requires a future pumping capacity of 90 million gallons per day (MGD), but the existing traveling belt screens would only be able to accommodate approximately 15 to 20 MGD if replaced with a smaller mesh size. The Snyder Intake provides over 90 percent of the City's drinking water; consequently, a reduction in pumping capacity is not feasible and was a major consideration in the screen replacement alternatives evaluated. After evaluating alternatives, the City proposes upgrades to the intake structure to meet NMFS standards while maintaining the required pumping capacity of the intake.

The proposed design will replace the two traveling belt screens with four 60-inch-diameter stainless steel barrel screens, which will protrude approximately 30 feet eastward into the river from the existing intake. To accommodate the proposed barrel screens, the existing facility will be retrofitted, including removal of the traveling belt screens and motors, sluice gates and hoists, and trash racks. Each former trash rack opening will accommodate connection of two barrel screens, which will be secured to the river bottom with pre-cast concrete anchors. In addition to securing the screens, the concrete anchors will support hydroburst equipment for cleaning the barrel screens. Electrical controls for the hydroburst equipment will be installed within and adjacent to the existing electrical control room on the intake deck.

Improvements on the intake structure will involve retrofits on all three levels of the facility: the intake deck; interior intermediate deck; and forebay. The door, door frame, and roof of the existing electrical control room will be replaced. Concrete repair and access hatch installation will be completed on the intake deck. Improvements to the interior intermediate deck include installation of handrail and grate over the forebay. The forebay will be separated with a cast-in-place concrete wall equipped with a sluice gate. Warning signs and buoys will be installed surrounding the submerged equipment.

Project construction will involve modifications to the existing Snyder Intake (estimated over an area of 2,165 square feet [sf]), and in-water work in the Columbia River (2,630 sf), totaling a work area of approximately 4,795 sf.

Project Location

The intake facility is located at the eastern terminus of Snyder Street, just north of the Snyder Boat Launch and Leslie Groves Park. The intake sits on the right bank of the Columbia River at river mile 340.5 in the City of Richland, Benton County, Washington. The project is within Water Resource Inventory Area (WRIA) 40 (Alkali-Squilchuck) and Hydrologic Unit Code (HUC) 170200160602. The Columbia River at this location is part of the McNary Pool, in which water levels are controlled by the USACE at the McNary Dam. The Columbia River is a Shoreline of Statewide Significance. The project site is on the border of Sections 25 and 36 of Township 10 North, Range 28 East (latitude 46.314812 degrees N, longitude 119.259691 degrees W).

SHORELINE COMPLIANCE

In accordance with the City's Shoreline Master Program (SMP), the following narrative describes how the proposed project complies with or is consistent with the applicable shoreline management policies. The Snyder Intake Screen Upgrades project does not qualify for an exemption per Richland Municipal Code (RMC) 26.50.020; therefore, a Shoreline Substantial Development Permit (SSDP) is required. This project narrative addresses review criteria outlined in the City's SMP and has been provided to aid the City Planning Department during permit review for the project.

RMC 26.10.010 Natural Environment

The shoreline landward of the ordinary high water line (OHWL) directly north of the Snyder Intake facility is designated as Natural Environment. The purpose of the Natural Environment shoreline designation is to protect and preserve shorelines that are free of development and human activity. The project is consistent with the management policies of the Natural Environment designation because it does not involve additional development, vegetation removal, or any activities that will degrade the ecological function of the shoreline area within the Natural Environment designation. No impacts to this section of shoreline are anticipated to result from this project.

RMC 26.10.030 Recreation Environment

The shoreline landward of the OHWL directly south of the Snyder Intake facility is designated as Recreation Environment. The purpose of the Recreation Environment shoreline designation is to provide both water-oriented and non-water-oriented recreation opportunities for the community. The project is compatible with the management policies of this designation because it involves modifications to an existing utility facility, the nature of which will not impact scenic views, the aesthetic quality, or

long-term recreation usability of the shoreline. Construction activities may cause temporary impacts to recreation users of the nearby Snyder Boat Launch; however, these potential impacts are expected to be avoided and minimized both with construction timing and staging of the project on the City's existing intake structure and on a barge anchored in the river.

In addition to this SSDP, the City is seeking several permits and approvals from regulatory agencies with jurisdiction. In-water construction activities will be timed within an agency pre-approved in-water work window. At this point, the City is including both a summer and winter work window in permit applications; however, the preferred construction timing would target the winter work window (December 15th to February 28th). This window is preferred for several reasons, including: 1) it captures low use timing for Endangered Species Act (ESA) listed salmonids in the river; 2) it coincides with low recreation and boat usage timing, which is highest in the summer; and 3) it captures lower water demand and facility operation needs.

RMC 26.10.090 Aquatic Environment

The shoreline waterward of the OHWL at the Snyder Intake facility is designated as Aquatic Environment, which is where project activities will primarily occur. The Aquatic Environment shoreline designation is intended to protect, restore, and manage the resources of the areas waterward of the OHWL. Although the project will involve temporary construction impacts and the addition of permanent structures within the Aquatic Environment, the project is consistent with the management policies of the Aquatic Environment designation. Project design and planned construction activities have been carefully executed to avoid and minimize impacts to the aquatic environment to the maximum extent practicable. The following avoidance and minimization measures are planned:

- Retrofitting the facility to accommodate the barrel screens and prevent significant equipment work or fabrication underwater.
- Selecting prefabricated equipment for the concrete anchors, barrel screen assemblies, and connection flanges.
- Avoiding significant excavation, dredging, or fill in the river.
- Timing in-water construction within agency approved in-water work windows.
- Utilizing professional divers with hand tools for equipment installation.
- Staging materials and equipment on the existing intake structure and on a barge anchored nearby in the river.
- Preventing removal of shoreline vegetation.
- Employing construction best management practices (BMPs) for work on the structure and in the river, primarily to prevent turbidity, spills, and construction material byproducts and debris from impacting the river.

With the presence of listed salmonids in the river, the work will be reviewed by NMFS and the U.S. Fish and Wildlife Service (USFWS), as well as USACE and the Washington Department of Fish and Wildlife (WDFW). All construction work will conform to the permit requirements and conditions issued by these and other agencies with jurisdiction over this project.

RMC 26.20.010 Shorelines of Statewide Significance

As a Shoreline of Statewide Significance, the Columbia River provides benefits to the entire state. As a result, projects proposed on its shoreline must address decision criteria listed in RMC 26.20.10(B) of the City's SMP. A narrative addressing how the proposed project complies with these criteria follows.

1. *Recognize and protect state-wide over local interests*

The Columbia River at the location of the City's Snyder Intake provides multiple benefits for both the local community and the entire State. The shoreline at this location is used by the local community for recreation (e.g., park usage, boating and other watercraft usage, fishing, walking trails, etc.), aesthetic and personal enjoyment, a transportation corridor, and more. The river itself is a major source of drinking water for both the City and the City of West Richland (45 percent of its drinking water is supplied by the Snyder Intake). Since the Snyder Intake has been in use for more than 50 years, its operation is vital to the local community. In addition to the local community, the Columbia River provides multiple benefits for other statewide and federal interests, including fish, wildlife, and ESA species habitats, recreation, aesthetic and personal enjoyment, transportation corridor, hydroelectric power, drinking water, fisheries resources, and more.

The proposed project will address NMFS requirements for intake facilities operating in the Columbia River to better protect ESA-listed species, a major resource of the river. Improvements are required for the City to operate this facility as a condition of its land lease with USACE. The proposed barrel screens will replace the traveling belt screens. The barrel screens were selected as the preferred alternative because of their ability to both meet the NMFS screen criteria and maintain existing pumping capacity of the facility. Additionally, the screen configuration selected addresses maintenance and operational needs for the City, considers all uses of the river, not just the City's, and optimizes the continued withdrawal of raw water.

Design of the project has considered state programs, policies, and recommendations, and has involved coordination with WDFW, the Washington State Department of Natural Resources, and the Washington State Department of Health. Additionally, because the Columbia River is regulated at the local, state, and federal levels, project design has been conducted in consultation with both the City and several federal agencies (e.g., USACE, NMFS, USFWS), in a manner that complies with applicable local and federal requirements and recommendations. Project design and construction

methods/timing is being completed to avoid and minimize impacts to the shoreline and aquatic environment of the Columbia River, including the natural resources, fisheries, wildlife, threatened and endangered species, and government and tribal interests associated with these areas. In this way, the project recognizes the multi-governmental interests associated with the Columbia River shoreline and aims to protect those interests while also upgrading the facility to meet federal requirements.

2. Preserve the natural character of the shoreline

The Snyder Intake is an existing intake facility on the Columbia River. The project proposes upgrades to comply with federal requirements for operation of the facility on federally owned lands. Design has been completed in a manner that minimizes the impact to the shoreline and aquatic environment. Upgrades of the facility to accommodate the proposed barrel screens will involve work that is limited on and within the existing intake structure, and installation of new prefabricated concrete anchors and screen assemblies on the Columbia River riverbed near the existing intake. The in-water structures will add approximately 260 sf of area to the intake structure, all underwater. No dredging, filling, or significantly invasive construction methods are proposed to install this equipment, thereby minimizing impacts to the aquatic shoreline environment. No shoreline vegetation removal or work on the existing riprap or adjacent natural shoreline is planned. No new landward structures are proposed. Design work and planned construction minimization measures will effectively preserve the natural character of the shoreline at the project location.

3. Result in long-term over short-term benefit

The project is not motivated by short-term benefits; the Snyder Intake has been serving raw water to the City for over 50 years and its continued operation is necessary to supply drinking water to the City. The proposed improvements are intended to meet both the City's need to receive a renewed USACE easement for the facility's operation, and the City's need to maintain pumping capacity for current and future water demands. The facility's screen upgrades will inherently provide a long-term benefit to salmonid species by providing better protection for juveniles who might be using the river around the intake. The project is designed to maximize long-term benefit for the City's public infrastructure with minimal impact to the shoreline environment.

4. Protect the resources and ecology of the shoreline

The proposed design protects the resources and ecology of the shoreline to the maximum extent practicable. Retrofitting the existing facility and utilizing prefabricated equipment for the barrel screen assemblies means significant underwater work and fabrication of equipment, pouring of concrete, dredging or fill, or other invasive construction methods will not be necessary. Staging construction work from a barge will prevent undue impacts to the nearby shoreline environment. Conducting work during low-use times for ESA-listed species and recreation users will prevent significant impacts to fisheries and other wildlife, as well as people using the shoreline. Limiting the

footprint of the permanent concrete anchors means new in-water structures in the river are minimized while still accommodating the City's and USACE's operational needs. The project has been designed to protect the aquatic environment; however, additional specific permit conditions will be followed as identified by the regulatory agencies with jurisdiction.

5. Increase public access to publicly owned areas of the shoreline

The project location does not include formal public access to the shoreline but is directly adjacent to the Snyder Boat Launch and Leslie Groves Park, both of which provide public access to the shoreline. Public access of the shoreline will not be affected by the proposal. Even during construction, typical access areas and pathways near the facility will remain accessible to recreation users. The completed project will not prevent public access of the shoreline as the facility will essentially operate the same as it does today.

6. Increase recreational opportunities

The proposed project will have no lasting effect on public recreational opportunities. The river and shoreline near the project location provide numerous recreational opportunities such as boating, windsurfing, fishing, hiking, and others; these recreational activities will not be affected significantly by the proposal. Users of the Snyder Boat Launch during construction activities may be in proximity to construction equipment and experience construction noise, but this impact is anticipated to be minor and short-term. To alert water users of the presence of submerged pipelines, the City plans to install signage and buoys on the eastern face of the facility.

RMC 26.20.020 Ecological Functions, No Net Loss

The proposed improvements will retrofit an existing intake facility in the Columbia River. Design of these improvements has been completed, and construction activities planned, to avoid and minimize impacts to the river. As a result, temporary and permanent impacts to the ecological functions of the Columbia River shoreline are anticipated to be minimal. No net loss of ecological shoreline function will result from this project.

RMC 26.20.080 Water Quality, Stormwater, and Nonpoint Pollution

The project does not involve any long-term impairment of water quality, additional impervious surfaces affecting stormwater, or nonpoint pollution. During construction, temporary turbidity increases in the river will result from retrofitting the facility and installing the screen assemblies. On and within the intake facility, cast-in-place concrete will be used to repair the intake deck and construct a forebay separating wall; this work will be confined to the facility, such that water quality impacts are not expected. Construction debris could enter the river during work on the intake; the contractor will be required to employ netting or other means to prevent debris from entering the river. Additionally, the contractor will need to comply with local, state, and project-specific

BMPs for construction and in-water work. Together, these measures prevent and minimize any potential impacts to the water quality of the shoreline environment.

RMC 26.30.110 Utilities

This section of the SMP governs new or substantially expanded utility facilities. The existing intake facility will be upgraded to accommodate the barrel screens. No feasible upland alternative exists; the intake structure must continue to operate in the shoreline to fulfill its purpose, and the proposed barrel screens are the optimal alternative to meet federal requirements and maintain capacity of the facility. The City and RH2 Engineering, Inc., analyzed alternative screen configurations and determined the proposed design is the most feasible. The project has been designed to minimize environmental impacts and changes to the existing shoreline environment. Construction BMPs will protect the shoreline against erosion and temporary water quality impacts to the river.

RMC 26.40.060 In-Stream Structures

The project will involve the installation of additional in-stream structures (four barrel screens and their associated piping and concrete anchor systems) to the existing intake facility in the Columbia River. The footprint for these structures is approximately 260 sf, which represents the minimal footprint possible to still anchor the screens and meet flow velocity stresses. These structures are essential to the continued operation of the intake facility and to meet the City's water demands. The in-stream structures will result in no net loss of ecological functions of the shoreline.

CONCLUSION

The project complies with the City's shoreline development requirements and protects the ecological functions and resources utilizing the shoreline. Impacts to the shoreline are temporary and minor given proposed design and construction minimization measures. No permanent impacts to the shoreline will result from the project.

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SNYDER INTAKE SCREEN UPGRADES BIOLOGICAL ASSESSMENT

Prepared for the City of Richland

In consultation with the U.S. Army Corps of Engineers

June 2019

RIC 718.122

Prepared by:
A. Pettibone, E. Coba, and J. MacDonald
RH2 Engineering, Inc.
22722 29th Drive SE, Suite 210
Bothell, WA 98021
800.720.8052

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City of Richland
Snyder Intake Screen Upgrades Biological Assessment
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City of Richland

Snyder Intake Screen Upgrades

Biological Assessment

Executive Summary

The City of Richland's (City) existing Snyder Intake facility was recently identified by the U.S. Army Corps of Engineers (USACE) as not meeting current National Marine Fisheries Service (NMFS) screen criteria for fish protection. The existing traveling belt screens must be updated prior to 2020 for the City to receive a renewed USACE easement for the intake facility. The required pumping capacity of the intake is approximately 90 million gallons per day (MGD), but the existing belt screens could only accommodate approximately 15 to 20 MGD if they were merely replaced with a smaller mesh size. Therefore, the City is proposing an alternative screening configuration to feed the existing structure.

The proposed design consists of four 60-inch-diameter barrel screens installed adjacent to the existing intake and anchored to the riverbed with pre-cast concrete anchors. The concrete anchors also will be equipped with hydroburst equipment to periodically clean the screens. The furthest screens will extend approximately 30 feet into the river from the intake structure. USACE Section 404 and Section 10 permits will be required for in-water work, establishing the federal nexus.

The project is located along the middle Columbia River mainstem, within the McNary Pool, which provides designated Critical Habitat (CH) for three Endangered Species Act (ESA) listed aquatic species in the project action area: Upper Columbia River Spring Chinook; Upper Columbia River steelhead; and bull trout. Additional listed species utilize the McNary Pool, including Middle Columbia River steelhead; however, no designated CH is present in the project action area. No listed terrestrial species or plants are present in the project action area.

Project design and planning has been conducted to avoid and minimize impacts to ESA-listed species and CH to the maximum extent practicable, including the following:

- Intake retrofits and screen installation is planned for the in-water work window, which has been pre-approved by the regulatory agencies with jurisdiction over this project.
- Work in the Columbia River and shoreline will be conducted on the existing intake structure and from a barge anchored in the river. Equipment will be prefabricated prior to entering the water. In-water work will be completed by divers in the river who will strategically place material and construct the intake and screening structures.
- Excavation, fill, riparian vegetation removal, and riverbed disturbance will be kept to a minimum. The project will avoid invasive construction activities like pile driving.

Additional minimization measures (MMs) are discussed further herein. With the implementation of MMs, adverse project impacts to listed salmonids are avoided and minimized to a level of discountable and insignificant. Therefore, the determination of effect for ESA-listed salmonids and CH resulting from the project is **may affect, not likely to adversely affect**.

Introduction

Background and Consultation History

As the project proponent, the City of Richland (City), together with its selected engineering consultant, RH2 Engineering, Inc., (RH2) began design of the Snyder Intake Screen Upgrades project in 2018. The project is funded solely by the City and does not involve federal funds. This Biological Assessment (BA) details the proposed modifications to the City's existing intake facility, specific to potential impacts to ESA-listed species and habitats. In addition to this BA, the project is expected to require the following local, state, and federal permits and/or approvals.

City of Richland

- State Environmental Policy Act (SEPA)
- Shoreline Substantial Development Permit (SSDP)
- Critical Areas Ordinance (CAO) compliance
- Commercial Building Permit

Washington State

- Hydraulic Project Approval – Washington Department of Fish and Wildlife (WDFW)
- Section 401 Water Quality Certification – Washington State Department of Ecology (Ecology)
- Project Approval – Washington State Department of Health (DOH)

Federal

- Section 404 and 10 Permits – U.S. Army Corps of Engineers (USACE)
- National Environmental Policy Act (NEPA), including Endangered Species Act (ESA) consultation – USACE is lead agency for NEPA, consulting with the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS)

Agency Correspondence

RH2 and the City conducted a kickoff meeting, attended by City Planning staff, on October 16, 2018. RH2 discussed design alternatives with USACE and WDFW via email in the fall of 2018, and additional correspondence with USACE, WDFW, NMFS, USFWS, and the Washington State Department of Natural Resources (DNR) took place during April and May of 2019. An on-site pre-BA meeting, including representatives from the City, RH2, WDFW, and USFWS, took place on May 7, 2019. Agency correspondence records are included in **Appendix A**.

Consultation History

A project-specific BA has not been completed for the Snyder Intake Screen Upgrades project to date. However, as part of the *Water Intake Facility Easement Renewals Environmental Assessment* (USACE Water Intake EA) prepared by USACE (Publication No. PM-EC-2014-0031, November 2015), a BA analysis was conducted evaluating the effect of renewing 23 easements to pump structures on the Columbia, Snake, and Yakima rivers. The ESA determination of "may affect, not likely to adversely affect" for that action was contingent upon implementing screen upgrades by 2020 for those facilities not meeting current NMFS screen criteria, including the City's Snyder Intake. This BA has been prepared partially with the use of environmental data collected during a field investigation performed by RH2 on February 6, 2019. Existing site conditions were documented, the Columbia River ordinary high water line (OHWL) was demarcated, and the site was evaluated for wetlands, shoreline conditions, and fish and wildlife habitat. Environmental information that is relevant to the project and vicinity was obtained through the City, Benton County, WDFW, DNR, USFWS, and NMFS. Relevant background, alternatives analysis, and site investigation data is included in **Appendix B**.

Project Description

Project Overview, Purpose, and Need

The City's Snyder Intake facility feeds raw water from the McNary Pool (also known as Lake Wallula) on the Columbia River to the City's North Richland Wellfield and Water Treatment Plant (WTP), which provides drinking water to the City's residents. The existing intake requires a future pumping capacity of 90 million gallons per day (MGD). The intake structure, located at approximately River Mile (RM) 340.5, houses two traveling belt screens that exclude fish and remove debris from the intake water.

The USACE Water Intake EA evaluated the effect of renewing 23 easements to intake structures on the Columbia, Snake, and Yakima rivers (within the McNary and Ice Harbor reservoirs). The Snyder Intake was identified as one of the facilities not meeting current NMFS screen criteria for fish protection. As a condition of receiving a renewed easement for the intake facility, the City must update the existing traveling belt screens by the end of 2020. The capacity of the facility would be reduced to approximately 15 to 20 MGD if the screens were merely replaced with a smaller mesh size. The Snyder Intake provides over 90 percent of the City's drinking water; consequently, a reduction in pumping capacity is not feasible and was a major consideration in the screen replacement alternatives evaluated (the *Intake Screen Alternatives Analysis Technical Memorandum* prepared by RH2 is included in **Appendix B**). Consequently, the City proposes upgrades to the intake structure to meet NMFS standards while maintaining the required pumping capacity of the intake.

The proposed design will replace the two traveling belt screens with four 60-inch-diameter stainless steel barrel screens that will protrude approximately 30 feet eastward into the river from the existing intake. To accommodate the proposed barrel screens, the existing facility will be retrofitted, including removal of the traveling belt screens and motors, sluice gates and hoists,

and trash racks. Each former trash rack opening will accommodate connection of two barrel screens, which will be secured to the river bottom with pre-cast concrete anchors. In addition to securing the screens, the concrete anchors will support hydroburst equipment for cleaning the barrel screens. Electrical controls for the hydroburst equipment will be installed within and adjacent to the existing electrical control room on the intake deck. Additional project elements include retrofits on all three levels of the intake facility (the intake deck, interior intermediate deck, and forebay), intended to accommodate operation and maintenance of the new screens.

Federal Nexus

Work within the Columbia River, a navigable water of the United States, will require a federal permit from USACE under Section 10 of the Clean Water Act (CWA). The disturbance of the riverbed and placement of concrete to anchor the proposed screens is regulated under Section 404 of the CWA and will require review by USACE. The issuance of permits by a federal agency constitutes the basis for the federal nexus of this project.

Project Location

The intake facility is located at the eastern terminus of Snyder Street, just north of the Snyder Boat Launch and Leslie Groves Park. The intake sits on the right bank of the Columbia River at RM 340.5 in the City of Richland, Benton County, Washington. The project is within Water Resource Inventory Area (WRIA) 40 (Alkali-Squilchuck) and Hydrologic Unit Code (HUC) 170200160602. At this location, the Columbia River is part of the McNary Pool, in which water levels are controlled by the USACE at the McNary Dam. The Columbia River is a Shoreline of Statewide Significance. The project site is on the border of Sections 25 and 36 of Township 10 North, Range 28 East (latitude 46.314812 degrees N, longitude 119.259691 degrees W). A vicinity map is shown in **Figure 1**.

Figure 1. Vicinity Map

Project Setting/Vicinity

The Snyder Intake Facility itself is an approximately 45-foot-tall concrete structure partially buried into the Columbia River bedlands. The structure is located beyond the riprap armored embankment, beginning approximately 40 feet from the OHWL of the Columbia River and projecting into the river an additional 30 feet. About 25 feet of the facility is above the normal operating pool elevation (340 feet above sea level), while approximately 18 feet of the

structure sits below the water's surface. Raw water is drawn into the intake structure, passing through one of two trash racks, and is then filtered through one of the two traveling belt screens to the forebay. The intake houses seven vertical turbines that pump water from the forebay. Construction activities will occur on, within, and adjacent to the existing intake structure, and below the OHWL of the Columbia River.

A concrete walkway overhanging the shoreline and river extends from the embankment to connect to the top of the intake structure. To the north, south, and east, the embankment is armored with riprap and slopes into the Columbia River. Slopes of about 50 percent are present in association with the riverbank. The dominant vegetation is willow species (*Salix spp*).

Aside from the existing intake facility, the Columbia River shoreline in the project vicinity is largely vacant of structures. The Snyder Boat Launch and Leslie Groves Park is immediately downstream of the intake. Adjacent land uses include residential, natural open space, and recreation. Ornamental and street trees are the dominant vegetation in the surrounding areas. Elevation at the project site ranges from approximately 360 feet at the top of the Columbia River bank to 320 feet at the base of the intake structure on the riverbed. Stormwater from surrounding areas presumably enters the Columbia River near the project location. Riparian wetland habitat does not exist at this location, although Seagull Island, a sandbar mapped as floodplain/wetland (City Critical Areas Map, January 2018), exists 1,000 feet east of the intake facility. Land in the project vicinity is generally flat except for the riverbank slopes, which are approximately 3:1.

The City's climate is semi-arid, with mild winters, warm summers, and approximately 300 days of sunshine each year. The average high temperature is 65 degrees Fahrenheit (F), and the average low temperature is 42 degrees F. Average annual rainfall is 6.9 inches, and average annual snowfall is around 8 inches (National Oceanic and Atmospheric Administration (NOAA) AgACIS data).

Description of Project Elements

Project Footprint

Construction of the Snyder Intake improvements will not involve excavation or ground disturbance landward of the river; work landward will involve modification to the exiting Snyder Intake structure (estimated to involve an area of 2,165 square feet [sf]). Parking and access for vehicles and equipment will utilize the existing gravel parking area and accessway from Snyder Street. Construction will involve in-water work in the Columbia River mainstem (McNary Pool) on and extending 30 feet east of the existing intake structure (2,630 sf). The work area is estimated to cover 4,795 sf. Equipment staging will occur on the existing intake structure or on a barge anchored nearby in the river; however, staging and stockpiling are anticipated to be minimal, with equipment being delivered to the job site and used within 5 days of delivery.

The location in the river is too deep to isolate in the dry with a cofferdam. Instead, work will be conducted from a barge using a crane and underwater divers. Work conducted from the shore or construction vehicle and equipment access will utilize the Snyder Intake Facility parking area

and avoid impacting the nearby shoreline or adjacent recreation facilities. No impacts to riparian vegetation are anticipated.

Installation of the concrete anchors to secure the barrel screens will involve minor, localized hand digging in the riverbed (up to 3 to 4 cubic yards in total), primarily to redistribute rock and create a flat area on which to install the anchors.

No stockpiling is anticipated. Overnight staging of construction equipment and materials will be on the existing intake structure, on the adjacent gravel parking/accessway, or on a barge anchored nearby in the river. Materials most likely will be brought in by truck or barge and used within 1 to 5 days of arrival. There is a 60-foot-wide paved/gravel access driveway to the existing intake structure that will be used for vehicle and equipment project access. The contractor likely will utilize a barge to ferry materials and equipment to the site, which would be located just outside of the proposed screen alignment.

The Snyder Boat Launch may be temporarily closed, either partially or fully, during construction. If necessary, this will be coordinated to ensure minimal impacts to recreational users.

The permanent footprint of the new structural elements, not including the replacement/repair work to occur inside the existing structure, will be approximately 260 sf, resulting from the proposed concrete anchors. The project will not create any additional pollutant generating surfaces or contribute to turbid stormwater runoff.

Project Timeline and Sequencing

Project bidding is anticipated to occur in spring 2020, with contractor selection and contract preparation completed by summer 2020. This will allow construction of the in-water work elements to occur during either the winter (December 2020 to February 2021) or summer (August 2020) agency-approved work windows. The anticipated, and City-preferred, construction window is winter 2020/2021; however, the City is also identifying the potential summer in-water work window in permit applications to provide flexibility for construction. In-water work will take approximately 2 weeks, possibly up to 4 weeks. The schedule is dependent on coordination with the applicable regulatory agencies and may change due to permitting and project design.

Project construction is anticipated to occur during normal work hours (7 AM to 7 PM, Monday through Friday). Construction nuisance hours in the City are 9:00 PM through 7:00 AM. In-water work will be avoided at dawn or dusk, which are the most active times of day for aquatic species. Weekend work is not generally anticipated but may occur if pre-approved by the City. Construction sequencing is to be determined by the contractor so that in-water work elements occur during the agency-approved fish work windows.

Project Elements

Preliminary design plans are included in **Appendix C** for visualization of the proposed improvements. **Tables 1** and **2** list the equipment and materials that will be used for the project.

Table 1. Anticipated Construction Equipment for the Snyder Intake Project

Barge	Pickup Truck
Crane	Vacuum Excavator (Vac-truck) (to clean intake structure "wet well" following screen and pipe installation
Flat Bed Truck	Hand Tools (e.g., saw, grinder, wrenches, drills, etc.)

Table 2. Anticipated Construction Materials for the Snyder Intake Project

HDPE and steel pipe (steel for connection to barrel screen and for penetration through sluice gates)	Stainless steel plates, bolts, and fittings
Concrete anchors to restrict movement of proposed barrel screens and piping	Stainless steel barrel screens
Concrete and rebar for intake deck repair and forebay separating wall installation	Hydroburst piping and control equipment
Stainless steel sluice gate for forebay wall	Stainless steel access hatch for intake deck repair
Aluminum signs and warning buoys	Roof materials, door, and frame to match existing for control room replacement

The existing Snyder Intake structure will be improved at its current site on the Columbia River. In-water work will be completed by hand and with hand tools via divers operating from a barge anchored nearby in the Columbia River. The barge will contain a crane that will deliver equipment to the dive team to complete the proposed improvements.

Work will involve removal of the two traveling belt screens, motors, and appurtenances, sluice gates and hoists, and trash racks from the eastern face of the facility. The in-water openings remaining after removal of the trash racks will be covered with stainless steel plates, two per side: one blank plate and one equipped with two 30-inch-diameter flange openings for connection of the barrel screen pipelines. Each former trash rack opening will accommodate connection of two barrel screens, one each extending east into the Columbia River from a 30-inch flange opening. Stainless steel, 60-inch-diameter barrel screens will connect to the flanges via 40-inch high-density polyethylene (HDPE) and steel pipelines.

The southern and northernmost screens will be angled out from the facility with pipelines extending approximately 30 feet east. The interior screens will extend straight out from the facility, with pipelines extending approximately 10 to 30 feet east. Each screen will be anchored to the riverbed with an 8-foot-square, 3-foot-tall pre-cast concrete anchor connected via steel and neoprene straps. The screens will rest at about the same elevation in the river, approximately 4 feet above the riverbed (screen invert elevation of 326 feet). At normal operating water level (elevation 340 feet), the screens will sit approximately 9 feet below the water surface; at extreme low water level (elevation 335 feet), the screens will sit about 4 feet below the water level. Concrete anchors will support the hydroburst equipment to periodically clean the screens.

Following disassembly and removal of the traveling belt screens and motors on the intake deck, the remaining openings will be repaired. The northernmost opening will be repaired with

cast-in-place concrete. The southernmost opening will be repaired with a metal hatch with a ladder extending down to the intermediate deck. The hydroburst equipment controls will be installed on the intake deck, immediately north of the existing control room. The existing control room will be modified to house the hydroburst electrical control panel. The roof, door, and door frame of the control room will be replaced.

Improvements to the intermediate deck will be completed to accommodate the barrel screens, including a proposed handrail, grate, and butterfly valves. Improvements to the forebay will include a cast-in-place concrete wall with sluice gate to separate the forebay wall. All work in and on the structure will be done in a manner that prevents spillage, byproducts, or debris from entering the river.

Warning buoys will be affixed to the concrete anchors, and warning signage will be affixed to the eastern face of the facility to alert water users of the presence of submerged pipe.

The existing intake pumps will remain on throughout most of construction; the pumps will pump turbid water that is generated from placement of the pipes, screens, and anchors to the WTP. No temporary erosion or sedimentation control (TESC) measures or fencing are anticipated for this project, as there will be no stockpiling on site and no soil disturbance. Any turbidity caused by in-water work is expected to be minimal and will be pumped to the WTP. Most work, besides electrical improvements, will occur below the normal water level of the Columbia River.

Impact Avoidance and Minimization Measures

Subsequent design efforts will identify and include MMs, incorporating the measures below, any additional measures needed, and permit conditions into the design plans and construction specifications. To date, design of the project has been completed to avoid and minimize impacts to the Columbia River, including the following:

- Selecting a screen replacement alternative that meets NMFS fish protection criteria, maintains the intake pumping capacity, and limits the project footprint.
- Designing intake screens to minimize their projection into the Columbia River.
- Designing retrofits to the facility that will both minimize structure improvements and significant in-water work.
- Selecting prefabricated equipment for the concrete anchors, barrel screen assemblies, and connection flanges, such that the footprint, duration, and activities of in-water work are minimized.
- Minimizing excavation, dredging, or fill in the river.
- Avoiding removal of riparian vegetation or construction work on the shoreline.
- Staging equipment and materials on the existing structure, nearby gravel parking/accessway, and/or on a barge anchored nearby in the river.
- Timing in-water work to the agency pre-approved work window.

- Planning appropriate best management practices (BMPs) to prevent and minimize water quality impacts, erosion, clearing, and other adverse impacts to sensitive species and/or their habitats.

The following MMs and/or BMPs also are proposed to reduce and/or alleviate potential impacts resulting from the proposed project.

General Impact Avoidance

- Attach all permits and/or agency-specific requirements to the construction plans and/or specifications and refer to them in the special provisions so the contractor is aware of all requirements.
- Construction and related activities will be confined to the smallest area possible to avoid unnecessary impacts and disturbance.
- Work in the Columbia River and along the shoreline will be conducted via crane from a barge and the existing facility.
- The contractor will be required to have spill control measures on site in the event of a fuel or chemical spill.
- In general, fueling and maintenance of equipment will occur at least 200 feet away from any jurisdictional wetland, stream, water body, or their associated buffers to minimize the potential for spills into these habitats. Fueling and maintenance of vehicles at the Snyder Intake site will be restricted to a designated area with secondary containment.
- BMPs, such as temporary fencing or netting, shall be implemented and retained on site to prevent construction debris or materials from entering the river.
- The contractor will make adaptive management changes as necessary to account for unexpected storm events or changing site conditions.

Grading, Excavation, and Fill

- No fill material will be stockpiled on site.
- Besides the concrete anchors, no imported fill material will be placed in the river. Concrete anchors will be pre-cast to avoid any potential contamination from poured concrete.
- Redistribution of riverbed material will be minimized to place the concrete anchors, and will occur by hand, rather than using machinery.

Vegetation Removal and Clearing

- Riparian vegetation will not be removed to complete this project.
- There will be no ground disturbance or excavation/fill above the OHWL.

Work Below the OHWL

- Work below the OHWL will be conducted during the agency-approved work window, either December 15th through February 28th or August 1st to August 31st. The work window is designed to avoid out-migrating juvenile salmon and steelhead and in-migrating adult salmon and steelhead. In-water work will last approximately 1 to 2 weeks, with a maximum of 4 weeks.
- The presence of a barge and divers working in the project vicinity is anticipated to keep fish away from the area, so that installation of the screens, pipes, and anchors should not have a direct impact on fish. No electrofishing, fish handling, or other non-passive methods are proposed for fish exclusion activities.
- Divers will complete underwater work by hand and using hand tools. Construction equipment will not enter any water body. Equipment will be operated on the existing facility and using a crane on a barge.
- Prefabricated materials and equipment will minimize the duration of underwater disturbance and reduce the likelihood of impacts from spills, noise, turbidity, etc.
- The project will avoid blasting and pile driving. Pile driving was considered during the design process to protect the screens; however, piles were eliminated by the City to reduce risk to the aquatic environment and recreational users.

Action Area

The action area, depicted in **Figure 2,** includes the estimated extent of project-related physical, biological, and chemical effects following implementation of the impact avoidance and MMs.

Figure 2. Action Area Map

Terrestrial Action Area

- Construction: The terrestrial project footprint encompasses the area needed for site access for vehicles and equipment, and work on the existing intake structure. This is expected to be approximately 2,165 sf, and no ground disturbance (excavation, fill, etc.) is planned. The project will not result in an expansion of terrestrial impervious surfaces.
- Terrestrial Noise: Ambient baseline noise levels were estimated for the City at 50 decibels (dB) based on the population density table created by the Federal Transit Authority in its 2006 *Transit Noise and Vibration Impact Assessment* (cited in the Washington State Department of Transportation (WSDOT) *BA Preparation Manual*

(WSDOT BA Manual), 2019). The most significant source of existing noise in the project vicinity is the intake facility itself; more specifically, the pumps that work to draw water from the river. Construction will elevate noise levels in the vicinity of the project slightly. The finished project will not significantly change existing noise levels.

- Construction Noise: A construction noise evaluation was completed. Noise levels were evaluated based on a list of construction equipment anticipated for each project element (detailed in **Table 1**) and referencing the average maximum noise levels at 50 feet from common construction equipment in the Federal Highway Associations (FHWA) 2011 *Construction Noise Handbook* (cited in the WSDOT BA Manual, 2019). The noise evaluation calculations can be found in **Appendix B**. The noise footprint is the maximum extent of construction noise impacts and was estimated to include a 1,050-foot radius circle landward and 2,240-foot radius circle waterward of the intake structure. Construction noise impacts to terrestrial ESA-listed species are not expected, due to lack of species presence or suitable habitat in the project action area.

Aquatic Action Area

- Construction below OHWL: Most of the proposed work will occur below the OHWL to install the Snyder Intake pipes, screens, and anchors. The river intake and screening structure will extend about 100 feet into the Columbia River (30 feet beyond the existing structure).
- Downstream Extent of Turbidity: Work below the OHWL may result in temporary impacts to the water quality of the Columbia River. The only anticipated impact to water quality is mobilization of sediment during the minor excavation needed for the concrete anchors and work in the area by divers. The project will utilize the existing intake pumps to pump water from the forebay area to provide a dry area to work within the intake structure, as needed. The pumps will remain on throughout most of construction as part of the City's normal operation; any turbid water resulting from excavation will be pumped to the WTP and filtered/treated. Any local turbid water that does not get pumped is expected to disperse or settle within ½ mile downstream.
- Underwater Noise and Vibration: Some underwater propagation of the terrestrial noise described previously may occur but is expected to be minimal. Use of hand tools to remove the trash racks and place the proposed screen assembly materials will result in some underwater noise and vibration. Per the WSDOT BA Manual, the typical background noise of deep, slow rivers can be estimated at 120 dB_{RMS} (decibels measured in root mean square). By implementing the MMs described, especially avoiding pile driving and blasting, underwater noise from construction will not significantly exceed ambient noise levels and will not exceed the interim fish harm noise exposure thresholds of 206 dBpeak (decibels measured in peak sound level), 183 dB cumulative Sound Exposure Level (SEL) for fish less than 2 grams, or 187 dB cumulative SEL for fish greater than or equal to 2 grams.

Status/Presence of Listed Species and Designated Critical Habitat in the Action Area

Listed Species and Critical Habitats

Information regarding listed species, as well as designated and proposed CH, was acquired from the USFWS, NMFS, DNR Natural Heritage Program (NHP), and WDFW Priority Habitats and Species (PHS) Program. **Appendix D** contains species lists and information. **Table 3** provides ESA-listed species and CH potentially present in the project vicinity.

Table 3. Federally Listed Endangered and Threatened Species in Benton County

Regulatory Jurisdiction	Federal Status	Common Name, Evolutionarily Significant Unit (ESU)/Distinct Population Segment (DPS)	Scientific Name	Designated Critical Habitat
USFWS	Endangered (E)	Gray wolf**	*Canis lupis*	No
	E	Pygmy rabbit**	*Brachylagus idahoensis*	No
	Threatened (T)	Umtanum Desert buckwheat**	*Eriogonum codium*	Yes
	T	Bull trout, CR DPS*	*Salvelinus confluentus*	Yes
	T	Yellow-billed Cuckoo**	*Coccyzus americanus*	No
	T	Marbled murrelet**	*Brachyramphus marmoratus*	Yes
NMFS	E	Chinook, UCR Spring ESU*	*Oncorhynchus tshawytscha*	Yes
	T	Chinook, SR Spring/Summer ESU**		No
	T	Chinook, SR Fall ESU**		No
	T	Steelhead, UCR ESU*	*Oncorhynchus mykiss*	Yes
	T	Steelhead, MCR ESU*		Yes
	T	Steelhead, SR Basin ESU**		No
	E	Sockeye, SR ESU**	*Oncorhynchus nerka*	No

** Acronym definitions: CR – Columbia River, UCR – Upper Columbia River, MC – Middle Columbia River, SR – Snake River*

***Presence of and suitable habitat for these species is not available in the project action area. As such, this report does not address these species. No effects are anticipated for these species, their foraging base, or their habitats.*

U.S. Fish and Wildlife Service

USFWS lists bull trout (*Salvelinus confluentus*) as threatened. CH has been designated in the Columbia River for bull trout (75 FR 63898, 2010). Bull trout use the Columbia River for foraging, migration, and over-wintering. Project effects on bull trout are addressed in this report.

National Marine Fisheries Service

NMFS lists the steelhead trout (*Oncorhynchus mykiss*) Middle Columbia River (MCR) Evolutionarily Significant Unit (ESU) as threatened. CH has been designated in the Columbia River for MCR steelhead trout (70 FR 52630, 2005). MCR steelhead trout use the Columbia River as a rearing and migration corridor. Project effects on MCR steelhead trout are addressed in this report.

NMFS lists the Chinook salmon (*O. tshawytscha*) Upper Columbia River (UCR) Spring Run ESU as endangered. CH has been designated in the Columbia River for this Chinook salmon ESU (70 FR 52630, 2005). UCR Spring Run Chinook salmon use the Columbia River as a rearing and migration corridor. Project effects on UCR Spring Run Chinook are addressed in this report.

NMFS lists the steelhead trout (*O. mykiss*) UCR ESU as threatened. CH has been designated in the Columbia River for UCR steelhead trout (70 FR 52630, 2005). UCR steelhead trout use the Columbia River as a rearing and migration corridor (Upper Columbia Salmon Recovery Board (UCSRB), 2007). Project effects on UCR steelhead trout are addressed in this report.

WDFW Priority Habitat and Species

WDFW PHS data shows the presence of Chinook, coho, chum, pink, and sockeye salmon; white sturgeon; and bull, rainbow, and steelhead trout in the Columbia River (WDFW, 2019). **Table 4** details aquatic species potentially present in the project vicinity (adjacent to the Snyder Intake Facility site). In addition, the WDFW PHS data shows waterfowl concentrations surrounding Seagull Island, located east of the intake facility, and a ferruginous hawk breeding area within the township.

Table 4. Aquatic Species in the Columbia River at the Snyder Intake Facility Site

Supported Aquatic Species			
Listed • Bull trout • Steelhead • Chinook Non-Listed • Sockeye • Coho • Chum • Pink (odd year)	Non-Listed (continued) • Rainbow trout • White sturgeon • American shad • Channel catfish • Largemouth bass • Smallmouth bass • Mountain whitefish	Non-Listed (continued) • Walleye • Black crappie • Carp • Chiselmouth • Crawfish Northern pikeminnow • Peamouth	Non-Listed (continued) • Redside shiner • Pumpkinseed • Sculpin • Sucker • Three-spine stickleback • Yellow bullhead • Yellow perch

WDFW PHS, Salmonscape, and Fishing Prospects for Lake Wallula, 2019

DNR Natural Heritage Program

The sections in which the project is located were reviewed for listing on the current DNR NHP List of Sections that contain Natural Heritage features (data current as of July 11, 2018). Sections 25 and 36, Township 10 N, Range 28 E do not contain NHP features.

Field Investigations

Aquatic Species

During RH2's field investigation, no juvenile or adult fish were observed in the Columbia River from the shore adjacent to the Snyder Intake Facility site. No adult salmonids or carcasses were observed.

Terrestrial Plants and Species

During RH2's field investigation, no listed terrestrial or plant species were observed, nor was suitable habitat present.

The following bird species were observed or heard in the project area: mallards; glaucous-winged gulls; and belted kingfishers. Evidence of beaver (recent chews) and raccoon (tracks) were observed during field investigations.

Terrestrial vegetation observed surrounding the intake facility included coyote willow (*Salix exigua*), American sycamore (*Platanus occidentalis*), broad-leaved pepperwort (*Lepidium latifolium*), and reed canarygrass (*Phalaris arundinacea*). Eurasian watermilfoil (*Myriophyllum spicatum)* was observed in shallow depths along the banks of the Columbia River.

Presence of Federally Listed and Proposed Species in the Project Area

Terrestrial Species

No listed or proposed terrestrial species are present in the action area.

Aquatic Species

The following listed aquatic species are present in the action area:

- Columbia River Distinct Population Segment (DPS) Bull trout – Listed as Threatened on June 10, 1998. Designated CH for this ESU is in the action area.
- MCR Steelhead ESU – Listed as Threatened March 25, 1999; listing reaffirmed January 5, 2006. Designated CH for this ESU is not in the action area.
- UCR Steelhead ESU – Listed as Endangered on August 18, 1997; listing reclassified as Threatened on August 24, 2009. Designated CH for this ESU is in the action area.

- UCR Spring Chinook ESU – Listed as Endangered on June 28, 2005. Designated CH for this ESU is in the action area.

All Pacific salmonids and bull trout require high concentrations of dissolved oxygen, cool or cold water temperatures, sufficient flows, stable stream channels, clean spawning gravels, diverse instream and riparian habitat, a sufficient and diverse food supply, access to spawning and rearing habitat, and barrier-free migration corridors. Generally, they prefer pool "tail-outs" with clean gravel and cobble substrates for spawning (Snake River Salmon Recovery Board (SRSRB), 2011). There is no spawning habitat available for salmonids at the project location. However, many use the Columbia River mainstem for migration and holding prior to spawning, and for rearing and foraging as juveniles.

Bull Trout

The *Recovery Plan for the Coterminous United States Population of Bull Trout (Salvelinus confluentus)* (BT Recovery Plan) (USFWS, 2015) provides the following general information about bull trout.

Bull trout exhibit both resident and migratory life-history strategies, and both forms can be found together in any one area. Resident bull trout complete their entire life cycle in tributary streams that they use to spawn and rear. Migratory bull trout spawn in tributary streams where juveniles rear for 1 to 4 years before migrating to either a lake or river to complete their adult life history strategy.

Bull trout are primarily found in cold water streams with optimal water quality and stable flows, loose, clean gravels, and complex forms of cover (i.e., large woody debris, undercut banks, boulders, and pools). Optimal water temperatures for bull trout life stages are as follows: spawning in 4 to 10 degrees Celsius (C) (39 to 51 degrees F); rearing in 7 to 8 degrees C (44 to 46 degrees F); and egg incubation in 2 to 4 degrees C (35 to 39 degrees F). Water temperature above 15 degrees C (59 degrees F) is believed to restrict juvenile bull trout distribution.

In general, bull trout spawn from August to November. Egg incubation can take anywhere from 100 to 145 days, sometimes beyond 200 days depending on water temperatures and stream flows. Fry emerge from early April through May. Juveniles rear year-round. Bull trout timing information is presented in **Table 5**.

Table 5. General Life Stage and Time Period for Bull Trout

Life State	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
In-Migration								■	■	■	■	
Spawning								■	■	■	■	
Incubation	■	■	■									■
Fry Emergence				■	■							
Rearing	■	■	■	■	■	■	■	■	■	■	■	■

USFWS, 2002

Bull trout are opportunistic feeders. Resident and juvenile migratory bull trout prey on terrestrial and aquatic insects, macro-zooplankton, and small fish. Adult migratory bull trout feed on small fish.

Bull trout in the Columbia River basin are threatened by the following factors: dams; agricultural practices; forestry practices; livestock grazing; roads; mining; fisheries management; non-native residential development/urbanization; and natural events (e.g., wildfire and floods) (USFWS, 2015). The BT Recovery Plan indicates that bull trout from the Wenatchee, Entiat, and Methow core areas persist in low abundance, and bull trout from each of these areas are known to use the mainstem Columbia River (UCSRB, 2007). Studies suggest that at least the Entiat core area fish use the mainstem for overwintering habitat and foraging (UCSRB, 2007). Research by BioAnalysts in 2003 (cited in UCSRB, 2007) suggests that increased trophic productivity of Columbia River reservoirs may actually benefit bull trout, as bull trout that rear in the reservoirs tend to grow faster and larger than those bull trout that remain in tributaries despite altered stream flows and temperature regimes in the river caused by the dams.

Bull trout adults and subadults use the stretch of river within the project action area for foraging, migration, and overwintering habitat, typically remaining in the deeper areas of the river that straddle Seagull Island (Bathymetric Map, National Oceanic and Atmospheric Association (NOAA), n.d.). There is no juvenile use of the area. Since bull trout typically prefer deeper, cooler water areas, they are less likely to be found within the project footprint, which is in shallow, nearshore waters. That would be especially true during the summer work window, when overall higher water temperatures would ensure that bull trout would seek out cool water refuges in deeper parts of the river (Riggs, 2019).

Middle Columbia River Steelhead

The *Middle Columbia River Steelhead Distinct Population Segment ESA Recovery Plan* (MCR Steelhead Recovery Plan) (NMFS, 2009) provides the following general information about steelhead and specific information about steelhead in the MCR basin.

Steelhead exhibit both resident and migratory (anadromous) life-history strategies, and both forms can be found in any one area and can also interbreed and produce viable offspring. The anadromous form is under the jurisdiction of NMFS, whereas the resident form, usually called “rainbow” or “redband” trout, are under the jurisdiction of USFWS or the states (if unlisted).

Steelhead can spawn more than once. Spawning migrations occur throughout the year, with seasonal peaks of activity (i.e., summer steelhead enter freshwater between May and October and require several months to mature before spawning, and winter steelhead enter freshwater between November and April and spawn shortly thereafter). In the MCR ESU, steelhead are predominantly summer steelhead (NMFS, 2009).

Steelhead prefer clear, cool streams with suitable gravel size, depth, and current velocity for spawning. They require complexity and cover, typically in the form of overhanging vegetation, undercut banks, submerged vegetation or objects (e.g., logs and rocks), floating debris, deep

water, turbulence, and turbidity. Summer rearing takes place primarily in the faster parts of pools, while winter rearing occurs in a wide range of habitat types.

"Optimal water temperatures for steelhead and salmon vary with life stage, but in general the optimal range is 11 to 15 degrees C (52 to 59 degrees F) and temperatures above 25 degrees C (77 degrees F) can be fatal," (NMFS, 2009).

Depending on water temperatures, steelhead eggs incubate from 1.5 to 4 months before hatching. Juveniles typically rear in streams from 1 to 5 years before migrating as smolt. Most anadromous steelhead will spend 2 years in the ocean before migrating back to their natal streams. MCR steelhead timing is provided in **Table 6**.

The major limiting factors to continued viability of the MCR DPS steelhead populations are as follows: degraded tributary habitat; hatchery-related effects; predation; competition; disease; and impaired fish passage (NMFS, 2009).

Table 6. General Life Stage and Time Period for Middle Columbia River Steelhead

Life State	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
In-Migration												
Winter – Nov-Apr	■	■	■	■							■	■
Summer – All	■	■	■	■	■	■	■	■	■	■	■	■
Prespawning Holding												
Winter – Dec-May	■	■	■	■	■							■
Summer – All	■	■	■	■	■	■	■	■	■	■	■	■
Spawning			■	■	■	■						
Rearing												
Active – Mar-Oct			■	■	■	■	■	■	■	■		
Inactive – Oct-Mar	■	■									■	■
Juvenile Outmigration			■	■	■	■						

NMFS, 2009

The Snyder Intake project action area is outside of the MCR steelhead DPS boundary. This DPS uses the Columbia River as a migration corridor to the Yakima River; the project action area is approximately 4 miles upstream of this confluence. However, it is possible that MCR steelhead juveniles or adults may be present within the project action area.

Upper Columbia River Steelhead

The *Upper Columbia Chinook and Steelhead Recovery Plan* (UC Recovery Plan) (UCSRB, 2007) provides the following general information about Upper Columbia steelhead.

Adults return to the Columbia River in the late summer and early fall. Most steelhead do not migrate upstream quickly to tributary spawning streams (cited in UCSRB, 2007). A portion of

the returning run overwinters in the mainstem reservoirs, passing over the Upper Columbia River dams in April and May of the following year. Spawning occurs in late spring of the calendar year following entry into the river.

Juvenile steelhead generally spend 1 to 3 years rearing in freshwater systems before migrating to the ocean, but may spend as many as 7 years in freshwater before migrating. Juvenile migration to the ocean usually takes place from April through June in Washington State (Wydoski and Whitney, 2003). Upper Columbia River steelhead timing is provided in **Table 7**.

Table 7. General Lift Stage and Time Period for Upper Columbia River Steelhead

Life State	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
In-Migration					■	■	■	■	■			
Prespawning Holding	■	■	■	■	■	■	■	■	■	■	■	■
Overwintering	■	■	■	■	■	■	■	■	■	■	■	■
Spawning			■	■	■	■						
Incubation			■	■	■	■	■	■	■			
Rearing	■	■	■	■	■	■	■	■	■	■	■	■
Juvenile Outmigration			■	■	■							

UCSRB, 2007; NMFS, 2005; Wydoski and Whitney, 2003.

Appendix H of NOAA Fisheries' *Critical Habitat Analytical Review Teams for 12 Evolutionarily Significant Units of West Coast Salmon* (NMFS, 2005) covers UCR steelhead. It states that adult steelhead enter freshwater between May and October, hold in cool, deep pools during summer and fall, and overwinter in larger rivers, eventually completing migration to natal streams in early spring to spawn. Additionally, it states that steelhead eggs may incubate for 1.5 to 4 months before hatching, and that productive steelhead habitat is characterized by complexity, primarily in the form of large and small wood.

Juvenile steelhead are likely to be present in the project action area and near the intake structure during much of the year. Some adults also may be present, although they typically prefer deeper water areas (Gross, 2019).

Upper Columbia Spring-Run Chinook

The UC Recovery Plan (UCSRB, 2007), the *Critical Habitat Analytical Review Teams for 12 Evolutionarily Significant Units of West Coast Salmon* (NMFS, 2005), and the *Snake River Salmon Recovery Plan For SE Washington* (SRSRB, 2011) provide the following general information about Chinook, and specific information about Chinook in the UCR basin.

Chinook salmon are anadromous Pacific salmonids, like steelhead. The timing of re-entry into freshwater varies among and within species, and salmonids can be found migrating in the mainstem Columbia and Snake Rivers during all months of the year. Chinook salmon in the Columbia and Snake basins are divided into spring, summer, and fall runs based on the peaks of their migration timing. The runs also differ in juvenile outmigration characteristics, resulting in

the "stream-type" or "ocean-type" distinctions. Ocean-type fish emigrate as sub-yearling, whereas stream-type fish spend an additional year or more in freshwater before outmigration. Stream-type fish also predominate in cooler waters in higher elevations, whereas ocean-type Chinook are more common in warmer areas, usually in larger stream systems or mainstem rivers. Outmigration timing appears to be influenced by factors such as distance to the marine environment, stream stability, stream flow and temperature regimes, stream productivity, moon phase, and weather conditions (cited in SRSRB, 2011).

Chinook salmon spawn in areas with stable substrates, so that shifting gravel and cobbles do not damage eggs during months of egg incubation (SRSRB, 2011). Juveniles rear in areas with a variety of cover types, such as large and small woody debris and overhanging vegetation, to provide protection from predators. Smolts are found primarily in mid-channel areas in water of varying velocities, and outmigrate at night to avoid predators. Adults that return to spawn prefer areas with complex habitat features for protection against predators.

Most UCR Spring Chinook return as adults after 2 or 3 years in the ocean. Adults begin returning to the Columbia River in early spring, peaking in mid-May, and entering upper Columbia tributaries from April through July. After migration, they hold in freshwater tributaries until spawning occurs from August to September, depending on water temperature. The egg incubation/alevin stage occurs from August to December, and emergence extends from fall into March. Juveniles spend a year in freshwater systems before migrating to the sea in the spring of their second year, primarily in May and June. This information is summarized in **Table 8**.

Table 8. General Lift Stage and Time Period for Upper Columbia Spring-Run Chinook

Life State	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
In-Migration			■	■	■	■	■					
Spawning								■	■			
Incubation								■	■	■	■	■
Emergence	■	■	■									■
Rearing	■	■	■	■	■	■	■	■	■	■	■	■
Juvenile Outmigration				`	■	■						

UCSRB, 2007

Current threats to UCR Spring Chinook, as described in the UC Recovery Plan, are destruction, modification, or curtailment of its habitat or range; overutilization for commercial, recreational, scientific, or educational purposes; disease and predation; inadequacy of existing regulatory mechanisms; natural and manmade climate conditions; and hatchery program practices that do not promote the survival of naturally producing spring Chinook.

Juvenile Chinook are likely to be present in the project action area and near the intake structure during much of the year. Some adults also may be present, although they typically prefer deeper water areas (Gross, 2019).

Presence of Federally Designated and Proposed Critical Habitat in the Project Action Area

Terrestrial Species

No listed or proposed CH for terrestrial species is present in the action area.

Aquatic Species

The following designated and proposed CH for aquatic species occurs in the action area:

- UCR Steelhead ESU – CH designated in the Columbia River on September 2, 2005 (70 FR 52630, 2005).
- UCR Chinook ESU – CH designated in the Columbia River on September 2, 2005 (70 FR 52630, 2005).
- Columbia River DPS Bull trout – CH designated September 26, 2005, and revised October 18, 2010, which included the Columbia River (75 FR 63898, 2010).

Steelhead and Chinook

Primary constituent elements (PCEs) designated for steelhead and Chinook (70 FR 52630, 2005), and presence of these PCEs in the action area, are discussed as follows.

1. *Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation, and larval development.*

The project action area lacks suitable water quality, quantity, and substrate conditions to support spawning of the two salmon ESUs listed above. According to the *Critical Habitat Analytical Review Teams Final Assessment of 12 Evolutionarily Significant Units of West Coast Salmon and Steelhead* (CHART Final Assessment) (NMFS, 2005), spawning PCEs are not available for Upper Columbia Chinook or steelhead in the UCR Middle Columbia/Lake Wallula corridor. The project will not affect spawning PCEs for either Chinook or steelhead in the UCR basin.

2. *Freshwater rearing sites with water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; water quality and forage supporting juvenile development; and natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.*

The CHART Final Assessment indicates the Lake Wallula Columbia River corridor primarily provides migration/presence PCEs, supporting rearing/migrating juveniles and migrating adults of both Chinook and steelhead (NMFS, 2005). The upper and lower Lake Wallula watersheds do not specifically provide rearing PCEs for either of these two salmonid ESUs. Portions of the project action area are likely to support migrating adults and migration/foraging for outmigrating juveniles; however, the project footprint and areas around the existing intake structure are largely devoid of high-quality rearing habitat (e.g., side channels, deep pools,

significant cover or refuge habitat, cool, clean gravels, shoreline overhanging vegetation, etc.). Adults are likely to be utilizing the deeper waters in the action area (the Columbia River is deepest straddling Seagull Island in this section). Juveniles of both Chinook and steelhead utilizing the project footprint is likely limited, because habitat conditions are limited compared with other shoreline areas in the sub-basin. Affects to Chinook and steelhead rearing PCEs from the project are anticipated to be minimal and insignificant.

3. *Freshwater migration corridors free of obstruction with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival.*

Lake Wallula provides primarily migration/presence PCEs for the two salmon ESUs listed previously (NMFS, 2005). The CHART Final Assessment concludes that the rearing/migration PCEs throughout the lower and upper Lake Wallula corridor are highly essential to Chinook and steelhead ESU conservation. The action area is generally free of obstruction and provides adequate water quality and quantity for migration. However, natural cover, overhanging wood, and significant habitat structure is not present along the shoreline in the action area. The project may affect migration (i.e., force adults or juveniles into other areas of the river) for the short in-water work period; however, migration PCEs for the basin are not likely to be significantly affected from the proposed project. Completing in-water work in the pre-approved work window generally correlates to fewer potential salmonids in the work area. Additionally, in-water work and potential migration impacts will be temporary. The finished project will not impede or obstruct migration of Chinook or steelhead in the UCR basin.

4. *Estuarine areas with conditions supporting juveniles and adults.*

The proposed project will have no measurable effect on this PCE.

5. *Nearshore marine areas with conditions supporting ocean-going salmonids.*

The proposed project will have no measurable effect on this PCE.

6. *Offshore marine areas with conditions supporting ocean-going salmonids.*

The proposed project will have no measurable effect on this PCE.

Bull Trout

PCEs designated for bull trout that are present in the action area are as follows (75 FR 63898, 2010).

1. *Springs, seeps, groundwater sources, and subsurface water connectivity to contribute to water quality and quantity and provide thermal refugia.*

Although the project is on the shoreline, the deeper waters of the McNary Pool, as a reservoir, provide for cooler water temperatures than would be found in a small stream or river during periods of high temperatures (USACE, 2011). However, the slow flowing nature of the pool limits the formation of hyporheic flows, as does the levee system, which also prevents

floodplain connectivity of the river. This PCE is degraded at the project location and its vicinity, and the project is assumed to have no measurable effect on this PCE.

2. *Migration habitats with minimal physical, biological, or water quality impediments between spawning, rearing, overwintering, and freshwater and marine foraging habitats, including but not limited to permanent, partial, intermittent, or seasonal barriers.*

The action area may be used by individuals for migration and overwintering. It is expected that the presence of divers in the area during in-water work will cause fish to relocate from the project footprint. Therefore, migration and overwintering will be temporarily altered in the project vicinity during in-water work. The finished project, with new screens and anchors, will not alter fish use of the area, as the Snyder Intake improvements will continue an existing use of the area. Therefore, the effects of the project on this PCE are expected to be insignificant or discountable.

3. *An abundant food base, including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish.*

The right bank of the Columbia River in the project footprint is armored with riprap and contains limited riparian vegetation. Adjacent shoreline, up- and downstream of the project footprint in the action area, has been is altered by land use practices, but is more natural with riparian vegetation, albeit not significantly structured. Habitat for aquatic invertebrates is thus limited in the action area nearest to the project footprint.

The action area may be used by overwintering bull trout but is not well suited to the habitat requirements of bull trout due to a lack of cover by large and small wood and overhanging riparian vegetation, altered flows, and altered temperatures (USACE, 2011).

The effects of the project on this PCE are expected to be insignificant.

4. *Complex river, stream, lake, reservoir, and marine shoreline aquatic environments, and processes that establish and maintain these aquatic environments, with features such as large wood, side channels, pools, undercut banks, and unembedded substrates, to provide a variety of depths, gradients, velocities, and structure.*

Urban expansion and addition of the Columbia and Snake River Basin dams altered the riverine system by reducing flow, side channel availability, undercut banks, floodplain connectivity, large woody debris recruitment, and substrate particle size (USACE, 2011).

The project will add pipelines, screens, and associated anchors to the aquatic shoreline environment to facilitate the ongoing water intake use. These new elements will not significantly affect the degraded complexity of the aquatic environment. The project will not significantly affect this PCE.

5. *Water temperatures ranging from 2 to 15 degrees C (36 to 59 degrees F), with adequate thermal refugia available for temperatures that exceed the upper end of this range.*

Water temperature data from the Pasco, Washington Columbia River DART (Data Access in Real Time) monitoring station indicate that summer water temperatures exceed 15 degrees C for several months each summer. Data is only available from March through October for recent

years, but data from 2015 to 2018 indicates that water temperatures begin exceeding 15 degrees C around June or July and remain above 15 degrees C beyond September.

Work may take place during either agency-approved window, December 15th to February 28th or August 1st to August 31st. Water temperatures during the winter work window will be below 15 degrees C, while water temperatures during the summer work window will likely exceed 15 degrees C. Deeper water within the Columbia River may provide cooler thermal refugia during the summer months. The project will not affect water temperatures. It is not expected that placing concrete anchors will impact the availability of thermal refugia in the action area because the substrate is concrete and water depth in this location is not likely deep enough (10 to 20 feet). Therefore, the effects of the project on this PCE are expected to be insignificant or discountable.

6. *In spawning and rearing areas, substrate of sufficient amount, size, and composition to ensure success of egg and embryo overwinter survival, fry emergence, and young-of-the-year and juvenile survival. A minimal amount of fine sediment, generally ranging in size from silt to coarse sand, embedded in larger substrates, is characteristic of these conditions. The size and amounts of fine sediment suitable to bull trout will likely vary from system to system.*

The project action area is not suitable for bull trout spawning (USACE, 2011). Bull trout use upper tributaries with cool water and adequate substrate to spawn. Therefore, the project action will have no measurable effect on this PCE.

7. *A natural hydrograph, including peak, high, low, and base flows within historic and seasonal ranges or, if flows are controlled, minimal flow departure from a natural hydrograph.*

The proposed project will have no measurable effect on this PCE.

8. *Sufficient water quality and quantity such that normal reproduction, growth, and survival are not inhibited.*

The project will not alter pumping capacity or rates at the Snyder Intake. The McNary Pool is sufficiently large enough to accommodate the Snyder Intake operating at design capacity, without disturbing water quality and quantity necessary for bull trout use of the action area. Therefore, the effects of the project on this PCE are expected to be insignificant or discountable.

9. *Sufficiently low levels of occurrence of nonnative predatory (e.g., lake trout, walleye, northern poke, smallmouth bass); interbreeding (e.g., brook trout); or competing (e.g., brown trout) species that, if present, are adequately temporally and spatially isolated from bull trout.*

Non-native piscivorous fish species have become established in the Columbia River, and are presumably present in the project action area. Native predators, such as the Northern pikeminnow (*Ptychocheilus oregonensis*), also are a concern (USACE, 2011). Individual bull trout that use the McNary Pool for overwintering are typically larger fish (USACE, 2011), making their predation less likely. The proposed concrete anchors could support predators, like the pikeminnow, which would prey on juvenile salmonids. However, the concrete anchors will

augment an existing intake structure; therefore, the increase in potential predator habitat is likely negligible. The effect of the project on this PCE is expected to be insignificant.

Environmental Setting

Project Area Characterization

The Snyder Intake Screen Upgrades project is in the City of Richland, Benton County, Washington, in WRIA 40 Alkali-Squilchuck. The intake structure is an approximately 45-foot-tall concrete structure partially buried into the Columbia riverbed, extending approximately 70 feet from the shoreline. The structure is comprised of three levels: the forebay, the interior intermediate deck, and the intake structure deck. A concrete accessway extends waterward from the west bank of the Columbia River to connect to the intake structure. The facility is located upstream of the Snyder Boat Launch at the northern end of Leslie Groves Park. The site is adjacent to residential, natural open space, and recreation areas to the west. The facility is situated in the McNary Pool of the Columbia River, also known as Lake Wallula, which is a waterbody managed by USACE via the McNary Lock and Dam.

