



**SHORELINE MANAGEMENT REVIEW COMMITTEE
MEETING AGENDA
Wednesday, May 2, 2018, 5:00 PM**

I. CALL TO ORDER

II. INTRODUCTIONS

III. MEETING ITEMS

- A. Camp Lacamas Step Sewer Project Shoreline Substantial Development Permit Application
Details: The City of Camas has filed an application for a Shoreline Substantial Development Permit and Shoreline Conditional Use Permit (City File No. SHOR17-04) to install a new Septic Tank Effluent Pumping (STEP) system and sewer line to serve Camp Lacamas within a shoreline area that is designated "Urban Conservancy". The project is located approximately 160 feet south of Lacamas Creek and east of NE Goodwin Road.
Presenter: Lauren Hollenbeck, Senior Planner
Recommended Action: Staff recommends that the Shoreline Management Review Committee open the public meeting, review the application, deliberate, request clarification (if any) and render a local decision that will be forwarded to the Department of Ecology for a final decision after a 14-day local appeal period.

 [Camp Lacamas Step Sewer Project Staff Report \(SHOR17-04\)](#)

[Exhibit 1 Applicant's Narrative](#)

[Exhibit 2 Wetland and Technical Reports](#)

[Exhibit 3 SEPA Determination and Checklist](#)

[Exhibit 4 Site Plan](#)

[Exhibit 5 Vegetation Tech Memo](#)

[Exhibit 6 Updated Information from Applicant Section 5.3.1](#)

IV. ADJOURNMENT

NOTE: The City of Camas welcomes and encourages the participation of all of its citizens in the public meeting process. A special effort will be made to ensure that persons with special needs have opportunities to participate. For more information, please call the City Clerk's Office at 360.817.1591.



STAFF REPORT

SHORELINE SUBSTANTIAL DEVELOPMENT AND SHORELINE CONDITIONAL USE PERMIT

CAMP LACAMAS STEP SEWER PROJECT

FILE NO. SHOR17-04

PUBLIC MEETING DATE: MAY 2, 2018

To:	Shoreline Management Review Committee	Applicant: City of Camas 616 NE 4 th Avenue Camas, WA 98607
Proposal:	To install a new Septic Tank Effluent Pumping (STEP) system and sewer line	
Location:	The project site is 2025 NE Goodwin Road at Camp Lacamas. Parcel # 172543000.	
Public Notice:	The city mailed notices of application to neighboring properties within 300-feet of the subject site on February 20, 2018. The city issued a SEPA Determination of Non-significance (file# SEPA 17-25) on March 8, 2018, and the comment period ended on March 22, 2018.	

APPLICABLE LAW

THE APPLICATION WAS DEEMED COMPLETE ON **FEBRUARY 12, 2018**, AND THE APPLICABLE CODES ARE THOSE CODES THAT WERE IN EFFECT ON THE DATE OF APPLICATION, TO INCLUDE CAMAS MUNICIPAL CODE (CMC); THE CAMAS SHORELINE MASTER PROGRAM (ORD. 15-007) CONSOLIDATED WITH CRITICAL AREA REVIEW WITHIN APPENDIX C (SMP); AND THE SHORELINE MANAGEMENT ACT (RCW90-58)(WAC 173-27). **NOTE: CAMAS SHORELINE MASTER PROGRAM (SMP) CITATIONS ARE IN ITALICS THROUGHOUT THIS REPORT.**

STANDARDS FOR EVALUATION

- **Shoreline Substantial Development Permits** must be consistent with approved Shoreline Master Program (SMP) element goals, objectives and general policies of the designated environment; policy statements for shoreline use activities; and with use activity regulations.
- **Shoreline Conditional Use Permits.** These provisions shall apply only when it can be shown that extraordinary circumstances exist and that the public interest would suffer no substantial detrimental effect. **SMP Conditional Use Permits require final approval or disapproval from the Department of Ecology after final local action has been taken.**

BACKGROUND

The applicant proposes to install a new Septic Tank Effluent Pumping (STEP) system to serve Camp Lacamas. The existing septic system will be replaced with approximately 900 feet of sewer line and four underground septic tanks including one small aboveground electrical service panel. The proposed project is located approximately 160 feet south of the ordinary high water mark (OHWM) of Lacamas Creek and is accessed immediately off of NE Goodwin Road to the northwest.

The project site lies within the regulated shoreline of Lacamas Creek. The Camas Shoreline Master Program (SMP) classifies the shoreline landward of the project as “Urban Conservancy Shoreline Environment”. The development of underground utilities is considered a Shoreline Conditional Use. The required setback from the OHWM for underground utilities is 100-feet in the Urban Conservancy area. All utilities are outside of this setback.

MASTER PROGRAM GOALS AND POLICIES (CHAPTER 3)

At page 3-1 of the SMP, the general goals of the program is to use the full potential of the shorelines in accordance with the surrounding areas, the natural resource values, and the unique aesthetic qualities; and develop a ordered and diversified physical environment that integrates water and shoreline uses while achieving a net gain of ecological function. Primarily, the step sewer project supports the utilities and water quality goals below.

SMP, Section 3.11 Transportation, Utilities, and Essential Public Facilities *“The goal for transportation, utilities, and essential public facilities is to provide for these facilities in shoreline areas without adverse effects on existing shoreline use and development or shoreline ecological functions and/or processes.”*

SMP, Section 3.13 Water Quality and Quantity *“The goal for water quality and quantity is to protect and enhance the quality and quantity of the region’s water resources to ensure there is a safe, clean water for the public’s needs and enjoyment; and protect wildlife habitat.”*

FINDING: Staff finds that the project is consistent with the general policies of Chapter 3, given that the step sewer project provides an ecological benefit to the shoreline through water quality protection and is designed to not adversely impact shoreline ecological functions.