Development Patterns

Development in the vicinity of the Snyder Intake Facility is guided by the City's *Comprehensive Plan* (City of Richland, 2017). The "Richland's History" handout on the City's website states that the area is known to have been settled for over 11,000 years, as Native Americans historically fished the Yakima and Columbia rivers, hunted game species, and gathered berries and root vegetables. Richland was a small farming town from the late 1800s until the 1940s when the federal government utilized the area for the Manhattan Project. Richland was incorporated as a chartered First Class City and has since diversified economically and grown to a population of over 50,000 people.

Surrounding Land Use

The Snyder Intake structure is situated on the right bank of the Columbia River, at about RM 340.5. Landward of the intake structure, the adjacent land is in residential, recreational, and natural open space uses. Local streets exist in proximity to the project area, including Snyder Street and Harris Avenue.

Wetlands and Streams

The USFWS National Wetlands Inventory (NWI) and environmental mapping data from the City and other agencies was reviewed for the project. An NWI wetland is shown approximately 300 feet north of the project area; this wetland is not shown on City Critical Areas Geographic Information System (GIS) data. Seagull Island, a sandbar island to the east of the intake facility, is mapped as wetland on both databases. Besides the Columbia River, no other wetlands, streams, or drainages are located in the vicinity of the proposed project.

Field Investigations

During RH2's February field investigation, the project area was surveyed for wetlands, and fish and wildlife habitat. The Columbia River shoreline at the intake facility is a roughly 3:1 slope, covered with riprap. Riprap extends into the Columbia River, presumably to about the western face of the intake structure. Riparian vegetation is sparse; some grass, shrub, and tree species were present (e.g., reed canarygrass, coyote willow, and American sycamore). Milfoil was present near the shoreline and anticipated to extend to a depth of 10 feet. Dried Russian thistle tumbleweeds were prevalent along and within 5 feet of the water's edge. No wetland habitat was observed along the shoreline in the vicinity of the intake facility.

Mallards, gulls, and kingfishers were observed on the site. Songbirds also are anticipated to use the shoreline but were not observed during field investigations. No fish, carcasses, or evidence of fish use was observed.

The land surrounding the project site is primarily flat and in residential use. Wetlands were not observed in the vicinity. Trees and shrubs are present along the shoreline. Refer to **Appendix B** for site photographs.

Columbia River

The USGS maintains a stream gage downstream of the Snyder Intake Facility named, "USGS 12514500 Columbia River on Clover Island at Kennewick, WA." The McNary Pool (Lake Wallula) lies behind the McNary Lock and Dam, and the water level is controlled by USACE. USACE maintains a normal operating range between 335 and 340 feet above sea level (asl). Water temperature data collected at the stream gage from 2013 indicates that water temperatures exceed 15 degrees C from late June/early July through October.

Water temperatures at the Pasco, Washington Columbia River DART monitoring station indicate that summer water temperatures exceed 15 degrees C, a benchmark for the upper water temperature threshold for bull trout, every summer for several months. Water temperature data is only available from approximately March through October most years. The 2008 through 2018 data from the Pasco station shows water temperature exceeding 15 degrees C around July through at least mid-October each year. During the summer months, juvenile salmonids migrating downstream through the mainstem Columbia River encounter water temperatures that often exceed 20 degrees C, where the 7-DADMax for the Columbia River is 17.5 degrees C (Washington Administrative Code (WAC) 173-201A-200; http://www.nwd-wc.usace.army.mil/tmt/wqnew/tdg_and_temp/2013/app_j_13.pdf), and water temperatures exceeding 25 degrees C have been documented during the summer juvenile migration period (Ferguson, et al., 2005). Portions of Lake Wallula approximately 2.3 miles downstream of the project have been listed on the 303(d) Water Quality List since 2004 for exceeding temperature criterion; the U.S. Environmental Protection Agency (EPA) is in the process of developing a Temperature total maximum daily load (TMDL) for the Columbia and Snake Rivers. **Table 9** details the 303(d)-listed parameters for these and other water quality concerns in the project area. The Columbia River in the immediate vicinity of the project area is not on the 303(d) list. Refer to **Appendix B** for the 303(d) List Map.

Table 9. Impaired Water Quality Parameters in Lake Wallula – WRIA 36 and 40

Parameter	Listing ID	Category	Medium	Proximity to Site
Chloride	76896	1 – Meets standards	Water	At site
pH	8288, 71956	2 – Water of concern	Water	At site
Temperature	73307	2 – Water of concern	Water	At site
Dioxin	8800	4A – TMDL in place	Tissue	Approx. 2.3 miles
Total Dissolved Gas	8289	4A – TMDL in place	Water	Approx. 2.3 miles
Temperature	6309	5 – 303(d) listed	Water	Approx. 2.3 miles

Ecology, 2019

Geology and Soils

The Columbia River Basalt Group covers much of eastern Washington, extending into Oregon and Idaho (Camp, et al., 2017). The Columbia River Basin is dominated by this basalt group and sedimentary rocks of the Ellensburg Formation, which are overlain by younger sedimentary rocks, flood deposits of the Hanford formation, among others. The NRCS Soil Conservation Service maps identify the Quincy loamy sand, 0 to 2 percent slopes map unit underlying the project site. This soil develops from wind-deposited sand on terraces and is a loamy sand underlain by fine loamy sand. The soil unit is not hydric but is a farmland of statewide importance.

Vegetation

The Tri-Cities area has a desert climate that supports shrub-steppe vegetation such as desert grasses and sagebrush. Much of the area surrounding the project is either water or developed. Shrub-steppe habitat was likely the dominant historic community, with perhaps some interior grasslands. The banks of the Columbia River are riprapped in the vicinity of the intake structure and dominated by willow species. Some grass and other shrub and tree species are present in proximity to the facility. No riparian vegetation will be removed or altered for the project.

Habitat Conditions

Terrestrial Species

Much of the area surrounding the project is either water or developed. However, some small mammals, such as rodents, are anticipated to utilize the riprap as habitat. Birds are expected to be present in the immediate vicinity of the project. Racoon footprints and beaver-chewed bark were observed on site during RH2's field investigation. Approximately 100 barn swallow nests are present on the Snyder Intake facility. According to WDFW PHS data, Seagull Island and surrounding islands near the project site provide waterfowl habitat. Mallard, gull, and kingfisher species were observed utilizing the shoreline environment near the intake facility

during RH2's site investigation. Waterfowl in the area will likely abandon the area during construction in favor of undisturbed nearshore areas.

More animals utilize the wider project vicinity. WDFW PHS data show burrowing owl (*Athene cunicularia*) and ferruginous hawk (*Buteo regalis*) breeding areas and concentrations of black-tailed jackrabbit (*Lepus californicus*) within 2 miles of the project (WDFW, 2019). Habitat for these PHS species is not available in the project footprint.

The project footprint will mostly be waterward of the parking lot for the Snyder Intake, and most major equipment and building materials will be transported by barge on the river or via existing roadways. No impacts to terrestrial wildlife habitat are anticipated.

Aquatic Species

Pacific lamprey (*Lampetra tridentata*) are known to use the mainstem Columbia River for migration, but because many dams do not have Lamprey Passage Systems (which are similar to fish ladders), their numbers are greatly diminished with each dam (Columbia River inter-Tribal Fish Commission (CRITFC), 2011). In 2010, 24-hour counts taken for lamprey found just over 1,100 adults at Priest Rapids Dam (the dam upstream of the Snyder intake project), compared to almost 24,000 at Bonneville Dam. Though the lower numbers upstream are largely due to lamprey accessing tributaries, another reason is mortality.

The WDFW website for fishing prospects at Lake Wallula indicates the following sport fishing species are present in the lake: American shad; channel catfish; largemouth bass; mountain whitefish; smallmouth bass; sockeye; steelhead; and walleye. Other species that might be caught include: black crappie; carp; chiselmouth; crawfish; northern pikeminnow; peamouth; pumpkinseed; redside shiner; sculpin; sucker; three-spine stickleback; white sturgeon; yellow bullhead; and yellow perch. WDFW PHS data shows the following fish presence (occurrence and migration) in the Columbia River: Chinook; chum; coho; pink salmon; sockeye; rainbow trout; steelhead; bull trout; and white sturgeon.

McNary Pool

The McNary Pool, also known as Lake Wallula, is a Columbia River waterbody situated in southeast Washington behind the McNary Dam. It encompasses a water surface area of almost 40,000 acres, with 242 miles of shoreline, and drains approximately 214,000 square miles. Lake Wallula extends 64 miles upstream from the McNary Dam (RM 292) to the U.S. Department of Energy's Hanford Site on the Columbia River, and the Ice Harbor Dam (RM 9.7) on the Snake River. USACE maintains a normal operating range between 335 and 340 feet asl.

The following is an outline of known issues affecting the MCR steelhead ESU, which are among the more sensitive salmon species due to their longer residence time in freshwater. Therefore, the following also can be extrapolated as issues for other ESA-listed species, as well.

Degraded Tributary Habitat

Tributary habitat has declined over the years primarily due to changes in land use adjacent to historical salmonid habitat, such as agricultural practices and growing urban centers. Storm

runoff, agricultural runoff, the introduction of irrigation systems, reduced channel complexity, and the addition of levees are among the contributors to tributary habitat degradation. Since most spawning and rearing occurs in tributaries and not the mainstem Columbia River, tributary degradation is a serious issue for salmonid population recovery.

Dams and Impaired Fish Passage

Dams, culverts, and unscreened water diversions can directly prevent migration as physical obstacles. Effective fish ladders have been installed at dams along the river, which enable at least 95 percent safe adult steelhead passage (NMFS, 2009). Unfortunately, downstream migration is still a challenge for juvenile steelhead, which experience significant drops in survival with each of the four federal dams that stand between the juveniles and the ocean.

Dams and reservoirs on the mainstem Columbia River and major tributaries thereof compress the river's discharge patterns, resulting in lower peak flows during the high-flow season, and higher flows during the traditional low-flow season (U.S. Bureau of Reclamation, 2012). The lower instream water velocities and altered discharge patterns have resulted in a slowing of the migration rate of juvenile salmonids, particularly in dry years. As a result, seasonal flow objectives have been suggested as reasonable and prudent alternatives in NMFS biological opinions for McNary and Priest Rapids Dams to improve seasonal flows.

The lower flow velocities and large water surface area of the reservoir due to the dam results in higher water temperatures, which can be lethal for native fish species. Increased temperatures alone are a threat, but they also increase the susceptibility of fish to a variety of infections (bacterial, viral, fungal, and parasitic). The natural movement of sediments and nutrients also is altered by the presence of dams.

Hatchery Effects

Over 100 hatchery programs exist in the Columbia Basin upstream of the Bonneville Dam; some hatchery fish inevitably stray into the Middle Columbia watersheds and compete with local fish for food and space, which can have negative effects on the genetic diversity and productivity of natural MCR steelhead populations (NMFS, 2009).

Climate Change

Climate change may exacerbate existing problems with water quantity (lower summer stream flows) and water quality (higher summer water temperatures) (NMFS, 2009). Steelhead are affected disproportionately from other salmonids due to their longer freshwater residency, and bull trout also are greatly affected as they have a lower tolerance for high water temperatures than other salmonids.

Riparian/Floodplain Condition

Due to the dam and levees in the project vicinity, as well as the lack of shade and the presence of riprap along the river bank, the shoreline in the project vicinity has lost the habitat and temperature diversity typically provided in off-channel and nearshore habitats. There is a lack of habitat diversity and large woody debris due to removal and loss of recruitment.

Bull trout populations also are depressed due to the same issues as discussed previously for steelhead. The BT Recovery Plan (USFWS, 2015) states that USFWS considers historic and current land use activities, particularly water diversions, residential development, dams, forestry, and agriculture, to be major impacts to bull trout. Many of these impacts have long lasting effects. Other reasons for bull trout decline in this unit include isolation and habitat fragmentation, generally a result of the construction and operation of dams, but also of changing land use along the shoreline; mining; and fisheries management (i.e. hatcheries). The Mainstem UCR (Unit 22) and Mainstem Snake River (Unit 23) recovery units pass through Lake Wallula during migration to upstream habitat.

Effects of the Action

Direct Effects

Direct Effects to Listed Species in the Action Area

The action area in the Columbia River is not a known use area for steelhead and Chinook spawning and rearing; however, it is anticipated that steelhead and Chinook are present and use this section of the Columbia River for migration. Designated CH and PCEs for UCR Chinook and UCR steelhead are present in the action area. The project action area is within juvenile migration areas, but it is expected that the presence of divers will cause fish to relocate from the area during in-water work.

The stretch of the Columbia River within the action area is not a known use area for bull trout spawning or juvenile usage; however, it is anticipated that adult and sub-adult bull trout are present and use this section of the Columbia River for foraging, migration, and overwintering (Riggs, 2019). Designated CH and PCEs for bull trout are present in the action area. Any bull trout in the project action area during the in-water work window will likely keep out of the area due to the presence of divers and construction activities.

The Snyder Intake project has the potential to directly affect bull trout, UCR Chinook, UCR steelhead, and MCR steelhead due to the following project components:

- The project involves construction on and adjacent to an existing structure in the Columbia River.
- In-water work will be required to retrofit the facility, and install the proposed barrel screens and associated pipelines, concrete anchors, and appurtenances. Temporary construction impacts related to the activity of divers in the project footprint, elevated noise levels, and temporary turbidity impacts may temporarily disrupt juvenile or adult salmonids present in the action area.
- Permanent concrete anchors and barrel screen assemblies will be installed in the river adjacent to the Snyder Intake. These anchors may create additional habitat for predators, preying on listed juvenile salmonids. They also constitute additional permanent in-water structures associated with the Snyder Intake.

Steelhead and Chinook CH PCEs that could be impacted include the following:

- *PCE 2. Freshwater rearing*: Although limited, freshwater rearing habitat is present in the project footprint or action area, and no rearing PCEs exist in the sub-basin (NOAA, 2005), the project area could support rearing activities related to juvenile salmonid outmigration and foraging. Construction activities could temporarily displace juveniles in the project footprint. Permanent in-water structures could further limit freshwater rearing habitat in the project footprint, although this is likely insignificant given the existing presence of the intake structure in the river.
- *PCE 3. Freshwater migration*: The Lake Wallula pool supports migration of steelhead and Chinook juveniles and adults. Construction could temporarily displace migrating individuals, causing them to move to different areas of the river. The finished project is not expected to significantly impact migration of adults or juveniles.

As a result of in-water work, bull trout CH PCEs that could be impacted include the following:

- *PCE 2. Migration habitats*: The Lake Wallula Pool supports migration of adult bull trout. The project could temporarily displace migratory adults in other areas of the river; however, these impacts are likely minimal and temporary given project work windows, and the distance of the project footprint from known adult migration corridors. The finished project will not impact migration or habitat for bull trout.
- *PCE 3. Food base*: Habitat for aquatic invertebrates is limited in the project action area. The project will not remove riparian vegetation or existing riparian habitat. No significant impacts on the bull trout food base are anticipated.
- *PCE 4. Complex aquatic environments*: The existing project footprint is degraded from land use practices, and contains a boat launch, public park, and the Snyder Intake. Proposed improvements will not significantly degrade the low habitat complexity in this stretch of the river.
- *PCE 5. Water temperatures*: The proposed project is not anticipated to temporarily or permanently impact water temperatures; no effect to this PCE will occur.
- *PCE 8. Water quality and quantity*: In-water work will temporarily impact water quality (turbidity); however, this impact will be limited from the operation of the Snyder Intake pumps and a short in-water work window with minimal excavation or fill activities. Water quantity will not be impacted by the project. Effects to this PCE are expected to be insignificant or discountable.
- *PCE 9. Predators*: Permanent concrete anchors and barrel screen assemblies may create additional habitat for predators, preying on juvenile bull trout. This potential is likely insignificant given the existing presence of the structure and the lack of significant rearing habitat in this area of the river.

Conservation Measures

The following conservation measures were included in the **Impact Avoidance and Minimization Measures** section but are detailed below to address potential direct impacts to listed species.

- The Snyder Intake project in-water construction is planned for a 3- to 4-week period during either agency-approved in-water work window of December 15th through February 28th or August 1st through August 31st, which will minimize potential direct contact with fish. Adult fish are anticipated to prefer the deeper parts of the river, away from the shoreline and the project footprint (Riggs, 2019). The presence of divers during the in-water work period is anticipated to ward off fish from the project footprint temporarily. No electrofishing, fish handling, or other non-passive methods will be allowed for fish exclusion activities. It is anticipated that many impacts, such as avoidance of the area by fish and their food sources, and water quality impacts will be temporary and aligned with the performance of in-water work.
- Various design decisions were made to minimize direct effects on listed fish species, including reducing the permanent in-water footprint of the project by minimizing the length and size of the pipes and screens to be installed, designing the screens to NMFS standards to protect fish from pumps, avoiding pile driving and blasting during project construction, avoiding placement of construction equipment in the water, and keeping excavation and fill to a minimum. The finished project should result in minimal obstruction into the riverbed and should not pose a permanent migration barrier.
- The intake pumps will remain on throughout most of construction and will pump excess turbid water to the WTP. Any remaining turbidity is expected to make its way downstream and along the shoreline from the intake structure, where it will likely be deposited and/or dispersed. Any dewatering water within the intake structure itself also will be pumped to the WTP.
- There will be no ground disturbance or excavation/fill above the OHWL. Removal of riparian vegetation will not occur.
- Fueling and maintenance of equipment will occur at least 200 feet away from any water body to minimize the potential for spills. Additional BMPs will be employed during construction to prevent construction spills, byproducts, or debris from entering the river.

Indirect Effects

Indirect Effects from Human and Land Use Changes

The Snyder Intake project will upgrade the existing facilities to meet NMFS regulations. The project does not create a new facility and will not affect the current or future pumping capacity of the intake, and as such, is anticipated to have no indirect effects on land use.

Indirect Effects to Ecological Systems

By reducing the screen mesh size, the availability of salmonid prey species, such as small fish, may slightly increase in the project vicinity. An increase in the availability of prey species would have a beneficial effect on Chinook, steelhead, and bull trout; however, the magnitude of this effect would likely be insignificant or discountable. Predator species prevalence could increase in the project area due to the presence of the permanent concrete anchors; however, because the structure currently exists and rearing habitat is already limited in this area of the river, the potential increase in predator fish is likely insignificant or discountable. Indirect effects to ecological systems are expected to be insignificant or discountable.

Effects from Interrelated and Interdependent Actions

There are no interrelated and interdependent actions associated with the Snyder Intake project.

Conclusions

Considering potential project effects, planned impact avoidance and MMs, and anticipated baseline conditions, the Snyder Intake project effect determination for Chinook, steelhead, and bull trout is **may affect, not likely to adversely affect**. No other listed or proposed species are present in the action area.

Effect Determinations

Effect determinations for the Snyder Intake Upgrades project are included in **Table 10**.

Table 10. Effect Determinations for Listed Species and CH in the Project Action Area

Common Name	Federal Status	Designated CH in Action Area	Project Effect Determination[1]	CH Effect Determination
Bull trout, Columbia River DPS	Threatened	Yes	NLTAA	NLTAA
Chinook, UCR Spring ESU	Endangered	Yes	NLTAA	NLTAA
Steelhead, UCR ESU	Threatened	Yes	NLTAA	NLTAA
Steelhead, MCR ESU	Threatened	No	NLTAA	-

1. NLTAA means May Affect, Not Likely to Adversely Affect

The Snyder Intake Modifications project **may affect** bull trout or the Chinook and steelhead ESUs listed in **Table 10** because of the following:

- Suitable Chinook, steelhead, and bull trout migration habitat is present in the action area.
- The Snyder Intake project will involve temporary construction work in and adjacent to suitable Chinook, steelhead, and bull trout habitat in the Columbia River, resulting in 3 to 4 weeks of physical presence and construction noise, which will likely cause these species and their food sources (aquatic macroinvertebrates) to avoid the in-water work area.
- Minor excavation and placement of pipes, screens, and anchors could temporarily increase turbidity in the river in the action area.
- The completed project will add new in-water structures to the Snyder Intake footprint, which could minorly affect the foraging and/or migration behavior of listed salmonids, and result in permanent alteration to the riverbed from the installation of new barrel screen assemblies and concrete anchors.

The Snyder Intake Modifications project is **not likely to adversely affect** Chinook, steelhead, and bull trout because of the following:

- The project in-water construction is planned for a 3- to 4-week period during the agency-approved in-water work windows of December 15th through February 28th or August 1st through August 31st, which will minimize potential presence of and direct contact with fish. Adult fish are anticipated to prefer the deeper parts of the river, away from the shoreline and the project action area. The presence of divers during the in-water work period is anticipated to ward off fish from the project footprint temporarily.
- In-water work will be completed by hand, by divers, operating from a barge anchored nearby in the river. Equipment will be delivered and used immediately and lowered into the river for installation. This will effectively limit fabrication, construction activities, and disturbance of the aquatic environment to only those necessary to install the proposed anchors and barrel screen assemblies.
- Lack of suitable natural cover habitat in the action area significantly minimizes the potential presence of juveniles and adults in the project vicinity.
- The intake pumps will remain on throughout the project and are anticipated to pump the majority of any turbid water generated by intake structure dewatering, excavation, or other in-water activities to the WTP.
- The footprint of the intake and screening structure was minimized to the extent possible. The screens used on the intake structure were designed according to NMFS and WDFW standards and will effectively block bull trout, Chinook, and steelhead juveniles from the Snyder Intake pumps.
- There is minimal riparian vegetation present in the project footprint. Riparian vegetation removal will be avoided.

- Spill prevention materials will be on hand and installed as necessary to reduce potential spills, debris, and water quality impacts associated with construction.

Critical Habitat

The action area is in designated CH for UCR ESU steelhead, UCR ESU Chinook, and Columbia River DPS bull trout. A **may affect** determination is warranted for Chinook, steelhead, and bull trout CH because of the following:

- The Snyder Intake project partially occurs within designated Chinook, steelhead, and bull trout CH in the Columbia River rearing and migration corridor.
- The Snyder Intake project will result in temporary impacts within this designated CH because it involves in-water work and permanent alteration by installing pipes, screens, and anchors.

A **not likely to adversely affect** determination is warranted for Chinook, steelhead, and bull trout CH because of the following:

- Various design decisions minimize effects on CH, including reducing the permanent in-water footprint of the project by minimizing the length and size of the pipes and screens to be installed, while still meeting water depth and water quality design criteria. The resulting project should be a minimal obstruction into the riverbed and should not pose a migration barrier.
- Riparian vegetation removal will be avoided.
- Smaller screen mesh sizes could improve juvenile survival by preventing their entry into the intake structure.

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Appendix A
Agency Correspondence Records

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Alicia Pettibone

From: Sean Gross - NOAA Federal <sean.gross@noaa.gov>
Sent: Friday, May 31, 2019 11:18 AM
To: Alicia Pettibone
Subject: Re: RIC Snyder Intake Upgrades Fish Use Q's

If you can call me this afternoon beween 1:30-3:00, I can talk then Otherwise, Monday morning will work.
Sean

On Fri, May 31, 2019 at 10:27 AM Alicia Pettibone <apettibone@rh2.com> wrote:

> Hi Sean,
>
> Wondering if you have some time today to talk about the RIC project again? I just want to touch base on where we landed for work window, project components, etc. before we finalize the BA. Let me know when you could discuss.
>
> Thanks,
>
> **Alicia Pettibone** | RH2 Engineering, Inc.
>
> O: 425.951.5436
>
> C: 425.466.6727
>
> **From:** Sean Gross - NOAA Federal <sean.gross@noaa.gov>
> **Sent:** Thursday, May 2, 2019 2:22 PM
> **To:** Alicia Pettibone <apettibone@rh2.com>
> **Subject:** Re: RIC Snyder Intake Upgrades Fish Use Q's
>
> I was thinking Aug 1-31, but it could be discussed/negotiated with other agencies that are interested. Consider those dates a starting point for discussion if you want to consider a summer work window instead of winter.
>
> Aaron is at: Aaron.Beavers@noaa.gov
>
> On Thu, May 2, 2019 at 12:11 PM Alicia Pettibone <apettibone@rh2.com> wrote:
>
> > Hi Sean,
> >
> > Question for you regarding the August work window, is that typically Aug 1-31? Also wondering if you can pass along a email address for Aaron Beavers? Emily will be in touch soon with some more on the noise analysis too.

Thanks much,

Alicia Pettibone | RH2 Engineering, Inc.

O: 425.951.5436

C: 425.466.6727

From: Sean Gross - NOAA Federal <sean.gross@noaa.gov>
Sent: Tuesday, April 30, 2019 2:24 PM
To: Alicia Pettibone <apettibone@rh2.com>
Subject: Re: RIC Snyder Intake Upgrades Fish Use Q's

OK - I think I have it all now.

On Tue, Apr 30, 2019 at 2:19 PM Sean Gross - NOAA Federal <sean.gross@noaa.gov> wrote:

> Hi Alicia. I got 3 photos but no plans.
>
> On Tue, Apr 30, 2019 at 2:15 PM Alicia Pettibone <apettibone@rh2.com> wrote:
>
> > Trying the below again, but in parts….
> >
> > ---
> >
> > **From:** Alicia Pettibone
> > **Sent:** Tuesday, April 30, 2019 1:48 PM
> > **To:** 'Sean Gross - NOAA Federal' <sean.gross@noaa.gov>
> > **Subject:** RE: RIC Snyder Intake Upgrades Fish Use Q's
> >
> > Thanks Sean.
> >
> > In advance of giving you a call, here are some preliminary plans and photos of the existing intake. The plans are a work in progress, but helpful to discuss improvements and existing facility.
> >
> > The City has selected Alt 2 (pages 14-15) of the RIC_IntakeScreens_AltAn.pdf. The ISU_Alternatives is the in-progress plan set.

Will try you here shortly, Alicia

From: Sean Gross - NOAA Federal <sean.gross@noaa.gov>
Sent: Tuesday, April 30, 2019 10:29 AM
To: Alicia Pettibone <apettibone@rh2.com>
Cc: Emily Coba <ecoba@rh2.com>
Subject: Re: RIC Snyder Intake Upgrades Fish Use Q's

That work window will mostly avoid smolts, though adult steelhead will be in the area. That window should work fine, unless there is some aspect of the project that will be highly disruptive to adults. We are also OK with an August window.

I vaguely remember a project on Mission Creek in Cashmere, but not sure. It may have been Sean Callahan (WSDOT) or could have been me (NMFS).

On Thu, Apr 25, 2019 at 12:21 PM Alicia Pettibone <apettibone@rh2.com> wrote:

> Hi Sean,
>
> Reaching out today as Emily is in the field and I had a question for you on the anticipated work window for the Snyder Intake project. Per Mike Ritter at WDFW, a window of December 15 to February 28 is what we currently anticipate. He said that is consistent with the previous recent intake project windows (West Pasco and Pasco proper) in the area. Can you confirm that is what we should go with for a work window to minimize listed species impacts?
>
> Also, I worked on a project some years' ago for the City of Cashmere, involving a bridge replacement over Mission Creek. The project was funded by FHWA, and thus we had a BA for that effort. We did a site visit with agency staff, including Kelsey (not recalling her last name) and a bio named Sean Gross, both of which I recall working for WSDOT at the time. Are you the same Sean?
>
> Thanks,
>
> Alicia Pettibone | **RH2 Engineering**
>
> Environmental Project Manager
>
> 22722 29th Drive SE, Ste 210
>
> Bothell, WA 98021
>
> P: 425.951.5436 | P: 800.720.8052
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> C: 425.466.6727

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From: Sean Gross - NOAA Federal <sean.gross@noaa.gov>
Sent: Friday, April 19, 2019 2:57 PM
To: Emily Coba <ecoba@rh2.com>
Subject: Re: RIC Snyder Intake Upgrades Fish Use Q's

MCR steelhead adults are likely to be upriver as far as your project site, so sure, I'd recommend including them in the BA. I would not include the Snake River species.

I'd agree that juveniles of both species will probably use the area near the intake during much of the year. Regarding adults, I do not know enough about the bathymetry/flow/depth at the work area, but yes they are generally in deeper water.

Sean

On Fri, Apr 19, 2019 at 1:34 PM Emily Coba <ecoba@rh2.com> wrote:

> Sean,
>
> I was hoping to confirm some species info with you as we work on preparing a BA for the Snyder Intake Upgrades project. RH2 assisted the City of Pasco with a similar project, the Butterfield intake, back in 2014 and we are hoping to determine if the species distribution and use at this project site is similar. The Snyder intake is located approximately 11 river miles upstream of Butterfield - see attached map for reference.
>
> We are aware that critical habitat (as a rearing/migration corridor) for UCR spring chinook and UCR steelhead is designated at the Snyder Intake facility site. The facility is also just upriver of the MCR steelhead ESU boundary, and it appears critical habitat for that ESU doesn't extend upstream of the Yakima R. confluence. Even though the facility and the project action area don't technically overlap the ESU boundary, I would think we should still address potential impacts to MCR steelhead that may be present in the BA? What are your thoughts on that?
>
> Snake River sockeye, steelhead, and chinook were also addressed in the Butterfield BA due to that intake facility's proximity to the Snake River confluence (approx. 4 RM upstream). We would anticipate that Snake River species would not be present near the Snyder intake, since it's located about 15 miles upstream of the Snake River's confluence with the Columbia, but can you confirm? Should Snake River species be addressed in the Snyder BA?

In 2014, my colleague spoke with Diane Driscoll who indicated that juvenile Columbia River steelhead and chinook likely utilize the area near the Butterfield facility during migration. Can you please confirm this is also true for the Snyder intake?

Diane also indicated during consultation for the Butterfield intake that adult salmonids were anticipated to utilize deeper waters further from the shoreline. This presumably applies to Snyder as well, correct?

Feel free to call to discuss if needed. Thanks in advance for your input!

Emily Coba, EIT | **RH2 Engineering**

Environmental Staff Engineer

22722 29th Drive SE Suite 210

Bothell WA 98021

P: 425.951.5349

ecoba@rh2.com

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--

Sean Gross

NOAA Fisheries - Columbia Basin Branch

304 S. Water St. #201

Ellensburg, WA 98926

(509) 962-8911 x806

Alicia Pettibone

From: Alicia Pettibone
Sent: Thursday, May 16, 2019 1:03 PM
To: Whidden, Hannah (DNR)
Cc: Jenny MacDonald; Barnes, Abby (DNR)
Subject: RE: New Project Aquatic Use Authorization Inquiry

Thanks Hannah. Richland is definitely planning screen replacement close to the facility, so we'll proceed with understanding that DNR SOAL doesn't apply for that alternative. If it changes for any reason, we'll be in touch!

Take care,
Alicia Pettibone | RH2 Engineering, Inc.
O: 425.951.5436
C: 425.466.6727

From: Whidden, Hannah (DNR) <Hannah.Whidden@dnr.wa.gov>
Sent: Thursday, May 16, 2019 12:01 PM
To: Alicia Pettibone <apettibone@rh2.com>
Cc: Jenny MacDonald <jmacdonald@rh2.com>; Barnes, Abby (DNR) <Abby.Barnes@dnr.wa.gov>
Subject: RE: New Project Aquatic Use Authorization Inquiry

Hi Alicia and Jenny,

I wanted to follow up. If you stay with the preferred "short pipe" alternative for the water intake, you will not need authorization from DNR, as we are not asserting ownership at this time. If you go with the "long pipe" alternative, you will need a DNR authorization.

Have a nice day.

-Hannah

From: Alicia Pettibone <apettibone@rh2.com>
Sent: Wednesday, May 8, 2019 2:49 PM
To: Whidden, Hannah (DNR) <Hannah.Whidden@dnr.wa.gov>
Cc: Jenny MacDonald <jmacdonald@rh2.com>
Subject: RE: New Project Aquatic Use Authorization Inquiry

Hi Hannah,
Thanks for the call just now. Super helpful to have a conversation and provide a little more background/discussion. As Jenny mentions below, I think Jeff provided his assessment of jurisdiction for SOAL based on the alternatives analysis document, which evaluated two screen locations, one closer to the facility and one further out into the river. When we originally contacted DNR about the project, the City was evaluating which of these alternatives they desired. Since then, they have opted for the screens closer to the facility. I've attached the two plan sheets that show the alternative screen configurations that are being evaluated by the City and RH2. Both result in screens closer to the facility (the furthest would be 30' beyond the facility, which is about 100' out into the river). Based on this and Jeff's determination that SOAL would be around station 5+00 (400'), I think we may be outside of SOAL. Apologies to have to go through this again, but I think we need to take another look given the screen location closer to the intake.

Let us know if we can provide any additional info.

Thanks,

Alicia Pettibone | RH2 Engineering, Inc.
O: 425.951.5436
C: 425.466.6727

From: Whidden, Hannah (DNR) <Hannah.Whidden@dnr.wa.gov>
Sent: Wednesday, May 8, 2019 2:44 PM
To: Jenny MacDonald <jmacdonald@rh2.com>
Cc: Alicia Pettibone <apettibone@rh2.com>
Subject: RE: New Project Aquatic Use Authorization Inquiry

Hi Alicia and Jenny,

Thanks for the phone call and sorry for the confusion. I will be in touch soon.

-Hannah

From: Jenny MacDonald <jmacdonald@rh2.com>
Sent: Wednesday, May 8, 2019 12:57 PM
To: Whidden, Hannah (DNR) <Hannah.Whidden@dnr.wa.gov>
Cc: Alicia Pettibone <apettibone@rh2.com>
Subject: RE: New Project Aquatic Use Authorization Inquiry

Hi Hannah,
Thanks for providing all of this info! We're hoping to clarify some details with you.

Jeff's memo determined that one of the alternatives included in the December 2018 Alternatives Analysis (sent by Alicia in April and attached again for reference) would likely invade SOAL around station 5+00 (about 400 feet from the intake). This alternative is referred to as Alternative 1 in the AltAn report and is shown on pages 12 and 13 (sheets 02 and 03). Jeff accidentally refers to Alternative 1 as Alternative 2 in his memo, just a heads up!
However, Alternative 1 (extending past station 5+00 and thus SOAL) is no longer being considered, and instead the final design options are both within 30 feet of the existing intake. See attached designs for reference. Thus, we are hoping to confirm that the final design options are actually outside of SOAL and an AUA will not be needed.

Thanks Hannah!

Feel free to call to discuss it's easier,
Jenny

Jenny MacDonald
Environmental Scientist | **RH2 Engineering, Inc.**
(425) 951-5468
www.rh2.com

From: Trageser, Hannah (DNR) <Hannah.Trageser@dnr.wa.gov>
Sent: Thursday, April 25, 2019 10:53 AM
To: Alicia Pettibone <apettibone@rh2.com>
Cc: Jenny MacDonald <jmacdonald@rh2.com>
Subject: RE: New Project Aquatic Use Authorization Inquiry

Good Morning Alicia and Jenny,

Thank you for your patience. I wanted to follow up because I received news from our surveyor Jeff Dugan. I attached Jeff's memo which outlines that the City of Richland's water intake is on state owned aquatic land, which means that you will need to work

with me to process your water intake agreement. Please complete and submit the following items: As the items are completed, send it to me right away rather than collecting it all together in a packet, this allows me to process the easement faster.

1. JARPA and Attachment E application ($25.00 application fee/each). Answer with as much detail as possible, specifically Part 1-3, 5 and 6 as I primarily need to know who the applicant is, the scope of the project and where it is. The signatory will need to sign 11a and the rep can sign 11b.
2. For permits, please contact each agency below to obtain the required permits and/or letter of exemption (email okay) for the project.
    a. Shoreline Master Program (SMP) Permit from the City/County.
    b. SEPA Determination.
    c. WDFW Hydraulic Project Approval (HPA).
    d. Permits from Army Corp (USACE).
    e. Permits from Ecology (ECY) if applicable.
3. Record of Survey that complies with DNR survey requirements (Attached DNR Survey Requirements).
4. Certificate of Insurance and an endorsement from insurer naming 'State of Washington, Department of Natural Resources' as additional insured.
5. Surety/Performance Bond, which I will address in more detail once the permits have been submitted.
6. Signature Authority: Please provide the name, title and contact information of the individual who will sign the easement agreement. This person must have the authority to contractually bind the company.

If you have any questions feel free to give me a call on my cell at 360-669-3567.

-Hannah

From: Alicia Pettibone <apettibone@rh2.com>
Sent: Friday, April 19, 2019 3:02 PM
To: Trageser, Hannah (DNR) <Hannah.Trageser@dnr.wa.gov>
Cc: Jenny MacDonald <jmacdonald@rh2.com>
Subject: RE: New Project Aquatic Use Authorization Inquiry

Thanks Hannah. The City selected the alternative with the screens closer to the structure, although the exact configuration of the screens is still being determined. Worst case scenario is screens extend 20' waterward away from the structure, which is 65' into the River. So 85' would be the furthest extent proposed. I'll update you when I have more info from our design team.

Thanks, Alicia

From: Trageser, Hannah (DNR) <Hannah.Trageser@dnr.wa.gov>
Sent: Friday, April 19, 2019 2:59 PM
To: Jenny MacDonald <jmacdonald@rh2.com>
Cc: Alicia Pettibone <apettibone@rh2.com>
Subject: RE: New Project Aquatic Use Authorization Inquiry

Hi Jenny and Alicia,

There are no updates from my boss Carol, so we are waiting to hear back from our surveyors. I just left them voicemails regarding your inquiry.

-Hannah

From: Jenny MacDonald <jmacdonald@rh2.com>
Sent: Friday, April 19, 2019 11:13 AM
To: Trageser, Hannah (DNR) <Hannah.Trageser@dnr.wa.gov>

Cc: Alicia Pettibone <apettibone@rh2.com>; Emily Coba <ecoba@rh2.com>
Subject: RE: New Project Aquatic Use Authorization Inquiry

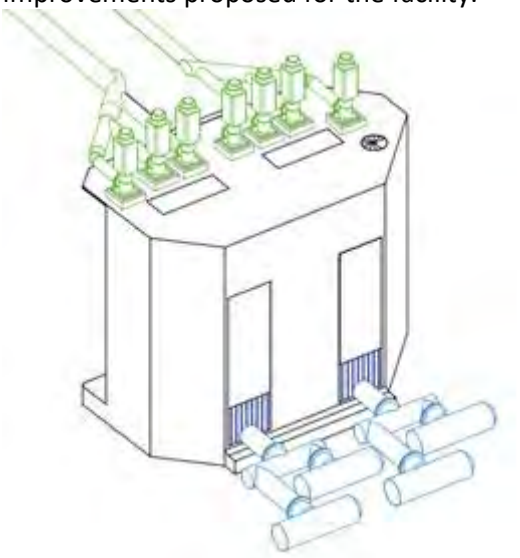
Hi Hannah,
Just following up on this on behalf of the team. Please let us know if you'd appreciate any additional information.

Thanks and Happy Friday!
Jenny

Jenny MacDonald | **RH2 Engineering, Inc.**
Environmental Specialist
(425) 951-5468

From: Alicia Pettibone <apettibone@rh2.com>
Sent: Thursday, April 11, 2019 10:28 AM
To: Trageser, Hannah (DNR) <Hannah.Trageser@dnr.wa.gov>
Cc: Jenny MacDonald <jmacdonald@rh2.com>; Emily Coba <ecoba@rh2.com>
Subject: RE: New Project Aquatic Use Authorization Inquiry

Good morning,
I've included some answers below in red. We're currently working on design, so things are moving and being fleshed out at the same time that I'm contacting regulatory agencies. I've attached the Alternatives Analysis that was completed for the City to determine which barrel screen configuration would be optimal. Sheet 10 shows the existing facility plan/profile. Sheets 14 and 15 show the concept that was selected by the City, for which we are currently working to design. And then I also wanted to pass along a 3D image of the facility and the proposed barrel screens as I think its helpful to better visualize at least the in-water improvements proposed for the facility.



Hopefully, this provides enough info, but please do feel free to call me with questions.

Thanks much,
Alicia Pettibone | **RH2 Engineering**
Environmental Project Manager
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P: 425.951.5436 | P: 800.720.8052
C: 425.466.6727
apettibone@rh2.com
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From: Alicia Pettibone
Sent: Wednesday, April 10, 2019 3:57 PM
To: Trageser, Hannah (DNR) <Hannah.Trageser@dnr.wa.gov>
Cc: Jenny MacDonald <jmacdonald@rh2.com>
Subject: RE: New Project Aquatic Use Authorization Inquiry

Hi Hannah,
Thanks for taking the time to review this with your boss. I figured there would be some nuances to the potential DNR Aquatic Use jurisdiction as a result of the fact that this facility is located in the McNary Pool, which is controlled by the Corps. I'm not sure if Jenny provided this bit of background in voicemail message, so I'll tell you that the impetus for the project is an impending easement renewal from the Corps to the City to operate this facility. They currently operate the facility under easement from the Corps, which is set to renew in 2020. However, the facility was constructed in 1963 and equipped with a traveling belt screen at that point. The traveling belt screen does not meet NMFS screening criteria and would need to upgraded to do so, and needed before the Corps will issue the easement renewal to the City. However, upgrading the belt screen to NMFS screen criteria would result in a pretty significant decreased pumping capacity for the facility. As such, the City evaluated some different alternatives to replace the screens, and determined that the barrel screens would be the best option. That's a very slimmed down summary of months of work, but hopefully that is helpful to provide context for the project purpose.

I'm heading out of the office today, but will get you more info on those specific questions tomorrow.

Thanks, Alicia

From: Trageser, Hannah (DNR) <Hannah.Trageser@dnr.wa.gov>
Sent: Wednesday, April 10, 2019 2:59 PM
To: Alicia Pettibone <apettibone@rh2.com>
Cc: Jenny MacDonald <jmacdonald@rh2.com>
Subject: RE: New Project Aquatic Use Authorization Inquiry

Hello Alicia,

I wanted to follow up since I discussed your project with my boss Carol today. Also, after speaking with our Title and Records Office, I learned that the area where your proposed intake pipe location was condemned by the federal government. Basically, this means that the federal government took property back for the Hanford site, which makes determining state owned aquatic land a bit more complex so I have a couple follow up questions for you:

- How far does the intake stick out? The existing Snyder Intake extends into the Columbia River approximately 65 feet. The existing traveling belt screen is inside the facility, so the 65 foot structure is the current extend of the facility.
    - How long is the pipe? The proposed barrel screens would be installed at the base of the facility in the location of the existing trash rack (see the proposed photo for a head on view from the river). We are in the process of designing the barrel screen, but as it is currently conceptualized, there will be 4 barrel screens (2 per trash rack), extending at two different distances from the facility, with the furthest screens being approximately 16 to 20 feet east, further into the further.
    - What's the exact location of the pipe that sticks out into the water? Located on the bottom of the facility (see attached 3D view).
- Is this intake structure already built or will it be built in the future? Already built.
- What's the elevation of the water-ward end of the pipe? Again, still working on the design on this, but conceptualized at two elevations: 331.6' and 326.6' (see Sheets 15 of the PDF for a better view of this). We are trying to keep the screens well below the Extreme Low Water Level elevation, which the Corps indicated is 335'.
- What kind of upgrades will be made? (that Jenny mentioned in our first correspondence email) To comply with the NMFS screen criteria for fry protection, the City needs to upgrade the existing facility screens prior to when their lease is up for renewal with the Corps in 2020. Merely upgrading the existing traveling belt screen would mean a decrease in their existing facility pumping capacity of 90 MGD by a pretty significant loss (15 to 20 MGD), so they identified the barrel screen option, which will mean extending screens into the river. To do that, we're currently conceptualizing installing the four barrel screens in the location of the existing trash racks. They'll need to be anchored against flows,

and we're looking at two options for that: 1) would involve precast concrete "boxes" with a strap that secures the screens; the concrete cube would be 8X8 or 10X10, and those would rest on the river bottom; and 2) would involve steel straps that extend from the facility itself. We could be looking at a combo of those and that's still being worked out at this point. We'll also need to remove the existing traveling belt screen in the facility, and do some electrical improvements that would allow for a hydroburst system to periodically clean the screens. These electrical improvements will mostly involve changes on the existing structure itself.

Thank you,
Hannah

From: Alicia Pettibone <apettibone@rh2.com>
Sent: Tuesday, April 9, 2019 3:15 PM
To: Trageser, Hannah (DNR) <Hannah.Trageser@dnr.wa.gov>
Cc: Jenny MacDonald <jmacdonald@rh2.com>
Subject: RE: New Project Aquatic Use Authorization Inquiry

Hi Hannah,
Just checking back in, and not to pester you! Keep us posted when you're able to chat more on this front. Jenny is back in the office now, so feel free to reach out to either of us.

Thanks, Alicia

From: Trageser, Hannah (DNR) <Hannah.Trageser@dnr.wa.gov>
Sent: Thursday, April 4, 2019 1:10 PM
To: Alicia Pettibone <apettibone@rh2.com>
Subject: RE: New Project Aquatic Use Authorization Inquiry

Hello Alicia,

Nice to meet you. I talked with our title and records office and I will investigate this area more and get back to you. Please stay tuned.

Thank you,
-Hannah

From: Alicia Pettibone <apettibone@rh2.com>
Sent: Thursday, April 4, 2019 12:44 PM
To: Jenny MacDonald <jmacdonald@rh2.com>; Trageser, Hannah (DNR) <Hannah.Trageser@dnr.wa.gov>
Subject: RE: New Project Aquatic Use Authorization Inquiry

Hi Hannah,
Thanks for the email. As Jenny mentioned, I'm able to discuss DNR permit needs on the project when you're available. Let me know what works for you.

Thanks much,
Alicia Pettibone | **RH2 Engineering**
Environmental Project Manager
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P: 425.951.5436 | P: 800.720.8052
C: 425.466.6727
apettibone@rh2.com
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From: Jenny MacDonald <jmacdonald@rh2.com>
Sent: Wednesday, April 3, 2019 10:45 AM
To: Trageser, Hannah (DNR) <hannah.trageser@dnr.wa.gov>
Cc: Alicia Pettibone <apettibone@rh2.com>
Subject: Re: New Project Aquatic Use Authorization Inquiry

Hi Hannah, no problem! I am out of the office so please correspond with my coworker Alicia, copied.

Thanks!

Jenny MacDonald
Environmental Specialist
RH2 Engineering

From: Trageser, Hannah (DNR) <hannah.trageser@dnr.wa.gov>
Sent: Wednesday, April 3, 2019 10:37 AM
To: Jenny MacDonald
Subject: RE: New Project Aquatic Use Authorization Inquiry

Good Morning Jenny,

Yes I am the correct person to contact. Please bear with me because I'm new to this position and I will be in touch soon.

Have a nice day.

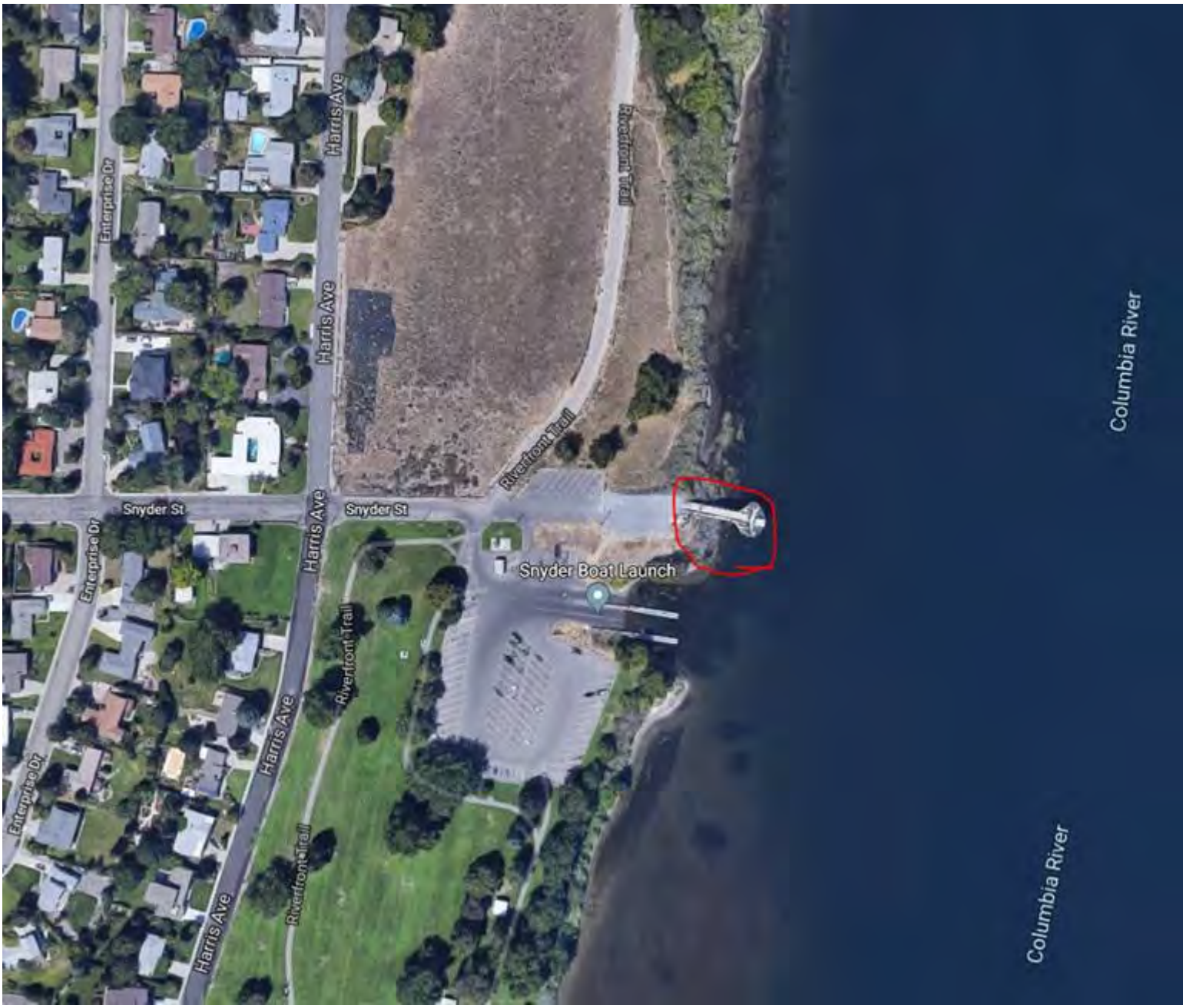
Hannah Whidden
Aquatic Easement Land Manager
Aquatic Resources Division | Pacific Cascade Region | Rivers District
Washington State Department of Natural Resources
360-740-6807
360-669-3567
Hannah.Trageser@dnr.wa.gov
www.dnr.wa.gov

From: Jenny MacDonald <jmacdonald@rh2.com>
Sent: Tuesday, April 2, 2019 3:26 PM
To: DNR RE AQ LEASING RIVERS <DNRREAQLEASINGRIVERS@dnr.wa.gov>
Cc: Alicia Pettibone <apettibone@rh2.com>
Subject: New Project Aquatic Use Authorization Inquiry

Hi there,
RH2 Engineering is working on designing upgrades to the City of Richland's water intake facility located on the eastern terminus of Snyder Street, Richland WA. We designed and helped permit a similar project in 2014 for the City of Pasco's Butterfield intake facility where the DNR initially indicated an Aquatic Use Authorization (AUA) was required but ultimately was not necessary so we are hoping to clarify project requirements early on.

The federal lands mapper indicates the Columbia River at the Snyder intake location (circled in red below) is within DNR Aquatic land jurisdiction, and thus we are seeking to confirm that we will need to submit for AUA via Attachment E of the JARPA for this project.

I left Susie Hill a voicemail yesterday and could not find her email on DNR's website so please pass along as needed.



Thank you in advance!

Jenny

Jenny MacDonald | **RH2 Engineering, Inc.**
Environmental Specialist
(425) 951-5468

Alicia Pettibone

From: Alicia Pettibone
Sent: Wednesday, May 8, 2019 12:07 PM
To: Stevens, Mike; Emily Coba
Cc: Jenny MacDonald
Subject: RE: Snyder Intake Screen Upgrades

Thank you, Mike. I appreciate the prompt review and response, and acknowledge the below. We will be in touch with any questions and prior to submittal. Given some of the design decision flux right now, I believe we're looking at permit submittals closer to end of May/beginning of June.

Best,

Alicia Pettibone
Environmental Project Manager | RH2 Engineering, Inc.

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Bothell, WA 98021
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C: 425.466.6727
apettibone@rh2.com
www.rh2.com

From: Stevens, Mike <mstevens@CI.RICHLAND.WA.US>
Sent: Wednesday, May 8, 2019 10:44 AM
To: Alicia Pettibone <apettibone@rh2.com>; Emily Coba <ecoba@rh2.com>
Subject: Snyder Intake Screen Upgrades

Alicia, Emily:

Thank you both for the meeting yesterday. Again, I apologize for having to leave early. However, as promised I have looked over the materials and offer the following comments in response to your questions on the Agenda:

1. Yes, a building permit will be required, but ONLY for the lean-to structure. Work occurring below the OHWM will not require a building permit per Michael Boring, Building Official.
2. In reviewing the Shoreline Exemptions listed in WAC 173-27-040, I am unsure how the proposed work would be eligible for the issuance of a Shoreline Exemption. As a result, a Substantial Development Permit will be required. The City's SMP is listed within Title 26 of the Municipal Code which can be found online. I suggest reviewing the SMP as there appear to be several sections that would apply (Aquatic Designation specifically lists work which may be permitted, do not look in the Use Table). Also review the Utilities Section.
3. As indicated yesterday during the site visit, a BA can be submitted to demonstrate compliance with the CAO provided the CAO provisions are clearly labeled and addressed.

The City will require you to fill out and submit a SEPA Checklist and a SSDP application form (also found on the City's website) in addition to the BA and site plan/construction drawings, etc.,

Please let me know if you have any questions.

Thanks,

Mike Stevens, Planning Manager
City of Richland Development Services Dept.
505 Swift Blvd. MS#35
Richland, WA 99352
(509)942-7596
www.ci.richland.wa.us/

This e-mail and your response are considered a public record and will be subject to disclosure under Washington's Public Records Act.

Stephanie Perkins

From: Riggs, Randi <randi_riggs@fws.gov>
Sent: May 7, 2019 8:41 AM
To: Emily Coba
Cc: Alicia Pettibone
Subject: Re: [EXTERNAL] Snyder Street Intake project - City of Richland
Attachments: Underwater Effects of Pile Driving.pdf

Hi Emily,

Looking forward to meeting with you this morning. To answer your questions, bull trout adults and subadults use that stretch of river as foraging, migrating and overwintering habitat. There is no juvenile use of the area. Either work window would work for bull trout. I have attached a guidance document for reducing sound effects on bull trout. We would highly recommend using a vibratory hammer for the pile installation to reduce the effect of sound on bull trout. We can discuss this more in detail at the meeting and I'll bring a hard copy of the sound guidance document, "Evaluating the Effects of Elevated Underwater Sound Pressure Levels from Pile Driving on the Marbled Murrelet and the Bull Trout".

On Thu, May 2, 2019 at 5:01 PM Emily Coba <ecoba@rh2.com> wrote:

> Hi again Randi,
>
> Just wanted to send along some project information and ask a few initial questions. Preliminary plans and some flow data for the Columbia in that vicinity is attached. Not sure if you were forwarded the project description I sent earlier. Guessing yes, but including it here just for ease of reference-
>
> The City's Snyder Intake facility was originally constructed in 1963 for raw water intake from the Columbia River. The facility is located in an easement in the McNary Pool, which is controlled by USACE. The USACE recently determined that the facility's traveling belt screens do not meet current NMFS screen criteria for fry protection. Prior to receiving an easement renewal for the Snyder Intake facility operation, which is slated for 2020, the City must update the screens to meet NMFS criteria.
>
> The facility is located at the eastern terminus of Snyder Street in the City of Richland, Section 25/36, Township 10N, Range 28E.
>
> The design pumping capacity of the intake is approximately 90 million gallons per day (MGD). If the existing traveling belt screens were merely retrofitted to meet NMFS screen criteria, the pumping capacity of the facility would be reduced significantly (to 15 to 20 MGD). After evaluating several alternatives, the City has determined that, in order to maintain the design intake pumping capacity for this facility, the traveling belt screens need to be removed and replaced with barrel screens.

As currently conceptualized, the selected alternative will be composed of four barrel screens installed at two elevations on the bulkhead and anchoring system adjacent to the existing intake. The existing intake facility currently projects approximately 70 feet into the Columbia River, and the proposed barrel screens are anticipated to extend up to 30 feet beyond that. The screens would be valved so that, in an emergency wherein the McNary Pool elevation drops below that of the upper screens, the lower screens would remain operational. The screens will be anchored using concrete blocks placed on the riverbed and attached to the screens with straps. Also anticipated to be completed as part of this work are the installation of up to 10 protective piles to surround each barrel screen, and the installation of hydrobursting equipment that will be used to clean the screens.

Some questions:

- The fish work window for similar projects nearby was Dec 15 – Feb 28. It appears a window of Aug 1-31 may also work, however that window has a higher chance of impacting non-listed Fall Chinook, so is not preferred by WDFW. Do you have a strong preference for either of those windows? Is one or the other better from the perspective of avoiding impacts to bull trout?

- Do you have any specific information on Bull Trout presence and usage of that portion of the river? Just rearing and migration? Any differences between adult vs. juvenile usage or timing?

- We'll be conducting a noise assessment for pile driving activities and are currently planning to use a noise attenuation device such as a bubble curtain. I'd like to run some of my assumed values by you at some point, and we can discuss at the meeting. However, do you have any specific concerns about pile driving impacts on bull trout, or will there be any requirements we should know about?

We can definitely discuss these at the meeting, but if you have any initial feedback before then, it's welcomed!

Thanks,

Emily Coba EIT

Environmental Staff Engineer | RH2 Engineering, Inc.

22722 29th Drive SE, STE 210
Bothell, WA 98021

P: 425.951.5349

ecoba@rh2.com

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Randi Riggs
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Ecological Services Division
Central Washington Field Office
215 Melody Lane, Suite 103
Wenatchee, WA 98801
Office: (509) 665-3508 ext. 2001
Fax: (509) 665-3509
randi_riggs@fws.gov

Emily Coba

From: Moore, David J CIV USARMY CENWS (US) <David.J.Moore@usace.army.mil>
Sent: Monday, April 22, 2019 6:26 AM
To: Emily Coba
Subject: RE: [Non-DoD Source] Agency mtg for Richland's Snyder St Intake project (UNCLASSIFIED)

Follow Up Flag: Follow up
Flag Status: Flagged

CLASSIFICATION: UNCLASSIFIED

Hi Emily,
Spring and summer are really difficult to schedule visits for pre-application meetings. I'm currently covering 13 counties and there are a LOT of requests for field visits for project I'm trying to prioritize while also balancing getting permits issued. I can't make it down there but most of the intake projects I've worked on are fairly straightforward and have minor impacts. If you are considering dredging as part of the project, it could get a little more complicated. The best I can offer short of being there in person for a pre-application visit is to consider your dredge and fill impacts below the OHWM (in square feet and cubic yards) and if you have any plans to develop a biological assessment for ESA consultation and a cultural resource survey for Section 106 consultation. These are the big considerations for a Corps 404 permit and depending on the impacts, determine how the project is permitted (nationwide vs. individual).

I'm happy to follow up afterwards if there are any questions on the permit process and information needed in the application.

David Moore, PWS
Biologist/Soil Scientist
US Army Corps of Engineers
Spokane Regulatory Field Office
david.j.moore@usace.army.mil
☎ (206) 316-3166

-----Original Message-----
From: Emily Coba [mailto:ecoba@rh2.com]
Sent: Friday, April 19, 2019 3:45 PM
To: Moore, David J CIV USARMY CENWS (US) <David.J.Moore@usace.army.mil>
Subject: RE: [Non-DoD Source] Agency mtg for Richland's Snyder St Intake project

Hi again Dave,

Sorry to keep bothering you, but just wanted to see if you'd be available to meet on-site the week of May 13th? If so, we'd be happy to try and schedule the meeting for that week instead.

Or, if you don't think a meeting would be helpful for you (or you just don't have the time) we can go ahead and proceed without you.

Please let me know what you're thinking so I can forge ahead.

Thanks, and have a great weekend.

Emily Coba, EIT | RH2 Engineering

425.951.5349

From: Emily Coba
Sent: Wednesday, April 17, 2019 8:04 AM
To: Moore, David J CIV USARMY CENWS (US) <David.J.Moore@usace.army.mil>
Subject: RE: [Non-DoD Source] Agency mtg for Richland's Snyder St Intake project

Bummer. Hope it's for something fun! Would it be beneficial for you to see the site and get an overview? If so, we may be able to push the meeting back a week, so just let me know.

Emily Coba, EIT | RH2 Engineering

425.951.5349

From: Moore, David J CIV USARMY CENWS (US) <David.J.Moore@usace.army.mil
<mailto:David.J.Moore@usace.army.mil> >
Sent: Tuesday, April 16, 2019 6:43 PM
To: Emily Coba <ecoba@rh2.com <mailto:ecoba@rh2.com> >
Subject: RE: [Non-DoD Source] Agency mtg for Richland's Snyder St Intake project

Hi Emily,

Thanks for the invite but I'll be out of town that whole week. Please contact me if I can answer any questions that come up.

Thank you,

Dave

From: Emily Coba <ecoba@rh2.com <mailto:ecoba@rh2.com> >

Date: Tuesday, Apr 16, 2019, 12:15 PM

To: Moore, David J CIV USARMY CENWS (US) <David.J.Moore@usace.army.mil <mailto:David.J.Moore@usace.army.mil> >

Subject: [Non-DoD Source] Agency mtg for Richland's Snyder St Intake project

Hi Dave,

Just wanted to follow up on the phone message I left you yesterday, in case email is better for you. We're hoping to organize a site meeting with the regulatory agencies for the City of Richland's Snyder Street Intake Screens project. Is that something you would be interested in attending? If so, will you let me know if any of the following dates/times will/won't work for you?

* May 7th: meeting starting at 10:00 AM, 10:30 AM, or 11:00 AM
* May 8th: meeting starting at 1:00 PM, 1:30 PM, or 2:00 PM

We'll follow up once we've determined whether one of these times works for everyone that would like to attend. Please let me know if you have any questions in the meantime!

Thanks very much,

Emily Coba, EIT | RH2 Engineering

Environmental Staff Engineer

22722 29th Drive SE Suite 210

Bothell WA 98021

P: 425.951.5349

ecoba@rh2.com <mailto:ecoba@rh2.com>

BlockedBlockedwww.rh2.com

CLASSIFICATION: UNCLASSIFIED

Emily Coba

From: Ritter, Michael W (DFW) <Michael.Ritter@dfw.wa.gov>
Sent: Monday, April 15, 2019 10:18 AM
To: Emily Coba
Subject: screen

Emily,
Great talking with you. In the HPA's that WDFW issued, both the Columbia water supply (west pasco under I-82 bridge) and Butterfield (Pasco proper) had in-water work windows of Dec 15- Feb 28 of the following year. This in-water work window was consistent with the NOAA/NMFS window as well. The july-september window is INCORRECT. While this time period is listed in our go-to publication related to work windows, it obviously does not work due to potential impacts to Fall Chinook.

I have included the relevant species from each of these projects below: taken directly from each JARPA. Big difference in the level of detail, and this did not affect our response or issuance of a HPA.

If you need any additional information, please ask.

Columbia Water Supply (west Pasco)

9l. Name each species listed under the federal Endangered Species Act that occurs in the vicinity of the project area or might be affected by the proposed work. [help]
Gray wolf (*Canis lupus*), pygmy rabbit (*Brachylagus idahoensis*), yellow-billed cuckoo (*Coccyzus americanus*), White Bluffs bladderpod (*Physaria douglasii*), and Ute ladies'-tresses *(Spiranthes diluvialis*) are listed in Franklin County. Fish species in the Columbia River near the project area include: Bull trout (*Salvelinus confluentus*), Snake River Sockeye Salmon (*Oncorhynchus nerka*); Upper Columbia River Spring-run Chinook Salmon, Snake River Spring-run Chinook Salmon, and Snake River Fall-run Chinook Salmon (*Oncorhynchus tshawytscha);* Upper Columbia River Steelhead, Snake River Basin Steelhead, and Middle Columbia River Steelhead (*Oncorhynchus mykiss).*
9m. Name each species or habitat on the Washington Department of Fish and Wildlife's Priority Habitats and Species List that might be affected by the proposed work. [help]
The Columbia River is listed for waterfowl concentrations adjacent to the project site.

Butterfield (Pasco proper)

9l. Name each species listed under the federal Endangered Species Act that occurs in the vicinity of the project area or might be affected by the proposed work. [help]
The NMFS lists the following species in the Columbia River at the project location: • Upper Columbia River Spring Chinook (endangered) and designated habitat (Upper Columbia River Spring-run ESU) • Snake River Spring/Summer Chinook (threatened) • Snake River Fall Chinook (threatened) • Middle Columbia River Steelhead (threatened) and designated critical habitat (Middle Columbia River ESU) • Upper Columbia River Steelhead (threatened) and designated critical habitat (Upper Columbia River ESU) • Steelhead, Snake River Steelhead (threatened) • Snake River Sockeye (endangered) The USFWS lists the following species in the Columbia River at the project location: • Bull trout (threatened) and designated critical habitat (Mainstem Upper Columbia River Critical Habitat Unit)

JARPA Revision 2012.2 Page 10 of 13

9m. Name each species or habitat on the Washington Department of Fish and Wildlife's Priority Habitats and Species List that might be affected by the proposed work. [help]

WDFW shows the following fish presence (occurrence and migration) in the Columbia River:

- Chinook salmon (*Oncorhynchus tshawytscha*)
- Chum salmon (*O. keta*)
- Coho salmon (*O. kisutch*)
- Pink salmon (*O. gorbuscha*)
- Sockeye salmon (*O. nerka*)
- Rainbow trout (*O. mykiss*)
- Steelhead trout (*O. mykiss*)
- Bull trout (*Salvelinus malma*)
- White sturgeon (*Acipenser transmontanus*)

WDFW also shows the following species/habitats in proximity to the project:

- Greater sage grouse (*Centrocercus uropasianus*) – breeding area (northeast of facility on north bank of the Columbia)

Michael Ritter
Fish and Wildlife Area Habitat Biologist
Washington Department of Fish and Wildlife
2620 N. Commercial Ave
Pasco, WA 99301
509-543-3319 (office)
509-380-3028 (cell)

Emily Coba

From: Heitstuman, John J CIV USARMY CENWW (US) <John.J.Heitstuman@usace.army.mil>
Sent: Wednesday, November 07, 2018 5:02 PM
To: Emily Coba; Rhynard, Chad A CIV USARMY CENWW (US); Ocker, Paul A CIV USARMY CENWW (US)
Cc: Coleman, David R CIV USARMY CE NWW (US)
Subject: Re: [Non-DoD Source] RE: Columbia River Intake Screens project - City of Richland (UNCLASSIFIED)

Emily,

All elevations referenced are NGVD 29.

Thanks,
John

From: Emily Coba <ecoba@rh2.com>
Date: November 7, 2018 at 16:50:31 MST
To: Rhynard, Chad A CIV USARMY CENWW (US) <Chad.A.Rhynard@usace.army.mil>, Ocker, Paul A CIV USARMY CENWW (US) <Paul.A.Ocker@usace.army.mil>
Cc: Heitstuman, John J CIV USARMY CENWW (US) <John.J.Heitstuman@usace.army.mil>, Coleman, David R CIV USARMY CE NWW (US) <Dave.R.Coleman@usace.army.mil>
Subject: [Non-DoD Source] RE: Columbia River Intake Screens project - City of Richland (UNCLASSIFIED)

That's great to hear. Thanks both for your insight!

And one more thing (for now): can you confirm that the 335 to 340 foot operating range is NVGD 1929 (i.e., not NAVD 1983)? We are likely using NAVD 1988 for the topography at the intake site, so it would make a difference.

Thanks very much,

Emily Coba, EIT | RH2 Engineering
425.951.5349

-----Original Message-----
From: Rhynard, Chad A CIV USARMY CENWW (US) <Chad.A.Rhynard@usace.army.mil>
Sent: Wednesday, November 07, 2018 9:08 AM
To: Ocker, Paul A CIV USARMY CENWW (US) <Paul.A.Ocker@usace.army.mil>; Emily Coba <ecoba@rh2.com>
Cc: Heitstuman, John J CIV USARMY CENWW (US) <John.J.Heitstuman@usace.army.mil>; Coleman, David R CIV USARMY CE NWW (US) <Dave.R.Coleman@usace.army.mil>
Subject: RE: Columbia River Intake Screens project - City of Richland (UNCLASSIFIED)

CLASSIFICATION: UNCLASSIFIED

Paul/Emily,

To back up what Paul is saying, I would think that the circumstance that would have us do a major drawdown beyond our authorized range would be for the very rare circumstance related to dam safety concerns. This would be an event such as Wanapum Dam in 2014 where a crack was found in their spillway that required them to drawdown their reservoir to relieve pressure until they could assess and get repairs made. Dam owner/operators work very hard to ensure something like this never precipitates, but it is in the realm of possibilities.

Chad Rhynard, PE

Chief, Technical Support Branch
Walla Walla District
US Army Corps of Engineers
509.527.7111

-----Original Message-----
From: Ocker, Paul A CIV USARMY CENWW (US)
Sent: Tuesday, November 06, 2018 5:03 PM
To: Emily Coba <ecoba@rh2.com>
Cc: Heitstuman, John J CIV USARMY CENWW (US) <John.J.Heitstuman@usace.army.mil>; Coleman, David R CIV USARMY CE NWW (US) <Dave.R.Coleman@usace.army.mil>; Rhynard, Chad A CIV USARMY CENWW (US) <Chad.A.Rhynard@usace.army.mil>
Subject: RE: Columbia River Intake Screens project - City of Richland (UNCLASSIFIED)

Anecdotally, I cannot say that I am aware of a pool level ever below 335. I can recall a time in 1991 whereby we had a very low pool level, such that huge areas of shoreline were exposed, but according to the database mentioned below, that still was not below 335. If there was an extraordinary need to do maintenance on submerged equipment or retrieve a vessel or car from a reservoir, or some other reason, I suppose it could happen, but I have not yet seen anything like that at McNary.

The following a website (I cannot verify the accuracy of) has all of the data from the pool elevations at McNary for 50 years and for the most part the range of operations is in the database is close to 100% within the 335-340 range for a daily reading. Looking at the data in the 1980s there are a couple of one day drops to a suspiciously low level, (333 in 1983 and 325 in 1982) and I do not think it possible to swing the reservoir 15 feet in one day down and back up and therefore believe these to be data errors.

Here is the database location if you are interested in looking
yourself: Blockedhttp://www.cbr.washington.edu/dart/query/river_graph_text

Paul

-----Original Message-----
From: Emily Coba [mailto:ecoba@rh2.com]
Sent: Tuesday, November 6, 2018 3:29 PM
To: Ocker, Paul A CIV USARMY CENWW (US) <Paul.A.Ocker@usace.army.mil>
Cc: Heitstuman, John J CIV USARMY CENWW (US) <John.J.Heitstuman@usace.army.mil>; Coleman, David R CIV USARMY CE NWW (US) <Dave.R.Coleman@usace.army.mil>; Rhynard, Chad A CIV USARMY CENWW (US) <Chad.A.Rhynard@usace.army.mil>
Subject: [Non-DoD Source] RE: Columbia River Intake Screens project - City of Richland (UNCLASSIFIED)

Paul, I do have one follow-up question at the request of our engineers:

"Does the McNary Water Control Manual includes any provisions for operating the McNary Pool below 335 feet? I understand that 335 feet is the bottom of the normal operating range and that the pool is generally kept well above this elevation, but want to confirm what event(s) could happen that would result in the pool being drawn down below 335 feet. Even anecdotally understanding that the pool was drawn down to ___XXX___ feet during [some event that happened 20+ years ago] would be helpful."

In short: Is there any abnormal or emergency situation in which the McNary Pool would/could drop below 335 feet?

Thanks very much.

Emily Coba, EIT | RH2 Engineering

425.951.5349

-----Original Message-----
From: Ocker, Paul A CIV USARMY CENWW (US) <Paul.A.Ocker@usace.army.mil>
Sent: Tuesday, November 06, 2018 12:20 PM
To: Emily Coba <ecoba@rh2.com>
Cc: Heitstuman, John J CIV USARMY CENWW (US) <John.J.Heitstuman@usace.army.mil>; Coleman, David R CIV USARMY CE NWW (US) <Dave.R.Coleman@usace.army.mil>; Rhynard, Chad A CIV USARMY CENWW (US) <Chad.A.Rhynard@usace.army.mil>
Subject: RE: Columbia River Intake Screens project - City of Richland (UNCLASSIFIED)

Emily,

A) We are congressionally authorized to operate the McNary Pool from 335 to 340 feet of elevation at MSL. That being said we do not regularly take the pool down to 335 feet but it can occur on occasion and would be coordinated with affected parties when foreseen. Attached is a graph showing minimum mean daily elevations for the last ten (Blue) and twenty (red) years; nothing below 337 in the last 10 years but there have been there a few times in the last twenty. Typically we hold the pool in the top 3 feet of the reservoir, being 337-340 feet for power production. Enclosed is an excerpt from our McNary Water Control Manual for our operating constraints.

B) Typically we do not have lower pool elevations due to low water runoff years. We have had incidences of hydropower emergencies that have required the drawdown close to 335 but this is the exception rather than the rule.

C) If you are designing a structure impacted by the forebay elevation, you probably want to consider the full authorized normal operating range in your designs.

Please let me know if you have any further questions.

Paul

-----Original Message-----

From: Emily Coba [mailto:ecoba@rh2.com <mailto:ecoba@rh2.com>]

Sent: Friday, November 2, 2018 12:56 PM

To: Ocker, Paul A CIV USARMY CENWW (US) <Paul.A.Ocker@usace.army.mil <mailto:Paul.A.Ocker@usace.army.mil> >

Subject: [Non-DoD Source] FW: Columbia River Intake Screens project - City of Richland (UNCLASSIFIED)

Mr. Ocker,

Dave Moore of the regulatory branch passed along your contact info as someone who might be able to answer my questions regarding the McNary Dam (see below). Please let me know if I should direct my questions elsewhere.

My firm, RH2 Engineering, is designing new intake screens for the City of Richland's Snyder Street intake facility. We're hoping to better understand how conditions related to operation of the McNary Dam would/could affect water levels at the intake. This would be helpful as we evaluate design alternatives.

The water level at the intake structure is normally ~340 feet, but we've seen multiple references to the extreme low water level being 335 feet. With that, would the Corps be willing to provide insight regarding the following questions?

a) Can the Corps provide information regarding what conditions would result in the pool being dropped to the ~335-foot level?

a. I assume this would be some kind of drought condition, and if so, can they provide insight regarding how the drought condition is quantified?

b) Are there other conditions that could occur that would result in the pool being lowered to 335 feet or lower? If so, can some of these conditions be identified, along with the water level that the Corps would anticipate reducing the pool to?

Thanks in advance for any insight you can provide.

Regards,

Emily Coba, EIT | RH2 Engineering

425.951.5349

-----Original Message-----

From: Moore, David J CIV USARMY CENWS (US) <David.J.Moore@usace.army.mil <mailto:David.J.Moore@usace.army.mil> >

Sent: Friday, November 02, 2018 11:25 AM

To: Emily Coba <ecoba@rh2.com <mailto:ecoba@rh2.com> >

Subject: RE: Columbia River Intake Screens project - City of Richland (UNCLASSIFIED)

CLASSIFICATION: UNCLASSIFIED

Hi Emily,

I would try the contact below. Mr. Ocker is the operations manager for the Walla Walla District, including McNary lock and dam. That's where I would start. Good luck!

Dave

Paul Ocker

509-527-7101

Paul.A.Ocker@usace.army.mil <mailto:Paul.A.Ocker@usace.army.mil>

-----Original Message-----

From: Emily Coba [mailto:ecoba@rh2.com <mailto:ecoba@rh2.com>]

Sent: Thursday, November 1, 2018 3:41 PM

To: Moore, David J CIV USARMY CENWS (US) <David.J.Moore@usace.army.mil <mailto:David.J.Moore@usace.army.mil> >

Subject: [Non-DoD Source] RE: Columbia River Intake Screens project – City of Richland

Hi Dave,

I have a few follow up questions for you, which you may or may not be able to answer. If not, maybe you have someone you can direct me to?

The City is requesting some additional information, specifically regarding question #5 from my previous email. You indicated that the Army Corps Walla Walla District Civil Works program would be reviewing the project as it relates to drawdown of the McNary Pool. I realize some of this will be vetted during the permit review process, but if there's information that we can use in our design and decision making now, that would be helpful.

The City is considering spending an extra ~50% on this project to install the screens with an additional depth of 2 to 3 feet, but wants to better understand what conditions related to the operation at the McNary Dam would/could occur. This will allow the City to decide if the extra 2 or 3 feet of depth is worth the additional cost.

The water level at the intake structure is normally ~340 feet, but we've seen multiple references to the extreme low water level being 335 feet. With that, would the Corps be willing to provide insight regarding the following questions?

a) Can the Corps provide information regarding what conditions would result in the pool being dropped to the ~335-foot level?

a. I assume this would be some kind of drought condition, and if so, can they provide insight regarding how the drought condition is quantified?

b) Are there other conditions that could occur that would result in the pool being lowered to 335 feet or lower? If so, can some of these conditions be identified, along with the water level that the Corps would anticipate reducing the pool to?

Maybe these are questions for the Walla Walla District Civil Works Program instead of you. If so, would it be possible for me to talk to someone in that program?

Just let me know. Many thanks!

Emily Coba, EIT | RH2 Engineering

425.951.5349

-----Original Message-----

From: Moore, David J CIV USARMY CENWS (US) <David.J.Moore@usace.army.mil <mailto:David.J.Moore@usace.army.mil> >

Sent: Thursday, October 18, 2018 12:00 PM

To: Emily Coba <ecoba@rh2.com <mailto:ecoba@rh2.com> >

Subject: RE: Columbia River Intake Screens project - City of Richland

Hi Emily,

Some answers below. As noted, the Corps cannot specify or guide your designs but hopefully there's some useful information as you put together your application. Let me know if you have any follow up questions.

Thank you,

David Moore, PWS

Biologist/Soil Scientist

US Army Corps of Engineers

Spokane Regulatory Field Office

david.j.moore@usace.army.mil <mailto:david.j.moore@usace.army.mil>

☎ (206) 316-3166

-----Original Message-----

From: Emily Coba [mailto:ecoba@rh2.com <mailto:ecoba@rh2.com>]

Sent: Wednesday, October 17, 2018 1:39 PM

To: Moore, David J CIV USARMY CENWS (US) <David.J.Moore@usace.army.mil <mailto:David.J.Moore@usace.army.mil> >; Jordan, Dale J CIV USARMY CENWS (US) <Dale.J.Jordan@usace.army.mil <mailto:Dale.J.Jordan@usace.army.mil> >

Cc: Tim.R.Erkel@usace.army.mil <mailto:Tim.R.Erkel@usace.army.mil> ; Jenny MacDonald <jmacdonald@rh2.com <mailto:jmacdonald@rh2.com> >; Paul Cross <pcross@rh2.com <mailto:pcross@rh2.com> >; Ryan Withers <rwithers@rh2.com <mailto:rwithers@rh2.com> >

Subject: [Non-DoD Source] Columbia River Intake Screens project – City of Richland

Hi Dave and Jess,

We recently began working with the City of Richland to design new intake screens at their Snyder Street intake facility located on the Columbia River. My colleague, Alicia Pettibone, worked with Tim Erkel on a similar project for the City of Pasco's Butterfield Intake Modifications project in 2014 but it looks like he is no longer with the Corps or is no longer a project manager for Benton County, but I've copied him on this email just in case. Please let me know who we'd most likely be working with on this project.

The existing facility was constructed over 40 years ago, and is currently equipped with two traveling belt screens that do not meet the current fish screening criteria identified by WDFW, NMFS, and the Corps.

In order to meet the current fish screening criteria, screening alternatives outside of the existing intake structure are necessary, as the existing footprint is simply too small to accommodate sufficient screening area for the capacity Richland requires.

At this very preliminary time, we are considering two alternatives, which are shown in the attached PDF. Alternative 1 includes installing barrel screens at the deepest point in the river which is ~850 feet from shore (shown in pages 1 and 2 of the PDF), and then piping the screened water into the existing intake structure. Alternative 2 includes installing barrel screens immediately outside of the existing intake structure, but at a shallower depth (shown in pages 3 and 4 of the PDF).

At this time, we seek your thoughts regarding these two alternatives and the questions listed below. The biggest concerns relate to potential damage to the proposed screening infrastructure or a contamination event near the structure, as the existing facility is located immediately upstream from a heavily-used boat dock (as shown in

page 1 of the PDF).

1. Is one of these alternatives more favorable from your perspective?

Answer: See response above. The Corps can evaluate aquatic resource impacts but has to be careful not to design your project that makes the impacts. You should let the need of the project guide your design and evaluate the impacts with that design. I recommend evaluating each of your designs to see if it meets your project need (volume of water, etc) and then evaluate the impacts for dredge, fill and ESA fisheries (in a BA).

2. Is there an additional alternative(s) that you recommend or have seen successfully implemented elsewhere that warrants consideration?

Answer: Each irrigation intake structure and project is case and need specific. I would re-iterate my response on #1.

3. Are you aware of, or have any records of, intake facility or intake screen damage events we should be aware of (such as large debris or boat anchors damaging screens at other facilities)?

Answer: I'm not aware of damage events but would recommend you consider that in your design and planning. The Corps only permits the placement of dredge and fill to place the structure, not the operation or potential for future damage at the structure.

4. Are you aware of, or have any records of, contamination events at intake facilities? Luckily we are upstream of the adjacent boat launch, but contamination is one of the City's concerns at this location.

Answer: This information is publicly available and should be included in your application. If dredging is proposed, we would ask for a project review from the Corps Seattle District Dredge Management Office and potential contamination and handling would be included in that review. If necessary, sampling and special handling might be required. However, I would start with a database review of contaminated sites and include what you find in the application.

5. Do the federal agencies operating McNary Dam have contingency plans that call for drawdowns of the McNary pool? These plans could be for environmental, maintenance and operations, or emergency management reasons.

Answer: I do not know the answer to this but as part of our permit process, we would have this project reviewed by the Army Corps Walla Walla District Civil Works program where this would be considered. The project will be reviewed with respect to impacts to dam and real estate operations and may have special conditions added to the

permit. I would also point out that this review (called 408 review) by the Walla Walla District often has the longest timeframe in the permit process.

We are also reaching out to WDFW with similar questions, as we simply do not want to spend the City's time evaluating alternatives that may be problematic from a regulatory standpoint.

Thank you for your consideration and any insights you may be able to provide.

Emily Coba, EIT | RH2 Engineering

Environmental Staff Engineer

22722 29th Drive SE Suite 210

Bothell WA 98021

P: 425.951.5349

ecoba@rh2.com <mailto:ecoba@rh2.com> <mailto:ecoba@rh2.com <mailto:ecoba@rh2.com> >

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Appendix B
Background Information

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TECHNICAL MEMORANDUM

Client:	City of Richland		
Project:	Columbia River Intake Screen Upgrade		
Project File:	RIC 718.122.01.103	Project Manager:	Ryan M. Withers, PE
Composed by:	Ryan M. Withers, PE		
Reviewed by:	Paul R. Cross, PE		
Subject:	Intake Screen Alternatives Analysis		
Date:	December 10, 2018		

December 10, 2018

December 10, 2018

BACKGROUND

The U.S. Army Corps of Engineers (USACE), Walla Walla District, published an environmental assessment in November 2015 regarding water intake facilities in the McNary and Ice Harbor Reservoirs. The City of Richland's (City) existing Snyder Street Intake facility, originally constructed in 1963 and equipped with screens that do not meet the current National Marine Fisheries Service (NMFS) screen criteria for fry protection, was identified as requiring screen upgrades prior to 2020 to receive a renewed easement for the intake facility. Based on the current NMFS screen criteria and the cross-sectional area of the intake facility's two traveling belt screens, the capacity of the facility will be reduced to approximately 15 million gallons per day (MGD), significantly less than the City's 90 MGD future screening capacity requirement.

The City retained RH2 Engineering, Inc., (RH2) to prepare preliminary design alternatives evaluating screening configurations for consideration by the City and selection for submittal to permitting and regulatory agencies. This technical memorandum summarizes

the preliminary design alternatives evaluated, and information obtained by RH2 via correspondence with screen manufacturers and regulatory agencies.

DESIGN CRITERIA

REGULATORY GUIDELINES

The proposed intake screens are required to be consistent with the design criteria set forth in the *Pump Intake Screen Criteria for Water Drafting* (NMFS). The primary guidelines recommended by NMFS include the following:

1. Maximum opening = 2.38 millimeters (0.09375 inches) in the diagonal direction.
2. Maximum approach velocity = 0.20 feet per second (fps) for passive screens; 0.40 fps for active screens.

DESIGN CAPACITY

The City identified a future maximum screening capacity of 90 MGD in the Request for Proposals and in an October 2018 project kick-off meeting. This screening capacity includes adequate capacity to meet the City's future supply needs, and the potential for providing future supply to the cities of Kennewick and West Richland as identified in the February 2016 *Regional Water Supply Feasibility Study* (RH2). The 90 MGD screening capacity was used for the alternatives analysis presented herein, with the assumption that the screens be installed at the City's existing Snyder Street Intake facility. A subsequent technical memorandum will quantify this screening capacity in additional detail, as well as the capability of the existing intake structure to be equipped with pumps capable of pumping 90 MGD.

BATHYMETRIC SURVEY

RH2 contracted with Rogers Surveying, Inc., (Rogers) to survey the Columbia River bathymetry near the Snyder Street Intake facility. City survey crews performed the land survey to identify surface features and provide control points to be used for both the land and bathymetric surveys.

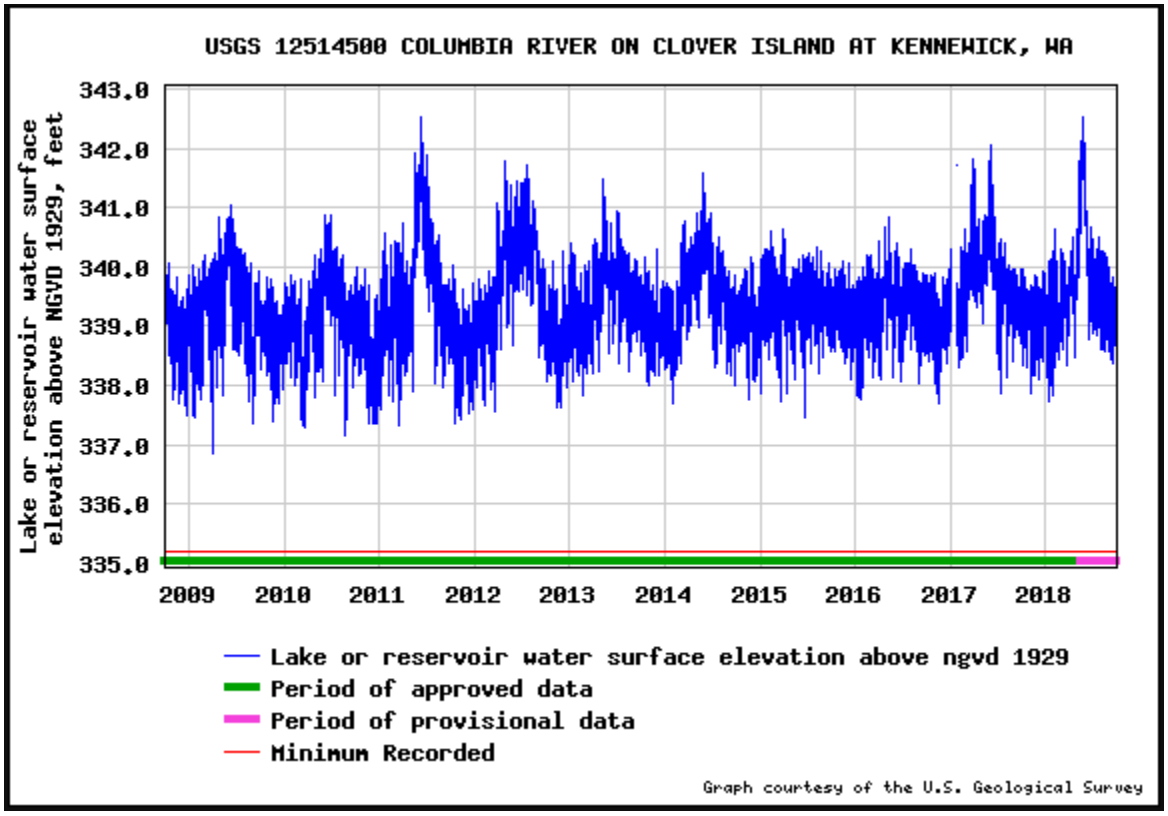
The resulting survey information is presented in **Figure 1** (all figures are included within **Attachment 1**), which indicates that the normal water depth immediately adjacent to the existing intake facility is approximately 17 feet, and the deepest point in the river is approximately 800 feet east of the existing intake facility with a normal water depth of approximately 23 feet.

Ground and river bottom elevations presented in **Figure 1**, as well as all other figures referenced in this technical memorandum, are based on the National Geodetic Vertical Datum 1929 (NGVD 29). Unless otherwise explicitly identified, all elevations referenced in this technical memorandum and associated figures are based on NGVD 29 for consistency with the USACE measurements at the McNary Dam and throughout the McNary Pool.

McNARY POOL WATER LEVELS AND OPERATING PROTOCOLS

The USACE is congressionally authorized to operate the McNary Pool between 335 and 340 feet above mean sea level. **Chart 1** presents the McNary Pool elevation as measured on Clover Island in Kennewick, Washington, for the 10-year period between October 2008 and October 2018, which indicates that the low water level in the pool was approximately 336.9 feet during the last 10 years.

Chart 1: McNary Pool Historical Elevation, Clover Island, Kennewick, WA (NGVD 29)



RH2 corresponded with the USACE regarding the McNary Pool operating protocols to determine the event(s) that would result in the pool being lowered to 335 feet or lower. **Attachment 2** includes email correspondence between RH2 and the USACE regarding these protocols and water levels, and a summary of the correspondence is as follows.

The McNary Pool is rarely brought below 337 feet, but was reduced between 335 and 337 feet more than 15 years ago. The *McNary Water Control Manual* does not indicate any operating constraints describing a pool elevation below 335 feet per correspondence with the USACE, and an excerpt from this manual that is presented in **Attachment 3**. Further, USACE indicates that lower pool elevations do not occur due to low water runoff years: "We have had incidences of hydropower emergencies that have required the drawdown close to 335 [feet] but this is the exception rather than the rule."

Anecdotally, the USACE Operations Manager for the Walla Walla District does not recall the pool level ever being below 335 feet. He recalls that in 1991 a very low pool level occurred that resulted in huge areas of shorelines being exposed, but the USACE database indicates that the pool remained above 335 feet.

Regarding the potential for a pool level below 335 feet, the USACE Technical Support Branch Chief indicated: "I would think that the circumstance that would have us do a major drawdown beyond our authorized range would be for the very rare circumstance related to dam safety concerns. This would be an event such as Wanapum Dam in 2014 where a crack was found in their spillway that required them to drawdown their reservoir to relieve pressure until they could assess and get repairs made. Dam owner/operators work very hard to ensure something like this never precipitates, but it is in the realm of possibilities."

Regarding the pool level recommended to be considered for the design of the City's intake screens, the USACE Operations Manager indicated "you probably want to consider the full authorized normal operating range [335 to 340 feet] in your designs."

In addition to the historical river water level information provided by USACE, the City's water operations staff measures the river water level on a daily basis at the intake structure. City engineering staff reviewed these measurements in November 2018, and identified the water level to range between 337.0 feet (October 1993) and 347.9 feet (June 2011) during the last 25 years.

SCREEN TYPES

RH2 reviewed a variety of screen types and materials, and discussed the City's screening needs and constraints with four screening suppliers and manufacturers as follows.

1. Johnson Screens, which is a brand of the Aqseptence Group, Inc.
2. Layne
3. Hydrolox
4. International Water Screens

Discussions between RH2 and these suppliers and manufacturers included consideration of barrel screens, traveling belt screens, wedgewire profile bar screens, and horizontal collector wells. Each screening supplier identified barrel screens as the most effective screening solution to meet the City's design criteria, including suppliers who do not represent barrel screen manufacturers. Coordination between RH2 and Johnson Screens indicated that full and half barrel screen options would be viable for the City's needs, but that full barrel screens are recommended for the following reasons.

1. Sufficient water depth exists for full barrel screens (9 feet from water level to river bottom based on preliminary sizing of screens with a 54-inch diameter), whereas half screens would become viable for water depths of 6 to 9 feet.
2. Full barrel screens are approximately 45-percent cheaper than half barrel screens based on the design criteria (estimated screen fabrication cost of $124,000 for full

barrel screens capable of screening 90 MGD, compared to $224,000 for half barrel screens capable of screening the same flow rate).

3. Full barrel screens have a smaller footprint than half barrel screens capable of screening the same flow rate.

These criteria were discussed between the City and RH2 during an October 2018 project kick-off meeting. Based on the recommendations from suppliers and manufacturers, and discussion between the City and RH2, full barrel screens were identified as the screen type for the preliminary design alternatives evaluation.

SCREEN LOCATIONS

Two primary screening location alternatives were analyzed, including locating the screens at the deepest point in the river to maximize the water depth of the installed screens (Alternative 1), and locating the screens adjacent to the existing intake structure (Alternative 2).

ALTERNATIVE 1 – MAXIMIZE WATER DEPTH

Preliminary site plan and profile views presenting a possible screen configuration that maximizes the depth at which future barrel screens are installed are shown in **Figures 2**, **3**, and **4**. These screens are located approximately 800 feet from the existing intake facility and would have an approximate depth of 15.4 feet to the top of screen during normal water level conditions and 10.4 feet during extreme low water level conditions.

Screened water would be conveyed from the screens via one or more large-diameter pipes to the intake structure. Raw water quality in this location of the river is expected to be better than the water quality adjacent to the existing intake facility, as the location is further from shoreline-related disturbances and is deeper; therefore, it is less prone to experience a buildup of organic material, such as milfoil.

RH2 corresponded with the Washington Department of Fish and Wildlife (WDFW) regarding records relating to intake screen damage for screens that are distant from an intake structure, as the City and RH2 discussed the possibility of screen damage from recreational users that would be unaware of the screens being installed at this location. WDFW reviewed the river properties in the vicinity of the proposed screens shown in **Figures 2**, **3**, and **4**, and indicated that this location is not an area favored for anchoring since it is not shallow or slow-moving, and it also is not a popular area for trawling. Signage could be installed on the exterior of the intake facility to caution recreational users of the presence of the screens. However, due to the distance from the intake facility to the proposed screens, the sign may not be noticed by recreational users, and the exact location of the screens may be difficult to clearly identify.

ALTERNATIVE 2 – MINIMIZE DISTANCE FROM INTAKE STRUCTURE

Preliminary site plan and profile views presenting a possible screen configuration that maximizes the depth at which future barrel screens are installed are shown in **Figures 5** and **6**. These screens are proposed to be installed on the bulkhead and anchoring system

adjacent to the existing intake facility and would be installed at two elevations. The screens installed at the upper elevation would have an approximate depth of 8.4 feet to the top of screen during normal water level conditions and 3.4 feet during extreme low water level conditions. The screens installed at the lower elevation, which are proposed to provide at least half of the screening capacity, would have an approximate depth of 13.4 feet to the top of screen during normal water level conditions and 8.4 feet during extreme low water level conditions. Johnson Screens indicates that full barrel screens require 2.3 feet of water above the top of the screen in order to guarantee the design capacity of the screen, resulting in a 1.1-foot buffer for the screens installed at the upper elevation compared to the extreme low water level of the McNary Pool.

In the event of an emergency wherein the McNary Pool elevation is reduced below the elevation of the upper screens, provisions to isolate the screens with valving are proposed to be included during the design phase of the project, such that the lower screens can continue to be utilized during the emergency event. Further, depending on the nature of the emergency event, if WDFW and NMFS temporarily increase the approach velocity criteria allowed for the screens in order to ensure a sufficient volume of water is available to the City's water system, Johnson Screens indicates that its full barrel screens are capable of providing up to 2.5 times the rated capacity of the screens. Therefore, if half of the proposed screens are unavailable to the intake structure, the remaining screens would have the physical capability to screen the design capacity of 90 MGD.

Raw water quality in this location of the river would be consistent with the water quality the City has historically withdrawn from the river through the existing traveling belt screens. RH2 inquired with WDFW regarding the potential for a contamination event at this location, as a result of the heavily used boat launch located adjacent to this location, albeit downstream of the proposed screens. WDFW indicated that there appears to be enough river flow at this location to prevent contamination by pollutants or other objects from the surface. WDFW also indicated that the Hanford site is upstream of this location with the potential to contaminate the river, but that it is not something that is easily avoided; both Alternative 1 and 2 locations would be subject to potential contamination from the Hanford site.

Screens installed at the Alternative 2 location have the benefit of being located near the shoreline and adjacent to a large structure, which should reduce the number of recreational users in the vicinity of the screens and the possibility that the screens are damaged by these users. Further, signage installed on the exterior of the intake facility to caution recreational users of the presence of the screens would be more likely to be noticed by recreational users (compared to Alternative 1), and the sign could caution users to remain a specific distance away from the structure (and in turn, the proposed screens), thereby limiting the likelihood of recreational users damaging the screens.

PRELIMINARY CONSTRUCTION COST ESTIMATE

Preliminary construction cost estimates were prepared to identify the order-of-magnitude construction costs for Alternatives 1 and 2, and are as follows. These costs are based on assumptions regarding additional details that will be identified during the design phase of

the project, and assume that there are no significant structural or electrical related improvements that will be required as part of the improvements.

- Alternative 1: $2.6M to $3.4M
- Alternative 2: $2.0M to $2.5M

NEXT STEP

Based on the design criteria and correspondence with the USACE that indicates the 335-foot water level is reasonable as the basis for design, both Alternatives 1 and 2 are viable alternatives to meet the City's screening capacity needs. It is recommended that the City evaluate these alternatives and identify a preferred alternative to be designed to the "agency review" level for inclusion in permit applications.

ATTACHMENTS

1. Figures 1 through 6
2. RH2 and USACE Email Correspondence
3. USACE *McNary Water Control Manual* Excerpt

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ATTACHMENTS

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ATTACHMENT 1

Figures 1 through 6

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SITE PLAN ALTERNATIVE 1

1" = 150'

ENGINEER: LLR	SAVE DATE: Dec 5, 2018	CLIENT: RIC	JOB NO.: 718-122
REVIEWED: RMW	PLOT DATE: Dec 5, 2018	FILENAME: ISU-P-C01.DWG	

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

DWG NO.: C01

SHEET NO.: 01 YY

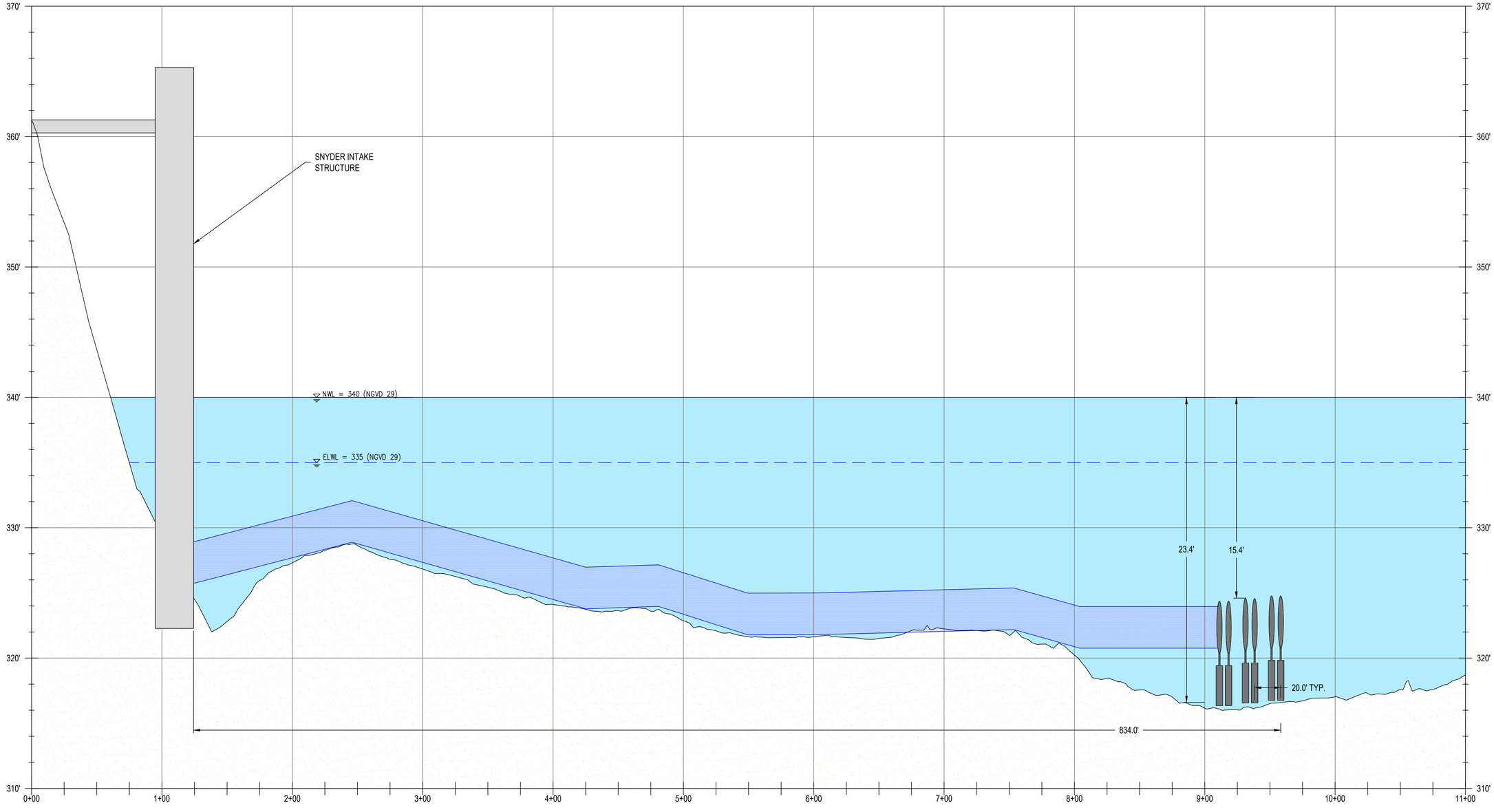
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

SCALE: SHOWN

CITY OF RICHLAND
SNYDER INTAKE SCREEN UPGRADES

FIGURE 2 INTAKE SCREEN ALT 1

RH2 ENGINEERING
40 YEARS
SINCE 1978
RICHLAND, WA
1141 Columbia Park Drive, Suite C
www.rh2.com
1.800.720.9052



SCREEN INTAKE PROFILE

H: 1" = 40', V: 1" = 4'

A / C01.1

RH2 ENGINEERING
40 YEARS SINCE 1978
RICHLAND, WA
114 Columbia Point Drive, Suite C
www.rh2.com 1.800.720.8052

PAUL R. CROSS — STATE OF WASHINGTON — 22805 — REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY

RYAN M. WITHROW — STATE OF WASHINGTON — 49550 — REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY

CITY OF RICHLAND

SNYDER INTAKE SCREEN UPGRADES

FIGURE 4 INTAKE SCREEN PROFILE ALT 1

REVISIONS			
NO.	DATE	DESCRIPTION	BY
			REVIEW

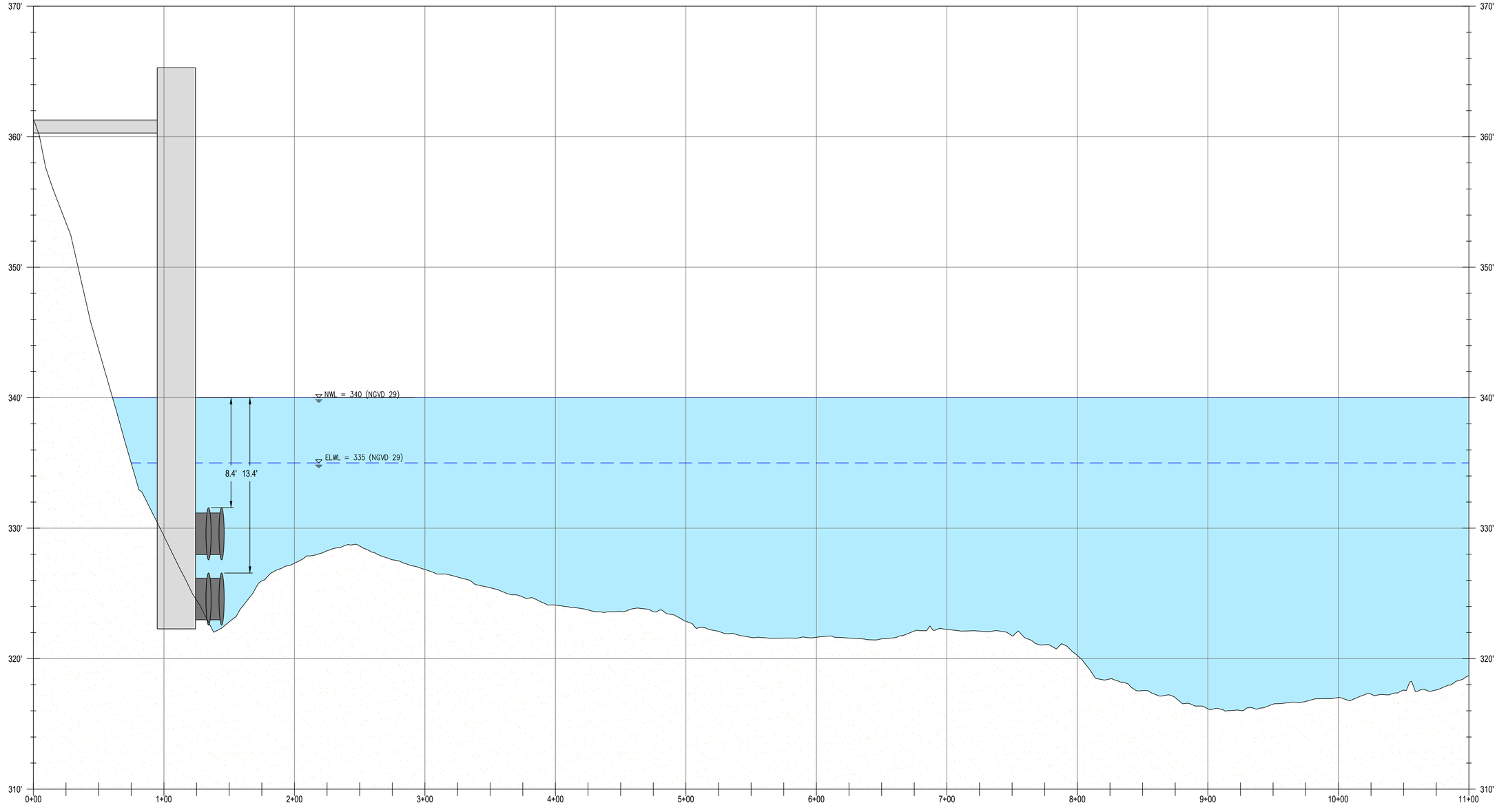
JOB NO.: 718-122
CLIENT: RIC
FILENAME: ISU-P-C01.DWG
SAVE DATE: Dec 5, 2018
PLOT DATE: Dec 10, 2018
ENGINEER: LLR
REVIEWED: RMW

SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: C03.1
SHEET NO.: 03 YY



SCREEN INTAKE PROFILE

H: 1" = 40', V: 1" = 4'

B / C02

RH2 ENGINEERING
40 YEARS SINCE 1978
RICHLAND, WA
114 Columbia Point Drive, Suite C
www.rh2.com 1.800.720.8052

PAUL R. CROSS — STATE OF WASHINGTON — 22805 — REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY

RYAN M. WITHERSPOON — STATE OF WASHINGTON — 49550 — REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY

CITY OF RICHLAND

SNYDER INTAKE SCREEN UPGRADES

FIGURE 6 INTAKE SCREEN PROFILE ALT 2

JOB NO.: 718-122	
CLIENT: RIC	
FILENAME: ISU-P-C01.DWG	
SAVE DATE: Dec 5, 2018	
PLOT DATE: Dec 5, 2018	
ENGINEER: LLR	
REVIEWED: RMW	

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: C04

SHEET NO.: 05 YY

ATTACHMENT 2

RH2 and USACE Email Correspondence

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Ryan Withers

From: Emily Coba
Sent: Thursday, November 8, 2018 7:35 AM
To: Ryan Withers
Cc: Laura Reiter
Subject: FW: [Non-DoD Source] RE: Columbia River Intake Screens project - City of Richland (UNCLASSIFIED)

Woo!

Emily Coba, EIT | RH2 Engineering
425.951.5349

From: Heitstuman, John J CIV USARMY CENWW (US) <John.J.Heitstuman@usace.army.mil>
Sent: Wednesday, November 07, 2018 5:02 PM
To: Emily Coba <ecoba@rh2.com>; Rhynard, Chad A CIV USARMY CENWW (US) <Chad.A.Rhynard@usace.army.mil>; Ocker, Paul A CIV USARMY CENWW (US) <Paul.A.Ocker@usace.army.mil>
Cc: Coleman, David R CIV USARMY CE NWW (US) <Dave.R.Coleman@usace.army.mil>
Subject: Re: [Non-DoD Source] RE: Columbia River Intake Screens project - City of Richland (UNCLASSIFIED)

Emily,

All elevations referenced are NGVD 29.

Thanks,
John

From: Emily Coba <ecoba@rh2.com>
Date: November 7, 2018 at 16:50:31 MST
To: Rhynard, Chad A CIV USARMY CENWW (US) <Chad.A.Rhynard@usace.army.mil>, Ocker, Paul A CIV USARMY CENWW (US) <Paul.A.Ocker@usace.army.mil>
Cc: Heitstuman, John J CIV USARMY CENWW (US) <John.J.Heitstuman@usace.army.mil>, Coleman, David R CIV USARMY CE NWW (US) <Dave.R.Coleman@usace.army.mil>
Subject: [Non-DoD Source] RE: Columbia River Intake Screens project - City of Richland (UNCLASSIFIED)

That's great to hear. Thanks both for your insight!

And one more thing (for now): can you confirm that the 335 to 340 foot operating range is NVGD 1929 (i.e., not NAVD 1983)? We are likely using NAVD 1988 for the topography at the intake site, so it would make a difference.

Thanks very much,

Emily Coba, EIT | RH2 Engineering

425.951.5349

-----Original Message-----
From: Rhynard, Chad A CIV USARMY CENWW (US) <Chad.A.Rhynard@usace.army.mil>
Sent: Wednesday, November 07, 2018 9:08 AM
To: Ocker, Paul A CIV USARMY CENWW (US) <Paul.A.Ocker@usace.army.mil>; Emily Coba <ecoba@rh2.com>
Cc: Heitstuman, John J CIV USARMY CENWW (US) <John.J.Heitstuman@usace.army.mil>; Coleman, David R CIV USARMY CE NWW (US) <Dave.R.Coleman@usace.army.mil>
Subject: RE: Columbia River Intake Screens project – City of Richland (UNCLASSIFIED)

CLASSIFICATION: UNCLASSIFIED

Paul/Emily,

To back up what Paul is saying, I would think that the circumstance that would have us do a major drawdown beyond our authorized range would be for the very rare circumstance related to dam safety concerns. This would be an event such as Wanapum Dam in 2014 where a crack was found in their spillway that required them to drawdown their reservoir to relieve pressure until they could assess and get repairs made. Dam owner/operators work very hard to ensure something like this never precipitates, but it is in the realm of possibilities.

Chad Rhynard, PE
Chief, Technical Support Branch
Walla Walla District
US Army Corps of Engineers
509.527.7111

-----Original Message-----
From: Ocker, Paul A CIV USARMY CENWW (US)
Sent: Tuesday, November 06, 2018 5:03 PM
To: Emily Coba <ecoba@rh2.com>
Cc: Heitstuman, John J CIV USARMY CENWW (US) <John.J.Heitstuman@usace.army.mil>; Coleman, David R CIV USARMY CE NWW (US) <Dave.R.Coleman@usace.army.mil>; Rhynard, Chad A CIV USARMY CENWW (US) <Chad.A.Rhynard@usace.army.mil>
Subject: RE: Columbia River Intake Screens project – City of Richland (UNCLASSIFIED)

Anecdotally, I cannot say that I am aware of a pool level ever below 335. I can recall a time in 1991 whereby we had a very low pool level, such that huge areas of shoreline were exposed, but according to the database mentioned below, that still was not below 335. If there was an extraordinary need to do maintenance on submerged equipment or retrieve a vessel or car from a reservoir, or some other reason, I suppose it could happen, but I have not yet seen anything like that at McNary.

The following a website (I cannot verify the accuracy of) has all of the data from the pool elevations at McNary for 50 years and for the most part the range of operations is in the database is close to 100% within the 335-340 range for a daily reading. Looking at the data in the 1980s there are a couple of one day drops to a suspiciously low level, (333 in 1983 and 325 in 1982) and I do not think it possible to swing the reservoir 15 feet in one day down and back up and therefore believe these to be data errors.

Here is the database location if you are interested in looking
yourself: Blockedhttp://www.cbr.washington.edu/dart/query/river_graph_text

Paul

-----Original Message-----

From: Emily Coba [mailto:ecoba@rh2.com]
Sent: Tuesday, November 6, 2018 3:29 PM
To: Ocker, Paul A CIV USARMY CENWW (US) <Paul.A.Ocker@usace.army.mil>
Cc: Heitstuman, John J CIV USARMY CENWW (US) <John.J.Heitstuman@usace.army.mil>; Coleman, David R CIV USARMY CE NWW (US) <Dave.R.Coleman@usace.army.mil>; Rhynard, Chad A CIV USARMY CENWW (US) <Chad.A.Rhynard@usace.army.mil>
Subject: [Non-DoD Source] RE: Columbia River Intake Screens project - City of Richland (UNCLASSIFIED)

Paul, I do have one follow-up question at the request of our engineers:

"Does the McNary Water Control Manual includes any provisions for operating the McNary Pool below 335 feet? I understand that 335 feet is the bottom of the normal operating range and that the pool is generally kept well above this elevation, but want to confirm what event(s) could happen that would result in the pool being drawn down below 335 feet. Even anecdotally understanding that the pool was drawn down to ___XXX___ feet during [some event that happened 20+ years ago] would be helpful."

In short: Is there any abnormal or emergency situation in which the McNary Pool would/could drop below 335 feet?

Thanks very much.

Emily Coba, EIT | RH2 Engineering

425.951.5349

-----Original Message-----
From: Ocker, Paul A CIV USARMY CENWW (US) <Paul.A.Ocker@usace.army.mil>
Sent: Tuesday, November 06, 2018 12:20 PM
To: Emily Coba <ecoba@rh2.com>
Cc: Heitstuman, John J CIV USARMY CENWW (US) <John.J.Heitstuman@usace.army.mil>; Coleman, David R CIV USARMY CE NWW (US) <Dave.R.Coleman@usace.army.mil>; Rhynard, Chad A CIV USARMY CENWW (US) <Chad.A.Rhynard@usace.army.mil>
Subject: RE: Columbia River Intake Screens project - City of Richland (UNCLASSIFIED)

Emily,

A) We are congressionally authorized to operate the McNary Pool from 335 to 340 feet of elevation at MSL. That being said we do not regularly take the pool down to 335 feet but it can occur on occasion and would be coordinated with affected parties when foreseen. Attached is a graph showing minimum mean daily elevations for the last ten (Blue) and twenty (red) years; nothing below 337 in the last 10 years but there have been there a few times in the last twenty. Typically we hold the pool in the top 3 feet of the reservoir, being 337-340 feet for power production. Enclosed is an excerpt from our McNary Water Control Manual for our operating constraints.

B) Typically we do not have lower pool elevations due to low water runoff years. We have had incidences of hydropower emergencies that have required the drawdown close to 335 but this is the exception rather than the rule.

C) If you are designing a structure impacted by the forebay elevation, you probably want to consider the full authorized normal operating range in your designs.

Please let me know if you have any further questions.

Paul

-----Original Message-----

From: Emily Coba [mailto:ecoba@rh2.com <mailto:ecoba@rh2.com>]

Sent: Friday, November 2, 2018 12:56 PM

To: Ocker, Paul A CIV USARMY CENWW (US) <Paul.A.Ocker@usace.army.mil <mailto:Paul.A.Ocker@usace.army.mil> >

Subject: [Non-DoD Source] FW: Columbia River Intake Screens project - City of Richland (UNCLASSIFIED)

Mr. Ocker,

Dave Moore of the regulatory branch passed along your contact info as someone who might be able to answer my questions regarding the McNary Dam (see below). Please let me know if I should direct my questions elsewhere.

My firm, RH2 Engineering, is designing new intake screens for the City of Richland's Snyder Street intake facility. We're hoping to better understand how conditions related to operation of the McNary Dam would/could affect water levels at the intake. This would be helpful as we evaluate design alternatives.

The water level at the intake structure is normally ~340 feet, but we've seen multiple references to the extreme low

water level being 335 feet. With that, would the Corps be willing to provide insight regarding the following questions?

a) Can the Corps provide information regarding what conditions would result in the pool being dropped to the ~335-foot level?

a. I assume this would be some kind of drought condition, and if so, can they provide insight regarding how the drought condition is quantified?

b) Are there other conditions that could occur that would result in the pool being lowered to 335 feet or lower? If so, can some of these conditions be identified, along with the water level that the Corps would anticipate reducing the pool to?

Thanks in advance for any insight you can provide.

Regards,

Emily Coba, EIT | RH2 Engineering

425.951.5349

-----Original Message-----

From: Moore, David J CIV USARMY CENWS (US) <David.J.Moore@usace.army.mil <mailto:David.J.Moore@usace.army.mil> >

Sent: Friday, November 02, 2018 11:25 AM

To: Emily Coba <ecoba@rh2.com <mailto:ecoba@rh2.com> >

Subject: RE: Columbia River Intake Screens project - City of Richland (UNCLASSIFIED)

CLASSIFICATION: UNCLASSIFIED

Hi Emily,

I would try the contact below. Mr. Ocker is the operations manager for the Walla Walla District, including McNary lock and dam. That's where I would start. Good luck!

Dave

Paul Ocker

509-527-7101

Paul.A.Ocker@usace.army.mil <mailto:Paul.A.Ocker@usace.army.mil>

-----Original Message-----

From: Emily Coba [mailto:ecoba@rh2.com <mailto:ecoba@rh2.com>]

Sent: Thursday, November 1, 2018 3:41 PM

To: Moore, David J CIV USARMY CENWS (US) <David.J.Moore@usace.army.mil <mailto:David.J.Moore@usace.army.mil> >

Subject: [Non-DoD Source] RE: Columbia River Intake Screens project - City of Richland

Hi Dave,

I have a few follow up questions for you, which you may or may not be able to answer. If not, maybe you have someone you can direct me to?

The City is requesting some additional information, specifically regarding question #5 from my previous email. You indicated that the Army Corps Walla Walla District Civil Works program would be reviewing the project as it relates to drawdown of the McNary Pool. I realize some of this will be vetted during the permit review process, but if there's information that we can use in our design and decision making now, that would be helpful.

The City is considering spending an extra ~50% on this project to install the screens with an additional depth of 2 to 3 feet, but wants to better understand what conditions related to the operation at the McNary Dam would/could occur. This will allow the City to decide if the extra 2 or 3 feet of depth is worth the additional cost.

The water level at the intake structure is normally ~340 feet, but we've seen multiple references to the extreme low water level being 335 feet. With that, would the Corps be willing to provide insight regarding the following questions?

a) Can the Corps provide information regarding what conditions would result in the pool being dropped to the ~335-foot level?

a. I assume this would be some kind of drought condition, and if so, can they provide insight regarding how the drought condition is quantified?

b) Are there other conditions that could occur that would result in the pool being lowered to 335 feet or lower? If so, can some of these conditions be identified, along with the water level that the Corps would anticipate reducing the pool to?

Maybe these are questions for the Walla Walla District Civil Works Program instead of you. If so, would it be possible for me to talk to someone in that program?

Just let me know. Many thanks!

Emily Coba, EIT | RH2 Engineering

425.951.5349

-----Original Message-----

From: Moore, David J CIV USARMY CENWS (US) <David.J.Moore@usace.army.mil <mailto:David.J.Moore@usace.army.mil> >

Sent: Thursday, October 18, 2018 12:00 PM

To: Emily Coba <ecoba@rh2.com <mailto:ecoba@rh2.com> >

Subject: RE: Columbia River Intake Screens project - City of Richland

Hi Emily,

Some answers below. As noted, the Corps cannot specify or guide your designs but hopefully there's some useful information as you put together your application. Let me know if you have any follow up questions.

Thank you,

David Moore, PWS

Biologist/Soil Scientist

US Army Corps of Engineers

Spokane Regulatory Field Office

david.j.moore@usace.army.mil <mailto:david.j.moore@usace.army.mil>

☎ (206) 316-3166

-----Original Message-----

From: Emily Coba [mailto:ecoba@rh2.com <mailto:ecoba@rh2.com>]

Sent: Wednesday, October 17, 2018 1:39 PM

To: Moore, David J CIV USARMY CENWS (US) <David.J.Moore@usace.army.mil <mailto:David.J.Moore@usace.army.mil> >; Jordan, Dale J CIV USARMY CENWS (US) <Dale.J.Jordan@usace.army.mil <mailto:Dale.J.Jordan@usace.army.mil> >

Cc: Tim.R.Erkel@usace.army.mil <mailto:Tim.R.Erkel@usace.army.mil> ; Jenny MacDonald <jmacdonald@rh2.com <mailto:jmacdonald@rh2.com> >; Paul Cross <pcross@rh2.com <mailto:pcross@rh2.com> >; Ryan Withers <rwithers@rh2.com <mailto:rwithers@rh2.com> >

Subject: [Non-DoD Source] Columbia River Intake Screens project - City of Richland

Hi Dave and Jess,

We recently began working with the City of Richland to design new intake screens at their Snyder Street intake facility located on the Columbia River. My colleague, Alicia Pettibone, worked with Tim Erkel on a similar project for the City of Pasco's Butterfield Intake Modifications project in 2014 but it looks like he is no longer with the Corps or is no longer a project manager for Benton County, but I've copied him on this email just in case. Please let me know who we'd most likely be working with on this project.

The existing facility was constructed over 40 years ago, and is currently equipped with two traveling belt screens that do not meet the current fish screening criteria identified by WDFW, NMFS, and the Corps.

In order to meet the current fish screening criteria, screening alternatives outside of the existing intake structure are necessary, as the existing footprint is simply too small to accommodate sufficient screening area for the capacity Richland requires.

At this very preliminary time, we are considering two alternatives, which are shown in the attached PDF. Alternative 1 includes installing barrel screens at the deepest point in the river which is ~850 feet from shore (shown in pages 1 and 2 of the PDF), and then piping the screened water into the existing intake structure. Alternative 2 includes installing barrel screens immediately outside of the existing intake structure, but at a shallower depth (shown in pages 3 and 4 of the PDF).

At this time, we seek your thoughts regarding these two alternatives and the questions listed below. The biggest concerns relate to potential damage to the proposed screening infrastructure or a contamination event near the structure, as the existing facility is located immediately upstream from a heavily-used boat dock (as shown in page 1 of the PDF).

1. Is one of these alternatives more favorable from your perspective?

Answer: See response above. The Corps can evaluate aquatic resource impacts but has to be careful not to design your project that makes the impacts. You should let the need of the project guide your design and evaluate the impacts with that design. I recommend evaluating each of your designs to see if it meets your project need (volume of water, etc) and then evaluate the impacts for dredge, fill and ESA fisheries (in a BA).

2. Is there an additional alternative(s) that you recommend or have seen successfully implemented elsewhere that warrants consideration?

Answer: Each irrigation intake structure and project is case and need specific. I would re-iterate my response on #1.

3. Are you aware of, or have any records of, intake facility or intake screen damage events we should be aware of (such as large debris or boat anchors damaging screens at other facilities)?

Answer: I'm not aware of damage events but would recommend you consider that in your design and planning. The Corps only permits the placement of dredge and fill to place the structure, not the operation or potential for future damage at the structure.

4. Are you aware of, or have any records of, contamination events at intake facilities? Luckily we are

upstream of the adjacent boat launch, but contamination is one of the City's concerns at this location.

Answer: This information is publicly available and should be included in your application. If dredging is proposed, we would ask for a project review from the Corps Seattle District Dredge Management Office and potential contamination and handling would be included in that review. If necessary, sampling and special handling might be required. However, I would start with a database review of contaminated sites and include what you find in the application.

5. Do the federal agencies operating McNary Dam have contingency plans that call for drawdowns of the McNary pool? These plans could be for environmental, maintenance and operations, or emergency management reasons.

Answer: I do not know the answer to this but as part of our permit process, we would have this project reviewed by the Army Corps Walla Walla District Civil Works program where this would be considered. The project will be reviewed with respect to impacts to dam and real estate operations and may have special conditions added to the permit. I would also point out that this review (called 408 review) by the Walla Walla District often has the longest timeframe in the permit process.

We are also reaching out to WDFW with similar questions, as we simply do not want to spend the City's time evaluating alternatives that may be problematic from a regulatory standpoint.

Thank you for your consideration and any insights you may be able to provide.

Emily Coba, EIT | RH2 Engineering

Environmental Staff Engineer

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ATTACHMENT 3

USACE *McNary Water Control Manual* Excerpt

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along the channel bottom of the river just upstream from the dam. In addition to the riverbed and floodplain between RM's 292 and 353.6, the reservoir occupies bordering strips of low lands. Backwater from the dam extends about 18 miles upstream from Richland, Washington, 9 miles up Walla Walla River, 10 miles up Snake River, and 6 miles up Yakima River. Some lowlands along these streams outside the natural streambeds are also in the reservoir area. Acquisition of lands for McNary Reservoir necessitated purchase of some public and private properties and relocations of considerable mileages of public utility facilities. Some lands in the vicinity of Pasco, Kennewick, and Richland had been developed to the extent that protection of these properties by levees was more economical than acquisition; therefore, a number of levees were constructed. Plate 3-8 (five sheets) is a land use map of the McNary project, which shows the general features of the reservoir and uses of adjacent land.

(1) Elevations and Storage. Backwater profiles on McNary Reservoir for several discharges in the range of probable riverflow fluctuations are shown on plate 3-9. In general, elevations will be only slightly above 340 feet throughout practically the entire length of the reservoir for low flow conditions (60,000 cfs at the dam). Slopes will increase for high flows, but it is estimated that water surface elevations at Richland, 46 miles upstream from McNary Dam, will remain between elevations of 341 and 347 feet, when riverflows are between 185,000 and 276,000 cfs for the Columbia River and above the Yakima River and will attain an elevation of 356 feet only with the occurrence of the standard project flood (512,000 cfs) for the Columbia River below Priest Rapids Dam.

Total power pondage for McNary Reservoir is 185,000 acre-feet. The entire storage capacity for Lake Wallula at elevation 340 is 1,350,000 acre-feet. The total impoundment of water behind McNary Dam would be 1,980,000 acre-feet if the maximum pool elevation of 356.5 is reached. Plate 3-4 shows the storage capacity curves for McNary Reservoir.

(2) Drawdown. The normal operating range is elevation 335 to 340 for McNary. Power operations usually keep the reservoir in its top 3 feet (elevations 337 and 340, measured at the dam). Drafts into the lower 2 feet are relatively infrequent, but do occur and are coordinated with affected parties when foreseen. The following tabulation gives the amount of acre-feet of pondage removed for total feet of drawdown:

Feet of Drawdown	Acre-Feet of Pondage
1	37,900
2	75,300
3	112,300
4	148,900
5	185,000

Reservoir pondage may be used on a regular schedule for peak power production, and weekly and diurnal fluctuations of the pool elevation should be expected and planned for during the annual low streamflow period. Regulation for power is described further in Section VIII of this manual. McNary Reservoir storage is not likely to be used in cycles longer than a week because the active capacity between pool elevations of 335 feet and 340 feet is relatively small, amounting to approximately 185,000 acre-feet under low flow conditions. This storage quantity is equivalent to the volume for a mean daily inflow of 92,500 cfs. Plate 3-10 shows the difference between inflow and outflow required to change reservoir storage for a given amount of time; for example, an increase in discharge for drawdown and decrease in discharge for refill. The following tabulation summarizes the reservoir elevation data:

McNARY RESERVOIR

Forebay Elevation at Dam (RM 292)	Feet msl
Spillway Design Flood (2,200,000 cfs)	
Maximum Pool	356.5
Standard Project Flood (Regulated, 839,000 cfs)	340
Power Pool Elevation	
Full Pool	340
Minimum Pool	335

d. Levees. Levees of about 17 miles in length were built along McNary Reservoir to protect areas of urban and rural lands in the vicinity of Richland, Kennewick, and Pasco, Washington, from inundation. These levees are trapezoidal earth embankments, with 12-foot-wide crests and slopes of 1 on 2, aboveground and, where necessary, have impervious cores extending below natural ground. Levees protecting landward areas have 6 to 12 feet of freeboard above the backwater profile of the Spring Standard Project Flood. The levees are riprapped on the riverside to prevent erosion. Pumping plants are required to reduce water levels behind the levees resulting from seepage through and under the levees and irrigation wastewater and rain and snowmelt runoff that would otherwise accumulate landward of the levees. Plate 3-11 shows the locations of the levees and pumping plants in the Tri-Cities area. Table 3-4 lists pertinent details of the levees on page 3-12, and table 3-5, page 3-13, provides general information about the pumping plants located near some of the levees.

TECHNICAL MEMORANDUM

Client:	City of Richland		
Project:	Snyder Intake Screen Upgrades		
Project File:	RIC 718.122.01.104	Project Manager:	Ryan Withers, PE
Composed by:	Jenny MacDonald		
Reviewed by:	Alicia Pettibone		
Subject:	Snyder Intake Environmental Reconnaissance and OHWL Delineation		
Date:	May 31, 2019		

Background

RH2 Engineering, Inc., (RH2) is designing upgrades to the City of Richland's (City) water intake facility located at the eastern terminus of Snyder Street, referred to as the Snyder Intake facility. The Snyder Intake facility was constructed in 1963 for raw water intake from the Columbia River (River). The U.S. Army Corps of Engineers (USACE) recently determined that the facility's traveling belt screens do not meet current National Marine Fisheries Service (NMFS) screen criteria for fish protection. As a condition of receiving a renewed easement for the intake facility, the City must update the existing traveling belt screens by the end of 2020.

After evaluating alternatives, the City proposes upgrades to the intake structure to meet NMFS standards while maintaining the required pumping capacity of the intake. The proposed design will replace the two traveling belt screens with four 60-inch-diameter stainless steel barrel screens, which will protrude approximately 30 feet eastward into the river from the existing intake. To accommodate the proposed barrel screens, the existing facility will be retrofitted, including removal of the traveling belt screens and motors, sluice gates and hoists, and trash racks. Each former trash rack opening will accommodate connection of two barrel screens, which will be secured to the river bottom with pre-cast concrete anchors. In addition to securing the screens, the concrete anchors will support hydroburst equipment for cleaning the barrel screens. Electrical controls for the hydroburst equipment will be installed within and adjacent to the existing electrical control room on the intake deck. Improvements on the intake structure will involve retrofits on all three levels of the facility. Warning signs and buoys will be installed surrounding the submerged equipment.

The project is expected to require the following permits and/or approvals.

- State Environmental Policy Act (SEPA) – City
- Critical Areas Ordinance Compliance – City
- Shoreline Substantial Development Permit – City
- Commercial Building Permit – City
- Hydraulic Project Approval – Washington Department of Fish and Wildlife (WDFW)
- Section 401 Water Quality Certification – Washington State Department of Ecology (Ecology)
- Project Approval – Washington State Department of Health

- Section 404 and 10 Permits – USACE
- National Environmental Policy Act (NEPA), including Endangered Species Act (ESA) Consultation – USACE

Ms. Alicia Pettibone and Ms. Jenny MacDonald of RH2 conducted an environmental reconnaissance and ordinary high water line (OHWL) delineation at the intake site on February 6, 2019; a summary of this work is contained herein.