URBAN CONSERVANCY SHORELINE DESIGNATION (CHAPTER 4)

The management policies of the Urban Conservancy Shoreline Designation at SMP Section 4.3.3.4 are as follows:

- 1) *Uses that preserve the natural character of the area or promote preservation of open space or critical areas either directly or over the long term should be the primary allowed uses. Uses that result in restoration of ecological functions should be allowed if the use is otherwise compatible with the purpose of the Urban Conservancy shoreline designation and the setting.*

FINDING: The project is consistent with the SMP designation of Urban Conservancy because it protects ecological functions through a design that avoids and minimizes impacts to critical areas and vegetation while protecting water quality through decommissioning on-site septic systems.

- 2) *Single family residential development shall ensure no net loss of shoreline ecological functions and preserve the existing character of the shoreline consistent with the purpose of this designation.*

FINDING: This criteria is not applicable.

- 3) *Low-intensity public access and public recreation objectives should be implemented whenever feasible and when significant ecological impacts can be mitigated (e.g. trails).*

FINDING: This criteria is not applicable.

- 4) *Thinning or removal of vegetation should be limited to (1) remove noxious vegetation and invasive species; (2) provide physical or visual access to the shoreline; or (3) maintain or enhance an existing use consistent with critical areas protection and maintenance or enhancement or shoreline ecological functions.*

FINDING: The removal of vegetation will be limited to open fields and lawns dominated by non-native vegetation as the STEP system will be primarily installed in existing access roads and heavily impacted footpaths. The temporary disturbance will be revegetated and tree removal will be avoided.

- 5) *Low intensity water-oriented commercial uses may be permitted if compatible with surrounding uses.*

FINDING: This criteria is not applicable.

GENERAL SHORELINE USE AND DEVELOPMENT REGULATIONS (CHAPTER 5)

The following general regulations of Chapter 5 Section 5.1 (beginning on page 5-1) are as follows:

1. *Shoreline uses and developments that are water-dependent shall be given priority.*

FINDING: The development is not water-dependent as it is located approximately 160-feet from Lacamas Creek and underground, which will not interfere with other water-dependent uses.

2. *Shoreline uses and developments shall not cause impacts that require remedial action or loss of shoreline functions on other properties.*

FINDING: The proposed work will not affect shoreline functions on other properties as the project will be mostly located underground on private property. Further, Best Management Practices (i.e. erosion control, etc.) will be implemented throughout project construction.

3. *Shoreline uses and developments shall be located and designed in a manner such that shoreline stabilization is not necessary at the time of development and will not be necessary in the future for the subject property or other nearby shoreline properties unless it can be demonstrated that stabilization is the only alternative to protecting public safety and existing primary structures.*

FINDING: The proposed development will not require shoreline stabilization at the time of the development or in the future.

4. *Land shall not be cleared, graded, filled, excavated or otherwise altered prior to issuance of the necessary permits and approvals for a proposed shoreline use or development to determine if environmental impacts have been avoided, minimized and mitigated to result in no net loss of ecological functions.*

FINDING: The applicant has applied for proper permits, and has not requested to begin work prior to receiving approvals.

5. Single family residential development shall be allowed on all shorelines except the Aquatic and Natural shoreline designation, and shall be located, designed and used in accordance with applicable policies and regulations of this Program.

FINDING: This criteria is not applicable.

6. Unless otherwise stated, no development shall be constructed, located, extended, modified, converted, or altered or land divided without full compliance with CMC Title 17 Land Development and CMC Title 18 Zoning.

FINDING: The proposed development requires compliance with the applicable regulations from CMC Title 17 Land Development and CMC Title 18 Zoning.

7. On navigable waters or their beds, all uses and developments should be located and designed to: (a) minimize interference with surface navigation; (b) consider impacts to public views; and (c) allow for the safe, unobstructed passage of fish and wildlife, particularly species dependent on migration.

FINDING: This criteria is not applicable as the proposed project is not on navigable waters or their beds.

8. Hazardous materials shall be disposed of and other steps be taken to protect the ecological integrity of the shoreline area in accordance with the other policies and regulations of this Program as amended and all other applicable federal, state, and local statutes, codes, and ordinances.

FINDING: The application does not propose the use of hazardous materials.

9. In-water work shall be scheduled to protect biological productivity (including but not limited to fish runs, spawning, and benthic productivity). In-water work shall not occur in areas used for commercial fishing during a fishing season unless specifically addressed and mitigated for in the permit.

FINDING: This criteria is not applicable as in-water work is not proposed.

10. The applicant shall demonstrate all reasonable efforts have been taken to avoid, and where unavoidable, minimize and mitigate impacts such that no net loss of critical area and shoreline function is achieved. Applicants must comply with the provisions of Appendix C with a particular focus on mitigation sequencing per Appendix C, Section 16.51.160 Mitigation Sequencing. Mitigation Plans must comply with the requirements of Appendix C, Section 16.51.170 Mitigation Plan Requirements, to achieve no net loss of ecological functions.

FINDING: The application includes a critical area report for an isolated wetland and a technical memorandum addressing critical aquifer recharge areas, frequently flooded areas and wildlife habitat conservation areas. The applicant's narrative includes a discussion of avoidance and minimization efforts. Further discussion is provided in Section 5.3 below.

11. The effect of proposed in-stream structures on bank margin habitat, channel migration, and floodplain processes should be evaluated during permit review.

FINDING: This criteria is not applicable as no in-stream work is proposed.

12. Within urban growth areas, Ecology may grant relief from use and development regulations in accordance with RCW 90.58.580, and requested with a shoreline permit application.

FINDING: The activity is in city limits and therefore this criterion is not applicable.

ARCHAEOLOGICAL, CULTURAL AND HISTORIC RESOURCES (SECTION 5.2)

The application included an archaeological survey report that was sent to the Department of Archaeology and Historic Preservation and Tribal Representatives for review and comment. The application includes a Cultural Resources Report with recommendations. Any conditions of permit approval from the State Department of Archaeology and Historic Preservation (DAHP) will need to be complied with.

FINDING: Any archaeological conditions of the DAHP permit must be complied with prior to site improvement activities. If an item of possible archaeological interest is discovered on site, work will immediately cease and notification of the find will be sent to the appropriate parties.

CRITICAL AREAS PROTECTION (SECTION 5.3)

The subject parcel includes the following critical areas as regulated by the SMP: Wetlands; a Critical Aquifer Recharge Area (CARA); Frequently Flooded Areas; and Fish and Wildlife Habitat Conservation Areas.

Wetlands- SMP Appendix C, Chapter 15.63

A Category II isolated wetland was identified and located at the toe of a steep slope approximately 40 feet northeast of the project area. The wetland's associated 130-foot required buffer will be temporarily impacted at the top of the slope by the installation of a section of the new sewer line and a STEP tank system, as discussed in the applicant's narrative and April 16, 2018 memorandum from Kent Snyder, PhD. Per the memo and as illustrated on the memo's enclosed photos, the area of project impacts is heavily used by pedestrian traffic and consequently has created a generally barren and sparsely vegetation area.

As such, mitigation for temporary buffer project impacts should be focused on restoring the vegetation to pre-project conditions along with implementing Best Management Practices during construction.

Critical Aquifer Recharge Areas (CARA)- SMP Appendix C, Chapter 16.55

Although the project is located within a wellhead protection zone, which is an allowed activity in the CARA, a hydrogeologic assessment was not required as the project does not create more than 2,500 square feet or 5% (whichever is greater) of impervious surface; divert, alter or reduce flow of surface or ground waters; reduce the recharging of the aquifer; not use hazardous substances; and not construct or use an injection well.

Frequently Flooded Areas- SMP Appendix C, Chapter 16.57

Approximately 65 feet of new sewer line including one step tank will be buried in the FEMA mapped floodway with the remainder of the project located in the floodplain. Although the project improvements are in a relatively flat area with steep slopes to the north, the topography indicates the precise location of the floodway boundary lies beyond the project improvements as discussed in the applicant's narrative. Nonetheless, topography will be returned to pre-construction contours after project installation via backfilling narrow trenches (approximately 18-inches wide) with native soil.

Per the City Engineer, the encroachment will not result in an increase in flood levels during the occurrence of the base flood discharge per SMP 16.57.020.E. The STEP system will be constructed with flood resistant materials and designed to eliminate discharges from the system into floodwaters including the infiltration of floodwaters into the system.

Fish and Wildlife Conservation Areas- SMP Appendix C, Chapter 16.61

The step system is located approximately 160-feet south of the Lacamas Creek, outside of the required 150-foot stream buffer. Excavation for a portion of the sewer piping will also be installed within the vicinity of Oregon White Oaks but no trees are proposed for removal.

FINDING: Temporary impacts to critical areas and associate buffers will be mitigated with flood resistant materials, Best Management Practices for erosion control during construction and native re-vegetation measures where feasible to ensure no net loss of ecological functions to the shoreline area.

SPECIFIC SHORELINE USE REGULATIONS (CHAPTER 6)

The specific use regulations for utilities begins at page 6-22 of the SMP. The applicant addresses the criteria of this section at page 15 of the narrative.

SMP Section 6.3.15 Utilities

1. Whenever feasible, all utility facilities shall be located outside shoreline jurisdiction. Where distribution and transmission lines (except electrical transmission lines) must be located in the shoreline jurisdiction they shall be located underground.

FINDING: The proposed STEP system cannot be located outside of the shoreline because of the need to connect to existing structures located within the shoreline. Proposal will be underground with the exception of one small electrical panel that serves to monitor system operations needs to be above ground for access.

2. Where overhead electrical transmission lines must parallel the shoreline, they shall be no closer than one hundred (100) feet from OHWM unless topography or safety factors would make it unfeasible, then a shoreline conditional use permit shall be required.

FINDING: Not applicable.

3. Utilities shall be designed, located and installed in such a way as to preserve the natural landscape, minimize impacts to scenic views, and minimize conflicts with present and planned land and shoreline uses.

FINDING: Most of the utility will be underground and no trees will be removed. The temporary soil disturbance due to construction will be replanted with native vegetation.

4. Transmission, distribution, and conveyance facilities shall be located in existing rights of way and corridors or shall cross shoreline jurisdictional areas by the shortest, most direct route feasible, unless such route would cause significant environmental damage.

FINDING: Consistent with this criterion as the STEP system will be installed in existing access roads, pathways and other existing disturbed areas. If located outside of existing disturbed areas to connect to structures, they will be located along the shortest feasible route except may be deviated in order to avoid potential tree removal.

5. Utility production and processing facilities, such as power plants and wastewater treatment facilities, or parts of those facilities that are nonwater-oriented shall not be allowed in the shoreline jurisdiction unless it can be demonstrated that no other feasible option is available, and will be subject to a shoreline conditional use permit.

FINDING: Not applicable to this development as it is not proposed.

6. *Stormwater control facilities, limited to detention, retention, treatment ponds, media filtration facilities, and lagoons or infiltration basins, within the shoreline jurisdiction shall only be permitted when the following provisions are met...(excerpt)*

FINDING: Not applicable.

7. *New and modifications to existing outfalls shall be designed and constructed to avoid impacts to existing native aquatic vegetation attached to or rooted in substrate. Diffusers or discharge points must be located offshore at a distance beyond the nearshore area to avoid impacts to those habitats.*

FINDING: Not applicable.