Existing Data Review

Prior to environmental field investigations, RH2 reviewed the following data:

- Existing and historical aerial photography (Google Earth).
- Stream and wetland mapping (City, Ecology, WDFW, and United States Fish and Wildlife Service [USFWS]).
- Topography (initial topographic survey, Benton County, and U.S. Geological Survey [USGS]).
- Floodplain mapping (City and the Federal Emergency Management Agency [FEMA]).
- Geologic hazards (Washington State Department of Natural Resource (DNR) and City).
- Fish and wildlife occurrence data (WDFW, NMFS, and USFWS).
- Soils data (National Resources Conservation Service (NRCS) Soil Conservation Service).

General Site Conditions

The intake structure is an approximately 45-foot-tall concrete structure partially buried into the Columbia riverbed, extending approximately 70 feet from the shoreline. The structure is comprised of three levels: the forebay; the interior intermediate deck; and the intake deck. A concrete accessway extends waterward from the west bank of the Columbia River to connect to the intake structure.

The Columbia River shoreline at the intake facility slopes at approximately 3:1, and the banks are comprised of riprap, which extends to the Snyder Intake facility (western face). Substrate below the riprap, on the riverbanks up- and downstream of the facility, and east of the intake structure is largely comprised of 6-inch minus rounded rock with mixed gravels and sand. The terrestrial portion of the project site is mapped within the Quincy loamy sand, 0 to 2 percent slopes (QuA) NRCS Soil Survey soil map unit. This soil forms from wind-deposited material on terraces and is not considered hydric or geologically hazardous. The site is not mapped as a geohazard by the City.

The facility is located upstream of the Snyder Boat Launch at the northern end of Leslie Groves Park. The site is adjacent to residential, natural open space, and recreational areas to the west. The facility is situated in the McNary Pool of the Columbia River, also known as Lake Wallula, the water levels of which are controlled by USACE at the McNary Dam. Land surrounding the project site is primarily flat.

The Columbia River shoreline at the Snyder Intake facility is a Shoreline of the State, designated as Recreation and Natural shorelines by the City; the bedlands of the river adjacent to the shore are designated as Aquatic shoreline jurisdiction. The site is not mapped as floodplain by the City and is within FEMA Zone C, which is an area of low flood risk. Site photographs are included in **Attachment A**.

Critical Areas

The USFWS National Wetlands Inventory (NWI) and environmental mapping data from the City and other agencies was reviewed to determine the potential presence of wetlands and streams in the project area vicinity. Although an NWI wetland is shown approximately 300 feet north of the project area, this wetland is not shown on City Critical Areas maps. No wetlands were observed at the intake facility site during field investigations. Upstream of the intake facility, the riverbanks contain more natural conditions and are primarily vegetated with shrubs (willow species predominantly). These areas are outside of the project footprint; however, given their predominant vegetation type and proximity to the river, they may qualify as riparian wetlands. Seagull Island, a sandbar island in the Columbia River east of the intake facility is mapped as wetland on NWI mapping and as floodplain on City geographic information system (GIS) data. The project will not involve any work on or near Seagull Island. Besides the Columbia River, no other wetlands, streams, or drainages are in the vicinity of the project location.

During site investigations, the following activities were completed:

- Identified critical areas within 300 feet of the Snyder Intake facility per Richland Municipal Code (RMC) 22.10.200.
- Delineated the OHWL of the Columbia River at the project site.
- Observed and recorded fish and wildlife usage of the project site and adjacent habitat areas.
- Collected photographs and environmental data of the project site.

OHWL Delineation

The following methodologies were used to delineate the Columbia River OHWL:

- Water Typing System (Washington Administrative Code (WAC) 222-16-030).
- *Determining the Ordinary High Water Mark on Streams in Washington State* (Anderson et al., Ecology Publication No. 16-06-029, 2016).
- Chapter 22.10 RMC, Critical Areas.

The OHWL of the Columbia River was delineated at and surrounding the intake facility; OHWL field data is included in **Attachment B**.

Vegetation

The banks of the Columbia River in the vicinity of the intake structure are reinforced with riprap and largely devoid of riparian vegetation. Some herb, shrub, and tree species were observed on and near the project site, including coyote willow (*Salix exigua*), Siberian elm (*Ulmus pumila*), American sycamore (*Platanus occidentalis*), and Canadian horseweed (*Conyza canadensis*). Coyote willow is dominant on the riprap-armored banks at the intake facility. Dried Russian thistle (*Kali tragus*) tumbleweeds were observed along and within 5 feet of the water's edge, likely deposited during high-flow events.

The sections in which the project is located do not contain DNR cataloged Natural Heritage Features. The USFWS lists threatened Ute ladies'-tresses (*Spiranthes diluvialis*) as occurring in Benton County; however, the project site and vicinity do not provide suitable habitat for this species. Aquatic invasive

Eurasian watermilfoil (*Myriophyllum spicatum*) is present near the shoreline and presumably extends to a depth of 10 feet. Cheatgrass (*Bromus tectorum)*, an invasive annual, is present near the project site.

Vegetation near the intake structure will not be removed or altered during project construction.

Fish and Wildlife Habitat

The reach of the Columbia River adjacent to the Snyder Intake facility provides critical habitat for several ESA-listed salmonid species, including Upper Columbia River spring Chinook, Upper Columbia River steelhead, and bull trout. Additionally, WDFW Priority Habitat and Species (PHS) data indicates that several priority salmonid species use the Columbia River near the intake facility, as detailed in **Table 1**.

Table 1
PHS-Listed Salmonid Uses of the Columbia River at the Snyder Intake Facility

Common Name	Scientific Name	Occurrence at/near Project Site
Spring Chinook	*Oncorhynchus tshawytscha*	Occurrence/migration
Summer Chinook		Occurrence/migration
Fall Chinook		Spawning
Coho	*O. kisutch*	Occurrence/migration
Bull trout	*Salvelinus confluentus*	Occurrence/migration
Sockeye	*O. nerka*	Occurrence/migration
Steelhead	*O. mykiss*	Occurrence/migration
Fall chum	*O. keta*	Occurrence/migration
Pink odd year	*O. gorbuscha*	Occurrence/migration
Rainbow trout	*O. mykiss*	Occurrence/migration

Bold text represents salmonid species that are ESA-listed and utilizing the Columbia River at or near the project site.

Further, PHS data shows great blue heron and Canada goose breeding areas, and waterfowl concentrations on and near Seagull Island, located approximately 1,000 feet east of the intake facility.

The site generally lacks high-quality habitat for terrestrial species due to a noncomplex vegetation community, riprap banks, presence of non-native plant species, and intensity of surrounding land use. Mallards, glaucous-winged gulls, and belted kingfishers were observed on and near the project site during field investigations. Songbirds likely use the shoreline but were not seen during RH2's field visit. Evidence of beaver (recent chews) and raccoon (tracks) was observed. No fish, carcasses, or evidence of fish use was present during RH2's site visit.

Conclusion

This technical memorandum has been prepared to document environmental field work completed and existing critical areas conditions observed at and near the project site. Proposed improvements require several environmental permits; consequently, additional project information is contained in the SEPA, Biological Assessment, and Joint Aquatic Resources Permit Application (JARPA). This technical memorandum has been prepared to comply with the applicable regulations governing critical areas. The work completed in preparing this technical memorandum has conformed to the standard of care employed by environmental professionals. No other representation or warranty is made or implied.

Attachments

Attachment A – Site Photographs

Attachment B – OHWL Field Data

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Attachments

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Attachment A – Site Photographs

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Site Photographs — Snyder Intake Upgrades Project— City of Richland

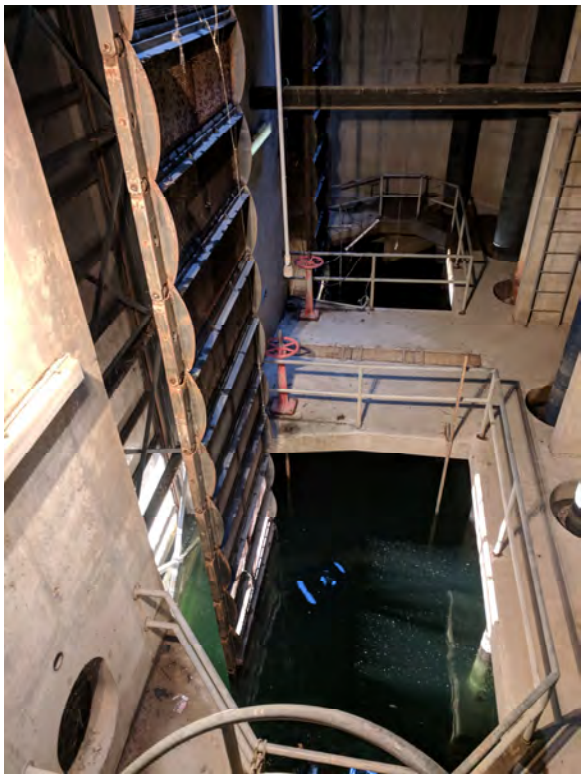
September 26, 2018

The east face of the intake facility, facing west from the Columbia River.

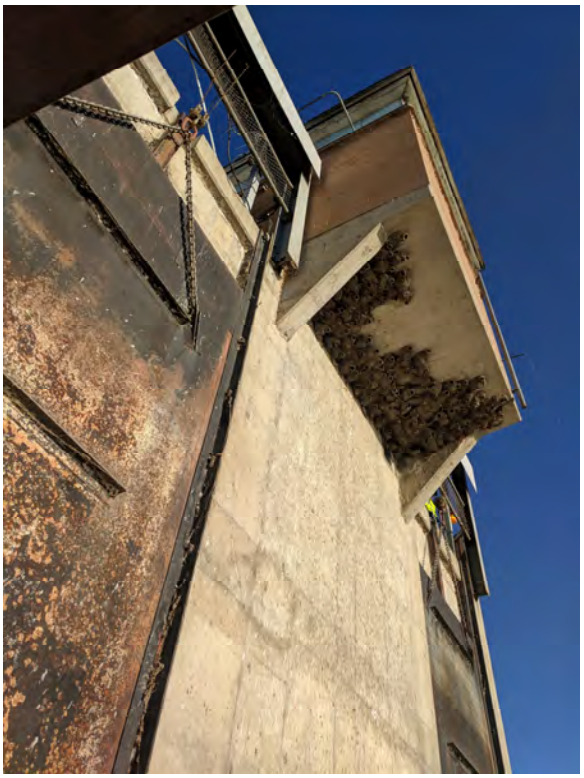
The south and east faces of the intake facility, facing north from the Columbia River.

Site Photographs — Snyder Intake Upgrades Project— City of Richland

March 20, 2019



An existing traveling belt screen and forebay at the intake facility. Photo taken from the interior intermediate deck, facing south.



The projection on the east face of the intake structure control room housing swallow nests, facing upward from the Columbia River.

The substrate at the east face of the intake facility, taken during a dive inspection.

Pump equipment located on top of the intake facility structure, facing north.

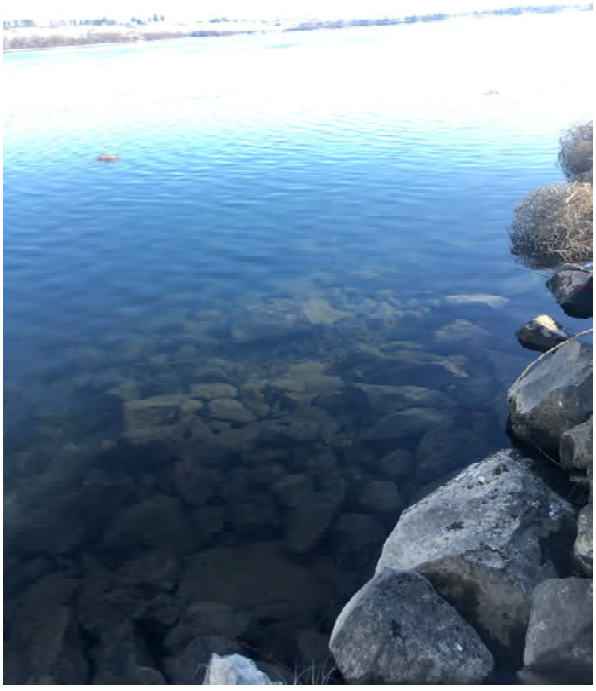
OHWM Delineation Photographs —Snyder Intake Upgrades Project — City of Richland

February 6, 2019

Facing west from the Columbia River shoreline just north of the Snyder Boat Launch. Siberian elm (*Ulmus pumila*) rooted at and above the OHWM.

Facing northeast from the Columbia River shoreline at the Snyder intake facility. American sycamore (*Platanus occidentalis*) rooted at the OHWM.

Facing north from just south of the overhang component of the intake structure. Coyote willow (*Salix exigua)* dominates on the riprap-armored river bank.



Riprap substrate east of the riverbanks extending below the water. Milfoil was also observed in this area. Facing south just under the structure overhang.

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Attachment B – OHWL Field Data

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Appendix A: Field data form

General Information

Site/Project	Snyder Intake Facility
Name/Owner:	City of Richland
Location:	Snyder & Horn on Columbia River
Description:	Columbia River shoreline @ the City's Intake Facility

The following field form is for use in the field to help in making ordinary high water mark delineations on streams. The form should be used as a guide. A team consisting of a hydrologist/ geomorphologist and a biologist may be needed to accurately determine the ordinary high water mark.

General Observations: Day of Site Visit

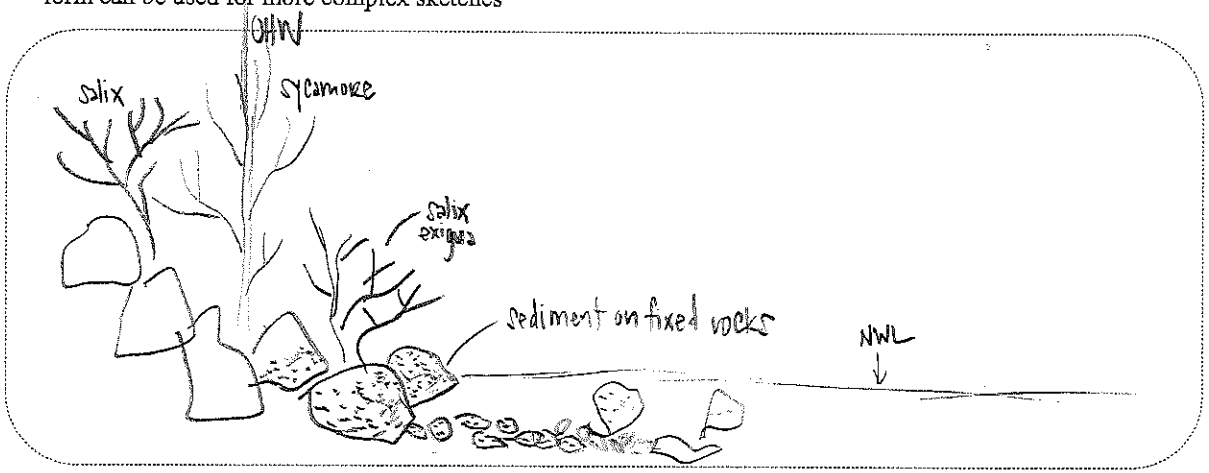
Date of site visit:	2/6/19			
Time of site visit:	2pm			
Weather conditions:	30°, Sunny, Snowfall w/in past 48 hours			
Watershed development:	Highly developed ✓		Mod. Developed ○	Undeveloped ○
Reach development:	Highly developed ✓		Mod. Developed ○	Undeveloped ○
Recent site disturbance?	No ✓	Yes ○	Describe:	
Upstream flow control devices?	No ○	Yes ✓	Describe: Wanapum Dam is ~55 river miles upstream of the site; McNary Dam is ~40 miles downstream. The site is located in the McNary Pool, managed by the USACE.	
Bank armoring at the site?	No ○	Yes ✓	Describe: Riprap	
Bank armoring up or downstream?	No ○	Yes ✓	Describe: Riprap	
Observable tidal backwater?	No ✓	Yes ○		
In-water structures? (i.e. bridge pilings, railroad embankments)	No ○	Yes ✓	Describe: Concrete Intake Facility for Potable H2O	
Animals grazing in riparian zone?	No ✓	Yes ○	Describe: Waterfowl, Rabbit, Mammal tracks, but not grazing	
Observable beaver activity?	No ○	Yes ✓	Describe: Gnawed willow branches on shoreline	

Complete Vegetation Transects

- Use guidelines in Chapter 4 to complete vegetation transects.
- Determine upper and lower bounds of the OHWM from vegetation transects.
- After completing vegetation transects, look for more field indicators near the upper and lower bounds of the OHWM. Use the checklist as guidance.

Sketch

If a simple site, sketch a cross-sectional diagram of the site below. Include location of the waterway and upper and lower bounds of the OHWM defined by the vegetation communities or other OHWM indicators. Page 3 of the data form can be used for more complex sketches



Additional Indicators

Check the indicators that are observable at the site that provide rationale for establishing the OHWM at this location. The rationale should be described in detail in the report and should be supported with photographs taken during the site visit.

	Soil and geomorphic indicators [24]	Vegetative indicators [25]	Other indicators
Below OHWM	o Sediment bars o Scour line ✓ Clean cobbles/boulders. o Bank erosion/scour o Lack of soil horizons • Sediment deposits on riprap	Vegetation tolerant of inundation or high flow disturbances such as: ✓ Willows Coyote o Black cottonwood o Japanese knotweed o Skunk cabbage o Aquatic plants	o Exposed roots/root scour o Drainage patterns, as shown by flattened vegetation o Aquatic animals o Algal mats o Iron staining ✓ Wrack @ OHW boundary

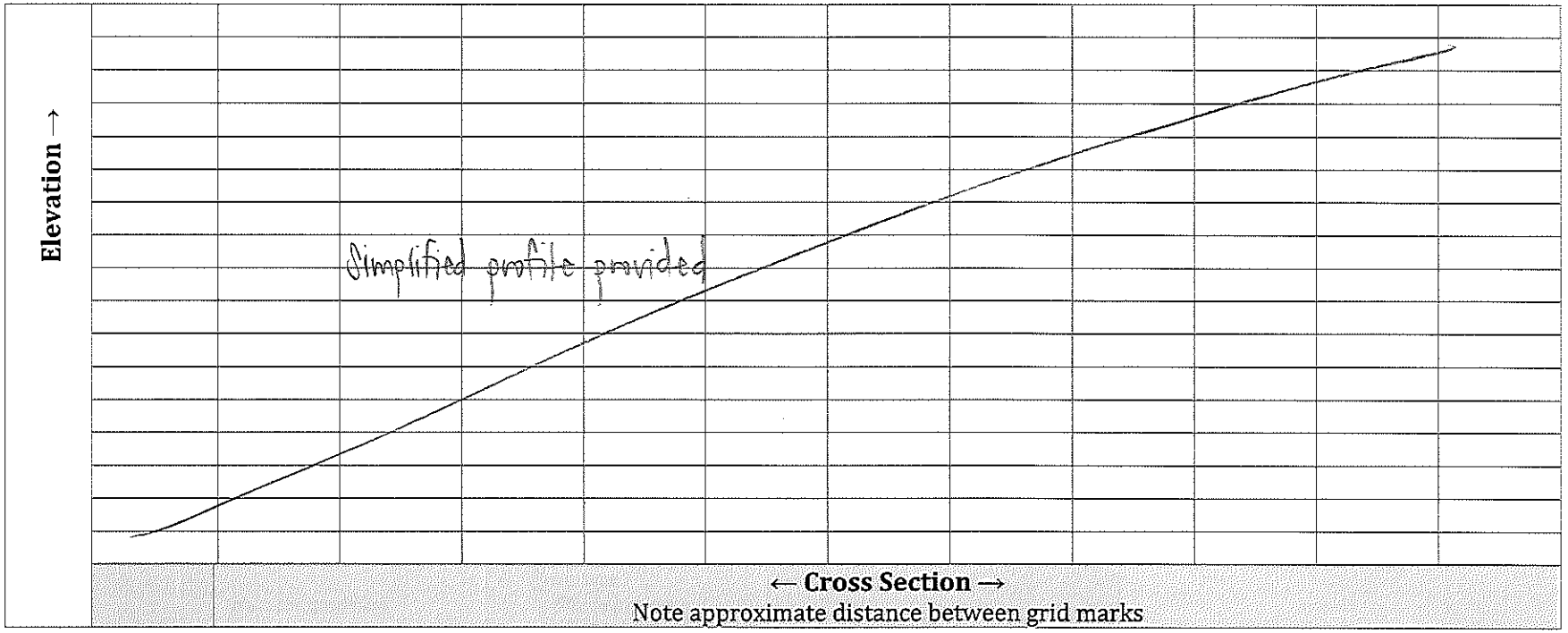
[24] Refer to Chapter 4 for a more complete description of indicators.

[25] Species are provided as examples. Refer to Appendix B for a more complete listing of plant species and their distribution across the OHWM gradient. Some species occur in more than one category depending on site conditions. For example Indian plum and red alder may straddle the OHWM where soil drainage is high. They may occur above OHWM were soil drainage is low to moderate.

	Soil and geomorphic indicators [24]	Vegetative indicators [25]	Other indicators
At or straddling OHWM	○ Top of bank ○ Toe of lowest terrace (if terrace has developed horizons which may include a duff layer and A and B horizons versus freshly deposited alluvium) ○ Benches	✓ Willows ○ Western red cedar ○ Vine maple (streams) ○ Black cottonwood ○ Red alder ○ Salmonberry ○ Nootka rose ○ Maidenhair and lady fern ○ Blackberries ○ Dunegrasses	✓ Sediment lines on vegetation or other fixed objects ○ Change from channel deposits to older alluvium. ✓ Darker stain lines on fixed objects ○ Exposed roots/root scour. ○ Drainage patterns, as evidenced by flattened vegetation ○ Weathered and buried driftwood ✓ Wrack amongst riprap
Above OHWM	○ Hillslope toe ○ Terraces or alluvium with an organic horizon or other developed soil horizons ○ Relic floodplain surface ○ Well developed soil A andB horizons/duff layer	○ Indian plum ○ Red alder ○ Western red cedar ○ Douglas fir ○ Western hemlock ○ Ponderosa pine ○ Oregon white oak ○ Coast pine ○ Quaking aspen ○ Vine maple (lakes) ○ Blackberries	✓ Lighter or no staining on fixed objects ○ Overbank deposits

Notes

- OHW is slightly higher elevation behind intake facility – little backwater @ high winds
- Coyote willow above and at OHW
- lots of wrack @ and below OHW – plant parts, russian thistle, garbage
- veg at or above OHW: elm, sycamore, willows, herbaceous various (horsetail, juncus, phalaris)



Plant Distribution Across OHWM Gradient					
Above OHWM		**At/Straddling OHWM**		**Above OHWM**	
coyote willow		coyote willow			
reed canary grass		reed canary grass			
Siberian elm		siberian elm			
horsetail		juncus spp.			
broad-leaved peppermint		american sycamore			
american dwarf birch					

RHZ OHW DELINEATION
Columbia R Intake Facility - Complex
City of Richland
2/6/19
OHW 10 flags
orange
flagging w/ 'RHZ'
label
siberian elm
Google Earth
N
200 ft

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Construction Noise Action Area Assessment

City of Richland

Snyder Intake Screen Upgrades

In-Air Noise Assessment

Determining Background Sound Level

Using the Federal Transit Authority's 2006 *Transit Noise and Vibration Impact Assessment Guidance* (cited in Washington State Department of Transportation (WSDOT), 2019), RH2 Engineering, Inc., (RH2) determined the City of Richland's (City) population density and associated daytime noise levels exclusive of traffic. The City's population in 2010 was 48,058, and the City limits cover an area of 35.7 square miles (U.S. Census Bureau, retrieved April 30, 2019). Therefore, the population density of the City is about 1,346 people per square mile, which falls in the range of an estimated 50 dBA (A-weighted decibels) daytime ambient noise, exclusive of traffic.

Traffic noise levels near the Snyder Intake Facility modifications project are low due to its residential location. The nearest highway is State Route 240, which is approximately 1.3 miles away. Interstate 182 is approximately 3.8 miles away. A significant source of noise at the intake is the intake itself; specifically, the pumps and equipment that continuously operate to run the intake facility. The maximum pump noise level is estimated at 81 dBA at 50 feet, based on Table 7-4 in the WSDOT *Biological Assessment Manual* (2019) (WSDOT BA Manual).

Determining Project Noise Level

Table 1 lists the anticipated heavy equipment for the intake modifications project, and associated decibels at 50 feet as evaluated by the Federal Highway Administration (FHWA) and discussed in the WSDOT BA Manual.

Table 1 – Heavy Equipment Anticipated for Snyder Intake Screen Upgrades

Equipment	L_{max} at 50 Feet (dBA)
Crane	81
Pickup Truck	75
Flat Bed Truck	74

Using the rules for combining noise levels described by the U.S. Department of Transportation (USDOT) in its 1995 *Highway Traffic Noise Analyses and Abatement* guidance (cited in the WSDOT BA Manual), the total noise level for all heavy equipment, assumed to be the worst-case in-air noise level for the project, is 83 dBA.

Determining Distance to Attenuation

Based on the guidance in the WSDOT BA Manual, the project vicinity is determined to be a "hard site" waterward of the project, and a "soft site" landward. These distinctions relate to how quickly noise attenuates across a surface. Soft site conditions add 1.5 dBA to the standard noise reduction factor.

Additionally, the construction is considered a point source for noise and not a line source. Point sources attenuate faster per doubling of distance than line sources. With this information, along with anticipated maximum construction noise, traffic noise, and ambient noise, RH2 can assess whether construction noise attenuates to ambient noise levels or traffic noise levels.

Construction to Ambient

The distance at which point source construction noise will travel before it attenuates to the ambient sound level uses the following equation:

$$D = D_o * 10^{((\text{Construction Noise} - \text{Ambient Sound Level in dBA}/\alpha)}$$

Where D = the distance from the noise source

D_o = the reference measurement distance (50 feet in this case)

α = 25 for soft site and 20 for hard site, assuming a 7.5 dBA reduction per doubling distance over soft ground and a 6.0 dBA reduction per doubling distance over hard ground.

Therefore, if project-related noise is estimated at a maximum of 83 dBA, and ambient noise level is assumed to be 50 dBA both waterward and landward of the project, the distance at which construction noise attenuates to ambient levels is:

Distance (Soft Ground) = $50 * 10^{((83-50)/25)} = 50 * 10^{1.32} = 1{,}045$ feet.

Distance (Hard Ground) = $50 * 10^{((83-50)/20)} = 50 * 10^{1.65} = 2{,}233$ feet.

Pumps to Ambient

The distance at which point source background pump noise will travel before it attenuates to the ambient sound level uses the following equation:

$$D = D_o * 10^{((\text{Pump Noise} - \text{Ambient Sound Level in dBA}/\alpha)}$$

Where D = the distance from the traffic noise

D_o = the reference measurement distance (50 feet in this case)

Therefore, if pump noise is estimated at 81 dBA, and ambient noise level is assumed to be 50 dBA, the distance at which pump noise attenuates to ambient levels is:

Distance Landward (Soft Ground) = $50 * 10^{((81-50)/25)} = 50 * 10^{1.24} = 869$ feet.

Distance Waterward (Hard Ground) = $50 * 10^{((81-50)/20)} = 50 * 10^{1.55} = 1{,}774$ feet.

In summary, construction noise does exceed pump noise to ambient sound levels both landward and waterward; therefore, the extent of project generated noise is approximately

1,050 feet landward (west of the project) and 2,240 feet waterward (east of the project), extending out from the intake structure in a circle (**Table 2**).

Table 2 – Construction and Traffic Noise Attenuation Summary

	Approximate Distance to Ambient Sound Level (ft)
Construction Noise – Landward	1,050 feet
Pump Noise – Landward	870 feet
Construction Noise – Waterward	2,240 feet
Pump Noise – Waterward	1,780 feet

Underwater Noise Assessment

Determining Background Underwater Sound Level

Underwater background noise levels for the project vicinity have not been assessed as part of the project, and no existing data was found. Therefore, per the WSDOT BA Manual, the assumed background underwater sound level is 120 dB_{RMS} (decibels measured in root mean square).

Determining Project Noise Level

Most data collected on underwater noise pertains to the various forms of pile driving or ferry terminal operation. Some information is available regarding noise generated by underwater blasting. The Snyder Intake project does not include major dredging, blasting, drilling, sonar, or large vessels; consequently, estimating underwater project noise levels is difficult.

With that in mind, RH2 has not set an underwater sound action area beyond the in-air action area, due to a consideration of the injury and behavioral effects threshold for salmonids. The WSDOT BA Manual states that the current interim threshold for fish injury and behavioral effects thresholds for salmonids is 206 dBpeak (decibels measured in peak sound level), 187 dB cumulative SEL (decibels of cumulative sound exposure level) for fish greater than 2 grams, and 183 dB cumulative SEL for fish less than 2 grams. This is equivalent to single-strike sound levels of 12-inch steel piles, per the WSDOT BA Manual. Therefore, RH2 has determined that although sound levels may exceed background sound levels (estimated at 120 dB_{RMS}), they would not be equivalent to pile driving noise levels, or meet the thresholds for fish injury and behavioral effects.

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Legend | Filter Data | Zoom To | Tools

Add or remove map data

Assessed Waters/Sediment

Water

- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment

- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Change map data transparency

10%

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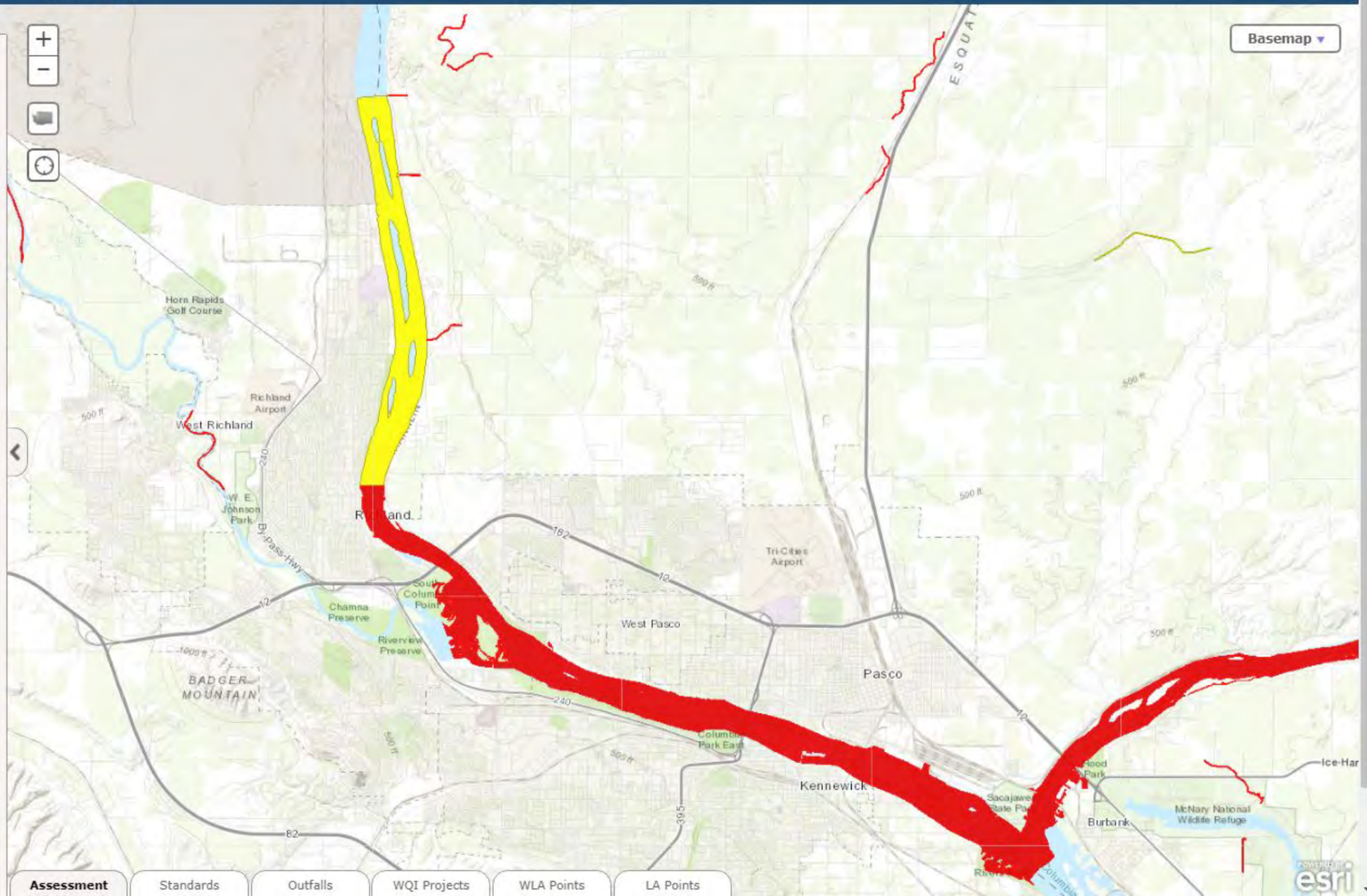
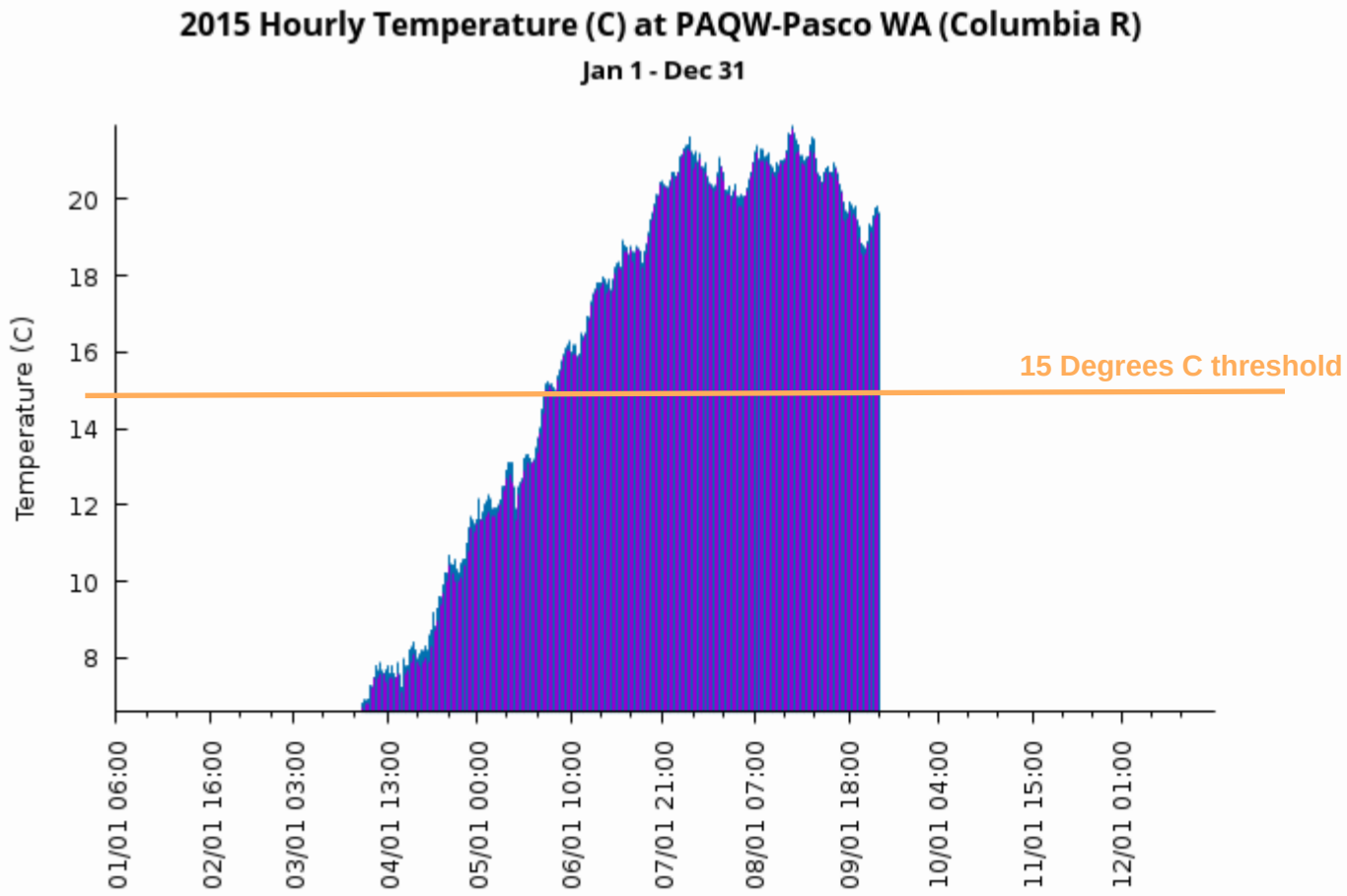


Assessment | Standards | Outfalls | WQI Projects | WLA Points | LA Points



DART Data Citation

Columbia River DART, Columbia Basin Research, University of Washington. (2019). Available from http://www.cbr.washington.edu/dart/query/wqm_graph

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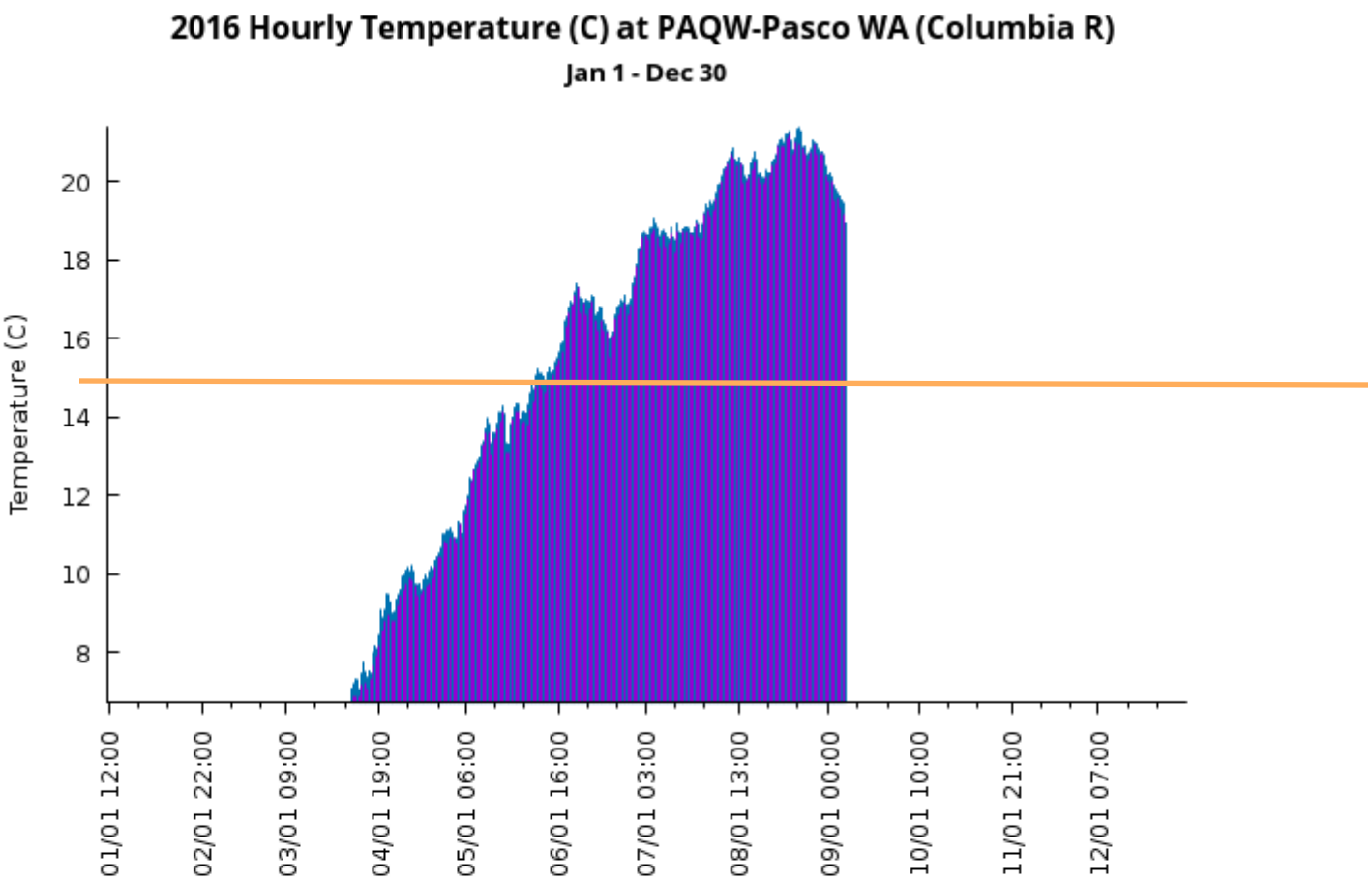

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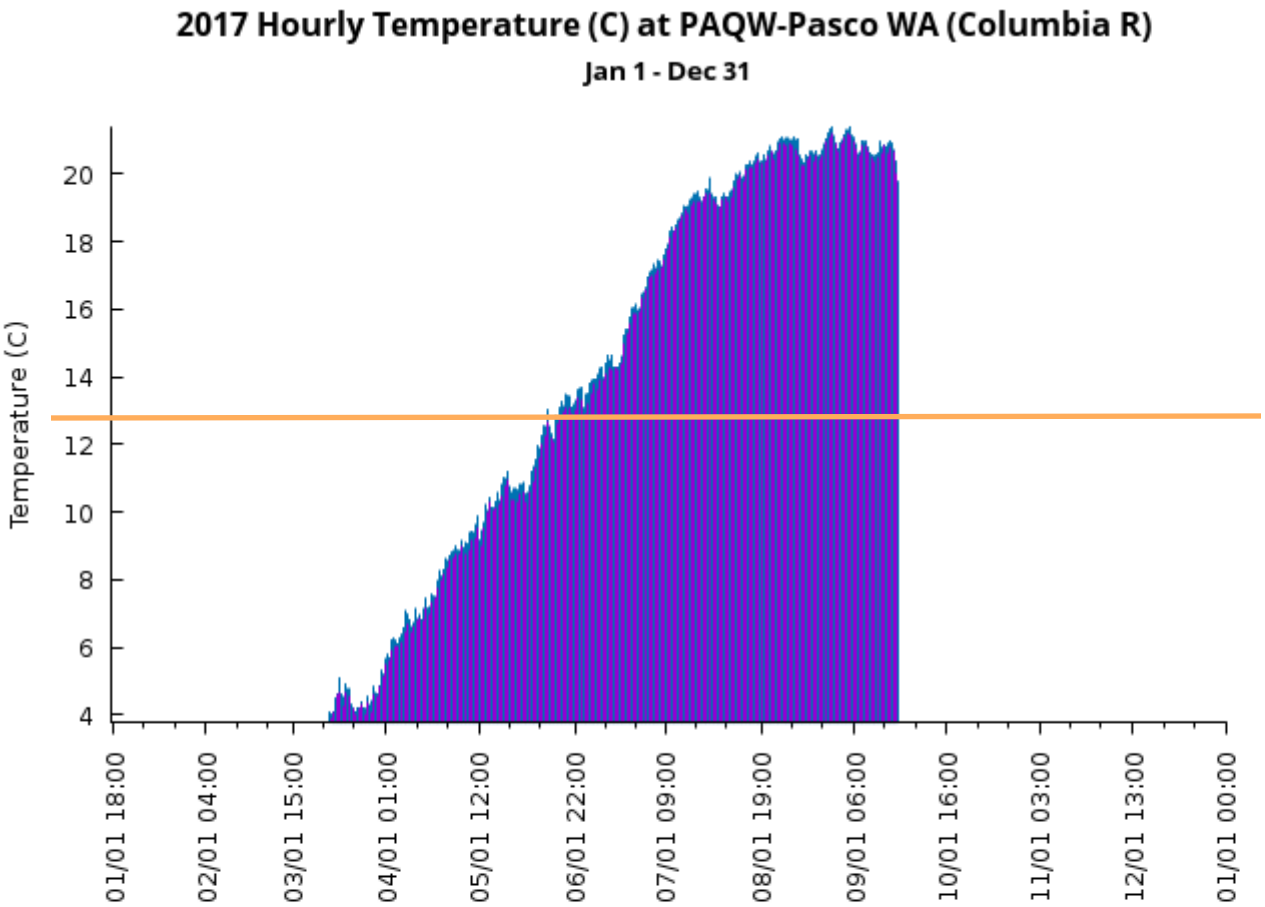

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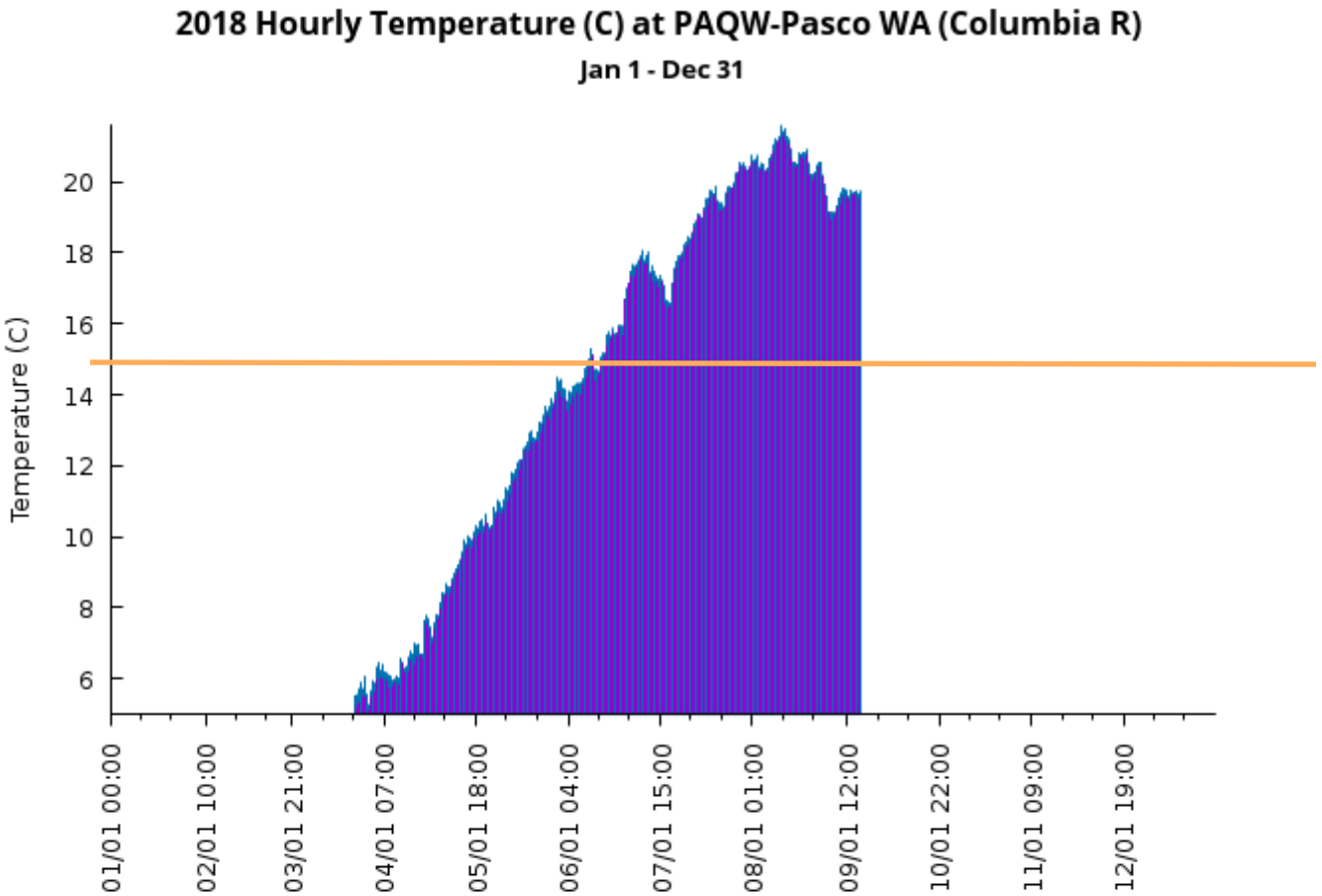

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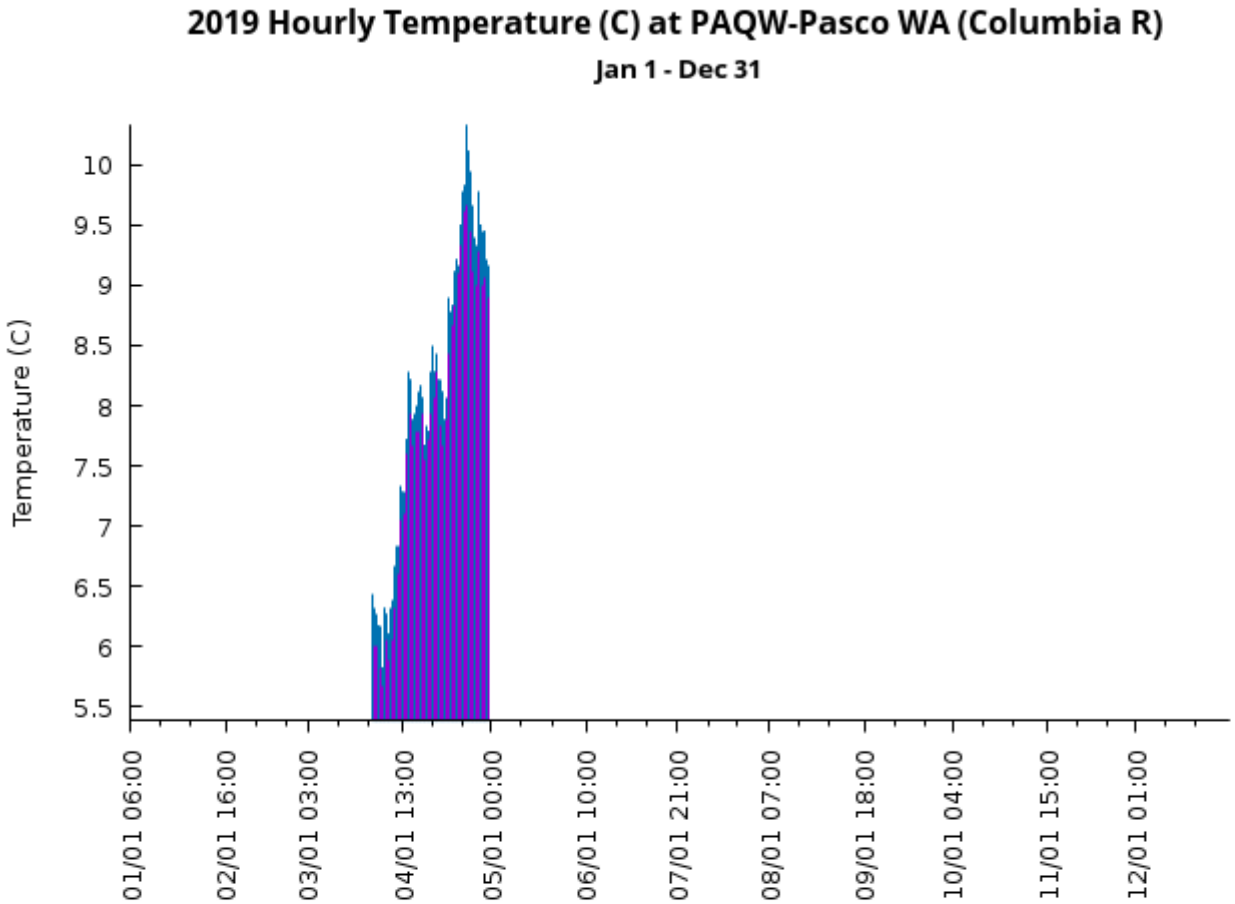

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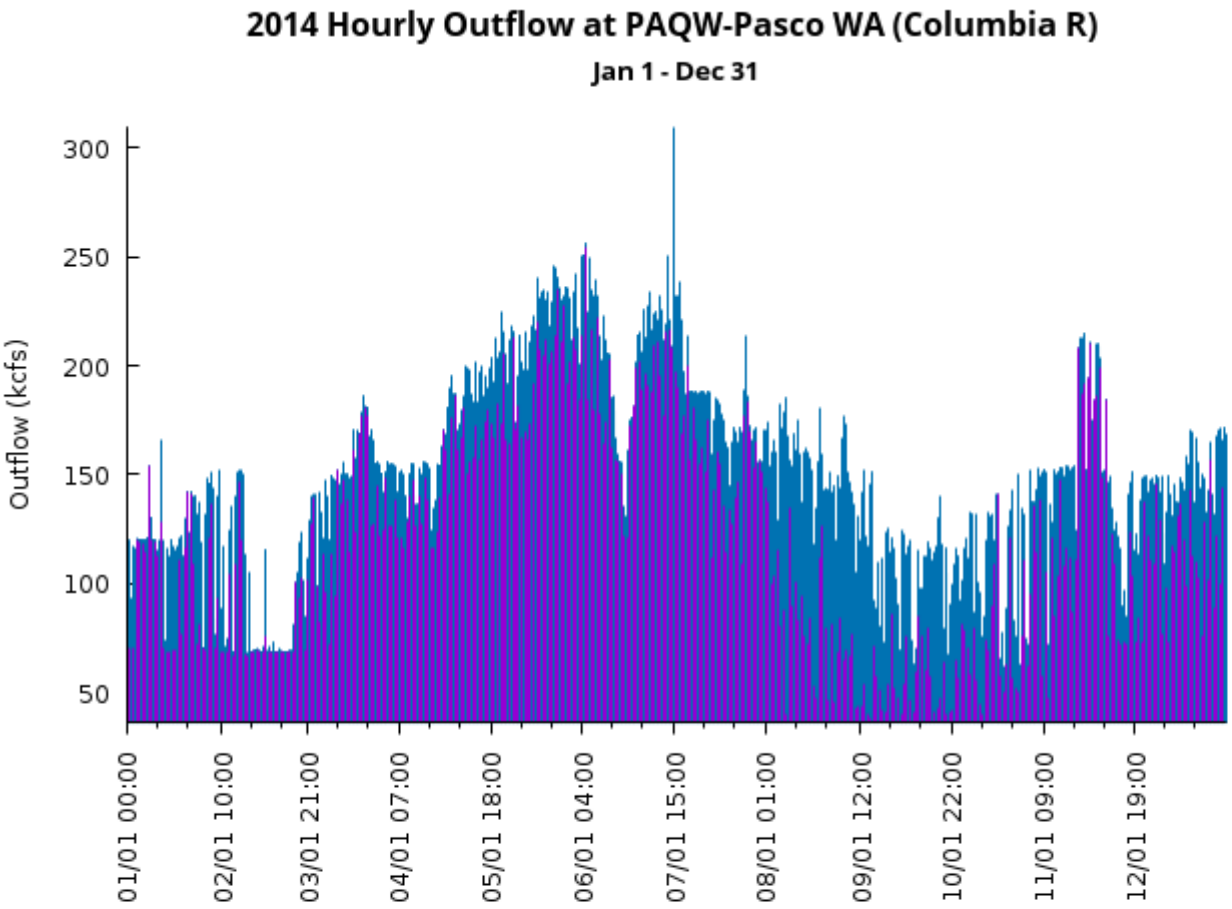

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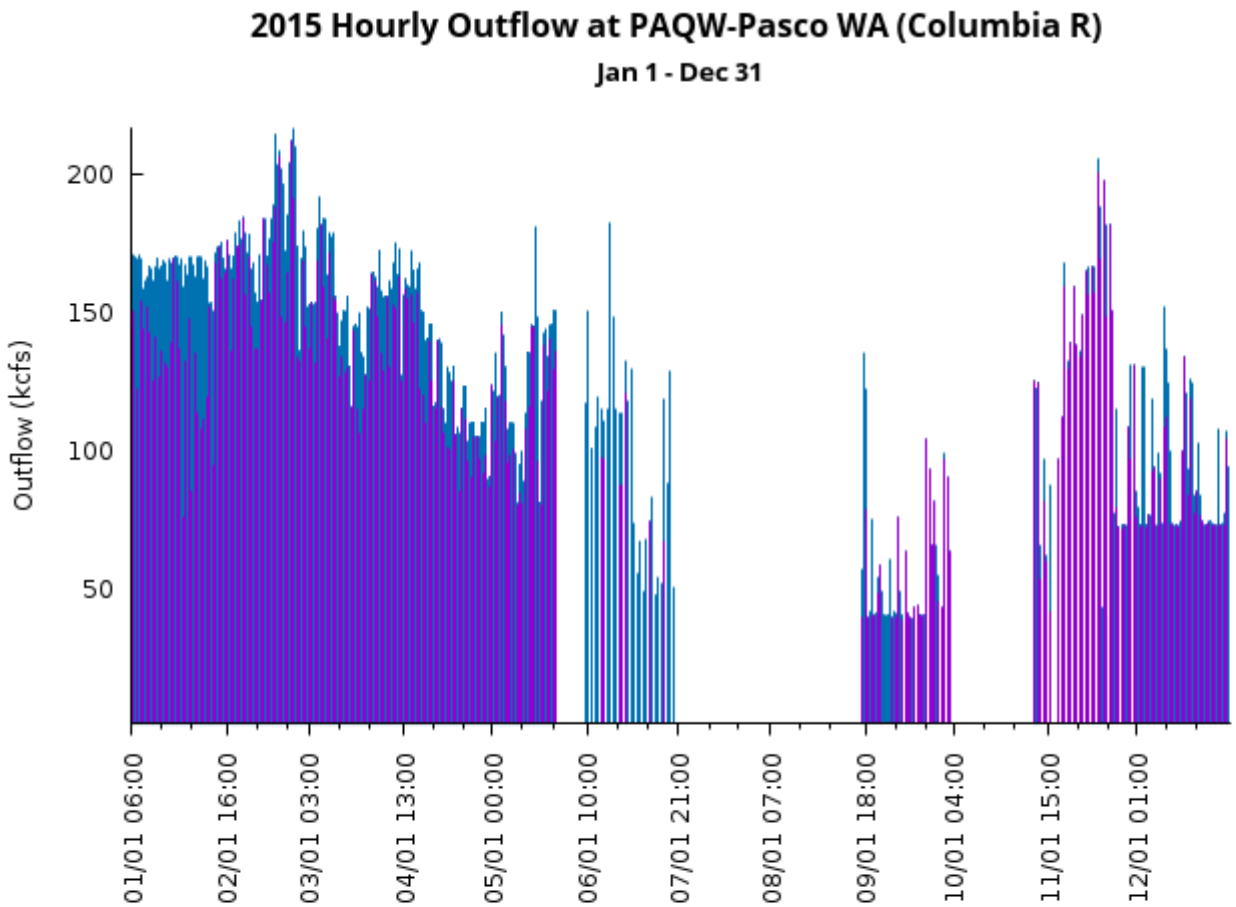

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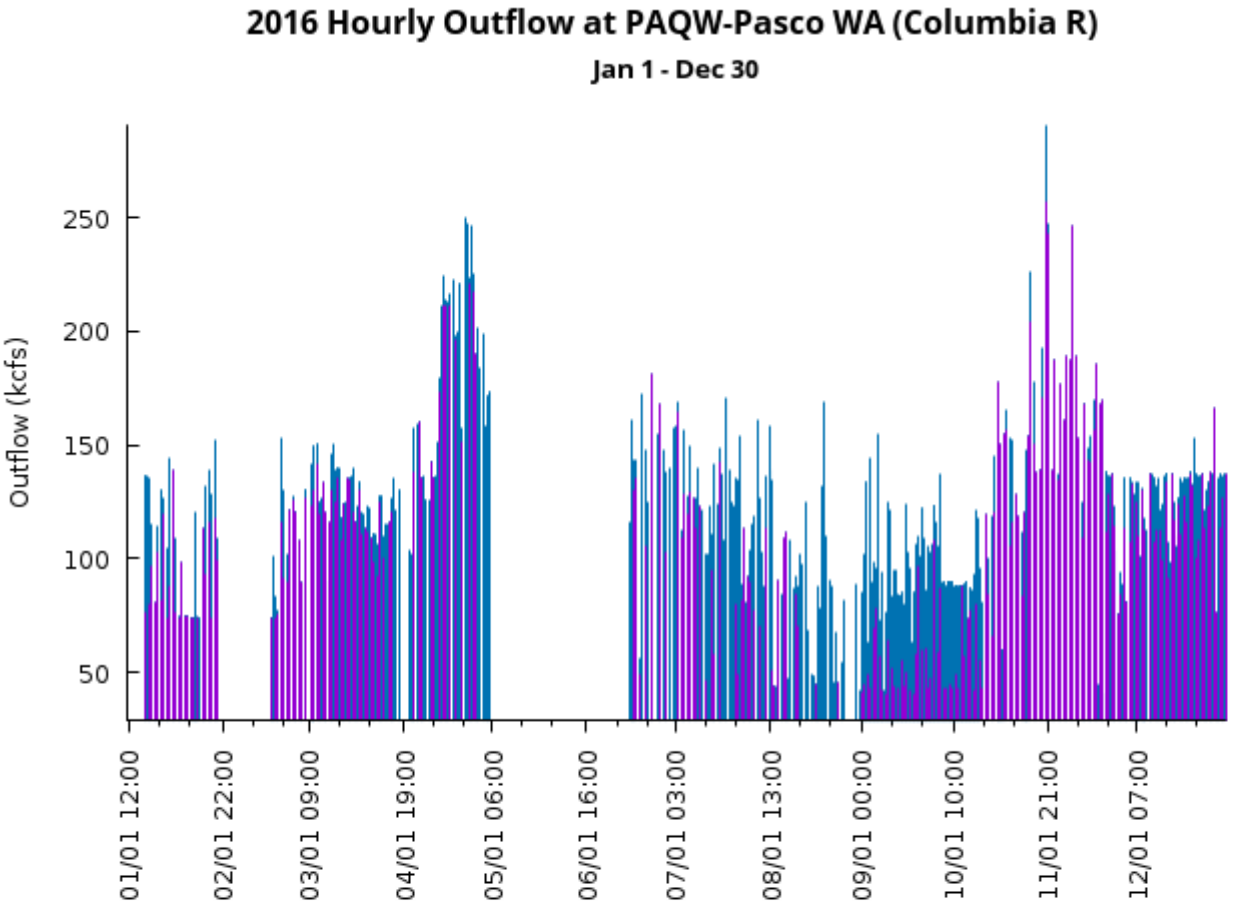

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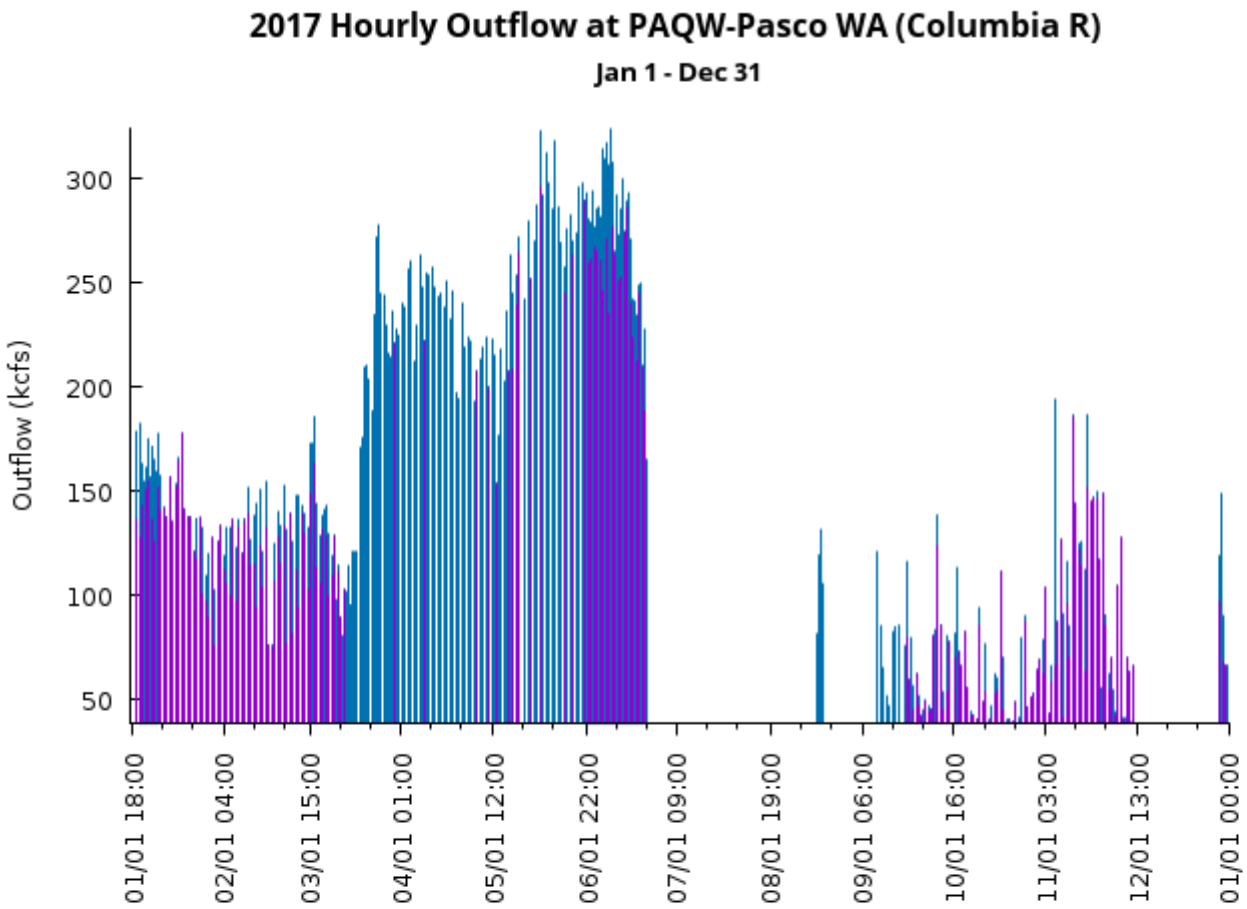