8. *Water reclamation discharge facilities (e.g. injection wells) are prohibited in the shoreline jurisdiction, unless the discharge water meets State Department of Ecology Class A reclaimed water standards...(excerpt)*

FINDING: Not applicable.

9. *Where allowed under this program, construction of underwater utilities or those within the wetland perimeter shall be scheduled to avoid major fish migratory runs or use construction methods that do not cause disturbance to the habitat or migration.*

FINDING: Not applicable.

10. *All underwater pipelines transporting liquids intrinsically harmful to aquatic life or potentially detrimental to water quality shall provide automatic shut off valves.*

FINDING: Not applicable.

11. *Upon completion of utility installation/maintenance projects on shorelines, banks shall, at a minimum, be restored to pre-project configuration, replanted and provided with maintenance care until the newly planted vegetation is fully established. Plantings at installation shall be at least 2" minimum caliper at breast height if trees, five gallon size if shrubs, and ground cover shall be planted from flats at 12" spacing, unless other mitigation planting is recommended by a qualified biologist and approved by the Administrator.*

FINDING: Not applicable. No work is proposed on banks of Lacamas Creek or any other water body.

SHORELINE CONDITIONAL USE

As discussed throughout this report, the proposed activity is underground utilities which is allowed as a conditional use in the Urban Conservancy shoreline environment, per Table 6-1 of the SMP.

Pursuant to SMP, Appendix B, "Conditional use approval may be granted only if the applicant can demonstrate all of the following:

A. *The use will not cause significant adverse effects on the environment or other uses;*

FINDING: No adverse effects are anticipated and the project would achieve a net benefit to water quality. All impacts will be mitigated.

B. *The use will not interfere with public use of public shorelines;*

FINDING: No interference with the public use of shorelines will occur as the project is located underground and on private property.

*C. Design of the development will be compatible with the surroundings and the master program; and
D. The proposed use will not be contrary to the general intent of the master program."*

FINDING: As discussed throughout this report, the proposed underground step system is design to avoid ecological impact and provide a net benefit through the disconnection of on-site septic systems. Further, the project will not interfere with other shoreline uses, including public access. The project is in conformance with the general intent of the SMP.

SEPA COMMENT

One SEPA comment was received from the Department of Archaeology and Historic Preservation (DAHP) on April 20, 2018 after the end of the comment period. The DAHP comment stated the applicant is required to obtain a permit from DAHP under RCW 27.53.

CONCLUSIONS

1. Based upon the submitted plans and reports, SMRC finds that "step sewer system" is a conditional use activity within the urban conservancy shoreline designation in accordance with SMP Table 6-1, and may be approved.
2. Based upon the submitted plans and reports, SMRC finds that the project is consistent with the general goals and policies of the SMP pursuant to SMP Chapter 3 Goals and Policies, and Chapter 5 General Use & Development Regulations.
3. As conditioned, the project is consistent with the SMP Chapter 6 Specific Shoreline Use Regulations, at Section 6.3.15 for Utilities.

RECOMMENDATION

Staff recommends **APPROVAL** of the Camp Lacamas Step Sewer System Project (File #SHOR17-04) Substantial Development Permit and Shoreline Conditional Use Permit as conditioned.

Proposed Conditions of approval:

1. The applicant shall obtain a permit from DAHP under RCW 27.53. The archaeological conditions of the DAHP permit must be complied with prior to any site improvement activities.
2. Topography shall be returned to pre-construction contours after project installation.
3. Best Management Practices shall be implemented throughout project construction.
4. Upon construction completion, any areas of temporary disturbance shall be revegetated with native vegetation where feasible.
5. Irrigation or other measures shall be in place to ensure successful establishment of vegetative cover for a period of three years.

APPEAL

Appeal information is found within the Camas SMP, Appendix B (page B-7).



CAMP LACAMAS STEP SEWER PROJECT

City Project: WS-681E

Application for Shoreline Conditional Use Permit

Submitted By:

City of Camas

Public Works Department

616 NE 4th Avenue

Camas, Washington 98607

December 19, 2017

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APPLICANT:

James Hodges

City of Camas

616 NE 4th Avenue

Camas, Washington 98607

(360) 817-1561 FAX: (360) 834-1535

PROPERTY OWNER:

Lacamas Creek Communities

2025 NE Goodwin Road

Camas, Washington 98607

(360) 834-3262

APPLICANT'S CONSULTANT:

Harper Houf Peterson Righellis Inc.

1104 Main Street, Suite 100

Vancouver, Washington 98660

Natural Resource Scientists:

Kent E. Snyder, PhD and Ivy M. Watson

(360) 750-1131

kents@hhpr.com and ivyw@hhpr.com

LOCATION OF PROJECT:

Parcel Serial Number: 172543000

Comprehensive Plan Designation: Industrial (IND)

Zoning: Light Industrial/Business Park (LI/BP)

Overlay Zone(s): Gateway Corridor

Sec: 20 Township: 2N Range: 3E

Parcel Size: 9.63 acres

TYPE OF REVIEW

- () Substantial Development Permit
- (X) Conditional Use Permit
- () Variance

SUBMITTAL REQUIREMENTS

1. Name of water area and/or wetlands within which development is proposed:

No in-water work or work in wetland.

Work would occur within the shoreline and 100-year floodplain of Lacamas Creek.

2. Current use of the property with existing improvements:

Camp Lacamas is used seasonally as a retreat and conference center. There are two single family residences on the subject parcel, which are occupied year-round.

3. Proposed use of property:

The City of Camas (City) plans to install a new STEP (Septic Tank Effluent Pumping) system to serve Camp Lacamas at 2025 NE Goodwin Road, replacing the existing on-site septic system. This project supports the existing use at this location.