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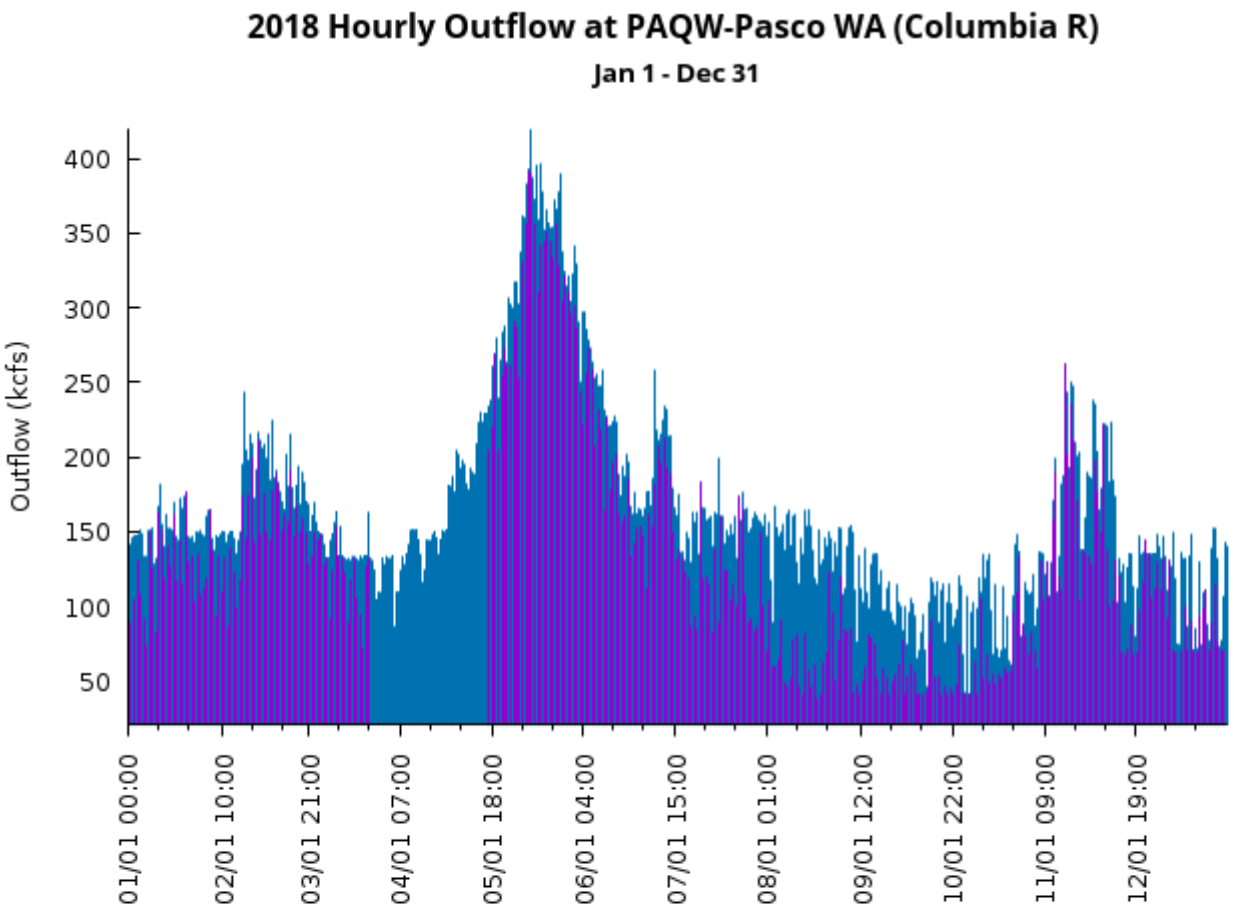

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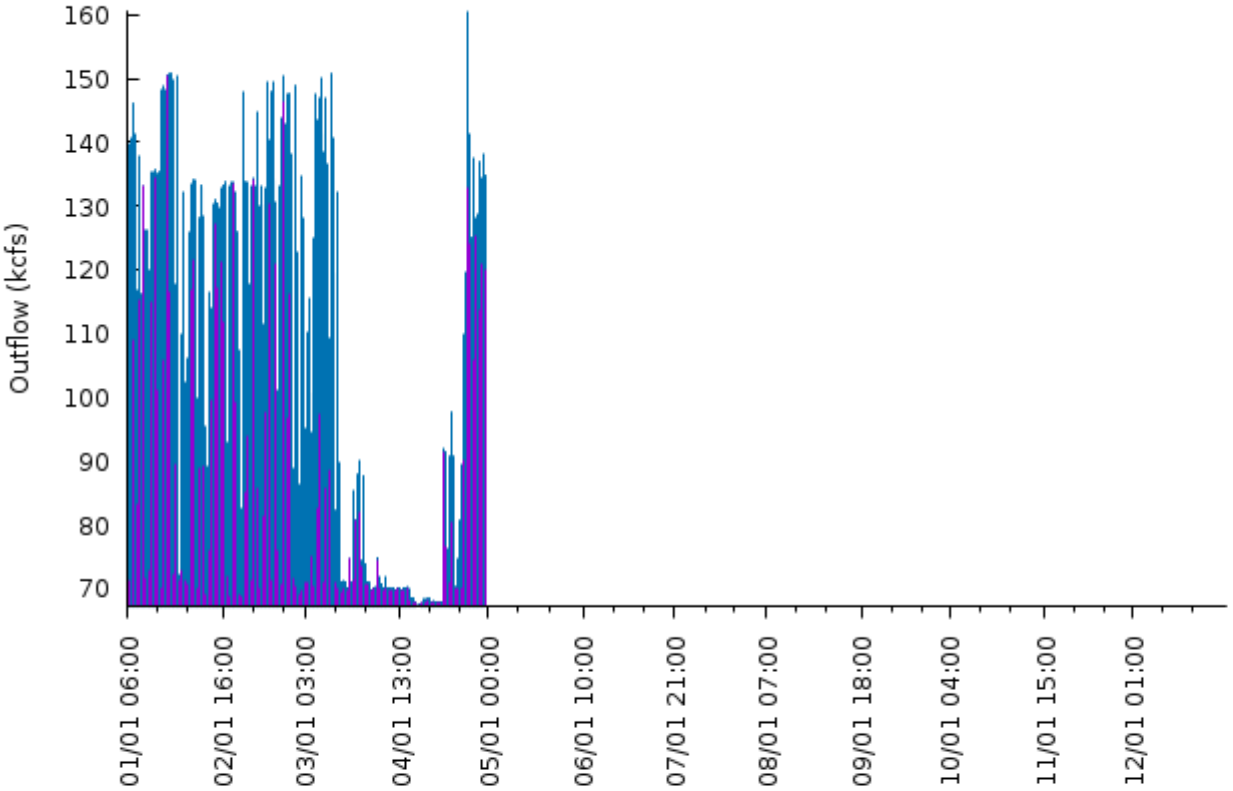
2019 Hourly Outflow at PAQW-Pasco WA (Columbia R)

Jan 1 - Dec 31



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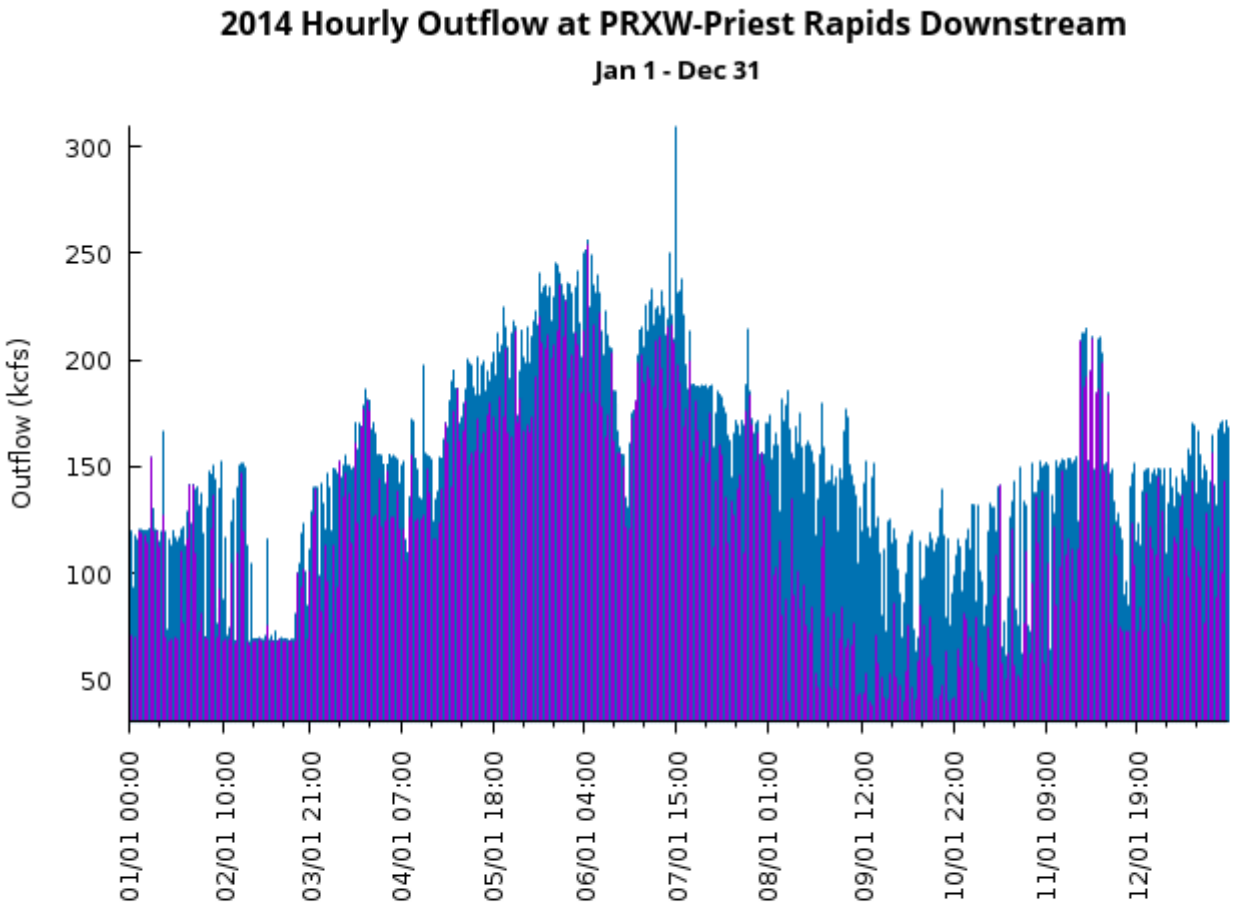
PRIEST RAPIDS DAM



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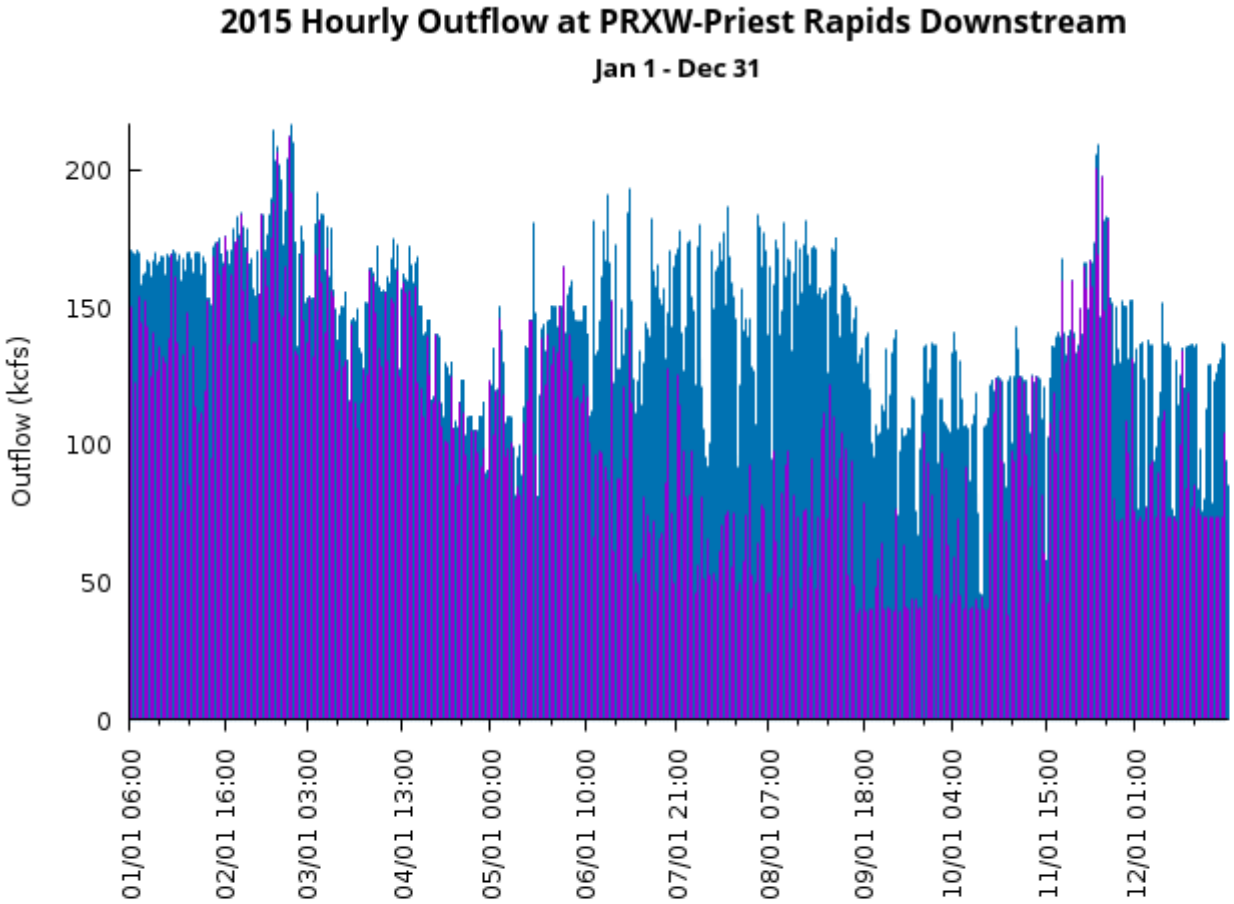

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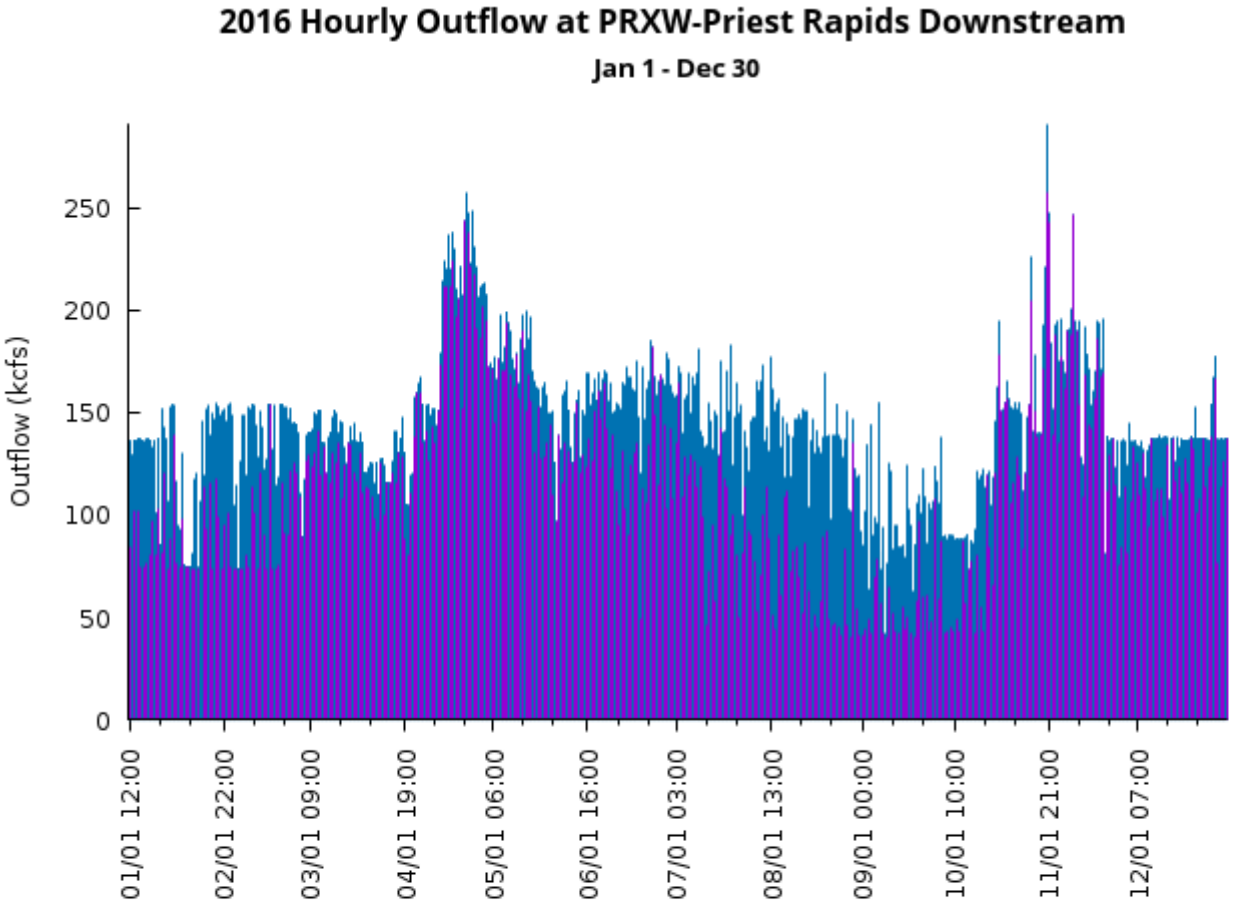

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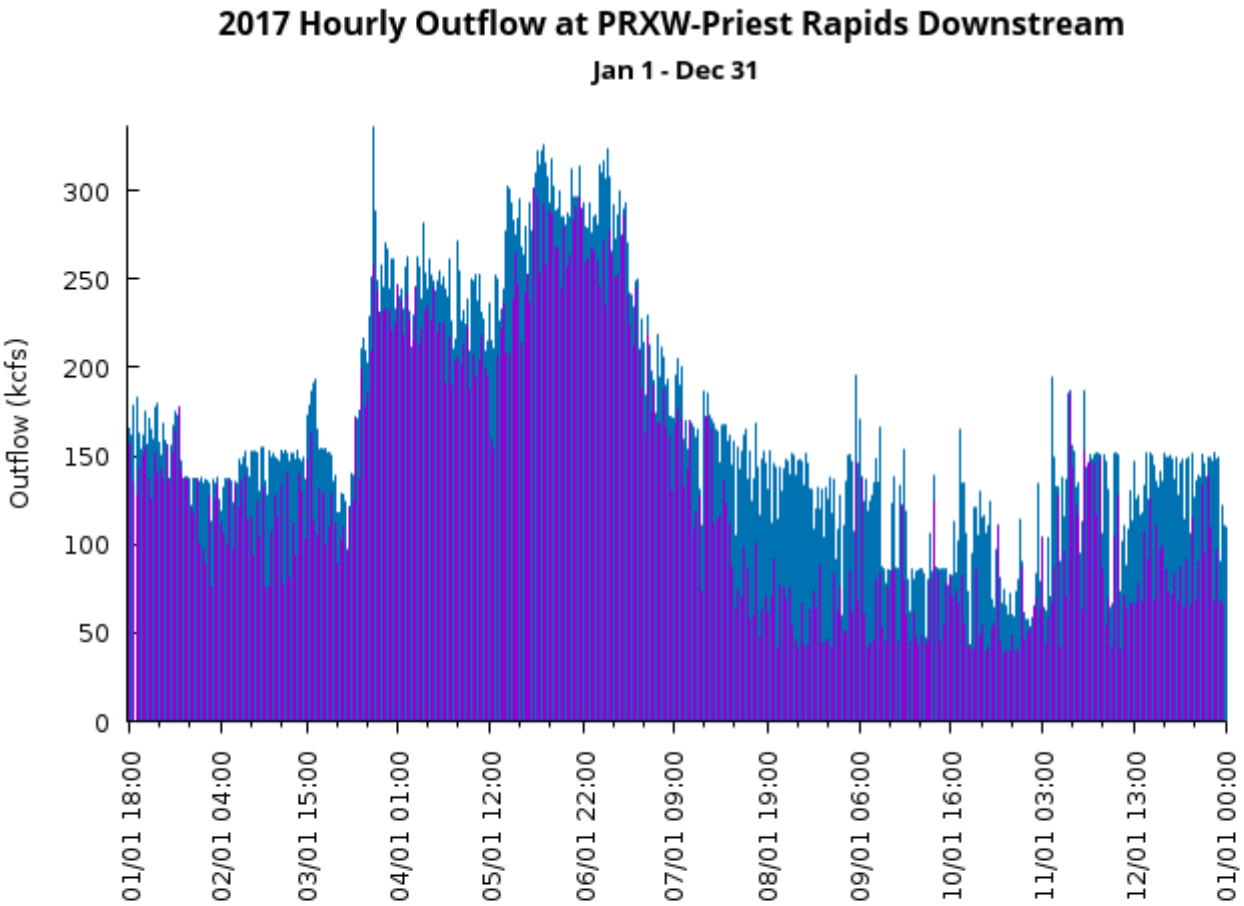

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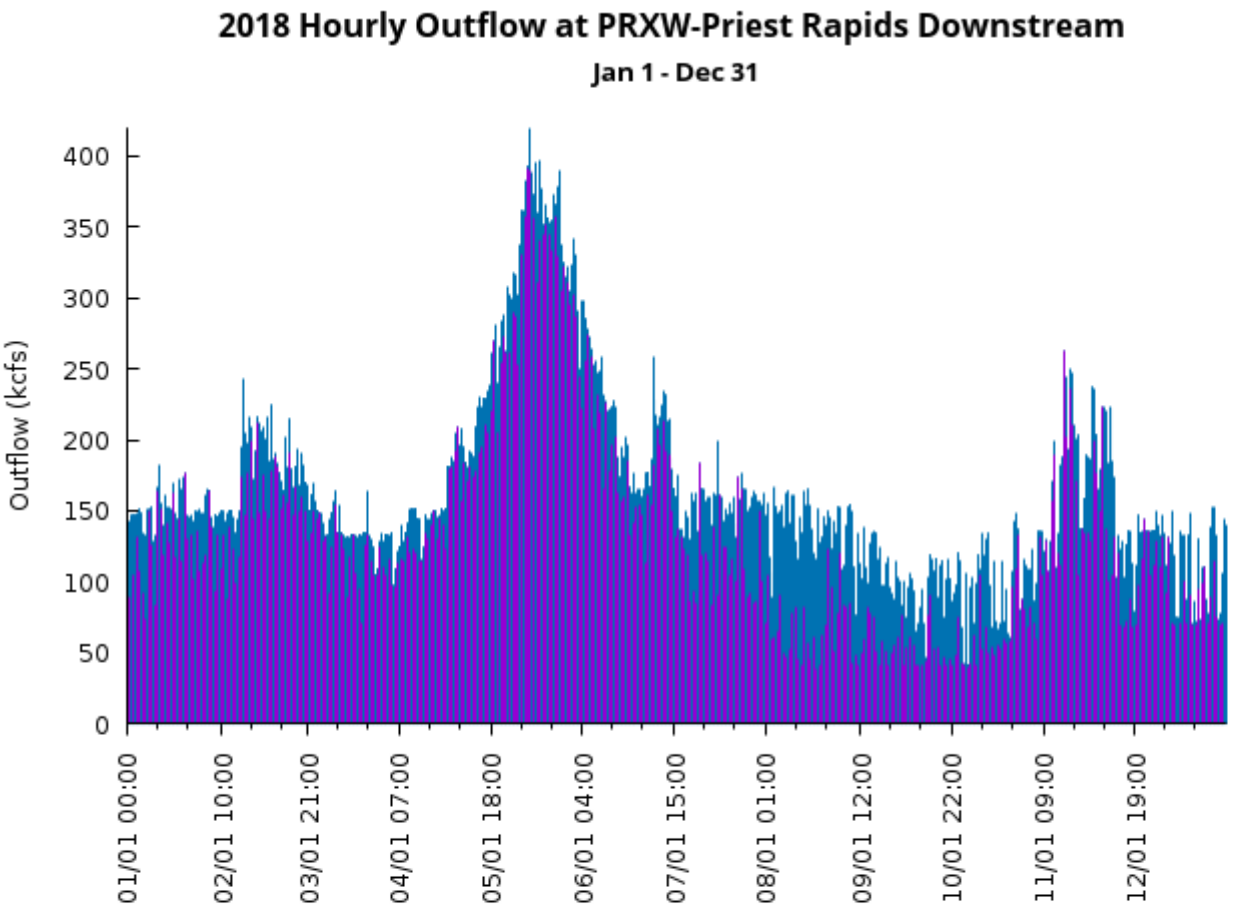

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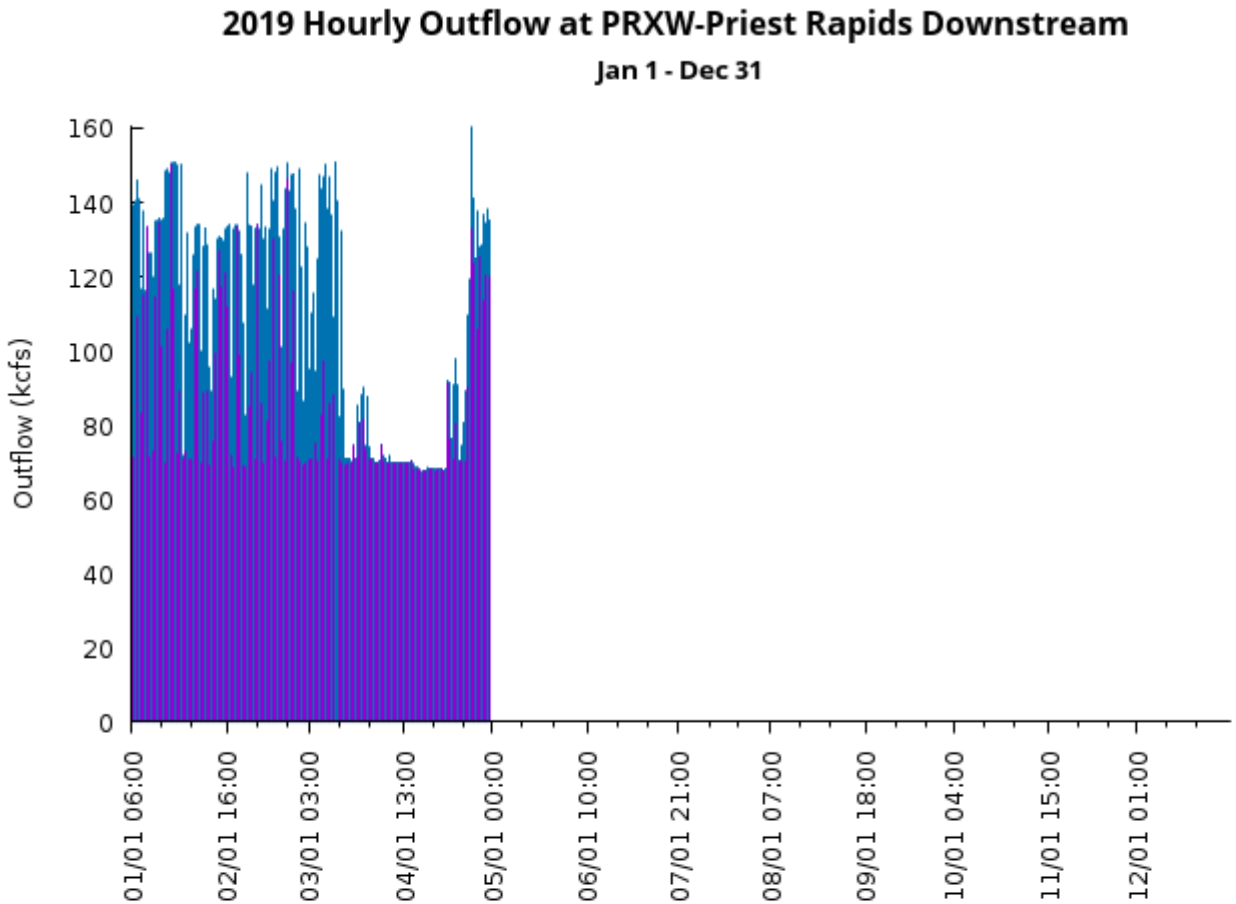

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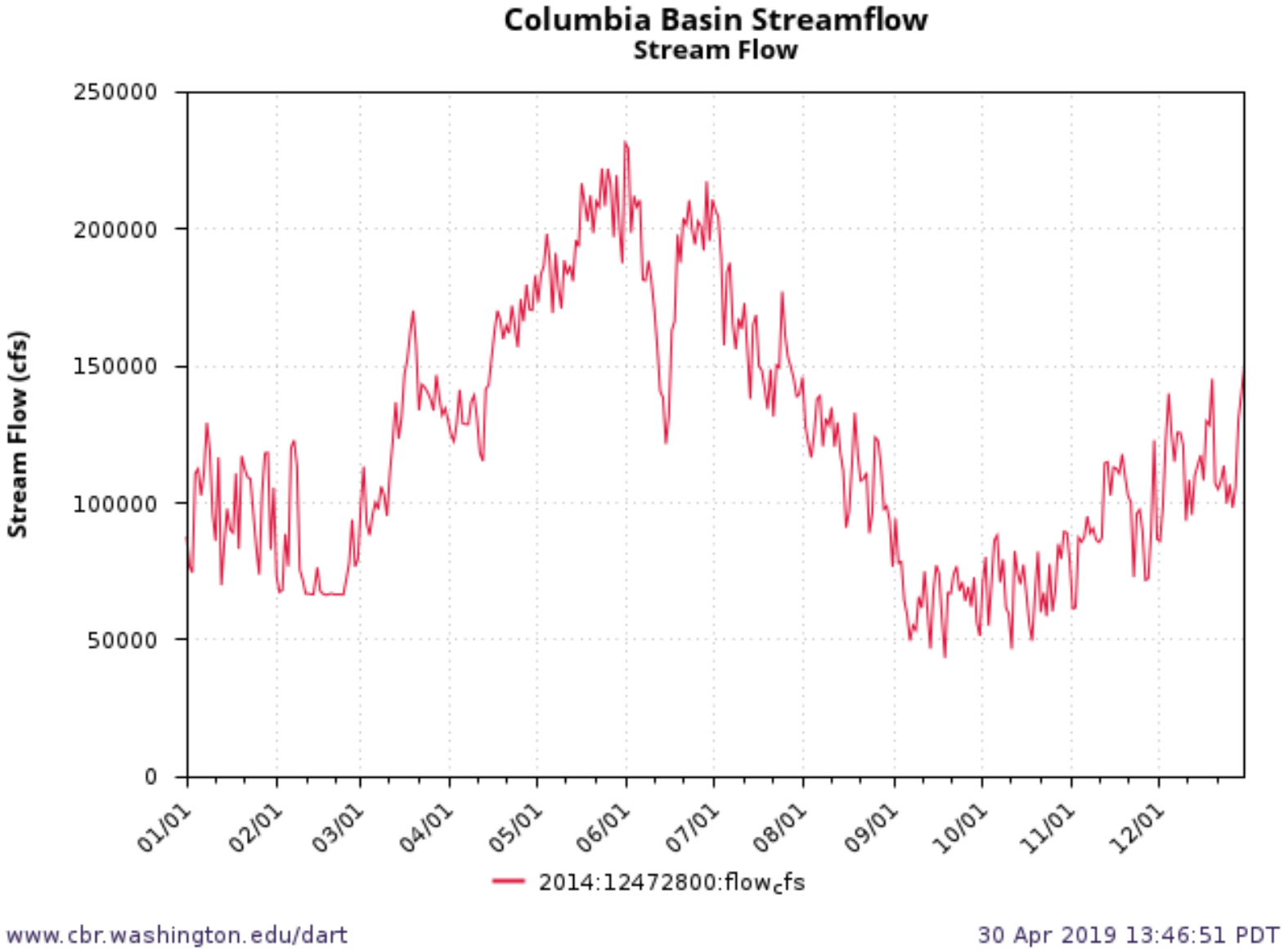
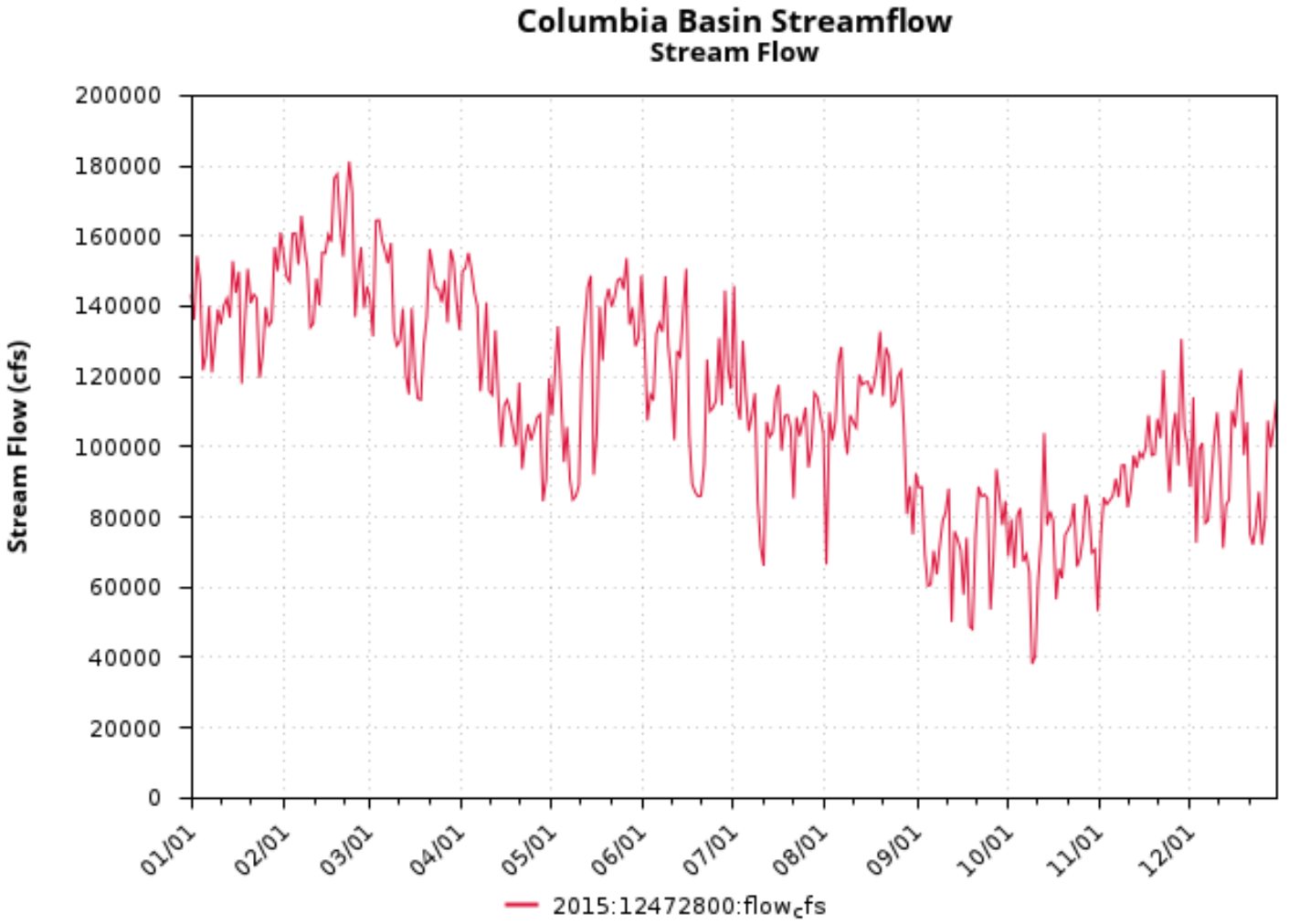
Priest Rapids Dam (same as above but mean, not hourly)





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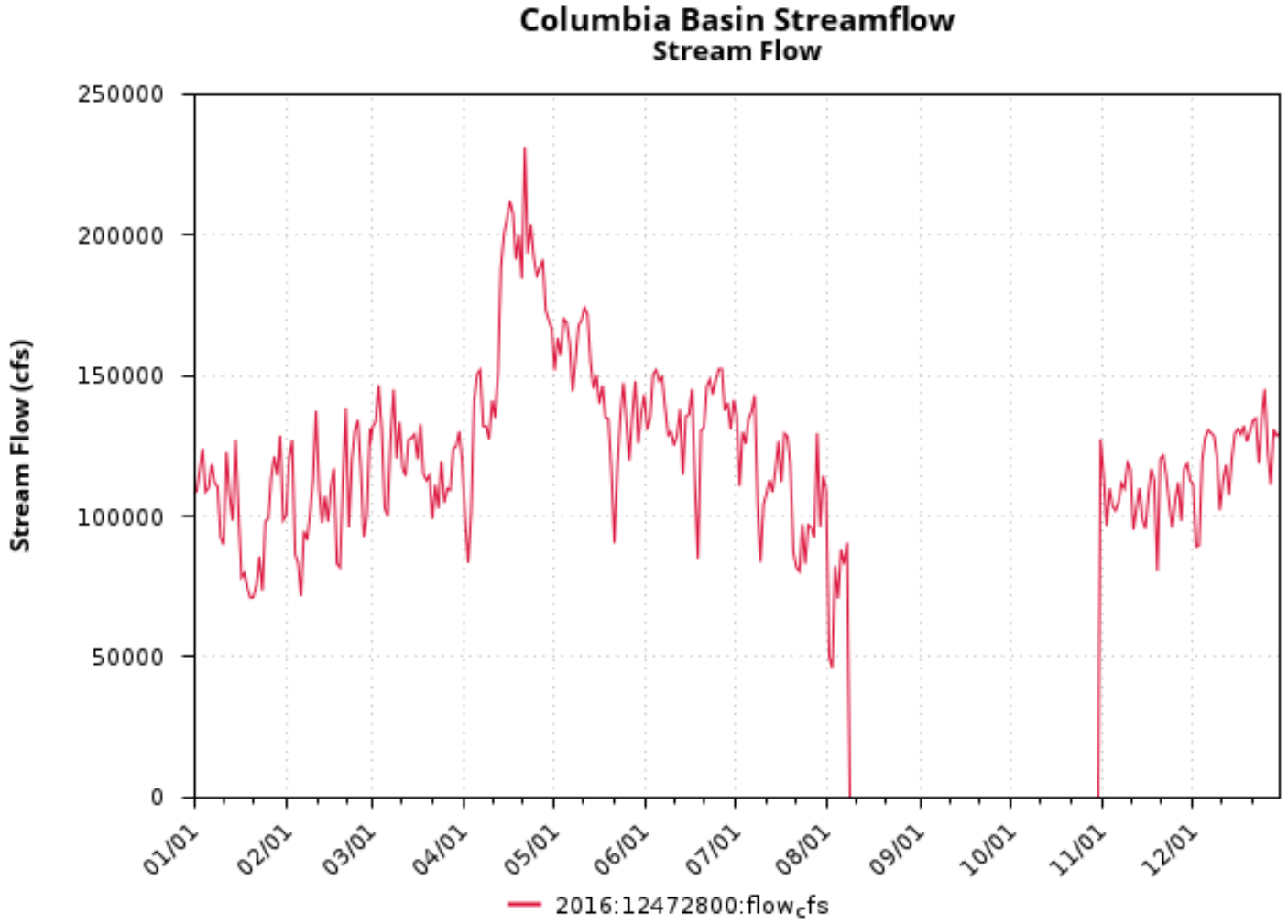

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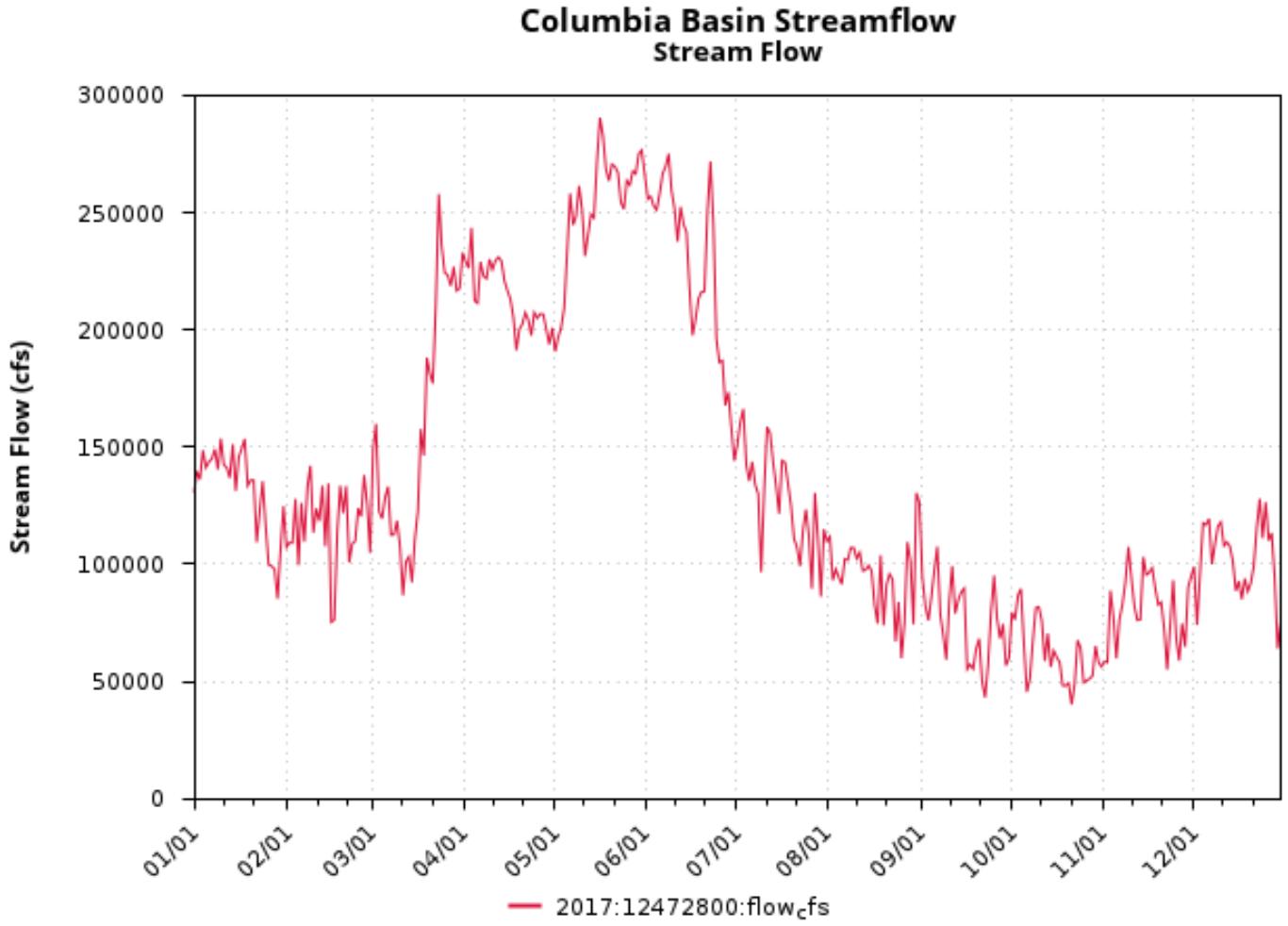

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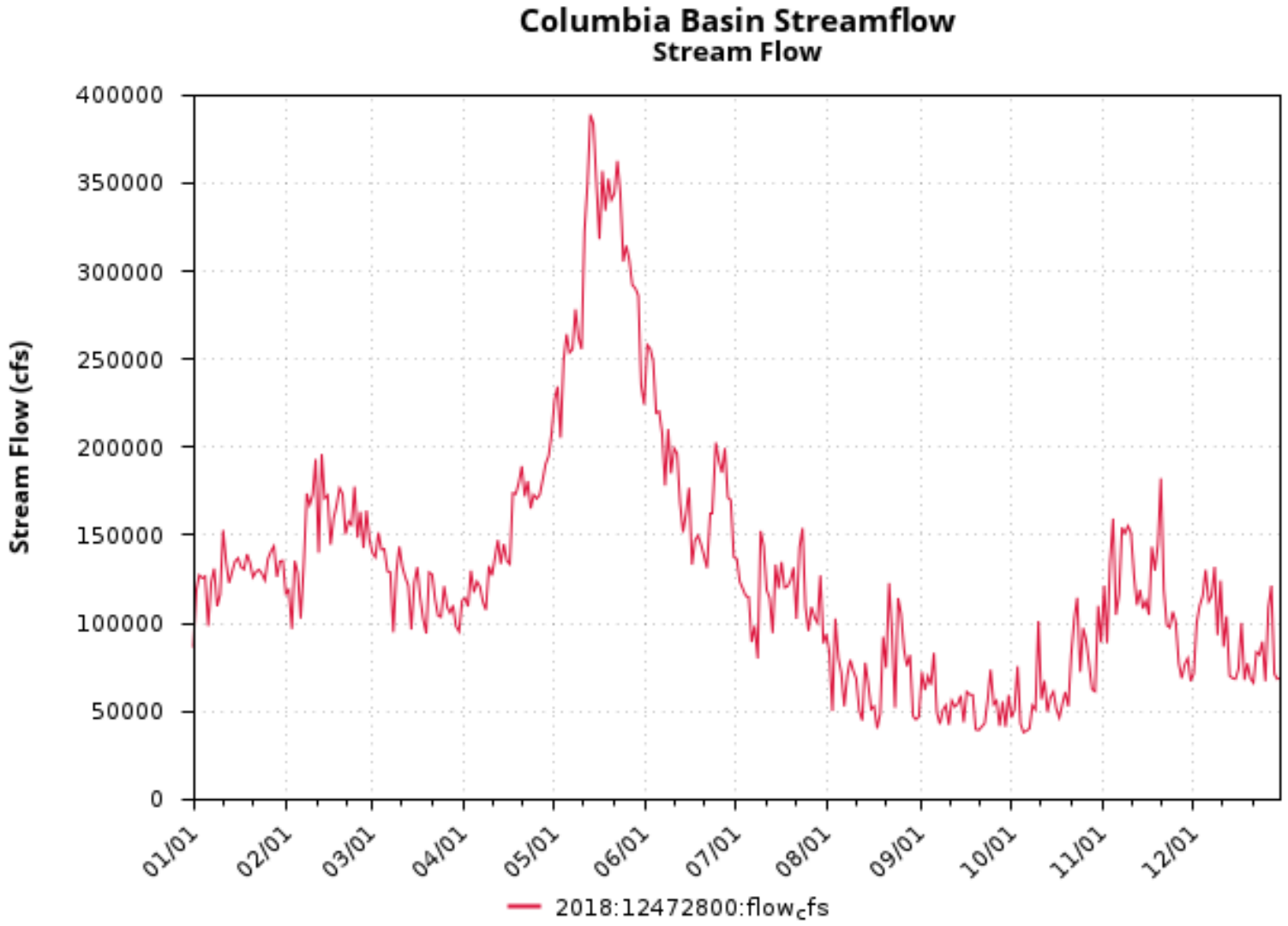

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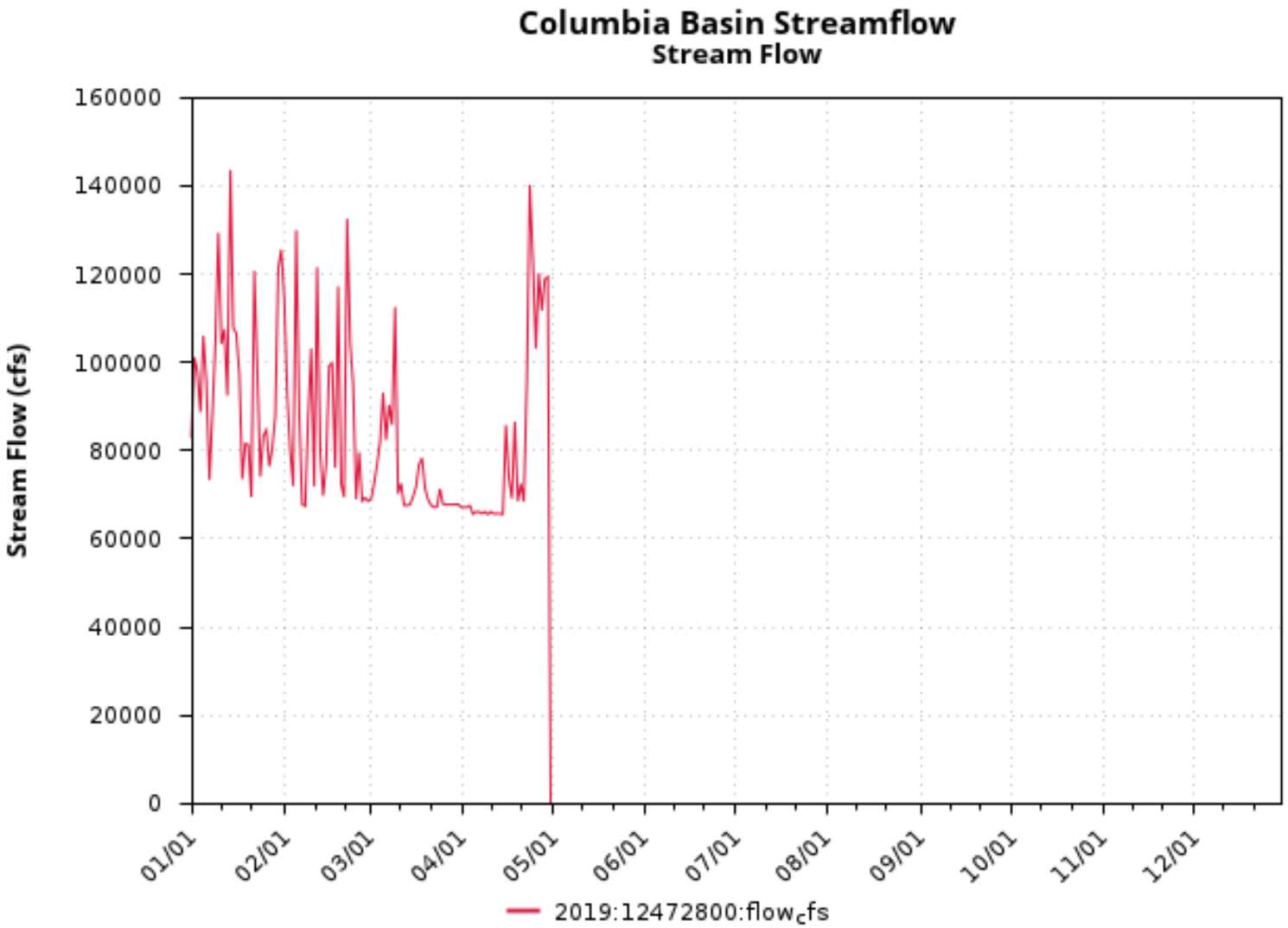

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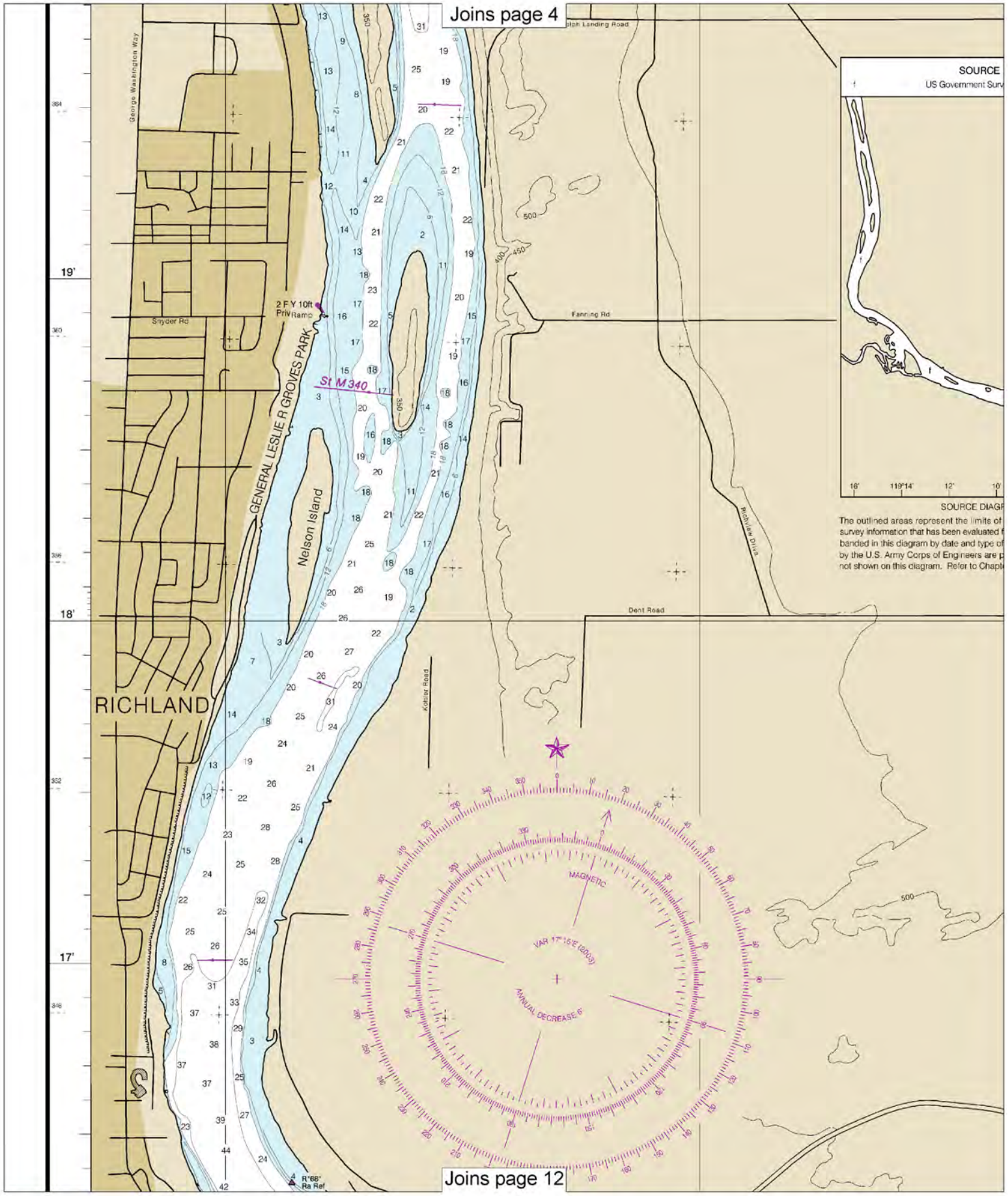


8

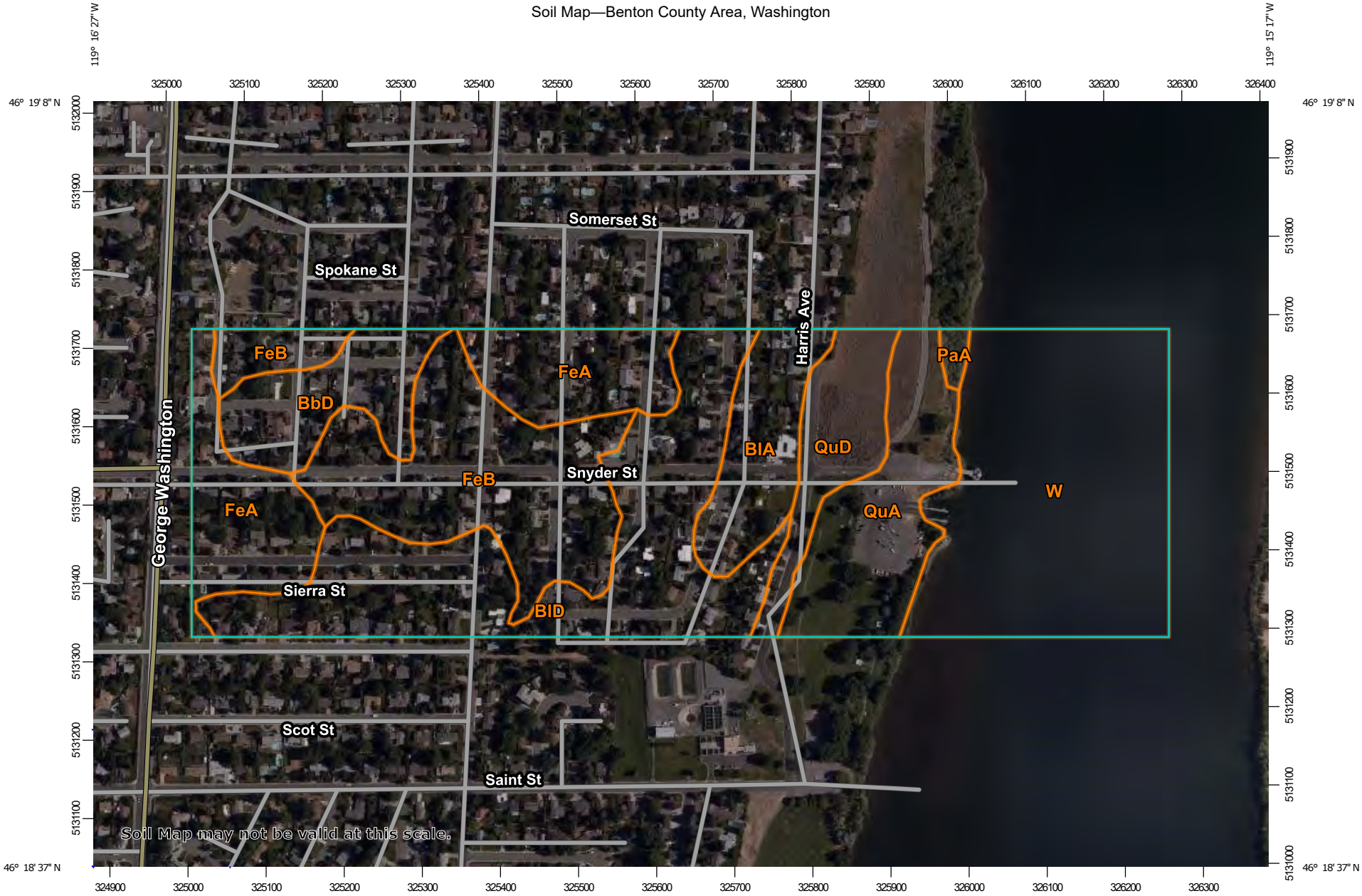
Note: Chart grid lines are aligned with true north.

Printed at reduced scale. ~~SCALE 1:20,000~~

Nautical Miles: 0 — 1 — 1 ½

Yards: 500 — 0 — 500 — 1000 — 1500 — 2000 — 2500

See Note on page 5.



Map Scale: 1:6,880 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 100 200 400 600

Feet: 0 300 600 1200 1800

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Benton County Area, Washington
Survey Area Data: Version 14, Sep 10, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 1, 2018—Jul 31, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BbD	Burbank loamy fine sand, 2 to 15 percent slopes	7.4	6.0%
BlA	Burbank loamy fine sand, gravelly substratum, 0 to 2 percent slopes	7.4	6.0%
BlD	Burbank loamy fine sand, gravelly substratum, 2 to 15 percent slopes	24.8	20.3%
FeA	Finley fine sandy loam, 0 to 2 percent slopes	14.9	12.2%
FeB	Finley fine sandy loam, 2 to 5 percent slopes	20.7	16.9%
PaA	Pasco fine sandy loam, 0 to 2 percent slopes	0.6	0.5%
QuA	Quincy loamy sand, 0 to 2 percent slopes	11.5	9.4%
QuD	Quincy loamy sand, 2 to 15 percent slopes	6.5	5.3%
W	Water	28.4	23.3%
Totals for Area of Interest		**122.1**	**100.0%**

U.S. Fish and Wildlife Service
National Wetlands Inventory

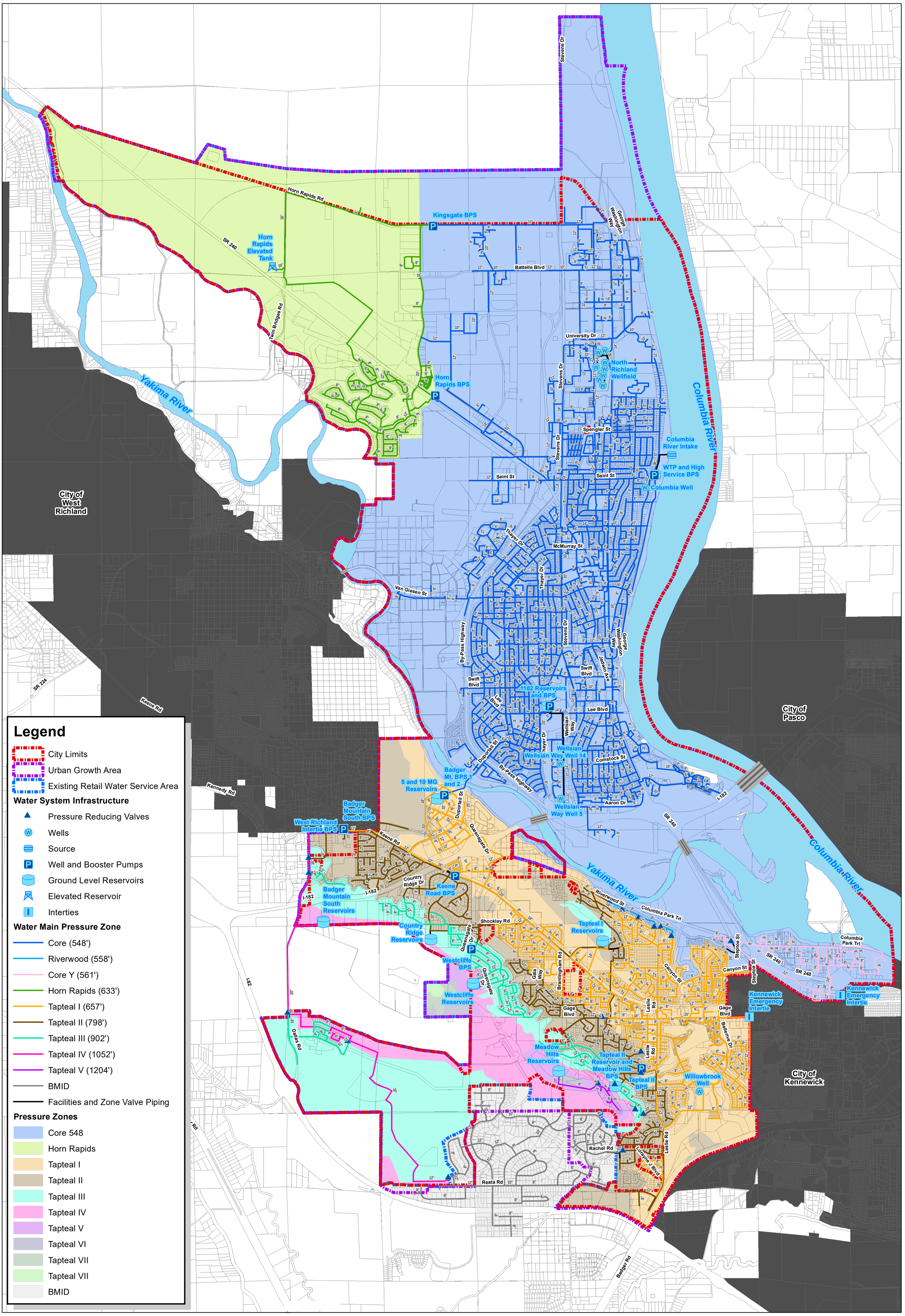
Wetlands

April 30, 2019

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.