4. Nature of the existing shoreline. (Describe type of shoreline, such as marine, stream, lake, lagoon, marsh, bog, swamp, flood plain, floodway, delta; type of beach, such as accretion, erosion, high bank, low bank, or dike; material, such as sand, gravel, mud, clay, rock riprap; and extent and type of bulkheading, if any):

Lacamas Creek, a perennial stream, is approximately 160 feet north of the project site. This stream flows southeast, entering Lacamas Lake approximately 1 mile downstream of the site (lake level rises and falls based on seasonal drawdown). The site is within Water Resource Inventory Area (WRIA) 28 and the 6th field Hydrologic Unit Code (HUC) Lower Columbia/Sandy 170800010606.

A very small (0.026 acre or 1,112 square feet) palustrine scrub-shrub/emergent (PSS/PEM) depression wetland with a forested fringe (Wetland K-1) is present on the northeast portion of the site, approximately 40 feet northeast of the project alignment, at the closest point. This wetland is located in a depression at the toe of a steep slope (30 to 35%) that separates the developed camp area on the upper terrace from the forested and relatively undisturbed lower terrace along Lacamas Creek.

5. In the event that any of the proposed buildings or structures will exceed a height of thirty-five feet above the existing grade level, indicate the approximate location of and number of residential units, existing and potential, that will have an obstructed view.

No buildings or structures exceeding a height of thirty-five feet are proposed.

6. Project Diagrams:

Engineering Drawings (Appendix F).

7. State Environmental Policy Act (SEPA) checklist.

Prepared by HHPR. Submitted as a separate, concurrent document.

8. Additional material or comments (included on other sheets if necessary).

Project Narrative (See below). Figures (Appendix A). Photographs (Appendix B). Tree Survey (Appendix C). Other Technical Reports (Appendix D). Mailing List—Properties within 300 feet (Appendix E). Engineering Drawings (Appendix F).

AUTHORIZATION:

The undersigned hereby certifies that all information submitted with this application is complete and correct to the best of my knowledge and belief. I understand that any errors and/or omissions may lengthen the time to process the request.

James Hodges (CAMAS) 12/27/2017
Authorized Signature Date

(letter of authorization required if other than property owner)

SUBMIT THIS APPLICATION TO THE PLANNING DEPARTMENT AT CITY HALL,
616 NE 4TH AVENUE, CAMAS, WASHINGTON (360) 834-3451.

for office use only do not write below this line

Application No.: _____

Filing Date:

Table of Contents

1.	PROJECT DESCRIPTION	1
1.1	Project Description.....	1
1.2	Shoreline Jurisdiction.....	1
1.3	Approval Request	2
2.	CAMAS ZONING CODE (TITLE 18) – APPLICANT RESPONSE	2
2.1	Permitted Uses (Chapter 18.07 – Use Authorization).....	2
2.2	Light Industrial/Business Park (Chapter 18.21)	2
2.2.1	Site Development Criteria (Section 18.21.060)	2
2.3	Sensitive Areas and Open Space (Chapter 18.31).....	3
2.3.1	Sensitive Area – Scope (Section 18.31.020).....	3
2.3.2	Sensitive Area – Administration (Section 18.31.030)	3
2.3.3	Sensitive Areas—Tree Retention (Section 18.31.080)	4
2.3.4	Sensitive Areas – Vegetation Removal (Section 18.31.090)	4
2.3.5	Sensitive Areas – Mandatory Preservation (Section 18.31.110).....	4
2.4	Administrative Procedures (Chapter 18.55)	5
2.4.1	Shoreline Master Program Permits (Section 18.55.330)	5
3.	STATE ENVIRONMENTAL POLICY ACT (SEPA) COMPLIANCE (Title 16.01)	6
4.	ARCHAEOLOGICAL COMPLIANCE (Title 16.31).....	6
5.	CRITICAL AREAS COMPLIANCE (SMP Appendix C, 16.51)	6
5.1	Wetlands (SMP 16.53).....	7
5.2	Critical Aquifer Recharge Areas (SMP 16.55)	8
5.2.1.	Applicability/Uses and Activities Prohibited (SMP 16.55.040)	8
5.2.2.	Critical Area Report and Hydrogeologic Assessment (SMP 16.55.050).....	8
5.2.3.	Performance Standards (SMP 16.55.060-080).....	8
5.3	Frequently Flooded Areas (SMP 16.57).....	9
5.3.1.	Applicability/Uses and Activities Prohibited (SMP 16.57.010-020).....	9
5.3.2.	Additional Report Requirements (SMP 16.57.030)	9
5.3.3.	Performance Standards (SMP 16.57.050-080).....	9
5.4	Geological Hazard Areas (SMP 16.59)	10
5.4.1	Erosion Hazards.....	10
5.4.2	Landslide Hazard Areas	11
5.4.3	Seismic Hazard Areas	11
5.4.4	Other Hazard Areas	11
5.5	Fish and Wildlife Habitat Conservation Areas (SMP 16.61)	11
5.5.1	Threatened, Endangered, or Sensitive (TES) Plants.....	11

5.5.2	TES Fish.....	12
5.5.3	TES Wildlife.....	12
5.5.4	State Priority Habitats and Species.....	12
5.5.5	Habitats of Local Importance	13
5.5.6	Analysis of Performance Standards.....	13
6.	CITY OF CAMAS SHORELINE MASTER PROGRAM.....	14
6.1	Conditional Use Permit	14
6.1.1	Camas Shoreline Conditional Use Criteria (SMP Appendix B section X)	14
6.1.2	State Conditional Use Review Criteria (WAC 173-27-160).....	14
6.2	General Shoreline Use and Development Regulations (SMP 5)	15
6.2.1	General Shoreline Use and Development Regulations (SMP 5.1)	15
6.2.2	Archaeological, Cultural and Historic Resources (SMP 5.2).....	16
6.2.3	Critical Areas Protection (SMP 5.3)	17
6.2.4	Flood Prevention and Flood Damage Minimization (SMP 5.4)	17
6.2.5	Public Access (SMP 5.5)	17
6.2.6	Restoration (SMP 5.6)	17
6.2.7	Site Planning and Development (SMP 5.7).....	18
6.2.8	Vegetation Conservation (SMP 5.8).....	19
6.2.9	Visual Access (SMP 5.9)	19
6.2.10	Water Quality and Quantity (SMP 5.10)	20
6.3	Specific Shoreline Use Regulations	20
6.3.1	Utilities Uses (SMP 6.3.15)	20
7.	REFERENCES	21

List of Appendices

Appendix A: Figures

Appendix B: Photographs

Appendix C: Tree Survey

Appendix D: Other Technical Reports

Appendix E: Mailing List—Properties within 300 feet

Appendix F: Engineering Drawings



1. PROJECT DESCRIPTION

1.1 Project Description

The City of Camas (City) plans to install a STEP (Septic Tank Effluent Pumping) system to serve Camp Lacamas at 2025 NE Goodwin Road (parcel number 172543000), replacing the existing on-site septic system. Camp Lacamas is 9.63 acres, and is used seasonally as a retreat and conference center. There are two single family residences on the subject parcel, which are occupied year-round.

The new system will connect to the existing public sewer via an existing stub that lies at the eastern edge of NE Goodwin Road. A new line will be extended from the existing stub to the parcel, by boring under the ditch along the roadway. The proposed STEP system consists of approximately 900 feet of sewer line and four underground septic tanks (three new STEP tanks and one existing septic tank to be modified), hereafter referred to as STEP tanks, to service two residences, the kitchen/dining hall, and two restrooms. Electric pumps are integrated into each STEP tank. One small electrical service panel (to provide power for the system) will be installed aboveground. Three existing septic tanks will be decommissioned in-place (pumped out and filled with sand). Excavations are planned to be either in the existing roadway, adjacent lawn, or areas regularly traversed by pedestrians. No new impervious surface will be created.

1.2 Shoreline Jurisdiction

The new STEP system is a Shoreline Conditional Use based on the following findings:

Lacamas Creek, which forms the north boundary of the parcel, is a perennial stream designated as a shoreline of the state by the City of Camas Shoreline Master Program (SMP) (City of Camas 2015). The designated floodway of Lacamas Creek (Figure 3, based on FEMA Flood Insurance Rate Map [FIRM] Map 53011C0414D effective September 5, 2012) is located along the north edge of the project site, and the entire project site is within the contiguous 100-year floodplain. Section 2.1 of the SMP states that jurisdictional shorelands include floodways and contiguous floodplains landward 200 feet from such floodways. The resulting shoreline boundary traverses the site in an east-westerly direction (Figure 2).

The following proposed project features would be within the shoreline boundary:

- One new STEP tank;
- One existing septic tank, modified to STEP tank;
- The connection to the existing public sewer stub in NE Goodwin Road (via a bore under the roadside ditch);
- Approximately 700 feet of new sewer line; and
- A small aboveground electrical service panel.

The shoreline designation for the parcel is Urban Conservancy. Table 6-1 of the SMP indicates that underground utilities within Urban Conservancy shorelines are a Conditional Use. Underground utilities parallel to the shoreline have a 100 foot setback from the ordinary high water mark (OHWM). All proposed utilities are outside of this setback.

Lacamas Creek, nearest the project alignment (from the NE Goodwin Road bridge to approximately 450 feet downstream), was reviewed on July 28, 2017. The OHWM in this location was identified based on a

change of vegetation from facultative herbaceous species dominated by reed canarygrass, to trees and shrubs dominated by upland species (e.g. Oregon white oak, cascara [*Frangula purshiana*], and common snowberry) and, typically, a recognizable slope break. At the downstream end of this area, the OHWM is located at the outer edge of an old backwater channel. Here the OHWM was determined by a distinct and abrupt rise in topography and a shift in vegetation from obligate wetland species (slough sedge [*Carex obnupta*]) to the upland forest described above.

Upstream of the NE Goodwin Road bridge for approximately 1000 feet the OHWM is typically at the back of the first stream terrace above the active channel (reviewed by Kent Snyder August 20, 2015 and March 2, 2017). Here the OHWM is readily defined by a distinct and abrupt rise in topography (typically 1 to 3 feet high), and vegetation changes from a facultative shrub or herbaceous (e.g., reed canarygrass) community to upland forest community (e.g., snowberry, sword fern, bigleaf maple, and Douglas fir). Movement of sediment is evident on the terrace below; no such sediment was observed above the OHWM. There were wrack lines in vegetation on active channel, but not above slope break. The uppermost segment of the OHWM follows the edge of an old stream meander. Here the boundary is defined by a lower (typically 1-foot) topographic break along a shallow channel. Either open water or scrub-shrub vegetation (typically red osier dogwood) lies on the stream side and an open ash forest is present on the other. Wrack and sediment from Lacamas Creek are present along the boundary.

1.3 Approval Request

The applicant requests approval of a Shoreline Conditional Use Permit and critical areas permit for the proposed STEP system.

2. CAMAS ZONING CODE (TITLE 18) – APPLICANT RESPONSE

The following is the applicant response to applicable approval criteria and code:

2.1 Permitted Uses (Chapter 18.07 – Use Authorization)

Response: The property is zoned Light Industrial/Business Park (LI/BP). Minor public facilities that serve a Communication, Utilities and Facilities Use are a permitted use per Section 18.07.030 – Table 1 - Commercial and industrial land uses. Therefore the proposed STEP system is a land use that is permitted outright in the LI/BP zone.