Legend

- City Limits
- Urban Growth Area
- Existing Retail Water Service Area

Water System Infrastructure

- Pressure Reducing Valves
- Wells
- Source
- Well and Booster Pumps
- Ground Level Reservoirs
- Elevated Reservoir
- Interties

Water Main Pressure Zone

- Core (548')
- Riverwood (558')
- Core Y (561')
- Horn Rapids (633')
- Tapteal I (657')
- Tapteal II (798')
- Tapteal III (902')
- Tapteal IV (1052')
- Tapteal V (1204')
- BMID
- Facilities and Zone Valve Piping

Pressure Zones

- Core 548
- Horn Rapids
- Tapteal I
- Tapteal II
- Tapteal III
- Tapteal IV
- Tapteal V
- Tapteal VI
- Tapteal VII
- Tapteal VII
- BMID

\\RH2\DFS\RICHLAND\DATA\RIC\715-107\GIS\MAPS\FIG1-1.MXD BY: RWITHERS PLOT DATE: MAR 20, 2017 COORDINATE SYSTEM: NAD 1983 STATEPLANE WASHINGTON SOUTH FIPS 4602 FEET

RH2 ENGINEERING

NORTH

1 inch = 2,500 feet

0 1,250 2,500 5,000 Feet

DRAWING IS FULL SCALE WHEN BAR MEASURES 2”

Richland Washington

Figure 1-1
Existing Water System

City of Richland
2017 Comprehensive Water System Plan

Vicinity Map

Appendix C
Design Plans

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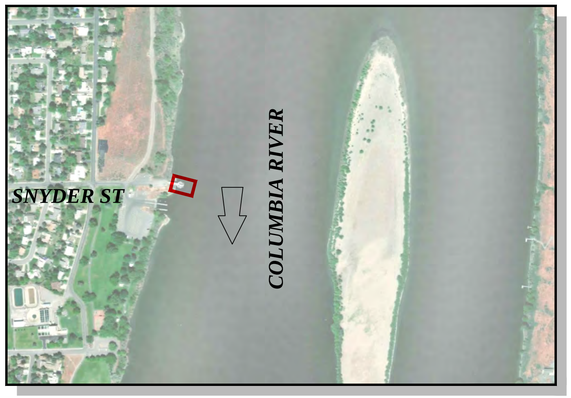
CITY OF RICHLAND
SNYDER INTAKE SCREEN UPGRADES

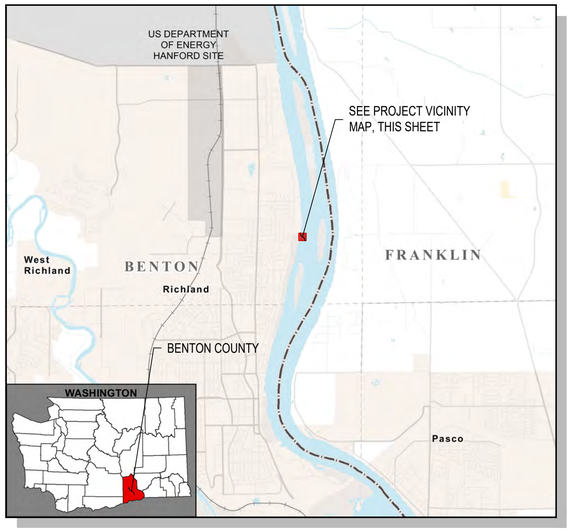
NOT FOR CONSTRUCTION
AGENCY REVIEW ONLY

718.122

PROJECT VICINITY MAP

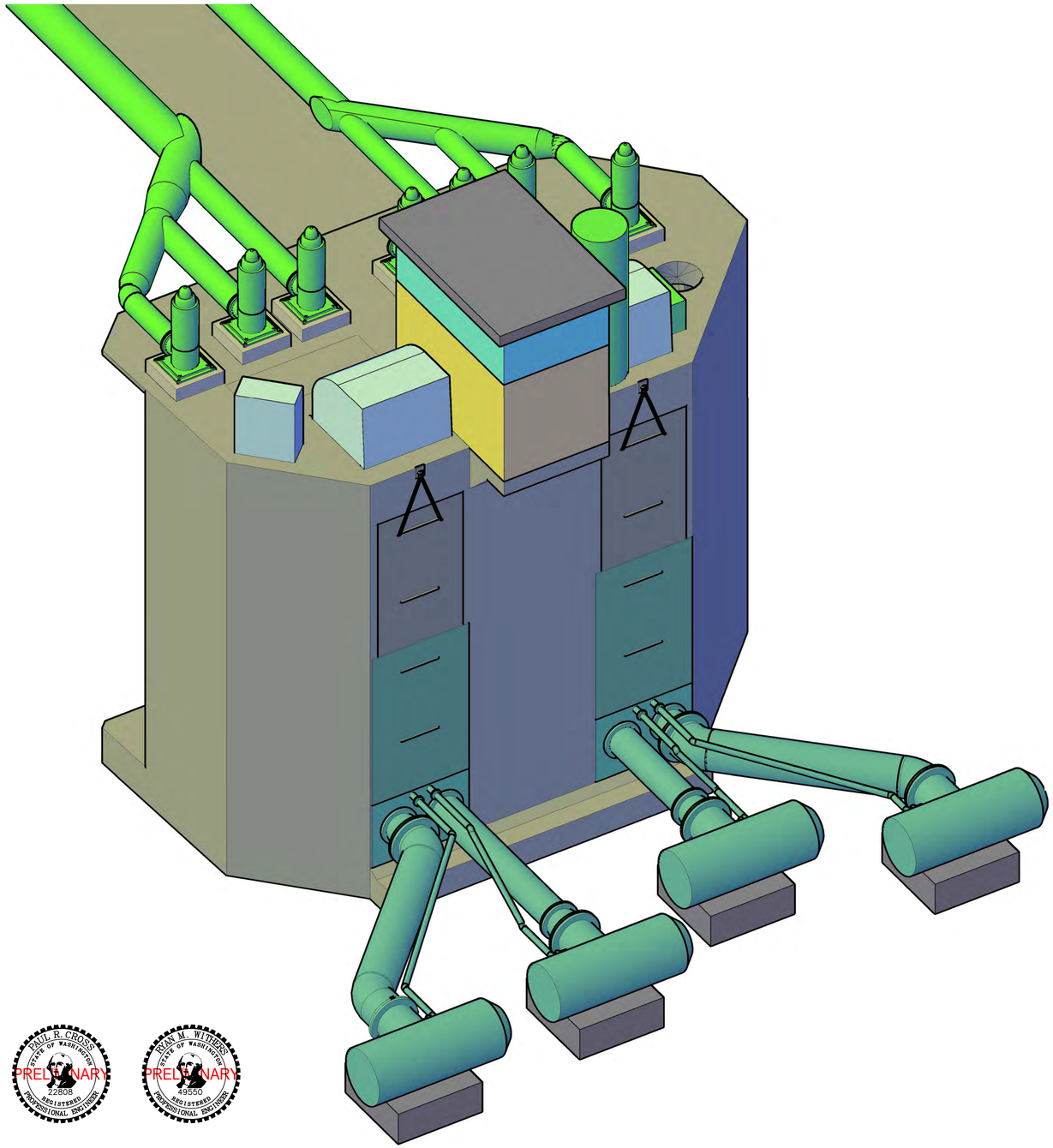


PROJECT LOCATION MAP



CALL 48 HOURS BEFORE YOU DIG
ONE CALL 811

REPORT ALL SPILLS
DEPT. OF ECOLOGY 1-800-258-5990



PAUL R. CROSS — STATE OF WASHINGTON — 22808 — REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY

RYAN M. WITHERS — STATE OF WASHINGTON — 49550 — REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY

DRAWING INDEX

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SECTION AND DETAIL REFERENCES

THE FOLLOWING CONVENTIONS HAVE BEEN USED WITHIN THESE DRAWINGS TO REFER THE READER BETWEEN THE SECTION/DETAIL AND THE PLAN FROM WHICH IT IS REFERENCED.

REFERENCE BUBBLES

X / XOOO — PLAN REFERENCE BUBBLE - REFERS READER BACK TO THE PLAN FROM WHICH THE DETAIL OR SECTION ORIGINATED.

X / XOOO — DETAIL/SECTION REFERENCE BUBBLE - REFERS READER TO THE DRAWING ON WHICH THE DETAIL OR SECTION IS LOCATED.

WHERE, ID = SECTION/DETAIL REFERENCE NUMBER
= DRAWING NUMBER ON WHICH DETAIL ORIGINATED OR RESIDES.

SECTION/DETAIL REFERENCE NUMBER CONVENTIONS:
SECTIONS OR ELEVATIONS SHOULD HAVE A LETTER REFERENCE NUMBER (A THROUGH ZZ).

CONTACT PERSONNEL

CONTACT	AGENCY	PHONE
SHELDON WILLIAMSON, P.E. (CIVIL ENGINEER II)	CITY OF RICHLAND ENGINEERING DEPARTMENT	(509) 942-7492
BRENT ANDREWS (WATER OPERATIONS SUPERVISOR)	CITY OF RICHLAND WATER DEPARTMENT	(509) 942-7476
PAUL CROSS, P.E. (PRINCIPAL IN CHARGE)	RH2 ENGINEERING	(509) 392-6502
RYAN WITHERS, P.E. (PROJECT MANAGER)	RH2 ENGINEERING	(509) 392-6503

SURVEY NOTES

BASIS OF BEARING (LAND)
HORIZONTAL DATUM: NAD 83/91
VERTICAL DATUM: NGVD 29

BASIS OF BEARING (WATER)
HORIZONTAL DATUM: NAD 83/91
VERTICAL DATUM: NGVD 29

Jun. 12, 2019
ISU-P-COV.DWG

GENERAL NOTES

ADDRESSES

OWNER: CITY OF RICHLAND
505 SWIFT BLVD.
RICHLAND, WA 99352

ENGINEER: RH2 ENGINEERING, INC.
114 COLUMBIA POINT DRIVE SUITE C
RICHLAND, WA 99352

CRITERIA

1. CONSTRUCTION OF ROAD, AND UTILITY IMPROVEMENTS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION, LATEST EDITION, AS ISSUED BY THE WASHINGTON STATE DEPT. OF TRANSPORTATION AND THE AMERICAN PUBLIC WORKS ASSOC. AND CURRENT AWWA SPECIFICATIONS AS AMENDED BY THE CITY OF RICHLAND PUBLIC WORKS DEPARTMENT.
2. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS, AND THE PERMITTING CONDITIONS OF APPROVAL.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH THE PROVISIONS OF ALL PERMITS AS ISSUED BY CITY OF RICHLAND OR OTHER REGULATORY AUTHORITY.

GENERAL CONSTRUCTION

1. A COPY OF THE APPROVED PLANS AND SPECIFICATIONS MUST BE ON-SITE WHENEVER CONSTRUCTION IS IN PROGRESS. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY OTHER REQUIRED OR RELATED PERMITS PRIOR TO BEGINNING CONSTRUCTION.
2. IN THE EVENT THAT STANDARD CONSTRUCTION NOTES ARE FOUND TO BE IN CONFLICT WITH PROJECT SPECIFIC NOTES, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY. WHERE CONFLICTS ARISE, THE CONTRACTOR SHALL ASSUME THAT THE THE MORE RESTRICTIVE CONDITION SHALL APPLY.

GENERAL NOTES

1. THE HOURS OF WORK SHALL BE LIMITED TO 7:00 AM TO 7:00 PM ON WEEKDAYS UNLESS OTHERWISE APPROVED IN WRITING BY THE PUBLIC WORKS DEPARTMENT AT (509) 942-7500.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE SAFEGUARDS, SAFETY DEVICES, PROTECTIVE EQUIPMENT, FLAGGERS, AND ANY OTHER NEEDED ACTIONS TO PROTECT THE LIFE, HEALTH, AND SAFETY OF THE PUBLIC, AND TO PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF WORK COVERED BY THE CONTRACTOR.
3. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE 48 HOUR ADVANCE NOTIFICATION TO THE OWNER, ENGINEER AND ALL AFFECTED UTILITY COMPANIES PRIOR TO ACTUAL START OF WORK.
4. CONTRACTOR SHALL HAVE A PROFESSIONAL LAND SURVEYOR PROVIDE STAKING OF CONSTRUCTION FOR OWNER INSPECTION A MINIMUM OF 72 HRS. PRIOR TO CONSTRUCTION. CONTRACTOR TO FURNISH ALL MATERIALS. CONTRACTOR SHALL REPLACE ALL EXISTING MONUMENTS AND SURVEY MARKERS THAT ARE DISTURBED ON THIS PROJECT WITH MONUMENTS PER CLARK COUNTY STANDARDS. ALL EXISTING SURVEY MARKERS SHALL BE LOCATED AND RESET BY A PROFESSIONAL LAND SURVEYOR LICENSED IN THE STATE OF WASHINGTON. ALL SURVEY NOTES REFERENCING THE EXISTING SURVEY MARKERS SHALL BE SUBMITTED TO THE OWNER PRIOR TO CONSTRUCTION.
5. ALL UTILITIES: SEE SURVEY NOTES ON DWG NO. G02 FOR INFORMATION ON EXISTING UTILITY LOCATIONS. IT IS UNDERSTOOD THAT OTHER ABOVE GROUND AND UNDERGROUND FACILITIES NOT SHOWN ON THE DRAWINGS MAY BE ENCOUNTERED DURING THE COURSE OF THE WORK. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO INDEPENDENTLY VERIFY THE ACCURACY OF ALL UTILITY LOCATIONS AND THE SIZE OF ALL UTILITIES SHOWN TO AVOID DAMAGE AND/OR DISTURBANCE TO SUCH UTILITIES, AND TO FURTHER DISCOVER AND AVOID ANY OTHER UTILITIES NOT SHOWN HEREON WHICH MAY BE AFFECTED BY THE IMPLEMENTATION OF THIS PLAN. CONTRACTOR SHALL PRESERVE, PROTECT AND SUPPORT ALL EXISTING UTILITIES ENCOUNTERED DURING CONSTRUCTION.
6. PROTECTION OF THE ENVIRONMENT: NO CONSTRUCTION RELATED ACTIVITY SHALL CONTRIBUTE TO THE DEGRADATION OF THE ENVIRONMENT, ALLOW MATERIAL TO ENTER SURFACE OR GROUND WATERS, OR ALLOW PARTICULATE EMISSIONS TO THE ATMOSPHERE, WHICH EXCEED STATE OR FEDERAL STANDARDS. ANY ACTIONS THAT POTENTIALLY ALLOW DISCHARGE TO STATE WATERS MUST HAVE PRIOR APPROVAL.
7. CONTRACTOR INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE OWNER FOR APPROVAL PRIOR TO IMPLEMENTATION OR CONSTRUCTION. ANY SIGNIFICANT DEVIATIONS FROM THE PLANS WILL REQUIRED A REQUEST FROM THE APPLICANT'S ENGINEERING AND APPROVAL FROM THE CITY'S ENGINEER AND CITY INSPECTOR.
8. INSPECTION WILL BE ACCOMPLISHED BY A REPRESENTATIVE OF THE CITY OF RICHLAND. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY DEVELOPMENT SERVICES TWENTY FOUR (24) HOURS IN ADVANCE OF BACKFILLING ALL CONSTRUCTION. THE INSTALLED LOCATION OF ALL IMPROVEMENTS SHALL BE RECORDED BY THE CONTRACTOR ON THE AS-BUILT DRAWINGS PRIOR TO BACKFILLING.
9. THE CONTRACTOR SHALL PROVIDE THE CITY OF RICHLAND WITH AN AS-BUILT DRAWING, WHICH HAS BEEN STAMPED AND SIGNED BY A LICENSED PROFESSIONAL ENGINEER OR LICENSED PROFESSIONAL SURVEYOR.

CONTROL POLLUTANTS

1. ALL POLLUTANTS, INCLUDING WASTE MATERIALS, THAT OCCUR DURING CONSTRUCTION WILL BE HANDLED AND DISPOSED OF IN A MANNER THAT DOES NOT CAUSE ENVIRONMENTAL CONTAMINATION. COVER, CONTAINMENT, AND PROTECTION FROM VANDALISM SHALL BE PROVIDED FOR ALL CHEMICALS, LIQUID PRODUCTS, PETROLEUM PRODUCTS, AND NON-INERT WASTES PRESENT ON THE SITE (SEE CHAPTER 173-304 WAC FOR THE DEFINITION OF "INERT WASTE").
2. HEAVY EQUIPMENT MAINTENANCE AND REPAIR WILL BE CONDUCTED USING SPILL PREVENTION TECHNIQUES. CONTAMINATED SURFACES SHALL BE CLEANED IMMEDIATELY FOLLOWING ANY DISCHARGE OR SPILL INCIDENT. SPILLS SHALL BE REPORTED TO THE WASHINGTON EMERGENCY MANAGEMENT DIVISION AT 1-800-258-5990, NATIONAL RESPONSE CENTER AT 1-800-424-8802, AND DEPARTMENT OF ECOLOGY AT 1-509-329-3400.
3. THE PROJECT WILL REQUIRE THE INSTALLATION OF CONCRETE; THEREFORE, THE CONTRACTOR WILL BE REQUIRED TO WASH CONCRETE CHUTES WITHIN AN AREA THAT DOES NOT HAVE CONVEYANCE TO SURFACE WATER.
4. THE CONTRACTOR MUST PROVIDE A SPILL PREVENTION CONTAINMENT AND CONTROL PLAN, DESIGNATE A RESPONSIBLE-IN-CHARGE, AND BE PREPARED TO EXECUTE THE PLAN.

CONTROL DEWATERING

1. DEWATERING IS TO BE EXPECTED ON THIS PROJECT. DEWATERING WATER SHALL BE DISCHARGED IN A MANNER THAT IS NOT DETRIMENTAL TO ADJACENT OR DOWNSTREAM PROPERTIES. THE CONTRACTOR WILL NOT BE PERMITTED TO DISCHARGE DEWATERING WATER TO THE SANITARY SEWER.

GENERAL TESC

1. TESC AND SPILL CONTROL SHALL OCCUR IN ACCORDANCE WITH THE NOTES BELOW AND THE PROJECT SPECIFICATIONS.
2. THE IMPLEMENTATION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF TESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS APPROVED.
3. TESC FACILITIES MUST BE CONSTRUCTED PRIOR TO, OR IN CONJUNCTION WITH MOBILIZATION SO AS TO ENSURE THAT THE TRANSPORT OF SEDIMENT TO SURFACE WATERS, DRAINAGE SYSTEMS, AND ADJACENT PROPERTIES IS MINIMIZED.
4. THE CONTRACTOR WILL BE REQUIRED TO DESIGNATE ONE QUALIFIED EMPLOYEE WHO WILL BE THE CERTIFIED EROSION AND SEDIMENT CONTROL LEAD (CESCL). THIS PERSON WILL BE RESPONSIBLE FOR ENSURING COMPLIANCE WITH ALL LOCAL, STATE AND FEDERAL EROSION AND SEDIMENT CONTROL AND SPILL CONTROL/PREVENTION REQUIREMENTS. DUTIES WILL INCLUDE, BUT NOT BE LIMITED TO, MONITORING, MANAGEMENT, IMPLEMENTATION, MAINTENANCE, AND EVALUATION OF EROSION AND SEDIMENTATION CONTROL AND SPILL CONTROL AT THE CONSTRUCTION SITE. THE CESCL SHALL BE QUALIFIED IN CONSTRUCTION SITE EROSION AND SEDIMENT CONTROL REGULATORY REQUIREMENTS AND BMPS.
5. THE CESCL SHALL HAVE AUTHORITY TO ACT ON BEHALF OF THE CONTRACTOR OR DEVELOPER AND SHALL BE AVAILABLE, ON-CALL, 24 HOURS PER DAY THROUGHOUT THE PERIOD OF CONSTRUCTION.
6. THE CESCL SHALL HAVE UP-TO-DATE TRAINING AND FIELD EXPERIENCE IN CONSTRUCTION EROSION AND SEDIMENT CONTROL PRACTICES.
7. THE CESCL SHOULD HAVE A CURRENT CERTIFICATE PROVING ATTENDANCE AT THE CONSTRUCTION SITE EROSION AND SEDIMENT CONTROL CERTIFICATION COURSE, OFFERED THROUGHOUT THE YEAR BY THE ASSOCIATED GENERAL CONTRACTORS OF WASHINGTON EDUCATION FOUNDATION OR A SIMILAR COURSE OR CERTIFICATION PROGRAM SUCH AS:
   - 7.1. WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) CERTIFICATION IN CONSTRUCTION SITE EROSION AND SEDIMENTATION CONTROL; OR
   - 7.2. CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL (CPESC) OFFERED BY THE INTERNATIONAL EROSION CONTROL ASSOCIATION (IECA).
8. DUTIES AND RESPONSIBILITIES OF THE CESCL SHALL INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING.
   - 8.1. DIRECTING BMP INSTALLATION, INSPECTION, MAINTENANCE, MODIFICATION AND REMOVAL.
   - 8.2. AVAILABILITY 24 HOURS PER DAY, 7 DAYS PER WEEK BY TELEPHONE.
   - 8.3. KEEPING DAILY LOGS AND INSPECTION REPORTS. INSPECTION REPORTS SHOULD INCLUDE:
     - 8.3.1. WHEN, WHERE AND HOW BMPS WERE INSTALLED, REMOVED OR MODIFIED;
     - 8.3.2. REPAIRS NEEDED OR MADE;
     - 8.3.3. OBSERVATIONS OF BMP EFFECTIVENESS AND PROPER PLACEMENT;
     - 8.3.4. RECOMMENDATIONS FOR IMPROVING PERFORMANCE OF BMPS;
     - 8.3.5. IDENTIFICATION OF THE POINTS WHERE STORMWATER RUNOFF POTENTIALLY LEAVES THE SITE, IS COLLECTED IN A SURFACE WATER CONVEYANCE SYSTEM (I.E., ROAD DITCH, STORM SEWER), AND ENTERS RECEIVING WATERS OF THE STATE;
     - 8.3.6. INSPECTION FOR BMPS AS REQUIRED TO ENSURE ADEQUACY; AND
     - 8.3.7. FACILITATION OF, PARTICIPATION IN AND CORRECTIVE ACTIONS RESULTING FROM, INSPECTIONS PERFORMED BY OUTSIDE AGENCIES OR THE OWNER.

IN-WATER WORK

1. ALL SCREENS, CONCRETE ANCHORS, AND PIPING WILL BE ASSEMBLED (WELDED, BOLTED, CONNECTED, ETC.) ON LAND, AND WILL BE DELIVERED TO THE CONSTRUCTION SITE. A CRANE (EITHER ON LAND OR ON BARGE) WILL LOWER THE SCREENS, CONCRETE ANCHORS, AND PIPING INTO THE WATER TO A DIVE TEAM FOR INSTALLATION.
2. USING HAND TOOLS, MINOR EXCAVATION AND REDISTRIBUTION OF THE RIVERBED COBBLE AND GRAVEL MAY BE DONE IF NECESSARY TO PROPERLY SEAT THE ANCHORS, PIPING, AND SCREENS TO OBTAIN PROPER CLEARANCE AND SUBMERGENCE OF THE SCREENS. UP TO 1 CY OF MATERIAL/ANCHOR MAY BE REDISTRIBUTED TO SEAT EACH ANCHOR.
3. THE PUMP INTAKES SHALL BE CONNECTED TO FOUR (4) T-60MF JOHNSON (AQSPETENCE) BRAND 304 STAINLESS STEEL FISH SCREENS. THE SCREENS SHALL BE INSTALLED AS PER MANUFACTURER'S INSTRUCTIONS AND CONSISTENT WITH THE CURRENT WDFW/NMFS SCREENING CRITERIA. PROPER SCREEN SUBMERGENCES AND CLEARANCES MUST BE ENSURED.

PROJECT PHASING

1. COORDINATE SHUT DOWN OF INTAKE STRUCTURE WITH CITY OF RICHLAND WATER DEPARTMENT (BRENT ANDREWS, 509.942.7476).
2. DEWATER FOREBAY IF NECESSARY AND CONVEY BACK TO COLUMBIA RIVER. REPEAT DAILY AS NECESSARY.
3. INSTALL WALL AND SLUICE GATE WITHIN FOREBAY.
4. COORDINATE INTAKE STRUCTURE OPERATION RECOMMENCEMENT WITH THE CITY OF RICHLAND WATER DEPARTMENT.
5. ISOLATE ONE SIDE OF FOREBAY WITH EXISTING RIVERWARD SLUICE GATE AND SLUICE GATE INSTALLED AS PART OF STEP 3. COORDINATE SHUTDOWN OF PUMPS ON ONE SIDE OF FOREBAY WITH CITY, DEWATER ISOLATED FOREBAY SECTION AS NECESSARY FOR STEPS TO DISASSEMBLE AND REMOVE TRASH RACK AND TRAVELING BELT SCREEN, MOTOR, HOUSING, AND ASSOCIATED APPURTENANCES.
6. OPEN RIVERWARD SLUICE GATE PREVIOUSLY CLOSED IN STEP 5.
7. INSTALL PLATES, BARREL SCREENS, ANCHORS, PIPING, VALVES AND HYDROBURST LINES FOR INACTIVE SIDE OF FOREBAY. INSTALL HYDROBURST LINES TO INTERMEDIATE DECK LEVEL INSIDE OF INTAKE STRUCTURE AND PROTECT AS NECESSARY.
8. CLOSE ISOLATION VALVES INSTALLED IN STEP 7, DEWATER INACTIVE SIDE OF FOREBAY, AND SUFFICIENTLY REMOVE DEBRIS AND SEDIMENT FROM ISOLATED SIDE OF FOREBAY AS DIRECTED BY CITY.
9. COORDINATE INTAKE STRUCTURE OPERATION RECOMMENCEMENT WITH THE CITY OF RICHLAND WATER DEPARTMENT.
10. REPEAT STEPS 5 TO 9 FOR OTHER SIDE OF FOREBAY.
11. REPAIR INTAKE STRUCTURE DECK FLOOR OPENINGS WITH CONCRETE, REBAR, AND ACCESS HATCH PER DWG NO. D03.
12. INSTALL HYDROBURST EQUIPMENT ON TOP DECK AND HYDROBURST LINES BETWEEN INTERMEDIATE DECK (INSTALLED IN STEP 7) AND HYDROBURST EQUIPMENT ON TOP DECK. TEST HYDROBURST SYSTEM LINES.

NOTE: THE PHASING LISTED IS INTENDED TO PROVIDE A GENERAL UNDERSTANDING OF THE DEMOLITION AND CONSTRUCTION SEQUENCE NEEDED TO COMPLETE THE PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING ADDITIONAL STEPS OR PHASING NECESSARY TO COMPLETE THE PROJECT TO A FULLY FUNCTIONAL CONDITION WITHIN THE CONSTRAINTS OF THE PERMIT CONDITIONS. COMPLETE STRUCTURE SHUTDOWN AND DEWATERING CAN OCCUR UP TO 3 TIMES BETWEEN DECEMBER 15, 2020, AND FEBRUARY 28, 2021. EACH SHUTDOWN IS LIMITED TO 96 HOURS AND NO LESS THAN 72 HOURS OF OPERATION MUST BE ALLOWED BETWEEN SHUTDOWN EVENTS.

LEGEND

EXISTING LEGEND

SURVEY UTILITY LINETYPES
- OHP — OVERHEAD POWER
- W — WATER LINE

SURVEY CONTROL LINETYPES
- EASEMENT

SURVEY SITE LINETYPES
- MAJOR CONTOUR
- MINOR CONTOUR
- BUILDING
- FENCE
- TOPO EDGE OF WATER BODY
- TOE — TOPO TOE OF SLOPE

SURVEY AREA HATCHING
- ASPHALT AREA
- DIRT
- GRAVEL
- CONCRETE AREA
- COLUMBIA RIVER

PROPOSED LEGEND

INTAKE PROFILE
- WATER PIPE
- GROUND SURFACE
- APPROX. WATER LEVEL
- BARREL SCREEN

ABBREVIATIONS

CONC	CONCRETE
CL	CENTERLINE
CSBC	CRUSHED SURFACING BASE COURSE
CSTC	CRUSHED SURFACING TOP COURSE
CY	CUBIC YARDS
DIAM	DIAMETER
DI	DUCTILE IRON
DND	DO NOT DISTURB
DWG	DRAWING
E	EASTING
ELEV	ELEVATION
ELWL	EXTREME LOW WATER LEVEL
EX	EXISTING
HMA	HOT MIXED ASPHALT
L	LEFT
LT	LEFT
LF	LINEAR FEET
N	NORTHING
NWL	NORMAL WATER LEVEL
PE	POLYETHYLENE
PROP	PROPOSED
PVC	POLYVINYL CHLORIDE
R	RIGHT
RT	RIGHT
ROW	RIGHT-OF-WAY
SPEC	SPECIFICATIONS
SS	SANITARY SEWER
SSMH	SANITARY SEWER MANHOLE
ST	STORM
STA	STATION LINE
STD	STANDARD
SY	SQUARE YARDS
TYP	TYPICAL
W	WATER

RH2

PAUL R. CROSS — STATE OF WASHINGTON — 22805 — REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY

BRAD M. WITHERSPOON — STATE OF WASHINGTON — 49550 — REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY

CITY OF RICHLAND
SNYDER INTAKE SCREEN UPGRADES

GENERAL NOTES

JOB NO.: 718-122
CLIENT: RIC
FILENAME: ISUP-COV.DWG
SAVE DATE: Jun 12, 2019
PLOT DATE: Jun 12, 2019
ENGINEER: JTR
REVIEWED: RMW

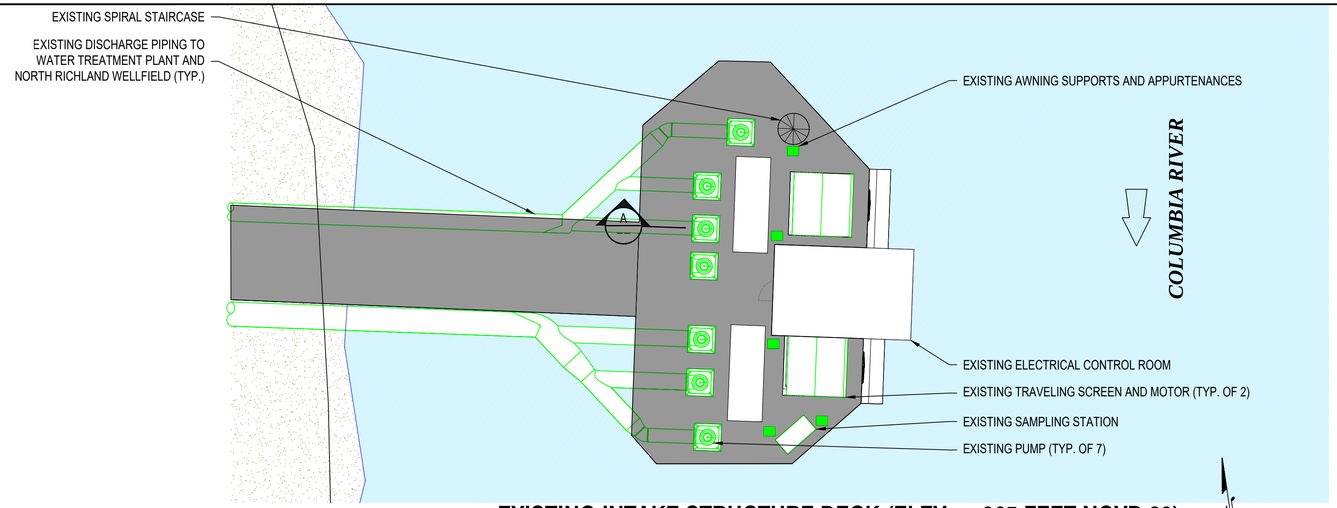
REVISIONS

NO.	DESCRIPTION	DATE	BY	REVIEW

NOT FOR CONSTRUCTION
AGENCY REVIEW ONLY

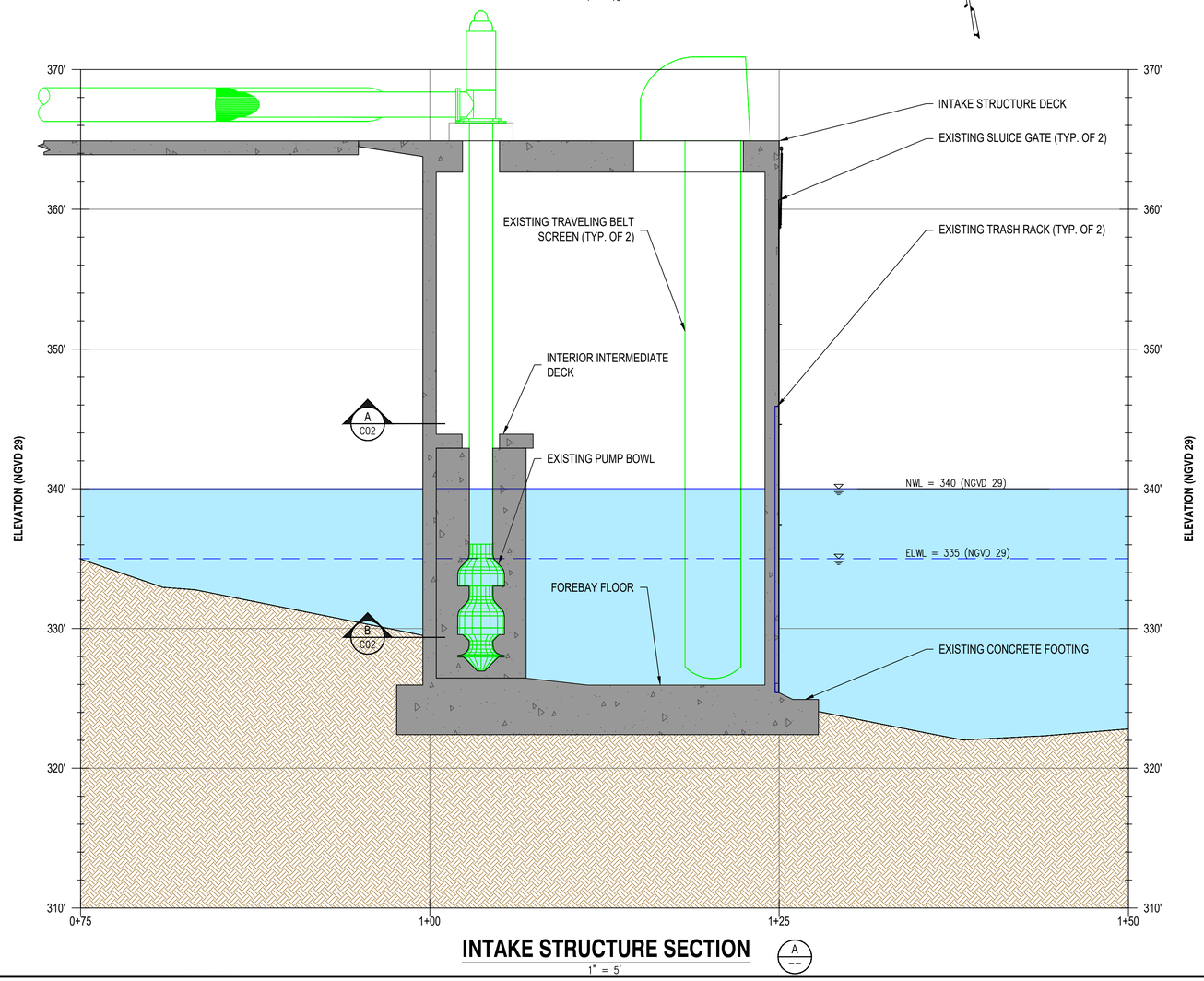
SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: G02
SHEET NO.: 2
14



EXISTING INTAKE STRUCTURE DECK (ELEV. = 365 FEET NGVD 29)

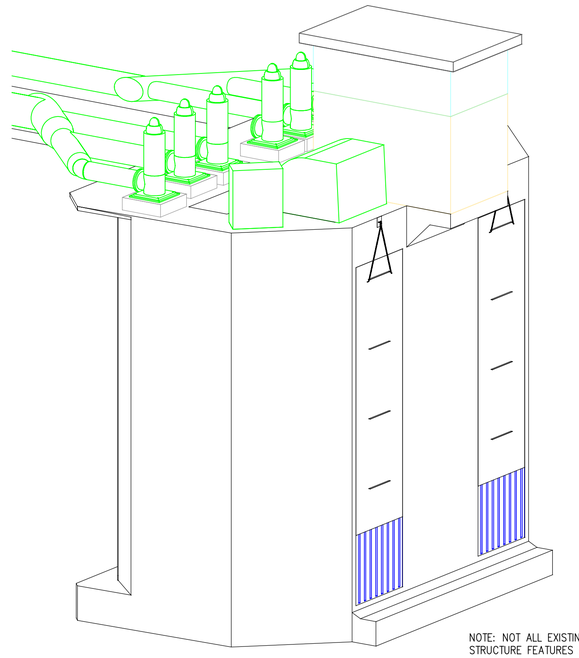
1" = 10'



INTAKE STRUCTURE SECTION

1" = 5'

A



NOTE: NOT ALL EXISTING INTAKE STRUCTURE FEATURES SHOWN FOR CLARITY

OBLIQUE

NOT TO SCALE

RH2

PAUL R. CROSS — STATE OF WASHINGTON — 22808 — REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY

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CITY OF RICHLAND

SNYDER INTAKE SCREEN UPGRADES

EXISTING INTAKE DECK PLAN AND SECTION VIEW

JOB NO.: 718-122
CLIENT: RIC
FILENAME: ISU-P-S01.DWG
SAVE DATE: Jun 12, 2019
PLOT DATE: Jun 12, 2019
ENGINEER: JTR
REVIEWED: RMW

REVISIONS

NO.	DESCRIPTION	DATE	BY	REVIEW

NOT FOR CONSTRUCTION
AGENCY REVIEW ONLY

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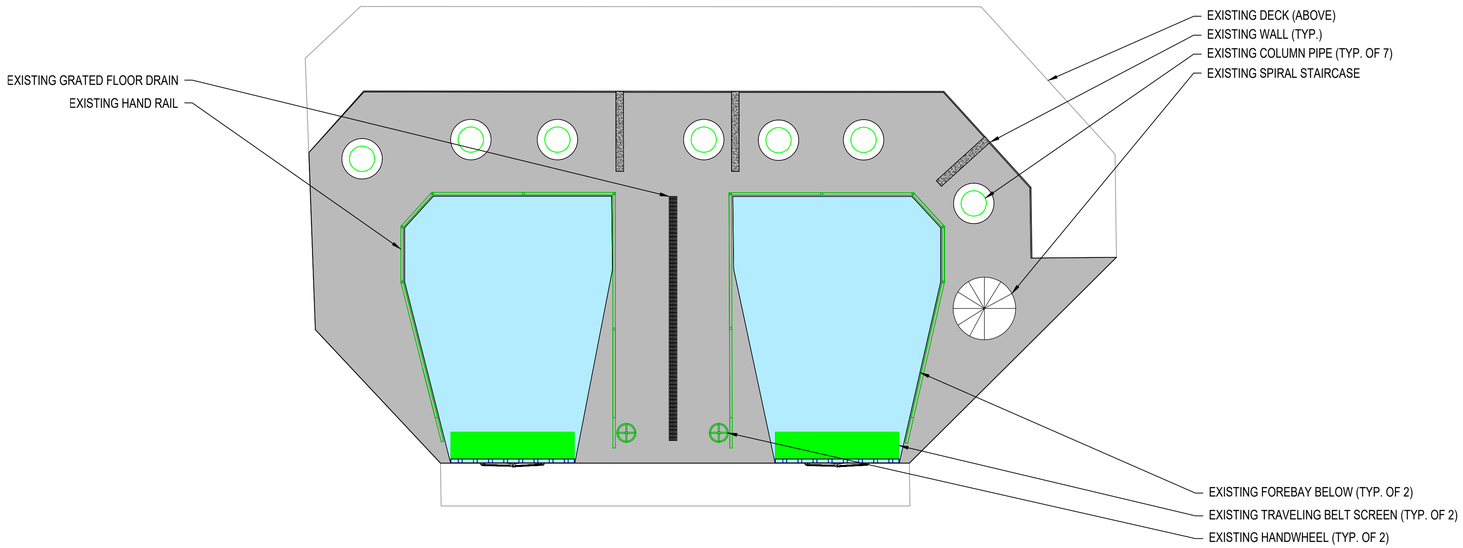
0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: C01

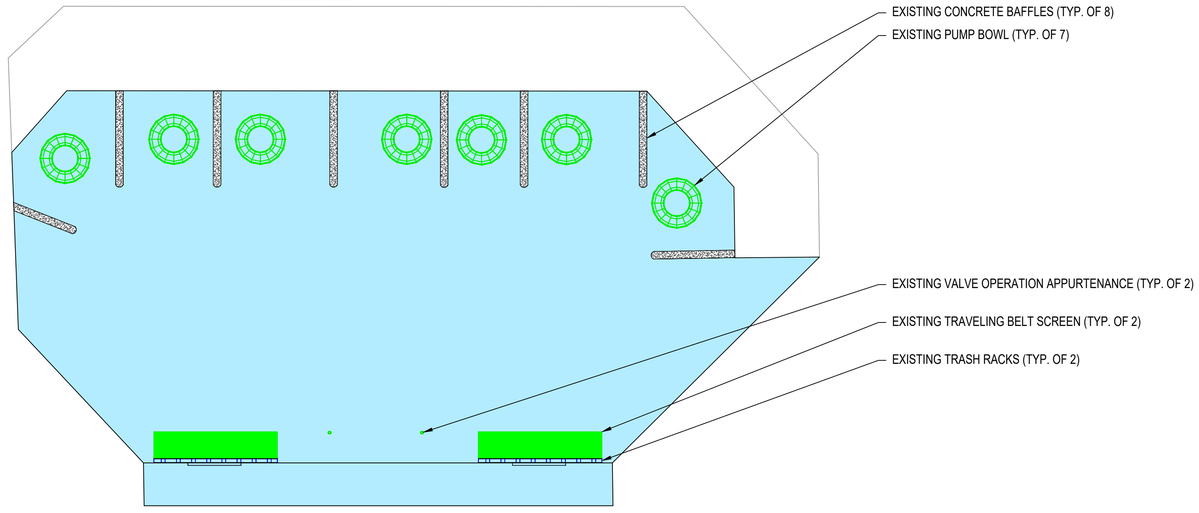
SHEET NO.: 3 14



EXISTING INTAKE STRUCTURE INTERMEDIATE DECK FLOOR PLAN (ELEV. = 345 FEET NGVD 29)

A C01

1" = 5'



EXISTING INTAKE STRUCTURE FOREBAY (ELEV. = 329 FEET NGVD 29)

B C01

1" = 5'

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CITY OF RICHLAND

SNYDER INTAKE SCREEN UPGRADES

EXISTING INTAKE INTERMEDIATE FLOOR AND FOREBAY PLAN

JOB NO.: 718-122
CLIENT: RIC
FILENAME: ISU-P-S01.DWG
SAVE DATE: Jun 12, 2019
PLOT DATE: Jun 12, 2019
ENGINEER: JTR
REVIEWED: RMW

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

NOT FOR CONSTRUCTION
AGENCY REVIEW ONLY

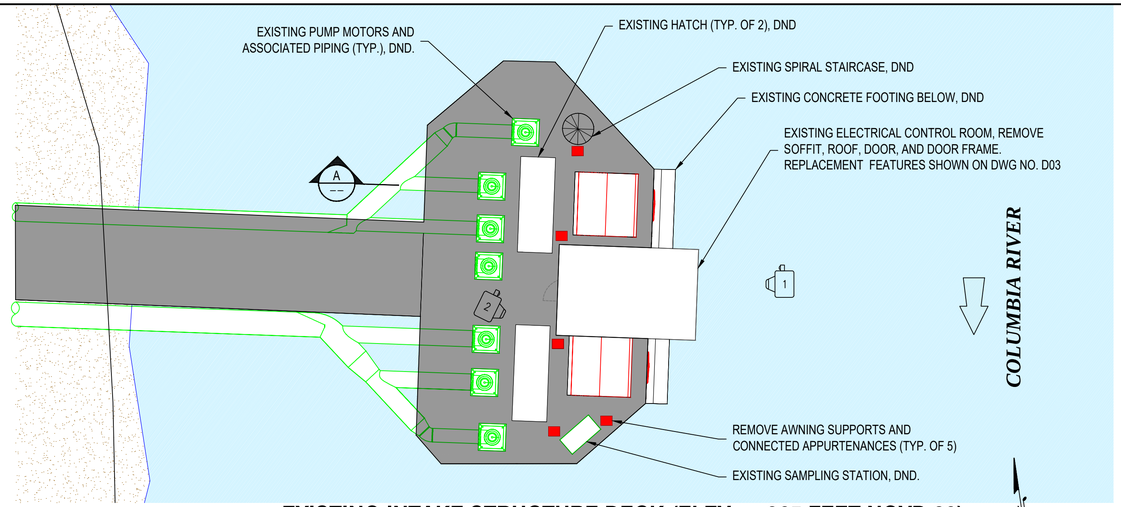
SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

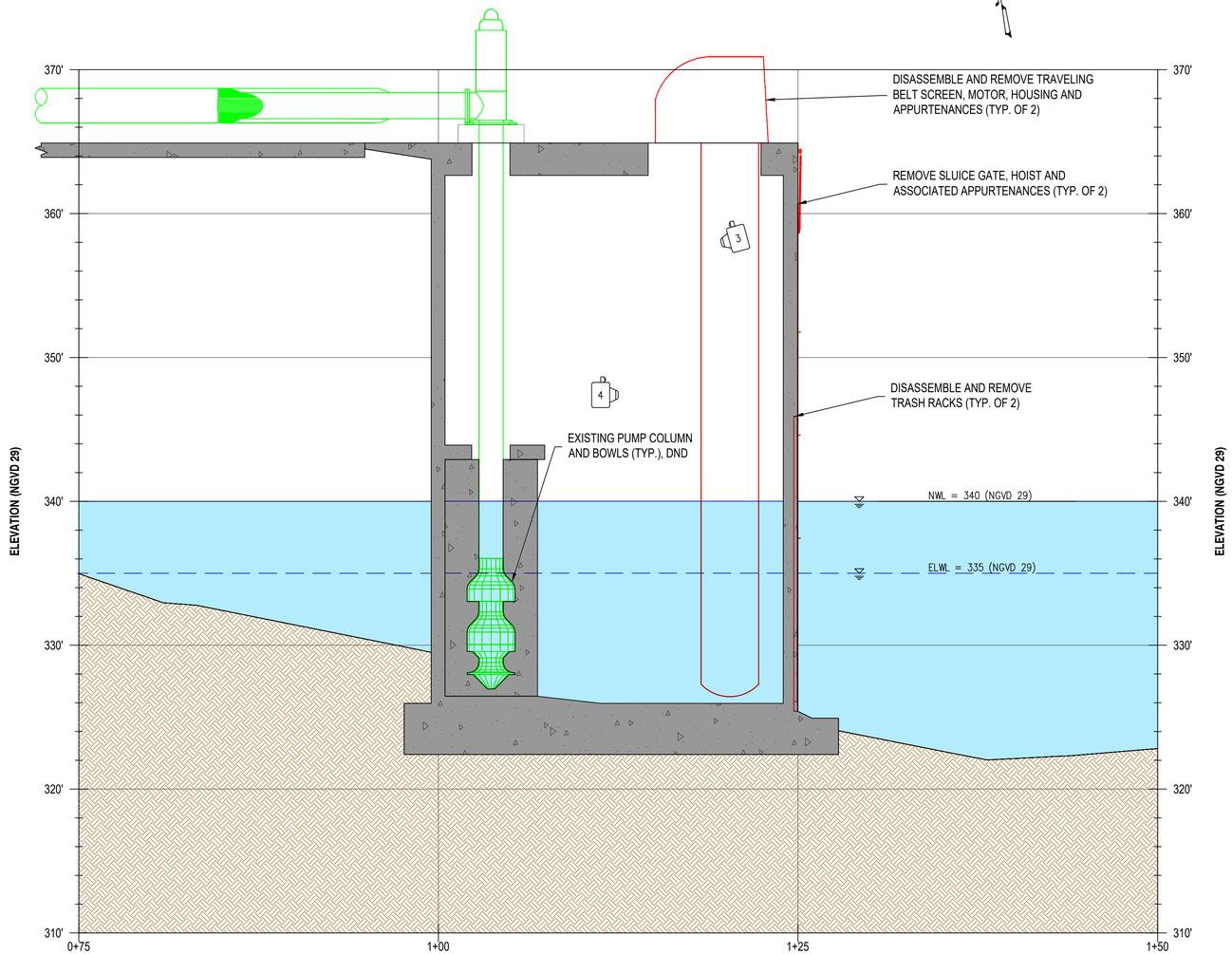
DWG NO.: C02

SHEET NO.: 4



EXISTING INTAKE STRUCTURE DECK (ELEV. = 365 FEET NGVD 29)

1" = 10'



INTAKE STRUCTURE SECTION

1" = 5'

A

RH2

PAUL R. CROSS — STATE OF WASHINGTON — 22808 — REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY

RYAN M. WITHERSPOON — STATE OF WASHINGTON — 49550 — REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY

CITY OF RICHLAND

SNYDER INTAKE SCREEN UPGRADES

DEMO PLAN I

JOB NO.: 718-122

CLIENT: RIC

FILENAME: ISU-P-PREP.DWG

SAVE DATE: May 31, 2019

PLOT DATE: Jun 12, 2019

ENGINEER: JTR

REVIEWED: RMW

REVISIONS

NO.	DESCRIPTION	DATE	BY	REVIEW

NOT FOR CONSTRUCTION
AGENCY REVIEW ONLY

SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

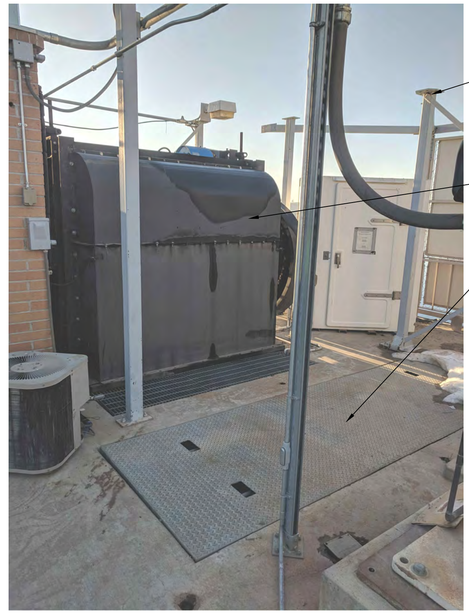
DWG NO.: C03

SHEET NO.: 5 of 14

EXISTING SLUICE GATE AND APPURTENANCES, TO BE REMOVED (TYP. OF 2)

EXISTING TRASH RACKS TO BE REMOVED (TYP. OF 2)

1 **EAST FACE OF INTAKE STRUCTURE**



EXISTING AWNING SUPPORTS, TO BE REMOVED (TYP. OF 5)

EXISTING TRAVELING SCREEN MOTOR AND HOUSING, TO BE REMOVED (TYP. OF 2)

EXISTING HATCH, DO NOT DISTURB

2 **TRAVELING SCREEN MOTOR AND HOUSING**

EXISTING TRAVELING SCREEN, TO BE REMOVED (TYP. OF 2)

3 **INTERMEDIATE DECK**

TRAVELING SCREEN TO BE REMOVED, (TYP. OF 2)

4 **TRAVELING SCREEN**

RH2

PAUL R. CROSS — STATE OF WASHINGTON — 22808 — REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY

RYAN M. WITHERSPOON — STATE OF WASHINGTON — 49550 — REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY

CITY OF RICHLAND

SNYDER INTAKE SCREEN UPGRADES

DEMO PLAN II

JOB NO.: 718-122

CLIENT: RIC

FILENAME: ISU-P-PREP.DWG

SAVE DATE: May 31, 2019

PLOT DATE: Jun 12, 2019

ENGINEER: JTR

REVIEWED: RMW

REVISIONS

NO.	DESCRIPTION	DATE	BY	REVIEW

NOT FOR CONSTRUCTION
AGENCY REVIEW ONLY

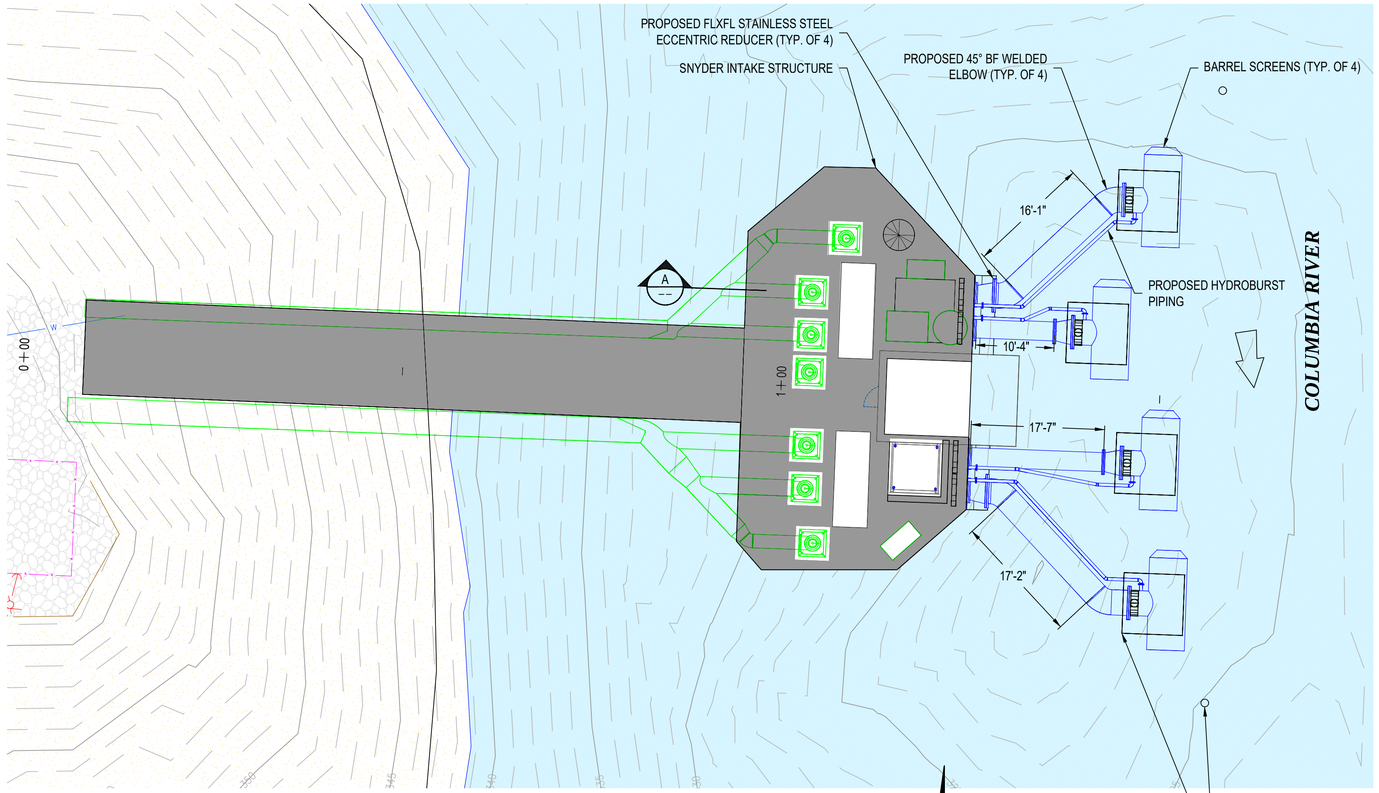
SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

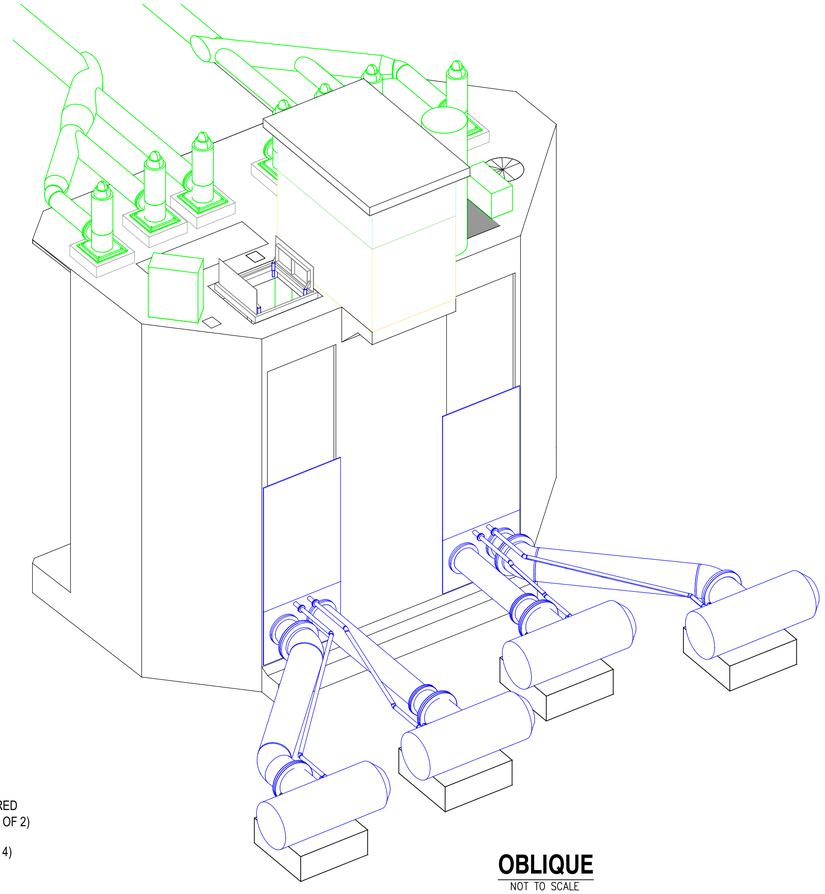
DWG NO.: C04

SHEET NO.: 6 14



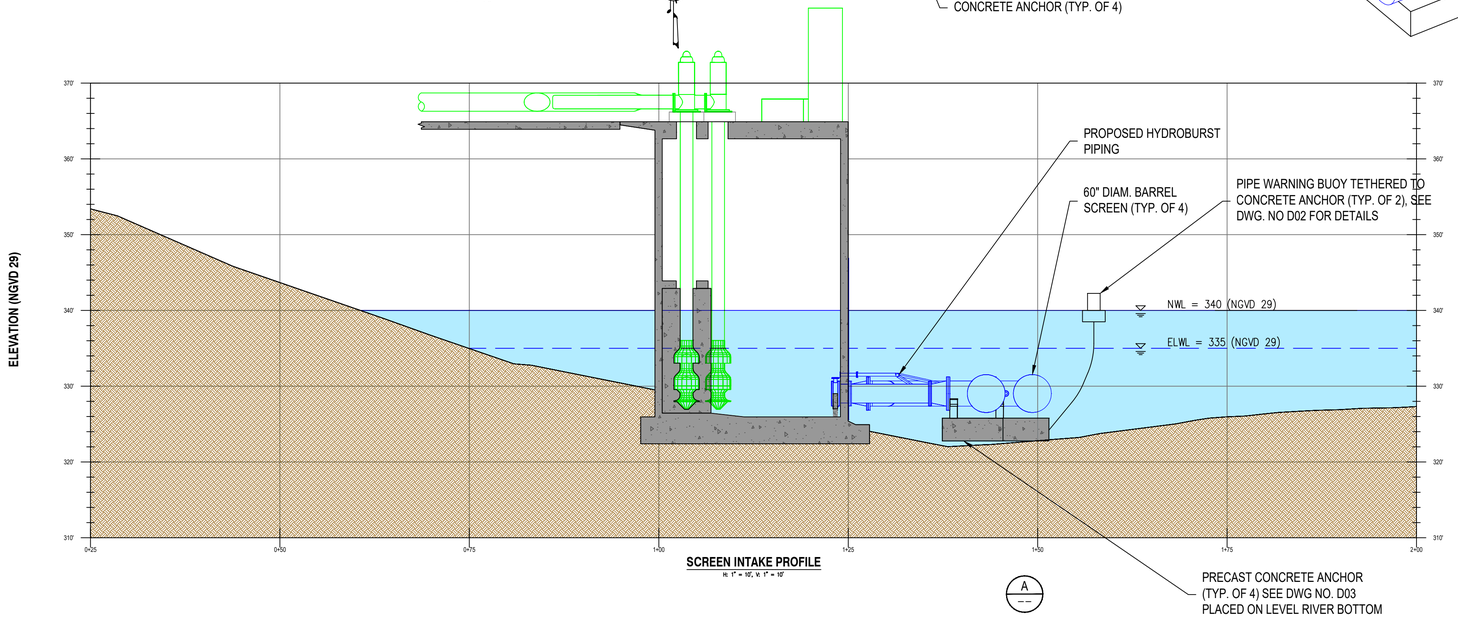
SITE PLAN

1" = 10'



OBLIQUE

NOT TO SCALE



SCREEN INTAKE PROFILE

H: 1" = 10', V: 1" = 10'

RH2

PAUL R. CROSS — STATE OF WASHINGTON — 22808 — REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY

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CITY OF RICHLAND

SNYDER INTAKE SCREEN UPGRADES

PROPOSED INTAKE

REVISIONS			
NO.	DESCRIPTION	DATE	BY
			REVIEW

NOT FOR CONSTRUCTION
AGENCY REVIEW ONLY

JOB NO.: 718-122
CLIENT: RIC
FILENAME: ISU-P-C01.DWG
SAVE DATE: Jun 4, 2019
PLOT DATE: Jun 12, 2019
ENGINEER: JTR
REVIEWED: RMW

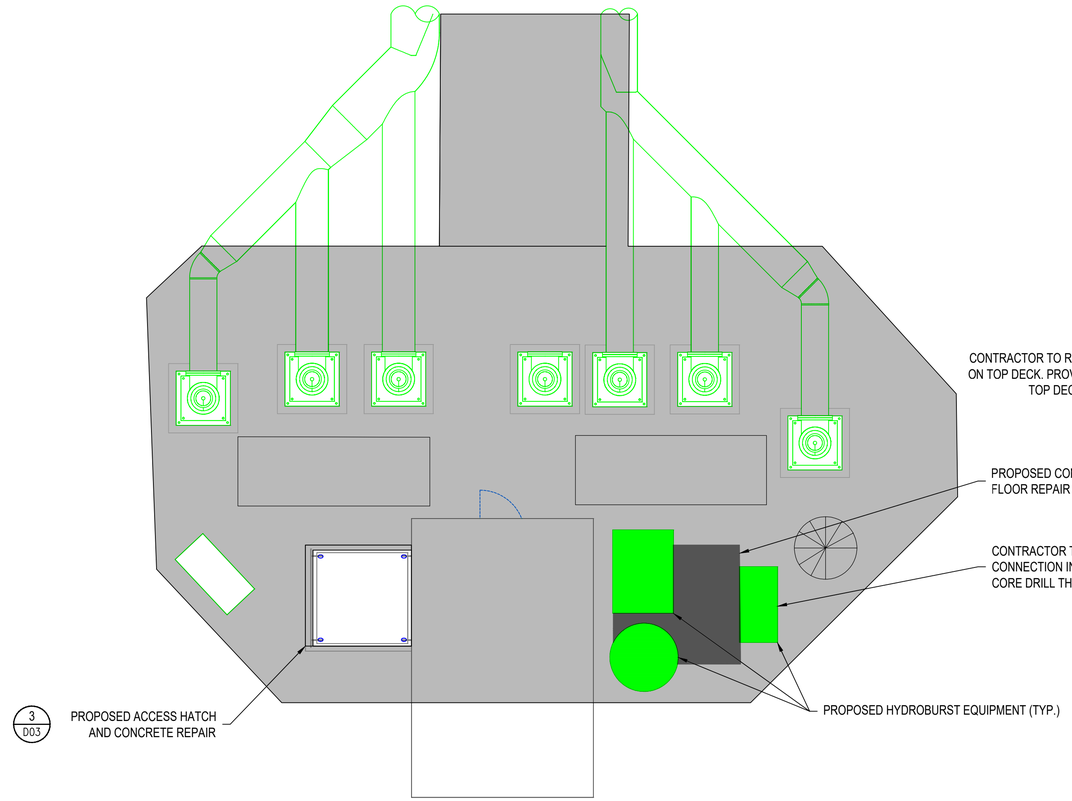
SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

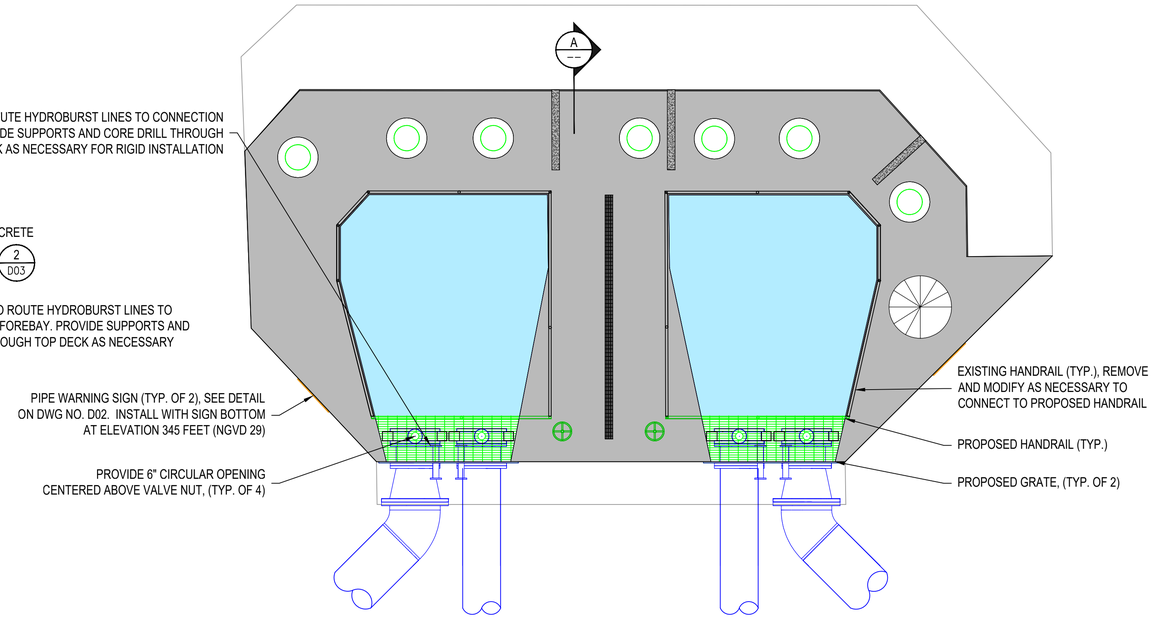
DWG NO.: C06

SHEET NO.: 7 of 14



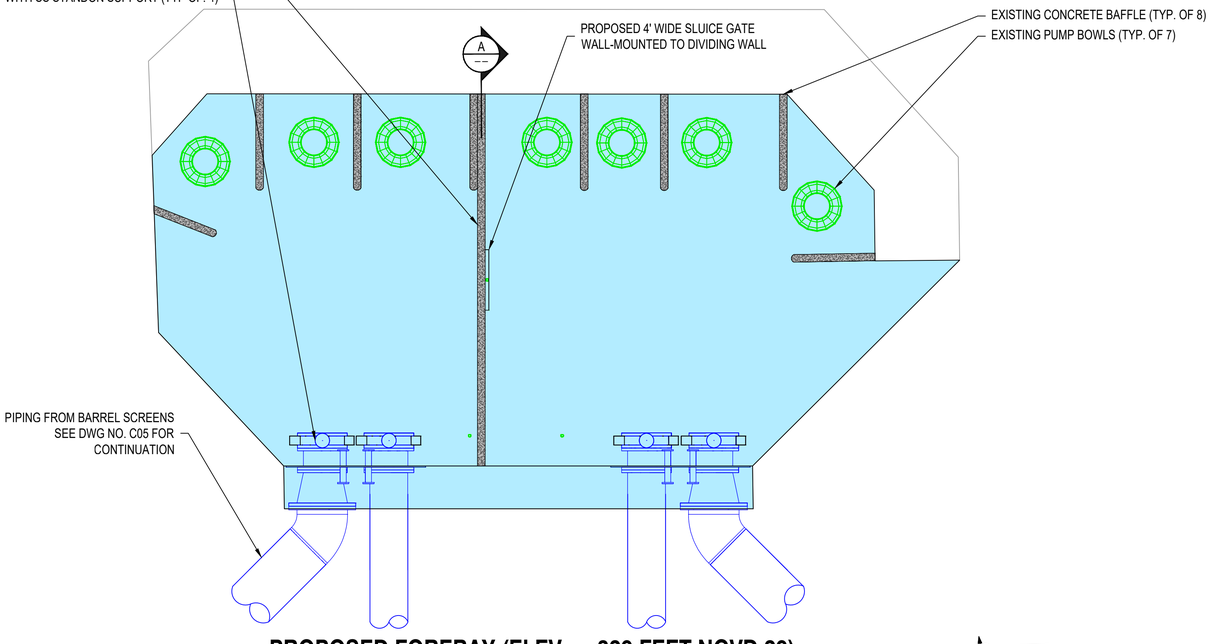
PROPOSED TOP DECK (ELEV. = 365 FEET NGVD 29)

1" = 5'



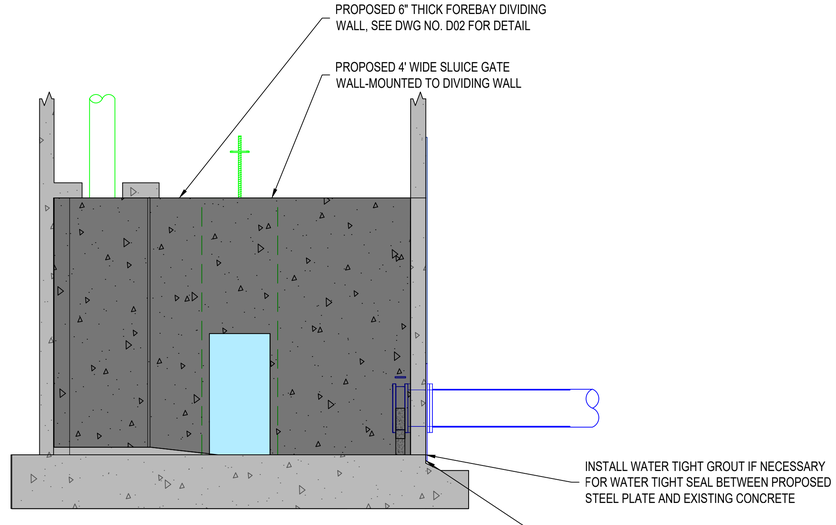
PROPOSED INTERMEDIATE DECK (ELEV. = 345 FEET NGVD 29)

1" = 5'



PROPOSED FOREBAY (ELEV. = 329 FEET NGVD 29)

1" = 5'



PROPOSED FOREBAY DIVIDING WALL

A

1" = 5'

RH2

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CITY OF RICHLAND

SNYDER INTAKE SCREEN UPGRADES

Richland Washington

PROPOSED DECK AND FOREBAY LAYOUT

JOB NO.: 718-122

CLIENT: RIC

FILENAME: ISUP-S02.DWG

DATE: May 31, 2019

PLOT DATE: Jun 12, 2019

ENGINEER: JTR

REVIEWED: RMW

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

NOT FOR CONSTRUCTION
AGENCY REVIEW ONLY

SCALE: SHOWN

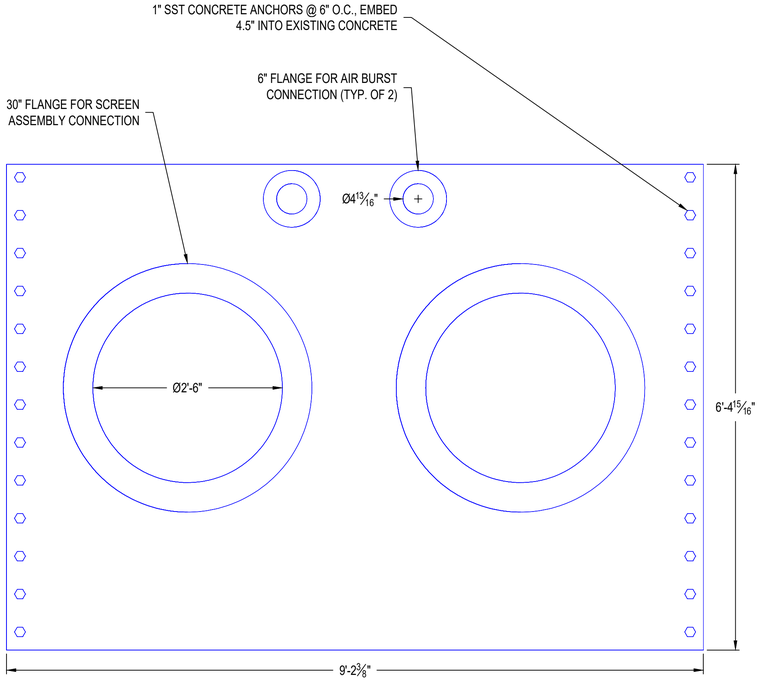
0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

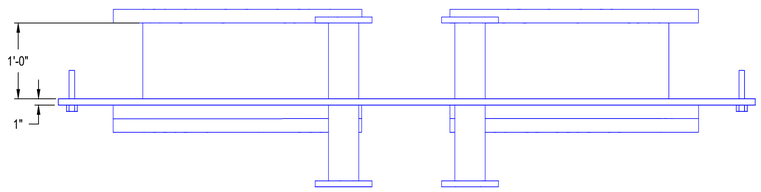
DWG NO.: C07

SHEET NO.: 8

14



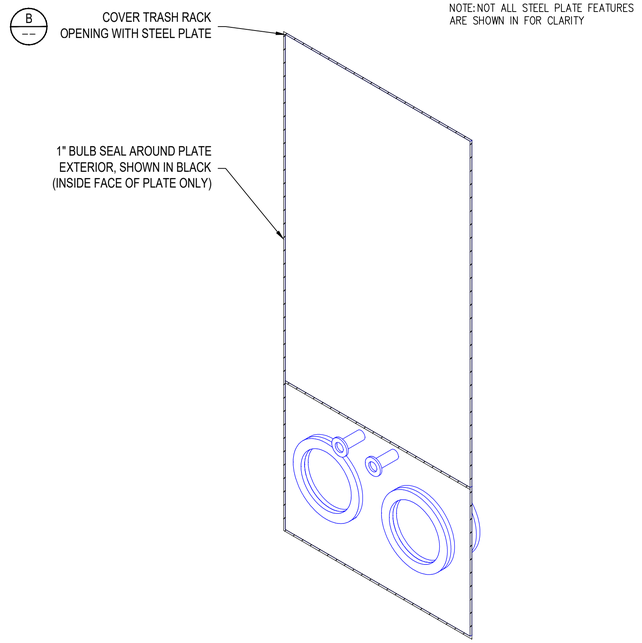
PLAN



SECTION

STAINLESS STEEL PLATE WITH FLANGES (A)

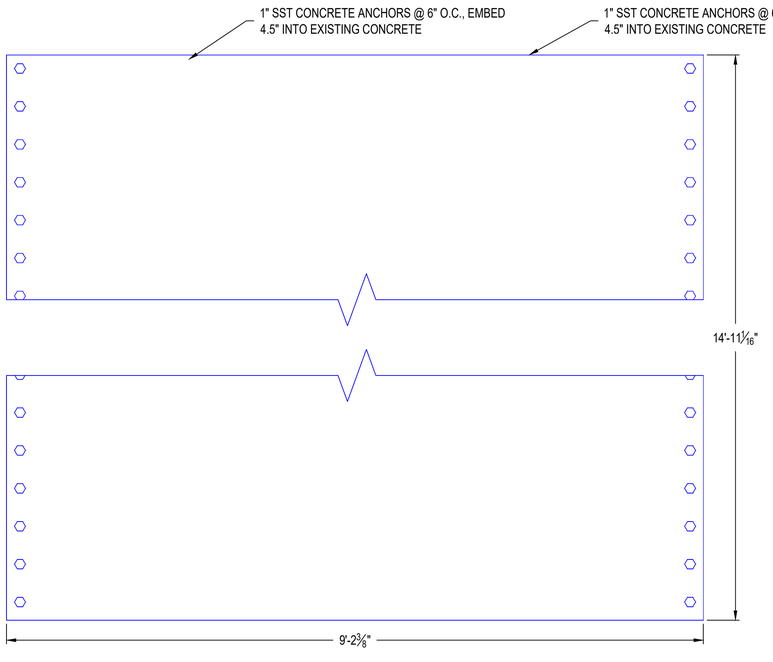
1" = 1'-0"



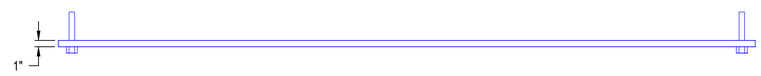
NOTE: NOT ALL STEEL PLATE FEATURES ARE SHOWN IN FOR CLARITY

OBLIQUE

NTS



PLAN



SECTION

STAINLESS STEEL PLATE COVERING TRASH RACK OPENING (B)

½" = 1'-0"

RH2

PAUL R. CROSS — STATE OF WASHINGTON — 22805 — REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY

RYAN M. WITHERSPOON — STATE OF WASHINGTON — 49550 — REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY

CITY OF RICHLAND

SNYDER INTAKE SCREEN UPGRADES

Richland Washington

DETAILS I

JOB NO.: 718-122

CLIENT: RIC

FILENAME: ISLU-DET.DWG

SAVE DATE: May 31, 2019

PLOT DATE: Jun 12, 2019

ENGINEER: JTR

REVIEWED: RMW

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

NOT FOR CONSTRUCTION
AGENCY REVIEW ONLY

SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: D01

SHEET NO.: 9

14

GENERAL STRUCTURAL NOTES (X / X000)

DESIGN VALUES USED:

OCCUPANCY CATEGORY	ESSENTIAL FACILITY
CONCRETE	4,000 PSI WITH 60,000 PSI REINFORCING
CMU	1,500 PSI WITH 60,000 PSI REINFORCING
STEEL	A36 FOR PLATES, A992 FOR OTHER
TIMBER	PER TRUSS MANUFACTURER

CRITERIA:

ALL MATERIALS, WORKMANSHIP, DESIGN, AND CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS, AND THE INTERNATIONAL BUILDING CODE (2018 EDITION)

SPECIAL INSPECTIONS, TESTS, AND OBSERVATIONS:

SPECIAL INSPECTIONS AND TESTS SHALL INCLUDE THE FOLLOWING. REFER TO IBC SECTION 1704 AND 1705 FOR DETAILS.

1. CONCRETE PLACEMENT AT CONCRETE CONSTRUCTION: CONTINUOUS, SEE ALSO SECTION 1705.3 OF THE INTERNATIONAL BUILDING CODE.
2. REINFORCEMENT AT CONCRETE CONSTRUCTION: PERIODIC, SEE ALSO SECTION 1705.3.
3. TESTING OF CONCRETE FOR SPECIFIED COMPRESSIVE STRENGTH (FC), AIR CONTENT AND SLUMP. SEE ALSO TABLE 1705.3.
4. STRUCTURAL OBSERVATION BY A REGISTERED DESIGN PROFESSIONAL IN ACCORDANCE WITH IBC 1704.5 SHALL BE PROVIDED.

GENERAL:

LINES SHOWN ON DRAWINGS MAY BE ASSOCIATED WITH CAD MODELING AND MAY NOT REPRESENT REQUIRED OR ALLOWED JOINTS. SEE DETAILS FOR CLARIFICATION ON REQUIRED AND ALLOWED JOINTS.

REINFORCED CONCRETE:

1. REINFORCING STEEL SHALL BE DETAILED (INCLUDING HOOKS AND BENDS) IN ACCORDANCE WITH ACI 315-99 AND 318-14. LAP ALL REINFORCEMENTS IN ACCORDANCE WITH THE "REINFORCING SPLICE AND DEVELOPMENT LENGTH SCHEDULE" - SEE THIS SHEET. LAP ADJACENT MATS OF WELDED WIRE FABRIC A MINIMUM OF 8" AT SIDES AND ENDS.
2. NO BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE SHALL BE FIELD BENT UNLESS SPECIFICALLY DETAILED OR APPROVED BY THE STRUCTURAL ENGINEER.
3. A 6" WATERSTOP SHALL BE PLACED AT ALL BELOW GRADE CONCRETE SLAB AND WALL CONSTRUCTION JOINTS AND AS SHOWN TO PROVIDE A WATERTIGHT STRUCTURE.
4. CONCRETE PROTECTION FOR REINFORCING STEEL SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED:
   - 4.1. FOOTINGS AND OTHER UNIFORMED SURFACES CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH . . . . . 3"
   - 4.2. FORMED SURFACES EXPOSED TO EARTH (WALLS BELOW GRADE), WATER OR WEATHER (#6 BARS OR LARGER) . . . . . 2"
   - 4.3. COLUMN TIES OR SPIRALS AND BEAM STIRRUPS . . . . . 2"
   - 4.4. SLABS AND INTERIOR FACES . . . . . 2"

ABBREVIATIONS:

AL - ALUMINUM
CHK - CHECKERED
CL - CENTERLINE
CLR - CLEAR
EA - EACH
EF - EACH FACE
FB - FLAT BAR
GALV - GALVANIZED
HORZ - HORIZONTAL
LLV - LONG LEG VERT
O.C. - ON CENTER
PL - PLATE
RB - ROUND BAR
RST - REINF. STEEL
SST - STAINLESS STEEL
T&B - TOP & BOTTOM
VERT - VERTICAL

REINFORCEMENT SPLICE AND DEVELOPMENT SCHEDULE

BAR	MINIMUM STRAIGHT DEVELOPMENT LENGTHS		MINIMUM LAP SPLICE LENGTHS	MINIMUM EMBEDMENT LENGTHS
	TOP BARS	OTHER BARS	TOP BARS	ALL BARS
#4	25"	19"	33"	7"
#5	31"	24"	41"	9"
#6	37"	29"	49"	10"
#7	54"	42"	71"	12"

"TOP BARS" ARE HORIZONTAL BARS WITH MORE THAN 12" DEPTH OF CONCRETE CAST BELOW THEM.
IF CLEAR CONCRETE COVER IS LESS THAN 2x THE DIAMETER OF THE BAR OR THE CENTER-TO-CENTER SPACING IS LESS THAN (4) BAR DIAMETERS, THEN VALUES SHALL BE INCREASED BY 43%
SIDE COVER MUST BE EQUAL TO OR GREATER THAN 2-1/2"
END COVER FOR 90° HOOKS MUST BE EQUAL TO OR GREATER THAN 2"

CONCRETE ANCHORS SHALL BE EITHER HILTI HIT-RE 500-V3 INJECTABLE MORTAR, SIMPSON STRONG-TIE SET-XP ANCHORING ADHESIVE, OR POWERS PE1000+ ADHESIVE ANCHORS AS SPECIFIED. WHERE SIZE IS CALLED OUT ON THE DRAWINGS, PROVIDE MINIMUM EMBEDMENT DEPTHS AS SHOWN ON THE FOLLOWING TABLES. PROVIDE MINIMUM EDGE DISTANCES AND SPACING AS SHOWN ON THE FOLLOWING TABLES UNLESS SPECIFICALLY DETAILED OTHERWISE. SPECIAL INSPECTION REQUIRED.

INSTALL ANCHORS IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

NOTIFY OWNER 48 HOURS IN ADVANCE OF INSTALLATION OF ALL ANCHORS.

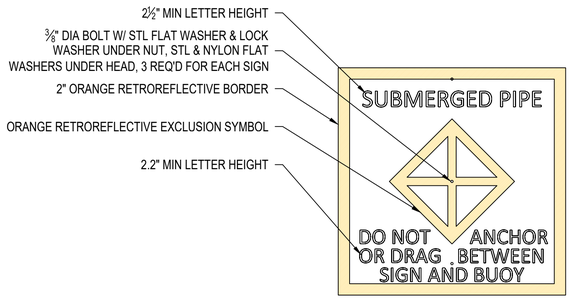
WHERE SIZE IS NOT CALLED OUT, ANCHOR SHALL BE SELECTED BASED ON DESIGN LOADS.IF THE MINIMUM EDGE DISTANCE AND/OR MINIMUM SPACING CAN NOT BE ACHIEVED, REFER TO PRODUCT INFORMATION FOR REDUCTION IN ALLOWABLE LOADS.

CONCRETE ANCHORS
HILTI HIT-RE 500-V3, SIMPSON STRONG-TIE SET-XP & POWERS PE1000+

DIA. OF ROD (INCHES) OR REBAR SIZE NO.	MIN. EDGE DISTANCE (INCHES)	MIN. EMBEDMENT (INCHES)	MIN. ANCHOR SPACING (INCHES)	ALLOWABLE LOAD BASED ON BOND STRENGTH (POUNDS)	
				TENSION	SHEAR
1/2	2-1/2	2-3/4	2-1/2	1,027	2,210
5/8	3-1/8	3-1/8	3-1/8	1,312	2,827
3/4	3-3/4	3-1/2	3-3/4	1,556	3,351
7/8	4-3/8	3-1/2	4-3/8	1,556	3,351
#4	2-1/2	4-1/2	2-1/2	1,520	3,618
#5	3-1/8	5-5/8	3-1/8	1,775	5,494
#6	3-3/4	6-3/4	3-3/4	2,225	7,570
#7	4-3/8	7-7/8	4-3/8	2,440	9,428
#8	5	9	5	4,520	11,507

CONCRETE ANCHOR (X / X000)

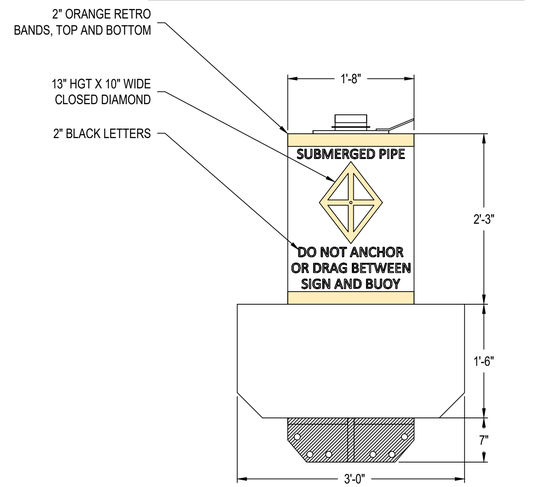
NOTES:
1. SIGNS SHALL BE ALUMINUM. MIN. 0.05–INCH THICK, PRINTED WITH WEATHER, ABRASION, FADE AND UV RESISTANT INK. LETTERING SHALL BE BLACK ON WHITE BACKGROUND. BORDER AND EXCLUSION SYMBOL SHALL BE ORANGE RETROREFLECTIVE.
2. PERFORATED STEEL SQUARE TUBE SUPPORTS SHALL BE IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, MOST RECENT EDITION. ALL STEEL AND FASTENERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A 653, COATING DESIGNATION G140. PERFORATIONS SHALL BE 7/16" DIA HOLES AT 1" SPACING ON ALL FOUR SIDES.



PIPE WARNING SIGN (TYP)

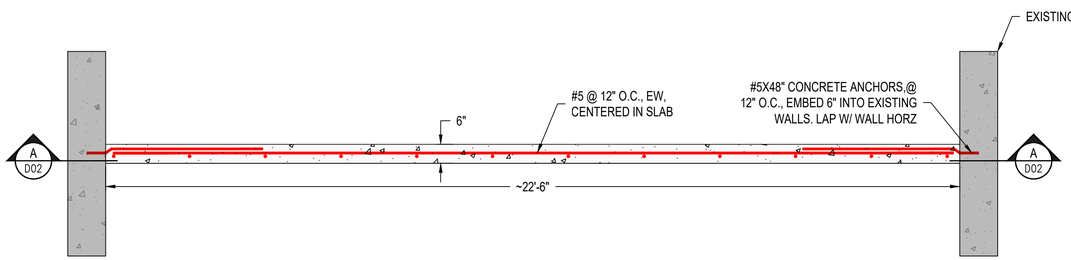
1" = 1'–0"

NOTES:
1. PIPE WARNING BUOY SHALL BE USCG FAST WATER IONOMER CAN BUOY, MODEL 5FWCFR AS MANUFACTURED BY GILMAN CORPORATION.



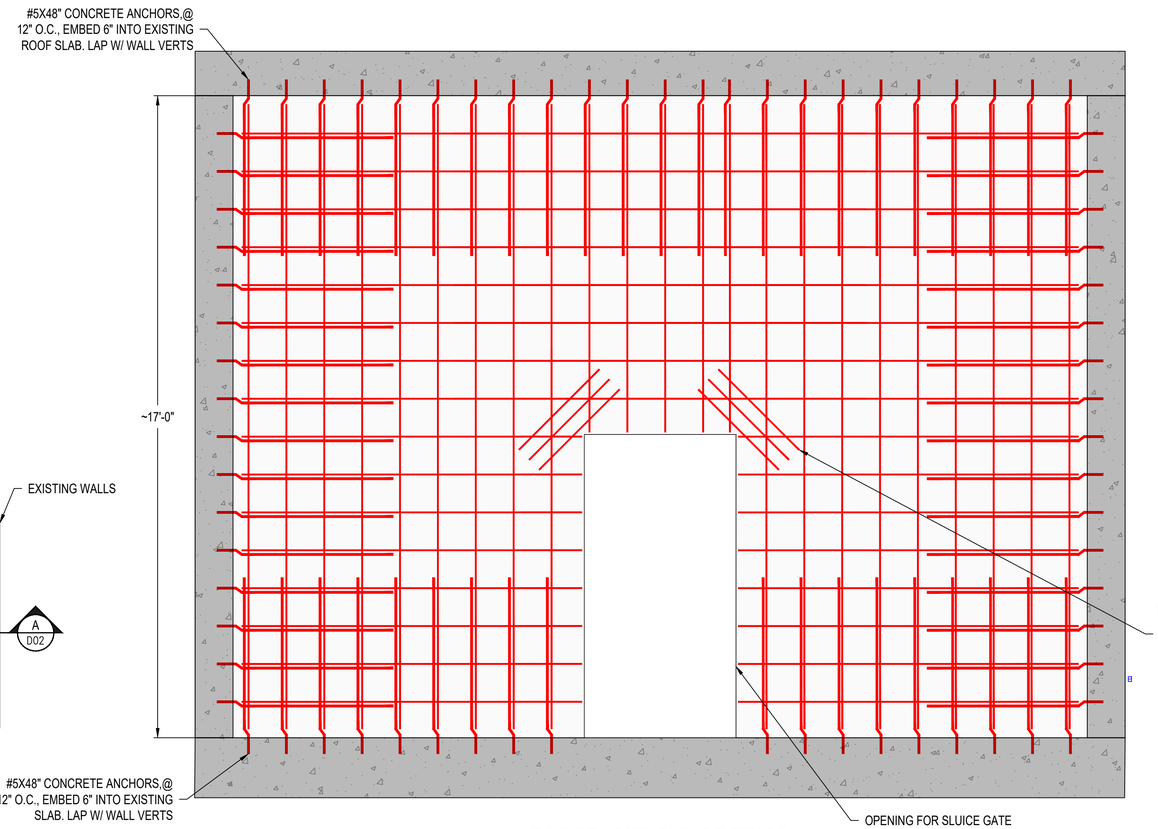
PIPE WARNING BUOY (TYP)

1" = 1'–0"



PROPOSED FOREBAY DIVIDING WALL

½" = 1'–0"



FOREBAY WALL SECTION (A / S02)

½" = 1'–0"

RH2

PRELIMINARY — PAUL R. CROSS — STATE OF WASHINGTON — 22808 — REGISTERED PROFESSIONAL ENGINEER

PRELIMINARY — RYAN M. WITHERSPOON — STATE OF WASHINGTON — 49550 — REGISTERED PROFESSIONAL ENGINEER

CITY OF RICHLAND
SNYDER INTAKE SCREEN UPGRADES

Richland Washington

DETAILS II

REVISIONS

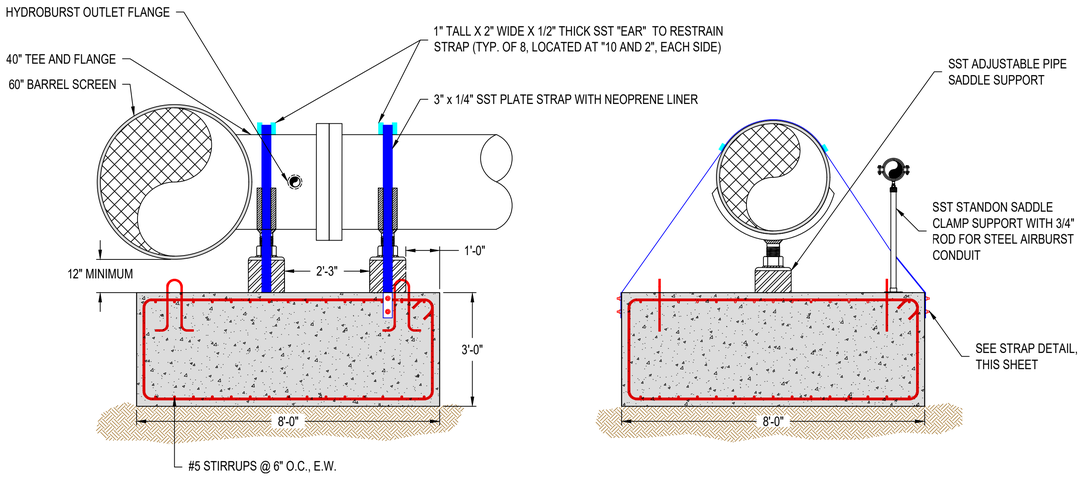
NO.	DATE:	DESCRIPTION	BY	REVIEW

NOT FOR CONSTRUCTION
AGENCY REVIEW ONLY

JOB NO.: 718-122
CLIENT: RIC
FILENAME: ISU-D-DET.DWG
SAVE DATE: May 31, 2019
PLOT DATE: Jun 12, 2019
ENGINEER: JTR
REVIEWED: RMW

SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

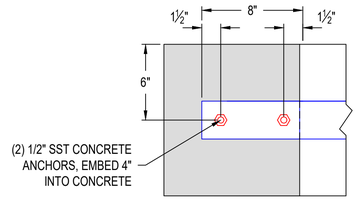
DWG NO.: D02
SHEET NO.: 10 / 14



CONCRETE ANCHORING DETAIL

1/2" = 1'-0"

1 D03

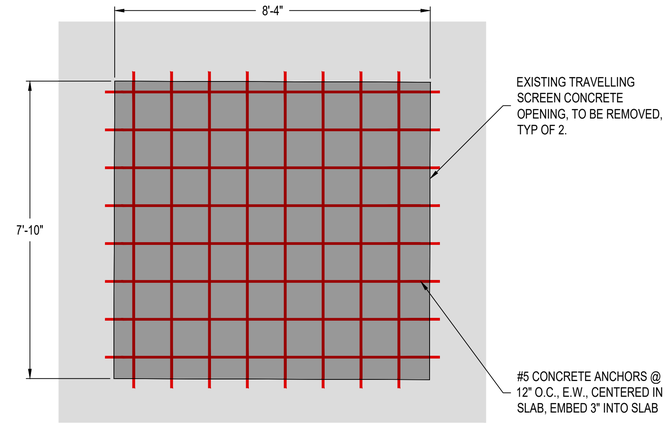


STRAP DETAIL

2" = 1'-0"

ELECTRICAL BUILDING

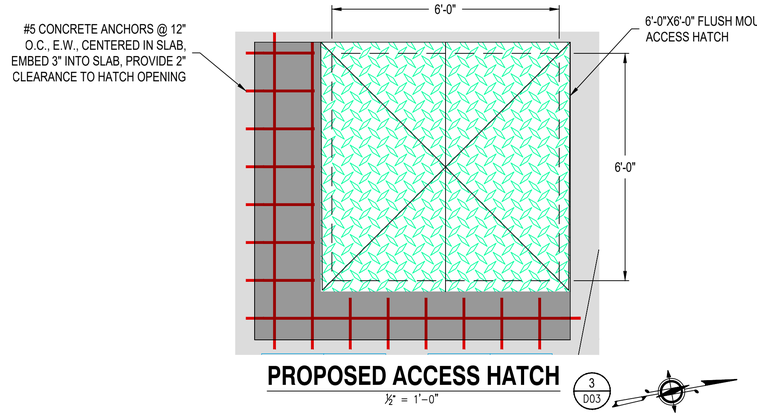
NOT TO SCALE



CONCRETE FLOOR REPAIR

1/2" = 1'-0"

2 D03



PROPOSED ACCESS HATCH

1/2" = 1'-0"

3 D03

RH2

PAUL R. CROSS — STATE OF WASHINGTON — 22808 — REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY

RYAN M. WITHERSPOON — STATE OF WASHINGTON — 49550 — REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY

CITY OF RICHLAND

SNYDER INTAKE SCREEN UPGRADES

DETAILS III

Richland Washington

JOB NO.: 718-122
CLIENT: RIC
FILENAME: ISU-P-DET-S.DWG
SAVE DATE: May 31, 2019
PLOT DATE: Jun 12, 2019
ENGINEER: JLH
REVIEWED: RMW

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

NOT FOR CONSTRUCTION
AGENCY REVIEW ONLY

SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: D03

SHEET NO.: 11

ONE-LINE DIAGRAM SYMBOLS

- CIRCUIT BREAKER
  XXX/YY – CB SIZE & NO. OF POLES
  ET – ELECTRONIC TRIP
  TM – THERMAL MAGNETIC BREAKER
  MCP – MOTOR CIRCUIT PROTECTOR
  SE – SERVICE ENTRANCE
  GFI – GROUND FAULT INTERRUPTER
- FUSE
- FUSED DISCONNECT SWITCH
- PLUG–IN CONNECTION
- RTM — RUN TIME METER
- OC — MOTOR OPERATION COUNTER
- SSRVS — SSRVS – SOLID STATE REDUCED VOLTAGE STARTER
- VARIABLE FREQUENCY DRIVE
- MOTOR STARTER
- A B C D — MOTOR STARTER W/ OPERATOR DEVICES
  A – HAND–OFF–AUTO
  B – OPERATIONAL COUNTER
  C – RUN TIME METER
  D – RUN LIGHT
  E – FAIL LIGHT
  F – EMERGENCY STOP
- K — KIRK KEY INTERLOCK
- POWER TRANSFORMER
- CONTROL POWER TRANSFORMER
- TRANSFORMER
- CURRENT TRANSFORMER
- VOLTAGE TRANSFORMER
- CONTACTOR
- CAPACITOR
- ENGINE GENERATOR
- GENERATOR CONNECTION RECEPTACLE
- S N — SOLID NEUTRAL
- TB — TERMINAL BLOCK
- SURGE PROTECTION DEVICE
- SPD — SURGE PROTECTION DEVICE (ALTERNATIVE)

GROUNDING SYSTEM SYMBOLS

- GROUND
- METAL PIPE GROUND
- CONNECTION POINT, EXOTHERMIC WELD. CADWELD OR APPROVED EQUAL.
- GROUND ROD SIZED PER N.E.C. USE EXOTHERMIC WELD CONNECTION AT THE GROUND ROD.
- PIGTAIL, BARE COPPER, LENGTH AS REQUIRED, 8' MINIMUM.
- CONNECTION POINT, MECHANICAL, COMPRESSION TYPE.

ELECTRICAL SITE PLAN SYMBOLS

- UTILITY POLE AND GUY WIRE
- HH — MANHOLE OR HANDHOLE
- P — BURIED POWER VAULT OR MANHOLE
- T — TELEPHONE VAULT OR PEDESTAL
- F — FIBER OPTICS VAULT OR PEDESTAL
- LUMINAIRE
- PAD–MOUNT TRANSFORMER

PANELBOARDS, SWITCHES, AND EQUIPMENT

- SERVICE ENTRANCE, SWITCHGEAR, MOTOR CONTROL CENTER, OR PANELBOARD
- SURFACE MOUNTED PANELBOARD
- FLUSHED MOUNTED PANELBOARD
- NXX — FIELD CONTROL STATION WITH NEMA REQUIREMENTS.
  N1 – NEMA 1
  N3R – NEMA 3R
  N4 – NEMA 4
  N4SS – NEMA 4 STAINLESS STEEL
  N4F – NEMA 4 FIBERGLASS
  N6 – NEMA 6
  N12 – NEMA 12 GASKETED
- EQUIPMENT MOUNTING STAND
- T — HEATER, WATTAGE NOTED
- EQUIPMENT CONNECTION
- M — SINGLE PHASE MOTOR. HORSEPOWER AS NOTED
- 100 — THREE PHASE MOTOR. HORSEPOWER AS NOTED
- HP — SINGLE PHASE MOTOR. HORSEPOWER AS NOTED
- ELECTRICAL PLUG
- DISCONNECT SWITCH
- F — FUSED DISCONNECT SWITCH
- COMBINATION MOTOR STARTER AND DISCONNECT SWITCH

RECEPTACLES AND JUNCTION BOX SYMBOLS

- J — CEILING JUNCTION BOX
- J — WALL JUNCTION BOX
- J — FLOOR JUNCTION BOX
- DUPLEX WALL RECEPTACLE , 120V
  WP = WEATHERPROOF
  G = GROUNDED
  IG = ISOLATED GROUND
  GF = GROUND FAULT INTERRUPTER
- DOUBLE DUPLEX
- SINGLE RECEPTACLE, 120V
- SINGLE RECEPTACLE, 208V
- DUPLEX FLOOR RECEPTACLE, 120V
- SPECIAL PURPOSE WALL RECEPTACLE, RATING AS NOTED
- CLOCK
- TV — TELEVISION
- TELEPHONE
- TELEPHONE/DATA WITH CABLE
- TELEPHONE/DATA WITHOUT CABLE

SWITCH OUTLETS

- S — STANDARD SWITCH, 120VAC, 20 AMP
- S 3 — 3WAY — 3–WAY SWITCH, 120VAC, 20 AMP
- S HOA — HOA — 3–POSITION SWITCH, 120VAC, 20 AMP, LABEL SWITCH POSITION HAND–OFF–MOTION OR PHOTO

S DEE — SINGLE–POLE	S P — PILOT–LIGHTED
S 2 — DOUBLE–POLE	S K — KEY–OPERATED
S 3 — THREE WAY	S LV — LOW VOLTAGE
S 4 — FOUR WAY	S M — MASTER
S D — DIMMER	PUSHBUTTON

LIGHTING FIXTURES/DEVICES

- FLUORESCENT FIXTURE
- WALL/CEILING MOUNTED FIXTURE
- EMERGENCY LIGHT WITH SELF CONTAINED BATTERY
- SURFACE OR PENDANT MOUNTED FIXTURE
- RECESSED FIXTURE
- MD — MOTION DETECTOR
- PC — PHOTO CONTROL CELL

FIRE SYSTEM SYMBOLS

- H — HEAT DETECTOR
- S — SMOKE DETECTOR
- D — FIRE ALARM DISPATCH STROBE ALARM
- A — FIRE ALARM AUDIBLE/VISUAL ALARM
- F — FIRE ALARM MANUAL PULL STATION

ADDITIONAL SYMBOLS

- S — SOUND SYSTEM SPEAKER
- V — SOUND SYSTEM VOLUME CONTROL
- B — DOORBELL

VALVE SYMBOLS

- PILOT VALVE SOLENOID
- VALVE
- CHECK VALVE
- CONTROL VALVE

PID FORMAT

XYZ (SUPERSCRIPT) / ABC (INSTRUMENT BUBBLE)

X=MEASURED OR INITIATING VARIABLE
Y=READOUT OR FUNCTION
Z=MODIFIER
ABC=LOOP NUMBER

ISA STANDARDS FOR P&ID

	1st LETTER (MEASURED OR INITIATING VARIABLE)	2nd LETTER (READOUT OR FUNCTION)	3rd LETTER (MODIFIER)
A	ANALYSIS	ALARM	
B	BURNER (BATTERY)		
C	COMMUNICATION	CONTROL (DELAY)	(BACK)
D	DENSITY		CLOSED
E	VOLTAGE		
F	FLOW		FAIL (FLOW)
G	GAS		GREEN BULB
H	HAND	MANUAL INDICATE	HIGH
	CURRENT (INTRUSION)		
J	POWER (EQUIPMENT)		
K	TIME	CONTROL STATION LIGHT	
L	LEVEL		LOW
M	MOTION		MIDDLE
N	USERS CHOICE		
O	USERS CHOICE		OPEN
P	PRESSURE	(PUMP)	(PRESSURE)
Q	QUANTITY (EVENT)	TOTALIZE	
R	RADIATION (REQ'D)	RECORD	RED BULB
S	SPEED (SMOKE)	SWITCH	SOLENOID
T	TEMPERATURE	TRANSMITTER	(TRANSMITTER)
U	MULTI VARIABLE	MULTI FUNCTION VALVE	
V	VISCOSITY (pH)		
W	WEIGHT		
X	UNCLASSIFIED		
Y	USERS CHOICE	RELAY (TRANSDUCER)	
Z	POSITION		

ABBREVIATIONS

SPDT – SINGLE POLE, DOUBLE THROW
SPST – SINGLE POLE, SINGLE THROW
DPST – DOUBLE POLE, SINGLE THROW
WP – WEATHER–PROOF
GFI – GROUND FAULT INTERRUPT
P – POWER
C – CONTROL
J – INSTRUMENTATION
PC – POWER & CONTROL
CJ – CONTROL & INSTRUMENTATION
CKT. – CIRCUIT
C.O. – CONDUIT ONLY
N.L. – NIGHT LIGHT
AL. – ALUMINUM
CU. – COPPER

HOA	HAND–OFF–AUTO SWITCH
ETM	RUN TIME METER
OC	OPERATION COUNTER
MRIL	MOTOR RUN INDICATION LIGHT
SFIL	SEAL FAIL INDICATION LIGHT
SFTR	SEAL FAIL TRIP RESET
OTIL	OVER TEMPERATURE INDICATION LIGHT
MOIL	MOTOR OVERLOAD INDICATION LIGHT

INDICATE TYPE BY LETTER

- V
- AH

INSTRUMENT METER

A – AMMETER	VAR – VARMETER
AH – AMPERE–HOUR	VARH – VARHOUR METER
PF – POWER FACTOR	W – WATTMETER
V – VOLTMETER	WH – WATTHOUR METER
VA – VOLT AMMETER	

RACEWAY LEGEND

SITE PLAN LEGEND

- P — PROPOSED POWER
- TEL — PROPOSED TELEPHONE
- TELM — PROPOSED INSTRUMENTATION
- FO — PROPOSED FIBER OPTICS

BUILDING OR FACILITY PLAN LEGEND

- 480 VOLT EXPOSED RACEWAY
- 480 VOLT WIRING CONCEALED, UNDERGROUND, EMBEDDED, OR CONCRETE ENCASED RACEWAY
- 120/208/240 VOLT EXPOSED RACEWAY
- 120/208/240V WIRING CONCEALED, UNDERGROUND, EMBEDDED, OR CONCRETE ENCASED RACEWAY
- CONTROL OR INSTRUMENTATION EXPOSED RACEWAY
- CONTROL OR INSTRUMENTATION, UNDERGROUND, EMBEDDED, OR CONCRETE ENCASED RACEWAY
- HOME RUN TO PANELBOARD OR AS INDICATED
- CONDUIT RUN, BROKEN AND CONTINUED SAME SHEET OR AS NOTED
- FLEXIBLE CONDUIT
- CONDUIT RUN. HATCH MARKS INDICATE NUMBER OF CONDUCTORS
- ½" GRC, 2–#12 — CALLOUT INDICATING CONDUIT SIZE, NUMBER AND SIZE OF WIRE.
- XX — CALLOUT INDICATING CONDUIT PER SCHEDULE
- CONDUIT BENT UP OR TOWARD
- CONDUIT BENT DOWN OR AWAY
- CAPPED CONDUIT

PROJECT SPECIFIC ONE-LINE DIAGRAM INFORMATION

- EXISTING EQUIPMENT AND CONDUIT
- PROPOSED EQUIPMENT AND CONDUIT
- GROUNDING EQUIPMENT AND CONDUCTORS
- CONDUIT, WIRING OR EQUIPMENT TO BE REMOVED

ELECTRICAL & SIGNAL PLAN DEVICES

SV	SOLENOID VALVE COIL	ZS (S)	INTRUSION SWITCH
MV	MOTORIZED VALVE COIL	MD	MOTION DETECTOR
M	MOTOR	LT	LEVEL TRANSDUCER
FS	FLOOD SWITCH	HE	HEATING ELEMENT
LS	LIMIT SWITCH	PS	PRESSURE SWITCH
PB	PANIC BUTTON	PE	PRESSURE ELEMENT
T	THERMOSTAT SWITCH	FE	FLOW ELEMENT
ZS (KEY)	INTRUSION SWITCH – KEY	AE	ANALYSIS ELEMENT

LADDER LOGIC SYMBOL LEGEND

INDICATOR LIGHT	INDICATOR LIGHT A – AMBER G – GREEN B – BLUE R – RED C – CLEAR W – WHITE
LIMIT SWITCH	LIMIT SWITCH, NORMALLY OPEN
LIMIT SWITCH	LIMIT SWITCH, NORMALLY CLOSED
TIME DELAY CONTACT	TIME DELAY CONTACT, NORMALLY OPEN, TIME TO CLOSE
TIME DELAY CONTACT	TIME DELAY CONTACT, NORMALLY CLOSED, TIME TO OPEN
TIME DELAY CONTACT	TIME DELAY CONTACT, NORMALLY OPEN, TIME TO OPEN
TIME DELAY CONTACT	TIME DELAY CONTACT, NORMALLY CLOSED, TIME TO CLOSE
RELAY CONTACT, NC RELAY CONTACT, NO	RELAY CONTACT, INSTANTANEOUS CHANGE
PRESSURE SWITCH	PRESSURE SWITCH, NORMALLY OPEN
PRESSURE SWITCH	PRESSURE SWITCH, NORMALLY CLOSED
LADDER LOGIC LINETYPES COMPONENT INSTALLED INSIDE ENCLOSURE COMPONENT INSTALLED ON FRONT OF ENCLOSURE FIELD CONNECTED COMPONENT	

RELAY (XYZ 123)	RELAY TR – Timed relay CR – Control relay
FLOAT SWITCH	FLOAT SWITCH, NORMALLY OPEN
FLOAT SWITCH	FLOAT SWITCH, NORMALLY CLOSED
PUSHBUTTON	PUSHBUTTON, NORMALLY CLOSED
PUSHBUTTON	PUSHBUTTON, NORMALLY OPEN
THERMOSTAT	THERMO SWITCH, NORMALLY OPEN
THERMOSTAT	THERMO SWITCH, NORMALLY CLOSED
FLOWSWITCH	FLOWSWITCH, NORMALLY OPEN
FLOWSWITCH	FLOWSWITCH, NORMALLY CLOSED
	2 POLE SWITCH
	3 POLE SWITCH

P&ID BUBBLE IDENTIFICATION CHART

EXISTING	FUNCTION
	INSTRUMENT IDENTIFICATION BUBBLE
	FIELD MOUNTED DEVICE OR INSTRUMENT
	FRONT PANEL MOUNTED INSTRUMENT OR DEVICE (LOCAL PANEL)
	BACK PANEL MOUNTED INSTRUMENT OR DEVICE (LOCAL PANEL)
	FRONT PANEL MOUNTED INSTRUMENT OR DEVICE (LAB ROOM PANEL)
	OPERATOR INTERFACE DISPLAY (LOCAL PANEL)
	OPERATOR INTERFACE DISPLAY (LAB ROOM PANEL)

GENERAL NOTES

1. THIS IS A STANDARD LEGEND. NOT ALL OF THE INFORMATION SHOWN ON THIS PAGE WILL APPEAR IN THIS SET OF PLANS.

2. THESE DRAWINGS ARE DIAGRAMMATIC ONLY; EXACT LOCATIONS OF ELECTRICAL EQUIPMENT SHALL BE DETERMINED IN THE FIELD BY THE CONTRACTOR. THE INSTALLATION OF ALL EQUIPMENT SHOWN ON THESE DRAWINGS OR DESCRIBED IN THE SPECIFICATIONS SHALL CONFORM TO THE REQUIREMENTS SET FORTH IN THE LATEST EDITIONS OF ALL APPLICABLE CODES AND UTILITY COMPANY STANDARDS. CONTACT THE UTILITY COMPANY REPRESENTATIVES AND VERIFY THEIR REQUIREMENTS.

3. NOTIFY THE ENGINEER IMMEDIATELY IF CONFLICTS IN EQUIPMENT LOCATIONS ARE DISCOVERED OR IF PROBLEMS ARISE DUE TO FIELD CONDITIONS, LACK OF INFORMATION OR ANY OTHER REASON. NO PAYMENT WILL BE MADE FOR CHANGES WHICH HAVE NOT BEEN REVIEWED BY THE ENGINEER.

RH2

PAUL R. CROSS — STATE OF WASHINGTON — 22808 — REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY

RYAN M. WITHERSPOON — STATE OF WASHINGTON — 49550 — REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY

CITY OF RICHLAND

SNYDER INTAKE SCREEN UPGRADES

Richland Washington

ELECTRICAL LEGEND

JOB NO.: 716-122
CLIENT: RIC
FILENAME: ISU-P-E01.DWG
BASE DATE: May 31, 2019
PLOT DATE: Jun 12, 2019
ENGINEER: XXX
REVIEWED: XXX

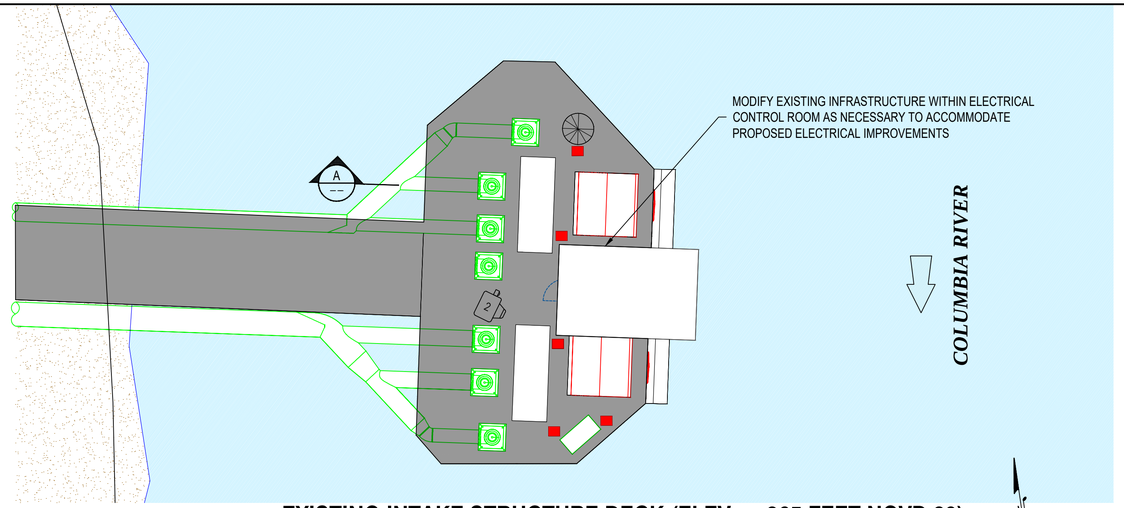
REVISIONS

NO.	DESCRIPTION	DATE	BY	REVIEW

NOT FOR CONSTRUCTION
AGENCY REVIEW ONLY

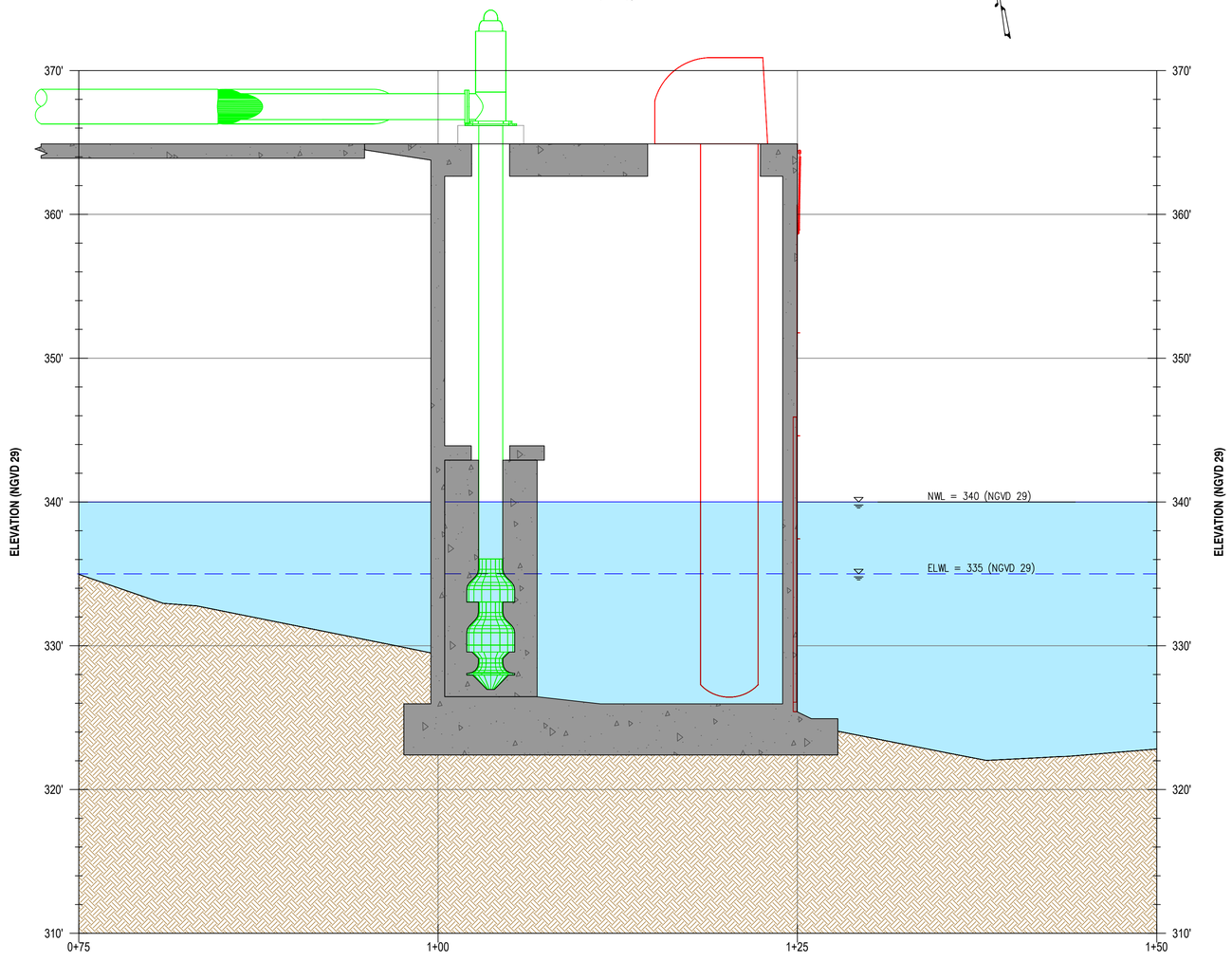
SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E01
SHEET NO.: 12 14



EXISTING INTAKE STRUCTURE DECK (ELEV. = 365 FEET NGVD 29)

1" = 10'



INTAKE STRUCTURE SECTION

A

1" = 5'

RH2

PAUL R. CROSS STATE OF WASHINGTON 22808 REGISTERED PROFESSIONAL ENGINEER PRELIMINARY

RYAN M. WITHERS STATE OF WASHINGTON 49550 REGISTERED PROFESSIONAL ENGINEER PRELIMINARY

CITY OF RICHLAND

SNYDER INTAKE SCREEN UPGRADES

Richland Washington

ELECTRICAL DEMO PLAN

ENGINEER: XXX	DRAWN DATE: May 31, 2019	CLIENT: RIC	JOB NO.: 718-122
REVIEWED: XXX	PLOT DATE: Jun 12, 2019	FILENAME: ISU-P-E02.DWG	

REVISIONS

NO.	DESCRIPTION	DATE	BY	REVIEW

NOT FOR CONSTRUCTION AGENCY REVIEW ONLY

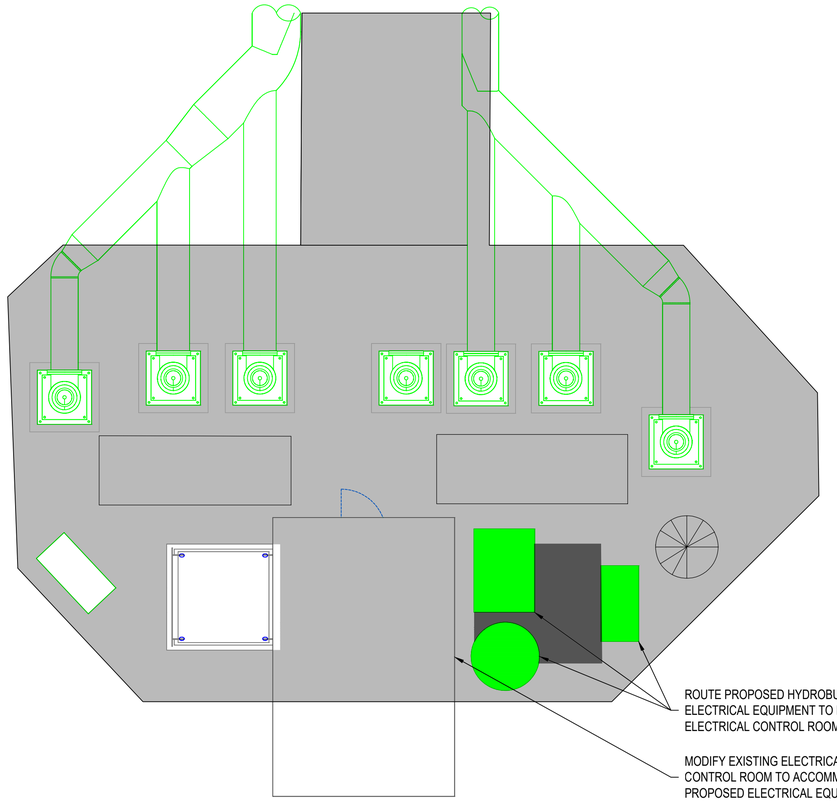
SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

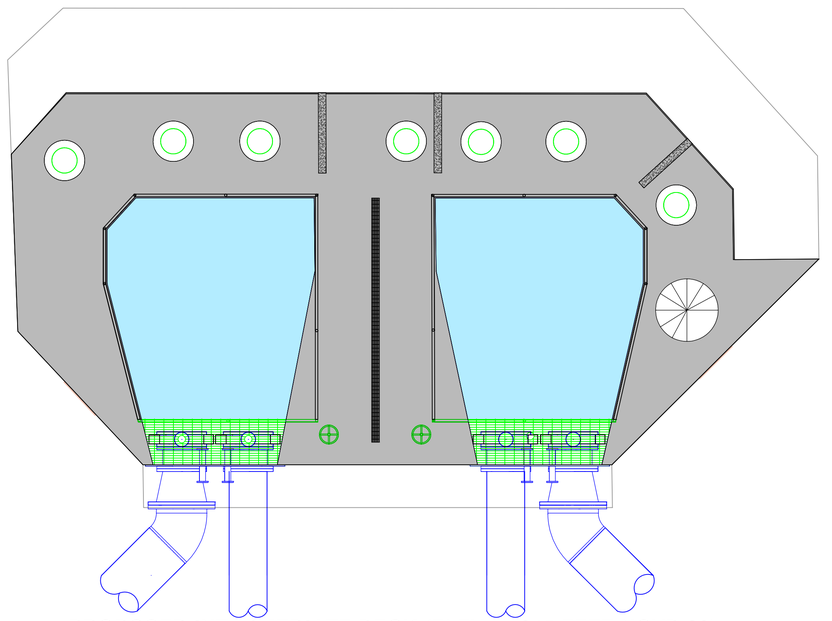
DWG NO.: E02

SHEET NO.: 13 14



PROPOSED TOP DECK (ELEV. = 365 FEET NGVD 29)

1" = 5'



PROPOSED INTERMEDIATE DECK (ELEV. = 345 FEET NGVD 29)

1" = 5'

RH2

PAUL R. CROSS — STATE OF WASHINGTON — 22808 — REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY

RYAN M. WITHERSPOON — STATE OF WASHINGTON — 49550 — REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY

CITY OF RICHLAND

SNYDER INTAKE SCREEN UPGRADES

PROPOSED ELECTRICAL IMPROVEMENTS

Richland Washington

JOB NO.: 716-122

CLIENT: RIC

FILENAME: ISU-P-E03.DWG

DATE: May 31, 2019

PLOT DATE: Jun 12, 2019

ENGINEER: XXX

REVIEWED: XXX

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW

NOT FOR CONSTRUCTION
AGENCY REVIEW ONLY

SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E03

SHEET NO.: 14 of 14

Appendix D
Species List and Information

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U.S. Fish & Wildlife Service

Search ECOS

ECOS Environmental Conservation Online System

Conserving the Nature of America

ECOS / Species Reports / Species By County Report

Species By County Report

The following report contains Species that are known to or are believed to occur in this county. Species with range unrefined past the state level are now excluded from this report. If you are looking for the Section 7 range (for Section 7 Consultations), please visit the IPaC application.

County: Benton, Washington

CSV

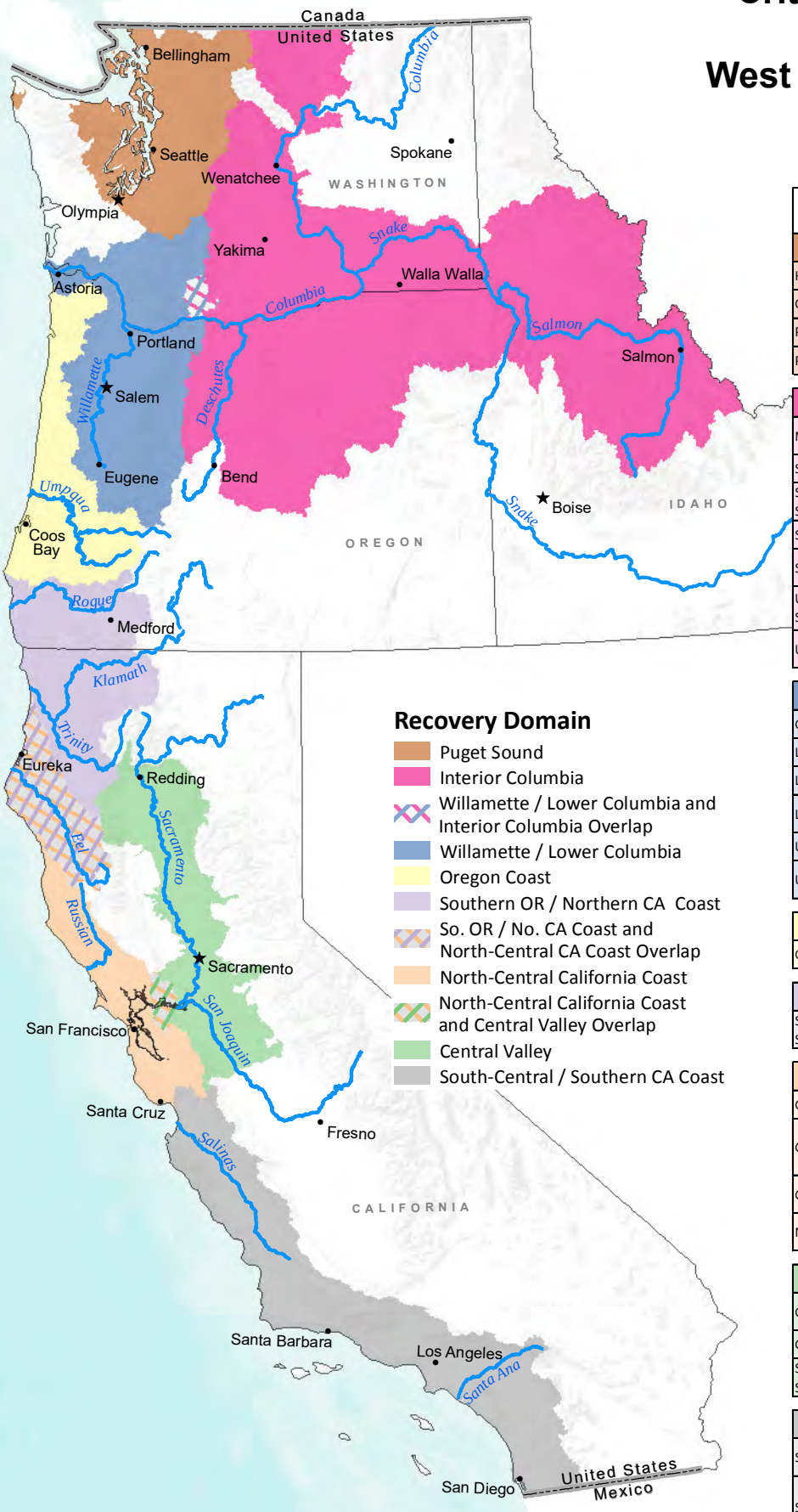
Need to contact a FWS field office about a species? Follow this link to find your local FWS Office.