2.2 Light Industrial/Business Park (Chapter 18.21)

2.2.1 *Site Development Criteria (Section 18.21.060)*

E. Utilities. All utility service lines are to be located underground. All pad-mounted equipment and other visible utility and service equipment are to be carefully located to minimize appearance, and shall be appropriately screened consistent with required access and safety requirements.

Response: The proposed utility consists of approximately 900 feet of underground sewer line and three new underground STEP tanks (one existing septic tank will be modified to a STEP tank). It is anticipated that excavations will be either in the existing roadway or adjacent lawn. No new impervious surface will be created. One small aboveground element will be installed adjacent to an existing power pole: a small electrical service panel on a 4 feet x 4 feet piece of plywood that is supported by two 4 inch x 4 inch wooden posts. This small panel would be located next to a power pole, thus clustering electrical functions/structures and minimizing visual impacts. Each of the three new STEP tanks will have a 24 inch and a 30 inch green fiberglass lid that will be raised slightly (1-2 inches) from the surrounding ground elevation.

2.3 Sensitive Areas and Open Space (Chapter 18.31)

2.3.1 Sensitive Area – Scope (Section 18.31.020)

Land proposals below are subject to the criteria, guidelines, conditions, performance standards, and procedural requirements contained in this chapter:

- A. Rezone;*
- B. Conditional use permit;*
- C. Variance;*
- D. Shoreline substantial development permit;*
- E. Planned development;*
- F. Subdivision;*
- G. Short subdivision;*
- H. Commercial development;*
- I. Business park development;*
- J. Any grading, filling, or clearing of land, or logging or removal of timber on land characterized by, or adjacent to (within three hundred feet of) an environmentally sensitive area; or*
- K. Open space designation standards and requirements shall apply to any application proposals involving a subdivision or planned development.*
- L. The standards and requirements of this chapter shall apply in addition to any other regulations of the city applicable to the underlying zone. In case of any conflict between these and any other regulation(s), the stricter regulation(s) shall apply.*

Response: Chapter 18.31 is applicable to the project because it requires Shoreline Substantial Development and a Conditional Use permit.

2.3.2 Sensitive Area – Administration (Section 18.31.030)

The community development director shall determine, based on the city's sensitive area overlay maps, environmental information provided by the applicant, and field reconnaissance as necessary, whether a property for which development approval is requested contains the types of lands or areas subject to this chapter. If property for which development approval is requested does contain critical areas, as defined per CMC Section 16.51.070 Critical Areas Regulated, then a development application must be accompanied by relevant information pursuant to Title 16 Environment. The community development director may waive or modify the study and reporting requirements of this section if it is determined that the subject property does not contain such lands or areas.

Response: The applicant has addressed critical areas within this applicant narrative (section 5).

2.3.3 Sensitive Areas—Tree Retention (Section 18.31.080)

- A. A tree survey, conducted by a qualified biologist, landscape architect, or arborist, shall be conducted for all lands proposed to be developed and listed under Section 18.31.020. A survey shall not be required for lands proposed to be retained as undeveloped open space.*
- B. To the extent practical, existing healthy significant trees shall be retained. Preservation of groups of significant trees, rather than individual trees shall be preferred. All grading shall take place outside the drip line of those significant trees to be retained, except that the city engineer may approve grading within the drip line if it can be demonstrated that such grading can occur without damaging the tree or trees.*

Response: A tree survey, conducted by a qualified biologist, is provided in Appendix C. Significant trees are defined by CMC 18.03, Definitions, as “evergreen trees eight inches dbh, and deciduous trees, other than red alder or cottonwood, twelve inches dbh”.

The route of the new sewer line and locations of the STEP tanks have been designed so that no removal of significant trees is necessary.

2.3.4 Sensitive Areas – Vegetation Removal (Section 18.31.090)

- A. Exceptions. This section shall not apply to:*
 - 1. Removal of vegetation outside of critical areas, in conservation areas, protected open space areas as shown on plats, or areas otherwise required to be protected;*
 - 2. Removal of trees four inches or less in diameter, as measured at the base;*
 - 3. Annual removal of vegetation from an area under one thousand square feet;*
 - 4. Removal of dead, diseased, or dying vegetation and trees;*
 - 5. Normal maintenance associated with residential properties, including mowing, rototilling, and pruning;*
 - 6. Removal of nonnative invasive plant species, such as Himalayan blackberries and ivy;*
 - 7. Removal of vegetation associated with land surveys and environmental surveys;*
 - 8. Removal of vegetation related to the construction, installation, and maintenance of public utilities.[...]*

Response: This section is superseded by greater vegetation protections provided by SMP requirements (see section 6.2.8 for full discussion).

2.3.5 Sensitive Areas – Mandatory Preservation (Section 18.31.110)

As a condition of development approval for any development application set forth in Section 18.31.020(A) of this chapter, the applicant shall set aside and preserve all sensitive areas, except as otherwise permitted by this chapter. To insure that such areas are adequately protected, the applicant shall cause a protective mechanism acceptable to the city to be put in place.

Response: The applicant does not propose any permanent impacts to sensitive areas.

2.4 Administrative Procedures (Chapter 18.55)

2.4.1 Shoreline Master Program Permits (Section 18.55.330)

A. Camas Shoreline Master Program—Adopted. The city's policies and regulations for shorelines are contained in the master program document that is adopted by the city, and entitled Camas Shoreline Master Program (program).

1. Procedures. The process and procedures regarding shoreline master program permits are found in Appendix B of the Camas Shoreline Master Program (hereinafter referred to as the "program"). When a shoreline substantial development permit and a shoreline conditional use permit or variance is required for a development, then the submittal of the permits shall be made concurrently.

2. Consolidated Review. Unless an applicant requests otherwise, any other permits that are required for the development or use (e.g. permits within CMC Titles 15, 16, 17 and 18) and submitted concurrently with the shoreline permits, shall be processed simultaneously and a decision shall be issued as a single decision as required per RCW 36.70B.120-Permit Review Process.