Group	Name	Population	Status	Lead Office	Recovery Plan	Recovery Plan Action Status
Birds	Yellow-billed Cuckoo (*Coccyzus americanus*)	Western U.S. DPS	Threatened	Sacramento Fish and Wildlife Office		
Birds	Marbled murrelet (*Brachyramphus marmoratus*)	U.S.A. (CA, OR, WA)	Threatened	Washington Fish and Wildlife Office	Recovery Plan for the Threatened Marbled Murrelet (Brachyramphus marmoratus) in Washington, Oregon, and California	Implementation Progress
Fishes	Bull Trout (*Salvelinus confluentus*)	U.S.A., conterminous, lower 48 states	Threatened	Idaho Fish and Wildlife Office	Recovery Plan for the Coterminous United States Population of Bull Trout (Salvelinus confluentus)	Implementation Progress
Flowering Plants	Umtanum Desert buckwheat (*Eriogonum codium*)	Wherever found	Threatened	Washington Fish and Wildlife Office		

Group	Name	Population	Status	Lead Office	Recovery Plan	Recovery Plan Action Status
Mammals	Gray wolf (*Canis lupus*)	U.S.A.: All of AL, AR, CA, CO, CT, DE, FL, GA, IA, IN, IL, KS, KY, LA, MA, MD, ME, MI, MO, MS, NC, ND, NE, NH, NJ, NV, NY, OH, OK, PA, RI, SC, SD, TN, TX, VA, VT, WI, and WV; and portions of AZ, NM, OR, UT, and WA. Mexico.	Endangered	Assistant Regional Director-Ecological Services		
Mammals	Gray wolf (*Canis lupus*)	Northern Rocky Mountain DPS	Recovery	Office of the Regional Director		
Mammals	Columbia Basin Pygmy Rabbit (*Brachylagus idahoensis*)	Columbia Basin DPS	Endangered	Washington Fish and Wildlife Office	Recovery Plan for the Columbia Basin Distinct Population Segment of the Pygmy Rabbit (Brachylagus idahoensis)	Implementation Progress

NOAA FISHERIES

Status of ESA Listings & Critical Habitat Designations for West Coast Salmon & Steelhead



Updated July 2016

Evolutionarily Significant Unit / Distinct Population Segment	ESA Status	Date of ESA Listing	Date of CH Designation
Puget Sound Recovery Domain			
Hood Canal Summer-run Chum Salmon	T	3/25/1999	9/2/2005
Ozette Lake Sockeye Salmon	T	3/25/1999	9/2/2005
Puget Sound Chinook Salmon	T	3/24/1999	9/2/2005
Puget Sound Steelhead	T	5/11/2007	2/24/2016
Interior Columbia Recovery Domain			
Middle Columbia River Steelhead	T	3/25/1999 1/5/2006	9/2/2005
Snake River Fall-run Chinook Salmon	T	4/22/1992	12/28/1993
Snake River Spring / Summer-run Chinook Salmon	T	4/22/1992	10/25/1999
Snake River Sockeye Salmon	E	11/20/1991	12/28/1993
Snake River Steelhead	T	8/18/1997 1/5/2006	9/2/2005
Upper Columbia River Spring-run Chinook Salmon	E	3/24/1999	9/2/2005
Upper Columbia River Steelhead	T	8/18/1997 1/5/2006	9/2/2005
Willamette / Lower Columbia Recovery Domain			
Columbia River Chum Salmon	T	3/25/1999	9/2/2005
Lower Columbia River Chinook Salmon	T	3/24/1999	9/2/2005
Lower Columbia River Coho Salmon	T	6/28/2005	2/24/2016
Lower Columbia River Steelhead	T	3/19/1998 1/5/2006	9/2/2005
Upper Willamette River Chinook Salmon	T	3/24/1999	9/2/2005
Upper Willamette River Steelhead	T	3/25/1999 1/5/2006	9/2/2005
Oregon Coast Recovery Domain			
Oregon Coast Coho Salmon	T	2/11/2008	2/11/2008
Southern Oregon / Northern California Coast Recovery Domain			
Southern OR / Northern CA Coasts Coho Salmon	T	5/6/1997	5/5/1999
North-Central California Coast Recovery Domain			
California Coastal Chinook Salmon	T	9/16/1999	9/2/2005
Central California Coast Coho Salmon	E	10/31/1996 (T) 6/28/2005 (E) 4/2/2012 (RE)	5/5/1999
Central California Coast Steelhead	T	8/18/1997 1/5/2006	9/2/2005
Northern California Steelhead	T	6/7/2000 1/5/2006	9/2/2005
Central Valley Recovery Domain			
California Central Valley Steelhead	T	3/19/1998 1/5/2006	9/2/2005
Central Valley Spring-run Chinook Salmon	T	9/16/1999	9/2/2005
Sacramento River Winter-run Chinook Salmon	E	11/5/1990 (T) 1/4/1994 (E)	6/16/1993
South-Central / Southern California Coast Recovery Domain			
South-Central California Coast Steelhead	T	8/18/1997 1/5/2006	9/2/2005
Southern California Steelhead	E	8/18/1997 5/1/2002 (RE) 1/5/2006	9/2/2005

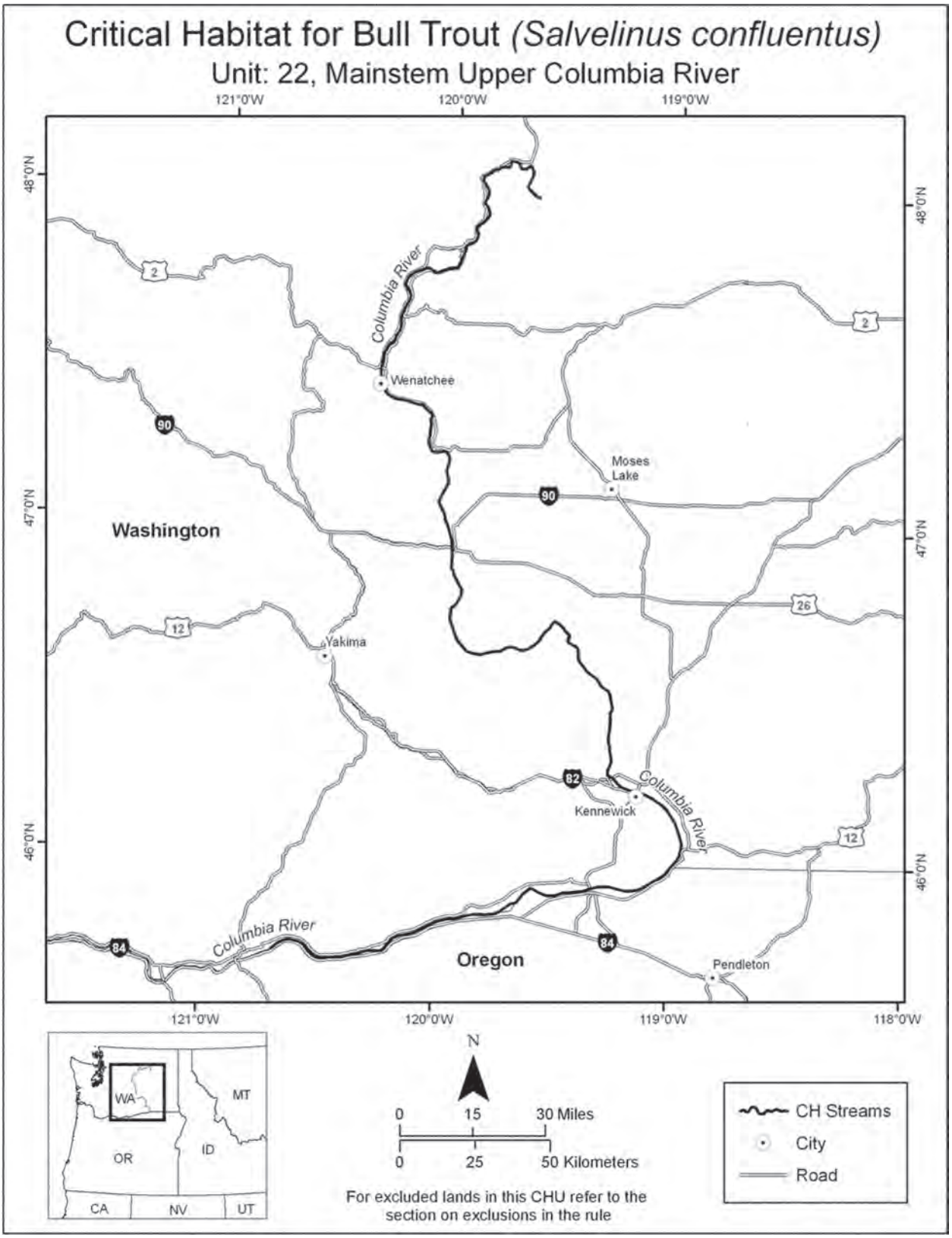
ESA = Endangered Species Act, CH = Critical Habitat, RE = Range Extension
E = Endangered, T = Threatened,

Critical Habitat Rules Cited

- 2/24/2016 (81 FR 9252) Final Critical Habitat Designation for Puget Sound Steelhead and Lower Columbia River Coho Salmon
- 2/11/2008 (73 FR 7816) Final Critical Habitat Designation for Oregon Coast Coho Salmon
- 9/2/2005 (70 FR 52630) Final Critical Habitat Designation for 12 ESU's of Salmon and Steelhead in WA, OR, and ID
- 9/2/2005 (70 FR 52488) Final Critical Habitat Designation for 7 ESU's of Salmon and Steelhead in CA
- 10/25/1999 (64 FR 57399) Revised Critical Habitat Designation for Snake River Spring/Summer-run Chinook Salmon
- 5/5/1999 (64 FR 24049) Final Critical Habitat Designation for Central CA Coast and Southern OR/Northern CA Coast Coho Salmon
- 12/28/1993 (58 FR 68543) Final Critical Habitat Designation for Snake River Chinook and Sockeye Salmon
- 6/16/1993 (58 FR 33212) Final Critical Habitat Designation for Sacramento River Winter-run Chinook Salmon

ESA Listing Rules Cited

- 4/2/2012 (77 FR 19552) Final Range Extension for Endangered Central California Coast Coho Salmon
- 2/11/2008 (73 FR 7816) Final ESA Listing for Oregon Coast Coho Salmon
- 5/11/2007 (72 FR 26722) Final ESA Listing for Puget Sound Steelhead
- 1/5/2006 (71 FR 5248) Final Listing Determinations for 10 Distinct Population Segments of West Coast Steelhead
- 6/28/2005 (70 FR 37160) Final ESA Listing for 16 ESU's of West Coast Salmon
- 5/1/2002 (67 FR 21586) Range Extension for Endangered Steelhead in Southern California
- 6/7/2000 (65 FR 36074) Final ESA Listing for Northern California Steelhead
- 9/16/1999 (64 FR 50394) Final ESA Listing for Two Chinook Salmon ESUs in California
- 3/25/1999 (64 FR 14508) Final ESA Listing for Hood River Canal Summer-run and Columbia River Chum Salmon
- 3/25/1999 (64 FR 14517) Final ESA Listing for Middle Columbia River and Upper Willamette River Steelhead
- 3/25/1999 (64 FR 14528) Final ESA Listing for Ozette Lake Sockeye Salmon
- 3/24/1999 (64 FR 14308) Final ESA Listing for 4 ESU's of Chinook Salmon
- 3/19/1998 (63 FR 13347) Final ESA Listing for Lower Columbia River and Central Valley Steelhead
- 8/18/1997 (62 FR 43937) Final ESA Listing for 5 ESU's of Steelhead
- 5/6/1997 (62 FR 24588) Final ESA Listing for Southern Oregon / Northern California Coast Coho Salmon
- 10/31/1996 (61 FR 56138) Final ESA Listing for Central California Coast Coho Salmon
- 1/4/1994 (59 FR 222) Final ESA Listing for Sacramento River Winter-run Chinook Salmon
- 4/22/1992 (57 FR 14653) Final ESA Listing for Snake River Spring/summer-run and Snake River Fall Chinook Salmon
- 11/20/1991 (56 FR 58619) Final ESA Listing for Snake River Sockeye Salmon
- 11/5/1990 (55 FR 46515) Final ESA Listing for Sacramento River Winter-run Chinook Salmon

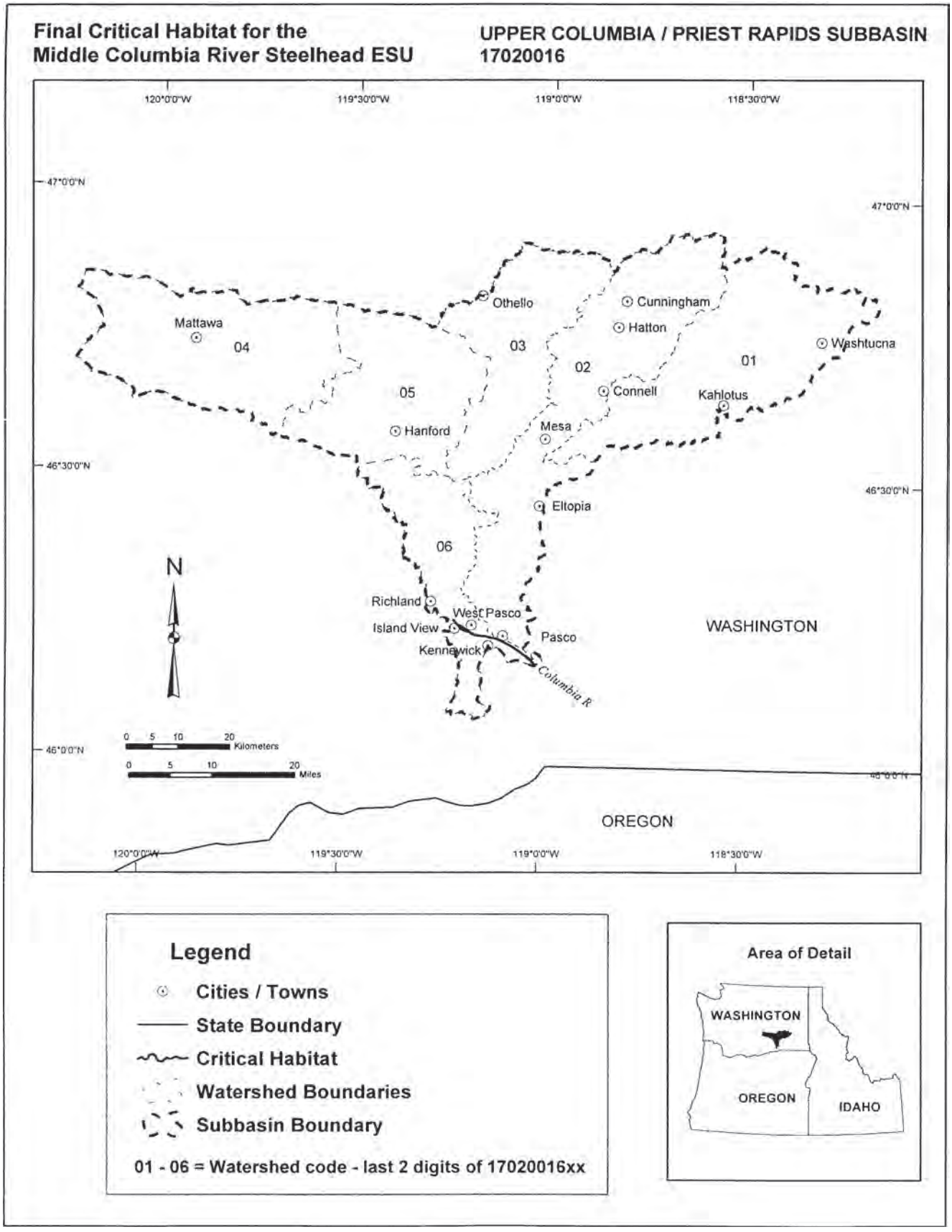


BILLING CODE 4310–55–C

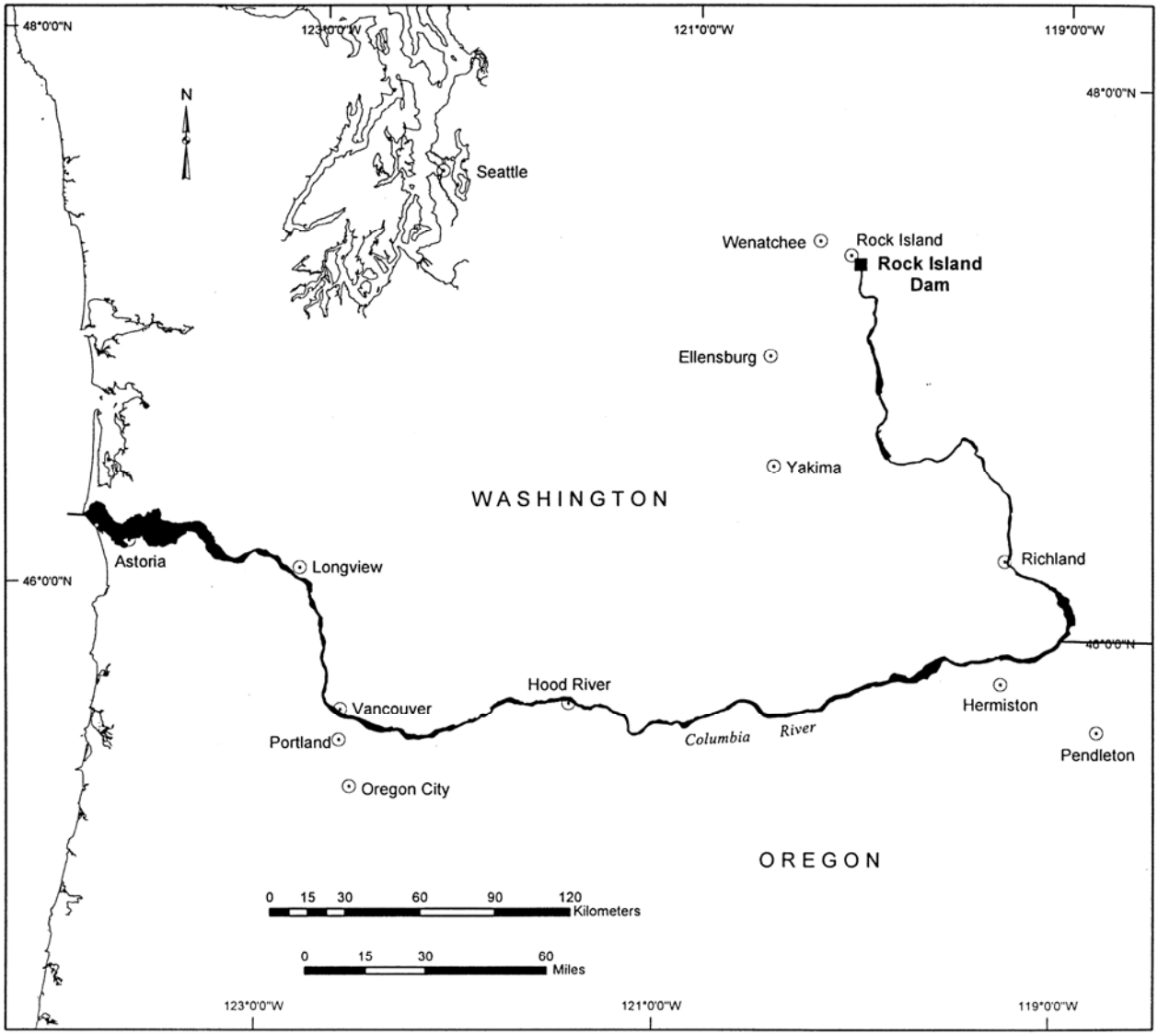
(30) Unit 23: Mainstem Snake River

(i) This unit consists of 451.7 km (280.6 mi) of streams. The unit is located in southeastern Washington, northeastern Oregon, and west-central Idaho.

(ii) Individual waterbodies in the unit are bounded by the following coordinates:


Final Critical Habitat for the
Middle Columbia River Steelhead ESU
UPPER COLUMBIA / PRIEST RAPIDS SUBBASIN
17020016
120°0'0"W
119°30'0"W
119°0'0"W
118°30'0"W
47°0'0"N
46°30'0"N
46°0'0"N
Othello
Cunningham
Hatton
Washtucna
Mattawa
04
03
02
01
05
Connell
Kahlotus
Hanford
Mesa
Eltopia
06
N
Richland
West Pasco
Island View
Pasco
Kennewick
Columbia R
WASHINGTON
OREGON
0 5 10 20 Kilometers
0 5 10 20 Miles
Legend
Cities / Towns
State Boundary
Critical Habitat
Watershed Boundaries
Subbasin Boundary
01 - 06 = Watershed code - last 2 digits of 17020016xx
Area of Detail
WASHINGTON
OREGON
IDAHO

Rearing / Migration Corridor for the Upper Columbia River Spring-run Chinook Salmon ESU



Legend

- Cities / Towns
- State Boundary
- Rearing / Migration Corridor

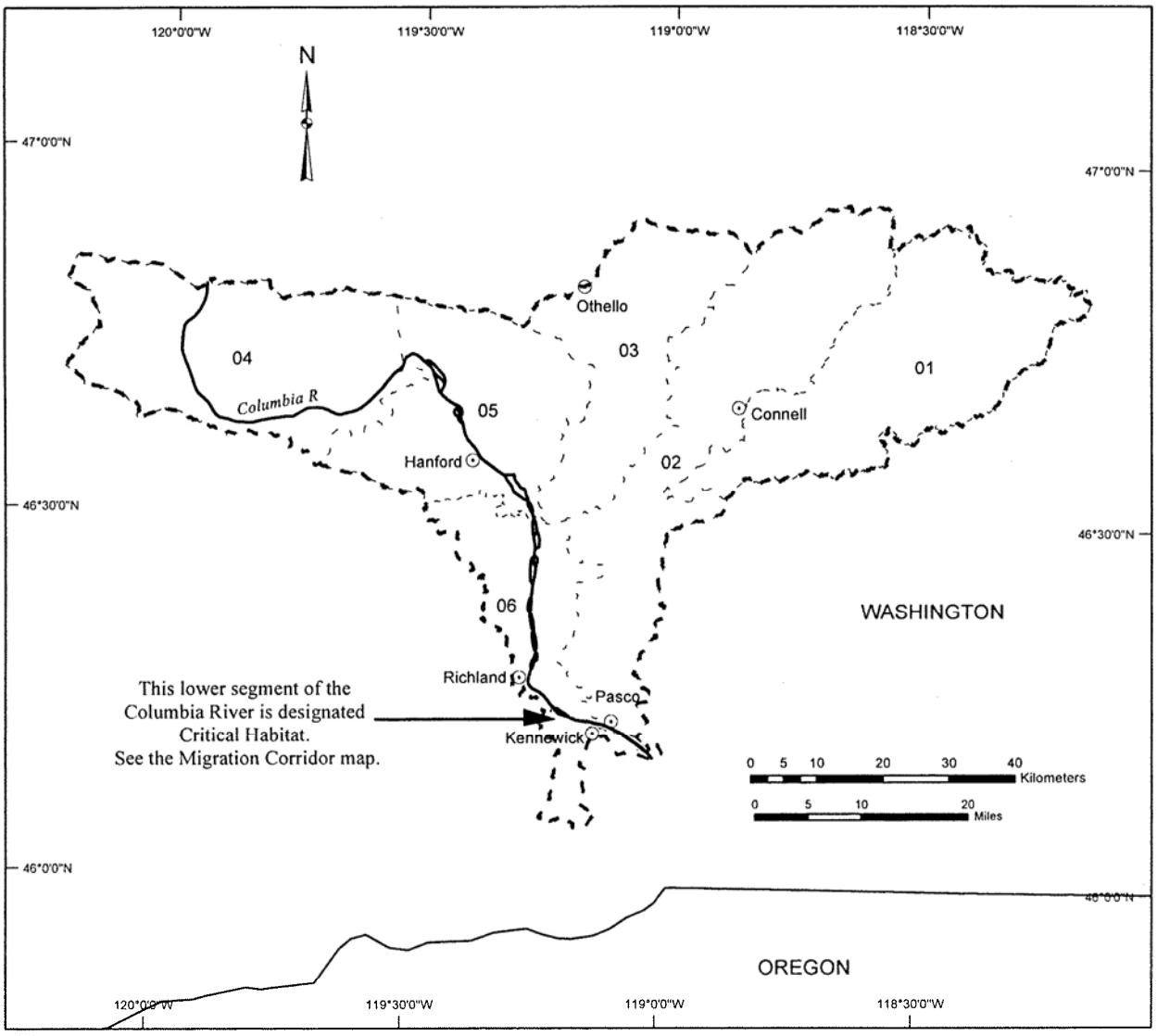
Upper Columbia River Spring Chinook ESU

Columbia River Corridor
The Columbia River Corridor is that segment from the mouth of the Columbia River at the Pacific Ocean upstream to Rock Island Dam.

BILLING CODE 3510–22–C

Final Critical Habitat for the Upper Columbia River Steelhead ESU

UPPER COLUMBIA / PRIEST RAPIDS SUBBASIN 17020016

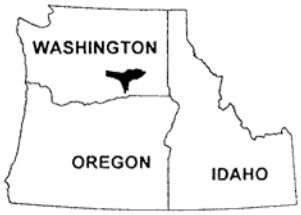


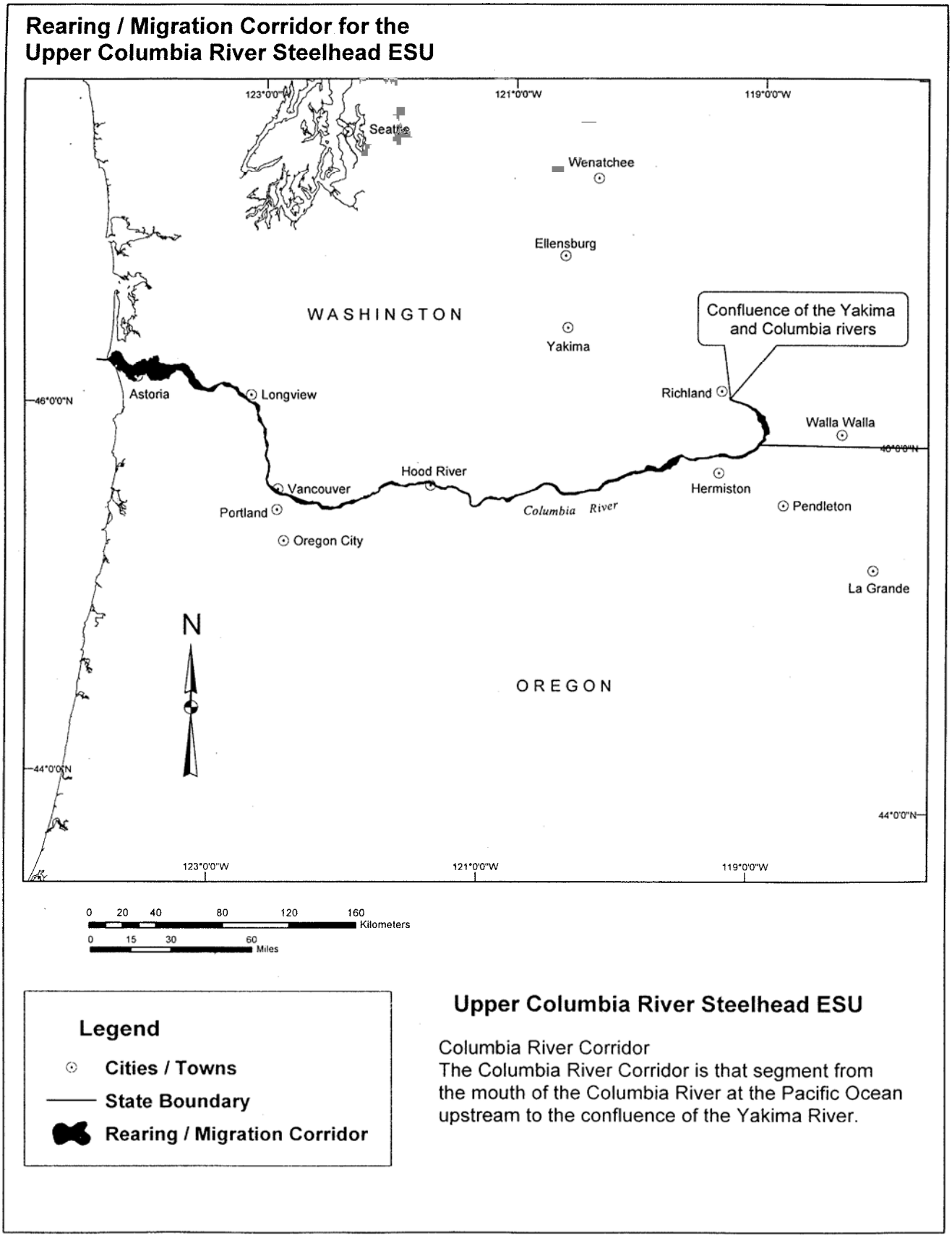
Legend

- Cities / Towns
- State Boundary
- Critical Habitat
- Water Body
- Subbasin Boundary
- Watershed Boundaries

01 - 06 = Watershed code - last 2 digits of 17020016xx

Area of Detail





BILLING CODE 3510–22–C

(q) *Snake River Basin Steelhead (Oncorhynchus mykiss).* Critical habitat is designated to include the areas defined in the following subbasins:

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE
PRIORITY HABITATS AND SPECIES REPORT

SOURCE DATASET: PHSPlusPublic Query ID: P190219094220
REPORT DATE: 02/19/2019 9.42

Common Name / Scientific Name / Notes	Site Name / Source Dataset / Source Record / Source Date	Priority Area / Occurrence Type / More Information (URL) / Mgmt Recommendations	Accuracy	Federal Status / State Status / PHS Listing Status	Sensitive Data / Resolution	Source Entity / Geometry Type
Canada goose Branta canadensis	HANFORD REACH GOOSE PHSREGION 901618	Breeding Area Breeding occurrence http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter	N/A N/A PHS LISTED	N AS MAPPED	WA Dept. of Fish and Wildlife Polygons
Chinook Oncorhynchus tshawytscha	Columbia River SASI 1720	Occurrence Occurrence http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	Not Warranted N/A PHS Listed	N AS MAPPED	WDFW Fish Program Lines
Coho Oncorhynchus kisutch	Columbia River SWIFD 66793	Occurrence/Migration Occurrence/migration http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	N/A N/A PHS LISTED	N AS MAPPED	Lines
Dolly Varden/ Bull Trout Salvelinus malma	Columbia River SWIFD 66796	Occurrence/Migration Occurrence/migration http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	N/A N/A PHS LISTED	N AS MAPPED	Lines
Fall Chinook Oncorhynchus tshawytscha	Columbia River SWIFD 66785	Breeding Area Breeding area http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	N/A N/A PHS LISTED	N AS MAPPED	Lines
Fall Chum Oncorhynchus keta	Columbia River SWIFD 66786	Occurrence/Migration Occurrence/migration http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	N/A N/A PHS LISTED	N AS MAPPED	Lines
Ferruginous hawk Buteo regalis	PHSREGION 917207	Breeding Area Breeding occurrence http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter	N/A Threatened PHS LISTED	Y TOWNSHIP	WA Dept. of Fish and Wildlife Polygons

Common Name Scientific Name Notes	Site Name Source Dataset Source Record Source Date	Priority Area Occurrence Type More Information (URL) Mgmt Recommendations	Accuracy	Federal Status State Status PHS Listing Status	Sensitive Data Resolution	Source Entity Geometry Type
Freshwater Forested/Shrub	N/A NWIWetlands	Aquatic Habitat Aquatic habitat http://www.ecy.wa.	NA	N/A N/A PHS Listed	N AS MAPPED	US Fish and Wildlife Service Polygons
Freshwater Forested/Shrub	N/A NWIWetlands	Aquatic Habitat Aquatic habitat http://www.ecy.wa.	NA	N/A N/A PHS Listed	N AS MAPPED	US Fish and Wildlife Service Polygons
Great blue heron Ardea herodias	HANFORD REACH ISLAND WS_OccurPolygon 4392 March 08, 2013	Breeding Area Colony http://wdfw.wa.gov/publications/pub.php?	Map 1:12,000 <= 33	N/A N/A PHS LISTED	N AS MAPPED	WA Dept. of Fish and Wildlife Polygons
Lake	N/A NWIWetlands	Aquatic Habitat Aquatic habitat http://www.ecy.wa.	NA	N/A N/A PHS Listed	N AS MAPPED	US Fish and Wildlife Service Polygons
Pink Salmon Odd Year Oncorhynchus gorbuscha	Columbia River SWIFD 66809	Occurrence/Migration Occurrence/migration http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	N/A N/A PHS LISTED	N AS MAPPED	 Lines
Rainbow Trout Oncorhynchus mykiss	Columbia River SWIFD 66812	Occurrence/Migration Occurrence/migration http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	N/A N/A PHS LISTED	N AS MAPPED	 Lines
Sockeye Oncorhynchus nerka	Columbia River SWIFD 66815	Occurrence/Migration Occurrence/migration http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	N/A N/A PHS LISTED	N AS MAPPED	 Lines
Spring Chinook Oncorhynchus tshawytscha	Columbia River SWIFD 66787	Occurrence/Migration Occurrence/migration http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	N/A N/A PHS LISTED	N AS MAPPED	 Lines

Common Name Scientific Name Notes	Site Name Source Dataset Source Record Source Date	Priority Area Occurrence Type More Information (URL) Mgmt Recommendations	Accuracy	Federal Status State Status PHS Listing Status	Sensitive Data Resolution	Source Entity Geometry Type
Summer Chinook Oncorhynchus tshawytscha	Columbia River SWIFD 66790	Occurrence/Migration Occurrence/migration http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	N/A N/A PHS LISTED	N AS MAPPED	Lines
Summer Steelhead Oncorhynchus mykiss	Columbia River SWIFD 66817	Occurrence/Migration Occurrence/migration http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.gov/publications/pub.php?	NA	N/A N/A PHS LISTED	N AS MAPPED	Lines
Waterfowl Concentrations	RICHLAND ISLANDS PHSREGION 901239	Regular Concentration Regular concentration http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter	N/A N/A PHS LISTED	N AS MAPPED	WA Dept. of Fish and Wildlife Polygons
Waterfowl Concentrations	NELSON ISLAND PHSREGION 902927	Regular Concentration Regular concentration http://wdfw.wa.gov/publications/pub.php?	1/4 mile (Quarter	N/A N/A PHS LISTED	N AS MAPPED	WA Dept. of Fish and Wildlife Polygons
White Sturgeon Acipenser transmontanus	Columbia River SWIFD 66826	Occurrence/Migration Occurrence/migration http://wdfw.wa.gov/wlm/diversty/soc/soc.htm http://wdfw.wa.	NA	N/A N/A PHS LISTED	N AS MAPPED	Lines

DISCLAIMER. This report includes information that the Washington Department of Fish and Wildlife (WDFW) maintains in a central computer database. It is not an attempt to provide you with an official agency response as to the impacts of your project on fish and wildlife. This information only documents the location of fish and wildlife resources to the best of our knowledge. It is not a complete inventory and it is important to note that fish and wildlife resources may occur in areas not currently known to WDFW biologists, or in areas for which comprehensive surveys have not been conducted. Site specific surveys are frequently necesssary to rule out the presence of priority resources. Locations of fish and wildlife resources are subject to vraition caused by disturbance, changes in season and weather, and other factors. WDFW does not recommend using reports more than six months old.

February 19, 2019

PHS Report Clip Area

PT

LN

POLY

AS MAPPED

SECTION

QTR-TWP

TOWNSHIP

1:19,842

0 0.15 0.3 0.6 mi

0 0.275 0.55 1.1 km

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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Appendix E
Essential Fish Habitat Analysis

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Magnuson-Stevens Fishery Conservation and Management Act

Essential Fish Habitat Analysis

Action Agency: City of Richland

Project Name: Snyder Intake Screen Upgrades

Essential Fish Habitat Background

The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires federal agencies to consult with the National Marine Fisheries Service (NMFS) on activities that may adversely affect essential fish habitat (EFH). EFH is defined in the Magnuson-Stevens Act as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity."

The objective of this EFH assessment is to determine whether the proposed action(s) "may adversely affect" designated EFH for relevant commercially, federally managed fisheries species within the proposed action area. It also describes conservation measures proposed to avoid, minimize, or otherwise offset potential adverse effects to designated EFH resulting from the proposed action.

Description of the Proposed Action

The Snyder Intake Screen Upgrades project will replace the existing travelling belt screens at the City of Richland's (City) Snyder Intake facility with four 60-inch-diameter barrel screens. Refer to the **Project Description** section of the *Biological Assessment (BA) Snyder Intake Screen Upgrades* for additional details.

EFH in the Project Action Area

EFH is present for Pacific coast salmon in the action area, located in the Upper Columbia-Priest Rapids watershed (HUC 17020016), but is not present for groundfish or coastal pelagic species. According to the Pacific salmon freshwater EFH table produced by the Pacific Fishery Management Council (PFMC) as part of Amendment 18 to the *Pacific Coast Salmon Fishery Management Plan*, the watershed provides EFH for Chinook salmon (*Onchorhynchus tshawytscha*) and for coho salmon (*O. kisutch*), but not for pink salmon (*O. gorbuscha*) (PFMC, 2014).

Freshwater EFH for both Chinook and coho salmon consists of four major components:

1. Spawning and incubation;
2. Juvenile rearing;
3. Juvenile migration corridors; and
4. Adult migration corridors and adult holding habitat (PFMC, 2014).

Both Chinook and coho salmon use the McNary Pool in the Columbia River; therefore, the salmon also use the project action area for juvenile rearing, as a juvenile migration corridor, and as adult migration corridors and holding habitat.

Potential Adverse Effects to EFH

The anticipated project effects on EFH for Chinook and coho salmon are similar to the project effects discussed for Chinook, bull trout, and steelhead critical habitat in the *Snyder Intake Screen Upgrades BA*. Refer to the **Direct Effects** and **Indirect Effects** sections of the BA for potential adverse effects on Chinook and coho salmon EFH.

EFH Conservation Measures

Potential adverse effects have been minimized or avoided through design efforts (minimizing the footprint of the modifications and avoiding high-impact construction methods), and temporary construction impacts will be minimized with the implementation of project timing restrictions and best management practices (BMPs), which are described in the **Impact Avoidance and Minimization Measures** and the **Direct Effects** sections of the *Snyder Intake Screen Upgrades BA*. Terrestrial work will only occur on and within the existing intake structure. These measures are intended to significantly reduce or eliminate potential adverse impacts to listed salmonids and designated critical habitats. Consequently, they will also reduce or eliminate adverse impacts of the project on EFH.

Conclusions

Potential adverse project effects to EFH are insignificant and discountable, and will be offset by the implementation of project-specific minimization measures, such as project design and construction timing. Consequently, the Snyder intake project **will not adversely affect** EFH for Pacific salmonids. **Table 1** provides a summary of EFH determinations.

Table 1. EFH Determination for Pacific Salmonids

Common Name	Scientific Name	Present in Project Action Area	EFH Effect Determination
Chinook	*O. tshawytscha*	Yes	Will Not Adversely Affect
Coho	*O. kisutch*	Yes	Will Not Adversely Affect
Pink	*O. gorbuscha*	No	N/A

References

PFMC. (2014, September). *Identification and Description of Essential Fish Habitat, Adverse Impacts, and Recommended Conservation Measures for Salmon, Amendment 18 to the Pacific Coast Salmon Plan, Appendix A*. Retrieved from: https://www.westcoast.fisheries.noaa.gov/publications/habitat/essential_fish_habitat/salmon_efh_appendix_a_final_september-25_2014__2_.pdf [May 17, 2019].

EFH Data Notice: Essential Fish Habitat (EFH) is defined by textual descriptions contained in the fishery management plans developed by the regional Fishery Management Councils. In most cases mapping data can not fully represent the complexity of the habitats that make up EFH. This report should be used for general interest queries only and should not be interpreted as a definitive evaluation of EFH at this location. A location-specific evaluation of EFH for any official purposes must be performed by a regional expert. Please refer to the following links for the appropriate regional resources.

West Coast Regional Office
Alaska Regional Office

Query Results

Degrees, Minutes, Seconds: Latitude = 46º18'29" N, Longitude = 120º44'14" W
Decimal Degrees: Latitude = 46.31, Longitude = -119.26

The query location intersects with spatial data representing EFH and/or HAPCs for the following species/management units.

EFH

Show	Link	HUC Name	Species/Management Unit	Lifestage(s) Found at Location	Management Council	FMP
		Upper Columbia-Priest Rapids	Chinook Salmon, Coho Salmon	All	Pacific	Pacific Coast Salmon Plan

HAPCs

No Habitat Areas of Particular Concern (HAPC) were identified at the report location.

EFH Areas Protected from Fishing

No EFH Areas Protected from Fishing (EFHA) were identified at the report location.

Spatial data does not currently exist for all the managed species in this area. The following is a list of species or management units for which there is no spatial data.
****For links to all EFH text descriptions see the complete data inventory: open data inventory -->**

Pacific Coastal Pelagic Species,
Jack Mackerel,
Pacific (Chub) Mackerel,
Pacific Sardine,
Northern Anchovy - Central Subpopulation,
Northern Anchovy - Northern Subpopulation,
Pacific Highly Migratory Species,
Bigeye Thresher Shark - North Pacific,
Bluefin Tuna - Pacific,
Dolphinfish (Dorado or Mahimahi) - Pacific,
Pelagic Thresher Shark - North Pacific,
Swordfish - North Pacific,
West Coast Salmon,
All species and stocks

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Chinook Salmon West Coast States Essential Fish Habitat (EFH)

Salmonid EFH described in "Fisheries Off West Coast States; West Coast Salmon Fisheries; Amendment 18 to the Salmon Fishery Management Plan" published in the Federal Register / Vol. 79, No. 243/ Thursday, December 18, 2014.

Impassable Dam
Natural Barrier
Chinook Salmon EFH (2014)
Marine Salmon EFH (2014)
4th Field Hydrologic Unit (HU)

NOAA FISHERIES

50 0 50 100 150 200 250 Miles

50 0 50 100 150 200 250 Kilometers

12/2014, C. Gavette Chinook_EFH_2014.mxd

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
WEST COAST REGION
777 Sonoma Ave., Room 325
SANTA ROSA, CALIFORNIA 95404

Coho Salmon West Coast States Essential Fish Habitat (EFH)

Salmonid EFH described in "Fisheries Off West Coast States; West Coast Salmon Fisheries; Amendment 18 to the Salmon Fishery Management Plan" published in the Federal Register / Vol. 79, No. 243/ Thursday, December 18, 2014.

Impassable Dam | Coho Salmon EFH (2014) | Marine Salmon EFH (2014) | 4th Field Hydrologic Unit (HU)

NOAA FISHERIES

50 0 50 100 150 200 250 Miles

50 0 50 100 150 200 250 Kilometers

12/2014, C. Gavette Coho_EFH_2014.mxd

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
WEST COAST REGION
777 Sonoma Ave., Room 325
SANTA ROSA, CALIFORNIA 95404

Exhibit 2

CITY OF RICHLAND
NOTICE OF APPLICATION, PUBLIC HEARING AND OPTIONAL DNS (SMP2019-102 & EA2019-114)

Notice is hereby given that the City of Richland Public Works Department has applied for a Shoreline Management Substantial Development Permit to upgrade the existing water intake structure located at the eastern terminus of Snyder Street, Richland, WA. Specifically, the project consists of replacing the two traveling belt screens with four 60-inch-diameter stainless steel barrel screens, which will protrude approximately 30 feet eastward into the river from the existing intake structure. The existing facility will be retrofitted, including removal of the traveling belt screens and motors, sluice gates and hoists, and trash racks. Additional improvements to the existing intake structure include retrofits on all three levels of the facility: the intake deck; interior intermediate deck; and forebay. The proposal has been determined to be consistent with the City of Richland's Critical Areas regulations.

Copies of the complete application packet, SEPA Checklist and related materials can be obtained by visiting the City of Richland website (www.ci.richland.wa.us).

The Richland Hearings Examiner will conduct a public hearing and review of the application at 6:00 p.m., Monday, August 12, 2019 in the Richland City Hall Council Chambers, 625 Swift Boulevard. All interested parties are invited to attend and present testimony at the public hearing.

Environmental Review: The proposal is subject to environmental review. The City of Richland is lead agency for the proposal under the State Environmental Policy Act (SEPA) and has reviewed the proposed project for probable adverse environmental impacts and expects to issue a determination of non-significance (DNS) for this project. The optional DNS process in WAC 197-11-355 is being used. This may be your only opportunity to comment on the environmental impacts of the proposed development**.** The environmental checklist and related file information are available to the public and can be viewed at www.ci.richland.wa.us.

Any person desiring to express their views or to be notified of any decisions pertaining to this application should notify Mike Stevens, Planning Manager, 625 Swift Boulevard, MS #35, Richland, WA 99352. Comments may also be emailed to mstevens@ci.richland.wa.us. Written comments should be received no later than 5:00 p.m. on Wednesday, July 31, 2019 to be incorporated into the staff report. Comments received after that date will be entered into the record at the hearing.

The application will be reviewed in accordance with the regulations in RMC Title 19 Development Regulations Administration and Title 26 Shoreline Master Program. Appeal procedures of decisions related to the above referenced application are set forth in RMC Chapter 19.70. Contact the Richland Planning Division at the above referenced address with questions related to the available appeal process.

Exhibit 3

File No. EA2019-114

CITY OF RICHLAND
Determination of Non-Significance

Description of Proposal: The City of Richland's Public Works Department is proposing to upgrade the existing water intake structure located at the eastern terminus of Snyder Street, Richland, WA. Specifically, the project consists of replacing the two traveling belt screens with four 60-inch-diameter stainless steel barrel screens, which will protrude approximately 30 feet eastward into the river from the existing intake structure. The existing facility will be retrofitted, including removal of the traveling belt screens and motors, sluice gates and hoists, and trash racks. Additional improvements to the existing intake structure include retrofits on all three levels of the facility: the intake deck; interior intermediate deck; and forebay.

Proponent: City of Richland Public Works Dept.

Location of Proposal: The project site is located at the eastern terminus of the Snyder Street right-of-way, Richland, WA.

Lead Agency: City of Richland

The lead agency for this proposal has determined that it does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public on request.

( ) There is no comment for the DNS.

( ) This DNS is issued under WAC 197-11-340(2); the lead agency will not act on this proposal for fourteen days from the date of issuance.

(**X**) This DNS is issued after using the optional DNS process in WAC 197-11-355. There is no further comment period on the DNS.

Responsible Official: Mike Stevens
Position/Title: Planning Manager
Address: 625 Swift Blvd., MS #35, Richland, WA 99352
Date: August 7, 2019

Signature_____

SEPA ENVIRONMENTAL CHECKLIST

A. Background

1. Name of proposed project, if applicable: Snyder Intake Screen Upgrades

2. Name of applicant: City of Richland

3. Address and phone number of applicant and contact person:

   City Public Works Director: Pete Rogalsky
   City of Richland Public Works
   840 Northgate Avenue
   P.O. Box 190, MS-26
   Richland, WA 99352

4. Date checklist prepared: May 31, 2019

5. Agency requesting checklist: City of Richland Development Services Department

6. Proposed timing or schedule (including phasing, if applicable):

   Design for the project is ongoing and will be completed throughout 2019. Agency permitting reviews are anticipated to occur from June through October 2019; however, these are dependent on the agencies with jurisdiction and may require differing review times. Project construction is projected to occur in 2020/2021, targeting in-water work within the anticipated fish work windows of August 1st to 31st and/or December 15th to February 28th.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

   None anticipated.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

   In November 2015, the U.S. Army Corps of Engineers (USACE) Walla Walla District published a *Water Intake Facility Easement Renewals Environmental Assessment* (*USACE Water Intake EA*), which evaluated the potential environmental impacts of USACE issuance of easement renewals for 23 water intake facilities on USACE-managed federal lands within the McNary and Ice Harbor reservoirs in southeastern Washington. The City of Richland's (City) Snyder Intake Facility (Snyder Intake) is addressed in the *USACE Water Intake EA*.

   The City and RH2 Engineering, Inc., (RH2) evaluated preliminary design alternatives for replacement of the Snyder Intake screens in 2018, the results of which were

summarized in a *Technical Memorandum, Columbia River Intake Screen Upgrade Intake Screen Alternatives Analysis*, finalized in December 2018. Following review of preliminary design alternatives and internal evaluation, the City selected the preferred alternative for screen replacement in February 2019.

A Biological Assessment (BA) will be prepared for the project's compliance with the Endangered Species Act (ESA), which is triggered by the need to obtain Clean Water Act Section 404 and 10 permits from USACE.

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

No.

10. List any government approvals or permits that will be needed for your proposal, if known.

The following approvals/permits are anticipated to be required:

- Critical Areas Ordinance compliance – City
- Shoreline Substantial Development Permit – City
- Commercial Building Permit – City
- Hydraulic Project Approval – Washington Department of Fish and Wildlife (WDFW)
- Section 401 Water Quality Certification – Washington State Department of Ecology
- Project Approval – Washington State Department of Health
- Section 404 and 10 Permits – USACE
- National Environmental Policy Act (NEPA), including ESA consultation – USACE is lead agency for NEPA, consulting with the National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) for ESA compliance

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

The City's existing Snyder Intake, which was originally constructed in 1963 on the Columbia River (River), was recently identified by USACE as not meeting current NMFS screen criteria for fish protection. The existing traveling belt screens must be updated prior to 2020 for the City to receive a renewed easement for the intake facility.

The required future pumping capacity of the intake is approximately 90 million gallons per day (MGD), but the existing belt screens would only be able to accommodate approximately 15 to 20 MGD if merely replaced with a smaller mesh size. The Snyder Intake provides over 90 percent of the City's drinking water; consequently, a reduction in pumping capacity is not feasible and was a major consideration in the screen replacement alternatives considered. After evaluating alternatives, the City proposes upgrades to the intake structure to meet NMFS standards while maintaining the required pumping capacity of the intake.

The proposed design will replace the two traveling belt screens with four 60-inch-diameter stainless steel barrel screens that will protrude approximately 30 feet

eastward into the river from the existing intake. To accommodate the proposed barrel screens, the existing facility will be retrofitted, including removal of the traveling belt screens and motors, sluice gates and hoists, and trash racks. Each former trash rack opening will accommodate connection of two barrel screens, which will be secured to the river bottom with pre-cast concrete anchors. In addition to securing the screens, the concrete anchors will support hydroburst equipment for cleaning the barrel screens. Electrical controls for the hydroburst equipment will be installed within and adjacent to the existing electrical control room on the intake deck. Additional project elements include retrofits on all three levels of the intake facility (the intake deck, interior intermediate deck, and forebay), intended to accommodate operation and maintenance of the new screens.

Project construction will involve modifications to the existing Snyder Intake (estimated over an area of 2,165 square feet [sf]), and in-water work in the Columbia River (2,630 sf), totaling a work area of approximately 4,795 sf.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

The Snyder Intake is in the McNary Pool of the Columbia River, located at the eastern terminus of Snyder Street in Richland, Washington, situated within Sections 25 and 36 of Township 10 North, Range 28 East.

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site (circle one): **Flat**, rolling, hilly, steep slopes, mountainous, **other: Columbia River, riverbank**

b. What is the steepest slope on the site (approximate percent slope)?

The land surrounding the project area is generally flat. Snyder Street extends as a pedestrian bridge to the columnar concrete intake structure. The steepest slope near the project site is approximately 40 percent in certain areas on the banks of the Columbia River. Most of the facility improvements will occur underwater, where slopes are less than 5 percent.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.

Based on Natural Resources Conservation Service Soil Survey data, the project site is partially within the Columbia River (permanent water) and Quincy loamy sand, 0 to

2 percent slopes (QuA) soil map unit, which forms from wind-deposited material on terraces. The Quincy loamy sand is typically a deep, excessively drained profile of loamy sand underlain by loamy fine sand. Although it is classified as a farmland of statewide importance, the current land use of the project site does not support agricultural activities; however, the project will not result in a loss of agricultural land.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

The project site is not mapped as a geologic hazard per the City's Critical Areas data, and there is no history of unstable soils in the immediate vicinity.

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.

Proposed improvements will not involve grading, excavation, or fill, in its formal sense. To secure the proposed barrel screens, pre-cast concrete anchors with steel straps are proposed. Four concrete anchors will be needed, each measuring 8 feet by 8 feet and 3 feet tall (approximate footprint of 65 sf, volume of approximately 7 cubic yards (cy), and weight of approximately 70 tons each). The concrete anchors are anticipated to be installed directly on the riverbed, which will require some localized movement of riverbed material to create a flat surface on which to install the anchors. An estimated total area of 260 sf (3 to 4 cy) of riverbed material will be moved to install the anchors.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

No, erosion is not anticipated to result from project construction. No clearing or grading is planned. Work will primarily occur on the existing structure and within the river.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

The proposed concrete anchors will add approximately 260 sf of impervious surface to the existing facility, albeit underwater. The other project improvements will not add impervious area to the intake structure.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

The design of proposed improvements has been completed in a way that minimizes impacts to the Columbia River. By proposing to retrofit the existing facility to accommodate the barrel screens, installing pre-cast concrete anchors that can be placed directly on the riverbed with minimal earth movement, and specifying prefabricated equipment for in-water installation, the amount of potentially erosive, hazardous, or turbidity-producing underwater work is minimized.

2. Air

a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.

Construction may result in some dust generated landward of the proposed project, in addition to construction vehicle and equipment emissions. The intake pumps will continue to run on electricity, as they currently do, and will not contribute direct emissions to the air.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

Just south of the facility, the Snyder Boat Launch, a public resource, is present. During the summer, high usage from motorboats could result in higher levels of fossil-fuel air emissions; however, these are not anticipated to affect the project.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

Dust generation by landward construction activities is expected to be minimal and will be managed using appropriate best management practices (BMPs), as needed.

3. Water

a. Surface Water:

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

Yes, the Snyder Intake facility is located on the right bank of the Columbia River at river mile 340.5.

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

Yes. In-water work to retrofit the Snyder Intake and install the proposed barrel screens will be required. In-water work will be completed by hand and with hand tools via divers operating from a barge anchored nearby in the Columbia River. The barge will contain a crane that will deliver equipment to the dive team to complete the proposed improvements.

The work to retrofit the intake will involve removal of the two traveling belt screens, motors, and appurtenances, sluice gates and hoists, and trash racks from the eastern face of the facility. The in-water openings remaining after removal of the trash racks will be covered with stainless steel plates, two per side, one blank plate, and one equipped with two 30-inch-diameter flange openings for connection of the barrel screen pipelines. Equipment is anticipated to be removed and installed by divers using hand tools (e.g., saw, grinder, wrenches, drills, etc.). Each former trash rack opening will accommodate connection of two barrel screens extending east into the Columbia River

from each 30-inch flange opening. Stainless steel 60-inch-diameter barrel screens will connect to the flanges via 40-inch high-density polyethylene (HDPE) and steel pipelines.

The southern and northernmost screens will be angled out from the facility, with pipelines extending approximately 30 feet east. The interior screens will extend straight out from facility, with pipelines extending approximately 10 to 30 feet east. The screens will rest at about the same elevation in the river, approximately 4 feet above the riverbed (screen invert elevation of 326 feet). At normal operating water level (elevation 340 feet), the screens will sit approximately 9 feet below the water surface; at extreme low water level (elevation 335 feet), the screens will sit about 4 feet below the water level.

Pre-cast concrete anchors will secure the screens to rest just above the river bottom. Anchors will be lowered into the river via a crane and hand-placed by divers. Some localized riverbed movement may be needed to form a flat area on which to install the anchors. Concrete anchors will support hydroburst equipment to periodically clean the screens.

Retrofitting of the facility will involve work on and within the existing structure. Work on the eastern face of the facility, intended to accommodate installation of the pipelines and screens, was described above. Following disassembly and removal of the traveling belt screens and motors on the intake deck, the remaining openings will be repaired. The northernmost opening will be repaired with cast-in-place concrete. The southernmost opening will be repaired with a metal hatch with a ladder extending down to the intermediate deck. The hydroburst equipment controls will be installed on the intake deck, immediately north of the existing control room. The existing control room will be modified to house the hydroburst electrical control panel. The roof, door, and door frame of the control room will be replaced.

Improvements to the intermediate deck will be completed to accommodate the barrel screens, including a proposed handrail, grate, and butterfly valves. Improvements to the forebay will include a cast-in-place concrete wall with sluice gate to separate the forebay wall. All work in and on the structure will be done in a manner that prevents spillage, byproducts, or debris from entering the river.

Warning buoys will be affixed to the concrete anchors, and warning signage to the eastern face of the facility to alert water users of the presence of submerged pipe.

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

The proposed pre-cast concrete anchors to support and secure the screens total a volume of 28 cy. These concrete anchors will be placed directly on the riverbed, possibly requiring some localized redistribution of bed material to create a flat surface on which to place the pads. This is estimated to involve movement of approximately 3 to 4 cy of riverbed material. No dredging of the river bottom or other imported fill material is proposed with this project.

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

No.

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

No. The proposal is located primarily in the Columbia River, and the water level of the reach is controlled by USACE at the McNary Dam located downstream of the site.

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

No.

b. Ground Water:

1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.

No.

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

No.

c. Water runoff (including stormwater):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

The source of runoff on the landward project site is from direct precipitation. This water either flows to the Columbia River or infiltrates into groundwater. Project activities will be limited underwater near the existing intake, and on and within the existing intake.

2) Could waste materials enter ground or surface waters? If so, generally describe.

In-water work and work adjacent to the river could potentially result in accidental spills of equipment fluids, fuel, or debris to the river. The concrete anchors, screen assemblies, and stainless steel plates will be prefabricated, such that their installation will require minimal operation of tools underwater. Because underwater work will be completed by hand or using hand tools by divers, with equipment and materials operating from a barge, the potential release of waste materials into the river is anticipated to be minimal.

Work on the existing intake will involve concrete repair, which could result in accidental spillage of byproducts; however, this risk is slim given the location of the proposed concrete repair and the existing fence protection on the Snyder Intake structure deck. General construction work on the intake structure could result in construction debris entering the river. Appropriate construction BMPs will be required for all work completed for this project.

The turbidity of the Columbia River at the project location will be temporarily increased due to the underwater activity. The design of project improvements and anticipated methods of construction should minimize turbidity-producing underwater activities, but some increased turbidity is likely. Turbidity impacts are expected to be localized and disperse within ½ mile downstream of the intake.

3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

No.

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:

Design of the proposed improvements is being conducted to minimize impacts to water to the maximum extent practicable. Some of the methods that are planned to minimize water impacts include selecting prefabricated equipment for underwater screen assembly installation, avoiding dredging or fill activities, retrofitting the existing facility to accommodate the screens, planning construction during an approved fish-work window, utilizing divers with hand tools for equipment installation, and employing construction BMPs. Additional measures may be employed during construction and to comply with approved project permits.

4. Plants

a. Check the types of vegetation found on the site:

_X__deciduous tree: alder, maple, aspen, other: **elm, sycamore**
____evergreen tree: fir, cedar, pine, other
_X__shrubs
_X__grass
____pasture
____crop or grain
____Orchards, vineyards or other permanent crops.
____wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
_X__water plants: water lily, eelgrass, **milfoil**, other
____other types of vegetation

Grasses and shrub species (e.g., coyote willow [*Salix exigua*]) are present in proximity to the facility, growing on the riprap embankment adjacent to the Columbia River. A few single trees are present near the facility, including Siberian elm (*Ulmus pumila*) and American sycamore (*Platanus occidentalis*).

b. What kind and amount of vegetation will be removed or altered?

The banks of the Columbia River in the vicinity of the intake structure are armored with riprap and largely devoid of vegetation. Vegetation on the shoreline will not be removed.

c. List threatened and endangered species known to be on or near the site.

None known. The sections in which the project is located do not contain Washington Department of Natural Resources cataloged Natural Heritage Features. The USFWS lists the perennial orchid, Ute ladies'-tresses as threatened in Benton County; however, the project site and vicinity does not provide suitable habitat for this species.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

None.

e. List all noxious weeds and invasive species known to be on or near the site.

Eurasian water milfoil *(Myriophyllum spicatum)* and cheatgrass (*Bromus tectorum)* are present on and near the site, respectively.

5. Animals

a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site.

Examples include:

birds: **hawk**, heron, eagle, **songbirds**, other: **Gulls, mallards, kingfishers**
mammals: deer, bear, elk, beaver, **other**: **raccoon**, opossum, squirrel
fish: **bass, salmon, trout**, herring, shellfish, other _____

b. List any threatened and endangered species known to be on or near the site.

The Columbia River at the project location provides Critical Habitat for several ESA-listed salmonid species, including endangered Upper Columbia River spring Chinook (*Onchorynchus tshawytscha*), threatened Upper Columbia River steelhead (*O. mykiss*), and threatened bull trout (*Salvelinus confluentus*).

c. Is the site part of a migration route? If so, explain.

Yes, the Columbia River is a migration route for salmon, and provides foraging and overwintering habitat for the salmonids listed in 5.b., as well as threatened Middle Columbia River winter steelhead. Additionally, coho (*O. kisutch*), sockeye (*O. nerka*), pink (*O. gorbuscha*), and chum (*O. keta*) salmon use and migrate through the Columbia River in the vicinity of the Snyder Intake. The project area is also within the region identified as part of the Pacific Flyway for migratory birds.

d. Proposed measures to preserve or enhance wildlife, if any:

No native riparian or aquatic vegetation will be removed during the project. The project will require work in the Columbia River, and construction will be timed to coincide with agency pre-approved in-water work windows. Additionally, project design has been completed to minimize excavation, fill, and disturbance of the riverbed to the maximum extent practicable. With the presence of listed salmonids in the river, the work will be reviewed by NMFS and USFWS, as well as WDFW and USACE. All construction work will conform to the permit requirements and conditions issued by these and other agencies with jurisdiction over this project.

e. List any invasive animal species known to be on or near the site.

None known.

6. Energy and Natural Resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Electricity operates the Snyder Intake and the project will not change the energy source. Electricity will be used to power the hydroburst equipment necessary to periodically convey compressed air through the proposed screens to clear them of debris.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

No.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

None proposed.

7. Environmental Health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.

No. Raw water quality pumped from the intake is expected to be consistent with the water quality the City has historically withdrawn from the river through the existing screens.

WDFW staff indicated that the Hanford site, located upstream of the facility, could contaminate the river and, therefore, the water at the site. However, this risk exists regardless of the proposed action. Further, discussions with WDFW regarding the potential of contamination at the intake resulting from the adjacent boat launch

revealed that, under normal conditions, there is enough river flow to prevent contamination by pollutants.

1) Describe any known or possible contamination at the site from present or past uses.

None known.

2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.

None known.

3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.

In-water work and work adjacent to the river could potentially result in accidental spills of equipment fluids or fuel to the river, or increased turbidity in the river in the vicinity of the project. Proper BMPs will be utilized to decrease this risk. The finished intake project will pose no environmental health hazards and will not utilize toxic chemicals.

4) Describe special emergency services that might be required.

None anticipated.

5) Proposed measures to reduce or control environmental health hazards, if any:

The contractor will be required to develop a spill prevention and control countermeasure plan and comply with BMPs developed for the project, as well as permit conditions and requirements placed on the project by the jurisdictional agencies.

1. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

No existing noise will affect the project.

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

Construction of the project will result in temporary elevated noise beyond ambient baseline noise, primarily from operation of construction equipment on the barge and intake structure. Elevated noise levels will occur during normal daylight hours.

Because the project involves in-water work, this component of construction will be limited to approved in-water work windows, which are designed to capture the time

when listed fish presence is lowest. It is anticipated that this work window will be December 15th to February 28th; however, a secondary or alternate window of August 1st to 31st is being included at this stage of the project. The winter work window would not only coincide with a low occurrence of ESA-listed salmonids in the River, but also, lower presence of terrestrial wildlife species and human activity. For these reasons, and a lower water demand, the City's preference for in-water work window is the winter window. It is important to note that proposed in-water work, limited to installation of prefabricated equipment and removal/installation of equipment by hand and using hand tools, will largely limit construction noise in-water, such that in-water construction noise is not anticipated to reach the level of behavioral impact or harm to ESA-listed and non-listed aquatic species. Additional analysis has been provided in the project BA.

Existing pumps at the facility generate noise, and this will continue post-screen upgrades. Pump noise is prevalent at the facility itself and does not typically impact surrounding areas.

3) Proposed measures to reduce or control noise impacts, if any:

Project design has been conducted to minimize the amount of noise-generating activities for construction of this project (i.e., minimal excavation and fill, minimal disturbance of the riverbed, hand tools for in-water work, minimal retrofits to the existing facility, etc.). Additionally, specific noise reducing measures may be employed as suggested or required by regulatory agencies during permit coordination.

8. Land and Shoreline Use

a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.

The site currently houses the City's existing Snyder Intake facility. The proposal will not affect current land uses within or near the project area.

b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?

The site has not previously been used as farmland or forest lands. The project will not result in a loss or conversion of any agricultural or forest lands.

1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how:

No.

c. Describe any structures on the site.

The City's Snyder Intake facility is a 45-foot-tall concrete structure partially buried into the Columbia River bed and extending from Snyder Street approximately 70 feet into the Columbia River.

d. Will any structures be demolished? If so, what?

No.

e. What is the current zoning classification of the site?

The intake structure extends from the eastern terminus of Snyder Street, which is within public right-of-way. The land north and south of Snyder Street is zoned as Natural Open Space (NOS) and Parks & Public Facilities (PPF), respectively.

f. What is the current comprehensive plan designation of the site?

Shoreline.

g. If applicable, what is the current shoreline master program designation of the site?

The portion of the site landward of the ordinary high water mark (OHWM) is on the boundary of Recreation and Natural shoreline designations, and the portion of the site waterward of the OHWM is within the Aquatic environment shoreline designation.

h. Has any part of the site been classified as a critical area by the city or county? If so, specify.

The portion of the project site on land is not a classified critical area. However, the Columbia River is a jurisdictionally protected waterbody of the state and is considered a Shoreline of Statewide Significant and a Fish and Wildlife Habitat Conservation Area.

i. Approximately how many people would reside or work in the completed project?

None. City staff visit the Snyder Intake weekly for regular operations and maintenance (O&M) activities, which will continue post-project.

j. Approximately how many people would the completed project displace?

None.

k. Proposed measures to avoid or reduce displacement impacts, if any:

Not applicable.

L. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

The project will involve improvements to an existing approved land use. These improvements are requisite to maintain operation of the facility in compliance with the terms of the USACE land easement. Additionally, improvements to the screens will ensure the intake facility is operating in a manner that also protects ESA-listed salmonids and sensitive fish/wildlife species, which is consistent with a number of local, state, and federal environmental regulations.

m. Proposed measures to reduce or control impacts to agricultural and forest lands of long-term commercial significance, if any:

None proposed.

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

None.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

None.

c. Proposed measures to reduce or control housing impacts, if any:

None proposed.

10. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

No structures are proposed. The hydroburst electrical controls will be installed on the intake structure deck, the tallest of which would be the air receiving tank at approximately 12 feet tall.

c. What views in the immediate vicinity would be altered or obstructed?

No views in the immediate vicinity would be altered or obstructed.

b. Proposed measures to reduce or control aesthetic impacts, if any:

None proposed.

11. Light and Glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

No light or glare is anticipated beyond what already exists at the intake building.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

No.

c. What existing off-site sources of light or glare may affect your proposal?

None.

d. Proposed measures to reduce or control light and glare impacts, if any:

None.

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?

Several water activities (boating, fishing, water sports, etc.) and shoreline activities (biking, walking riverfront trails, wildlife viewing, park use, etc.) are within immediate or nearby proximity to the proposed project. The heaviest usage timing for these activities is typically the summer months.

b. Would the proposed project displace any existing recreational uses? If so, describe.

During construction, in-water activities will be limited in the project vicinity. The City prefers construction be timed around the winter in-water work window to both capitalize on lower water demand timing and avoid significant impacts to recreation users in this area. The summer in-water work window also could be used, but the selected contractor would need to minimize impacts to recreation-users if this window is used.

Post-construction, warning buoys will be installed above the screens, and signage on the face of the intake structure, to alert water users of the submerged pipes and to use caution in the area. The completed project is not anticipated to displace or adversely impact recreational activities.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

Signage and buoys will be installed to designate the construction zone and will remain after construction to alert boaters and swimmers to use caution in the area. Depending on the selected contractor, additional timing measures could be employed to limit recreation impacts.

13. Historic and cultural preservation

a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers? If so, specifically describe.

No.

b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.

There are no landmarks or evidence of Indian or historic use of the site or its surrounding areas. The Columbia River was historically used by native Americans for fishing and settlement.

c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.

According to the Washington State Department of Archaeology and Historic Preservation (DAHP) Washington Information System for Architectural and Archaeological Records Data (WISAARD) mapping, the nearest Historic Register property is the Gold Coast Historic District, located approximately 1 mile south of the project location.

WISAARD shows the project site within an area having a very high risk of discovering a historic resource. Because the project will primarily occur in the Columbia River and on a previously constructed manmade structure, the risk of inadvertent discovery is anticipated to be significantly lower than WISAARD's predictive model.

During federal permit reviews, it is anticipated that USACE will consult with DAHP and area tribes about the project's potential impact. A Cultural Resources Survey is not expected to be required for this project because of its location underwater and within an existing manmade structure. If USACE determines otherwise, a survey will be completed.

d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.

No impacts to the identified historic district will occur. Earth movement/excavation for the project will be limited to localized movement of riverbed materials to create a flat surface for concrete anchor installation. Consequently, the risk of uncovering historic resources during project construction is very low.

14. Transportation

a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any.

The existing intake structure is already accessed from Snyder Street. No changes to the street system or site access will result from project activities.

b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?

The nearest transit stop is located approximately 0.7 miles from the project site on George Washington Way.

c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate?

None.

d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).

No.

e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

Construction during the in-water work will occur from a barge stationed in the Columbia River near the intake facility.

f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?

No new regularly occurring vehicular trips will result from the project. At present, City staff access the facility weekly for O&M purposes, typically during normal business hours.

g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.

No.

h. Proposed measures to reduce or control transportation impacts, if any:

None.

15. Public Services

a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.

No.

b. Proposed measures to reduce or control direct impacts on public services, if any.

None.

16. Utilities

a. Circle utilities currently available at the site: **electricity**, natural gas, **water**, refuse service, telephone, sanitary sewer, septic system, other: **raw water**

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

No new utility services are proposed for the project site, only improvements to the existing water utility intake structure.

C. Signature

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: _____

Name of signee Pete Rogalsky

Position and Agency/Organization Public Works Director

Date Submitted: 6/11/2019

Exhibit 4

Department of Energy

Bonneville Power Administration
2211 North Commercial Avenue
Pasco, WA 99301

TRANSMISSION SERVICES

July 31, 2019

In reply refer to: SMP2019-102 Snyder Street Intake Upgrade Project

Mike Stevens
City of Richland
Community Planning/Senior Planner
3801 West Van Giesen
Richland, WA 99353

Dear Mike:

Bonneville Power Administration (BPA) has had the opportunity to review BLA2019-114. The project consists of replacing the two traveling belt screens with four 60-inch-diameter stainless steel barrel screens, which will protrude approximately 30 feet eastward into the river from the existing intake structure. The existing facility will be retrofitted, including removal of the traveling belt screens and motors, sluice gates and hoists, and trash racks. Additional improvements to the existing intake structure include retrofits on all three levels of the facility, the intake deck, interior intermediate deck and forebay. The project location is the eastern terminus of Snyder Street in Richland, WA.

In researching our records, we have found that this proposal will not directly impact BPA facilities in that area. BPA does not have any objections to the approval of this request at this time.

Thank you for the opportunity to review this application. If you have any questions regarding this request or need additional information, please feel free to contact me. I can be reached at (503) 230-5510 or by email at mjdeklyen@bpa.gov.

Sincerely,

Mike DeKlyen
BPA Field Realty Specialist