Response: The applicant has determined the proposed STEP system is a Shoreline Conditional Use based on the following findings:

The adopted Camas SMP is dated Effective July 27, 2015. Section 2.1 Applicability states that a site is within the shoreline jurisdiction when the following applies:

Such shorelands shall include those lands extending two hundred (200) feet in all directions as measured on a horizontal plane from the ordinary high water mark (OHWM), floodways and contiguous floodplain areas landward two hundred feet from such floodways, associated wetlands, critical areas with associated buffer areas, river deltas associated with the streams, and lakes and tidal waters that are subject to the provisions of this program, as may be amended; the same to be designated as to location by Ecology, as defined by RCW 90.58.

Lacamas Creek, which forms the north boundary of the parcel, is a year-round stream and a WDNR Type-S stream. The designated floodway of Lacamas Creek (per FEMA FIRM Map 53011C0414D, Effective September 5, 2012) is located along the north edge of the project site. Section 2.1 of the SMP states that jurisdictional shorelands include floodways and contiguous floodplains landward 200 feet from such floodways (Figure 3).

The shoreline designation for the parcel is Urban Conservancy. Table 6-1 of the SMP indicates that underground utilities within Urban Conservancy shorelines are a Conditional Use. Underground utilities parallel to the shoreline have a 100 foot setback from the OHWM. All proposed utilities are outside of this setback.

B. Expiration of Shoreline Master Program Permits.

1. The time requirements of this section shall apply to all substantial development permits and to any development authorized pursuant to a shoreline variance or conditional use permit. Upon a finding of good cause, based on the requirements and circumstances of the project

proposed and consistent with the policy and provisions of the program, the city may adopt different time limits from those set forth in this section as a part of an action on a substantial development permit. (WAC173-27-090)

2. *Construction activities shall be commenced or, where no construction activities are involved, the use or activity shall be commenced within two years of the effective date of a substantial development permit. However, the shoreline administrator may authorize a single extension for a period not to exceed one year based on reasonable factors, if a request for extension has been filed before the expiration date and notice of the proposed extension is given to parties of record on the substantial development permit and to DOE. (WAC173-27-090)*

3. *Authorization to conduct development activities shall terminate five years after the effective date of a substantial development permit. However, the shoreline administrator may authorize a single extension for a period not to exceed one year based on reasonable factors, if a request for extension has been filed before the expiration date and notice of the proposed extension is given to parties of record and to DOE. (WAC173-27-090)*

Response: The applicant intends to commence construction within the timelines stated in this section.

3. STATE ENVIRONMENTAL POLICY ACT (SEPA) COMPLIANCE (Title 16.01)

The applicant has complete a SEPA checklist and submitted as a concurrent, separate document.

4. ARCHAEOLOGICAL COMPLIANCE (Title 16.31)

Archaeological Investigations Northwest, Inc. (AINW) reviewed records held by the Washington Department of Archaeology and Historic Preservation (DAHP), AINW's library, the Clark County GIS, and other sources. AINW archaeologists conducted a pedestrian survey and shovel testing of the project area. The archaeological survey report will be submitted to DAHP and Tribes. The project has been redesigned to avoid and minimize impacts to archaeological resources. Where impacts cannot be avoided, controlled archaeological excavations and archaeological monitoring under a DAHP Archaeological Site Alteration and Excavation Permit may be needed.

If an item of possible archaeological interest is discovered on site, work will immediately cease, and notification of the find will be sent to the appropriate parties.

5. CRITICAL AREAS COMPLIANCE (SMP Appendix C, 16.51)

The Growth Management Act (RCW 36.70A) and the City Critical Area Regulations (Appendix C of Camas SMP, Appendix C, 16.51) protect wetlands, critical aquifer recharge areas, frequently flooded areas, geologically hazardous areas, and fish and wildlife habitat conservation areas.

Pedestrian site visits on June 20, June 26, and July 28, 2017 assessed site conditions, delineated wetlands and OHWM, conducted non-protocol plant and animal surveys, conducted habitat assessments, and evaluated impacts of proposed project actions.

The project is partially or wholly within a Frequently Flooded Area, a Critical Aquifer Recharge Area, Fish and Wildlife Habitat Conservation Area, and a wetland buffer. Critical areas are shown in Figures 3 through 6.

5.1 Wetlands (SMP 16.53)

A very small (0.026 acre or 1,112 square feet) palustrine scrub-shrub/emergent (PSS/PEM) depressional wetland with a forested fringe (Wetland K-1) is present approximately 40 feet northeast of the project alignment, at the closest point (Figure 2) (HHPR 2017, Appendix A). This wetland is located in a depression at the toe of a steep slope (approximately 30%) that separates the developed camp area on the upper terrace from the forested and relatively undisturbed lower terrace along Lacamas Creek. This wetland could be occupying the bottom of an old, abandoned gravel pit, but this is uncertain.

Wetland K-1 was rated using Hruby (2014). The resulting scores indicated moderate to high water quality function (score of 7), with moderate hydrologic function (score of 6), and high habitat function (score of 8). Overall, these scores result in a 21 point, Category II rating.

Vegetation in the wetland consists of a mosaic of emergent and scrub-shrub communities, with a forested fringe. The emergent plant community is dominated by water parsley (*Oenanthe sarmentosa*), intermixed with native forbs (e.g. marsh bedstraw [*Galium palustre*], water smartweed [*Persicaria sp.*], mad dog skullcap [*Scutellaria lateriflora*], and small-fruited bulrush [*Scirpus microcarpus*]), and invasive species (e.g. reed canarygrass [*Phalaris arundinacea*], spotted touch-me-not [*Impatiens capensis*], and climbing nightshade [*Solanum dulcamara*]). The invasive species have not proliferated in the wetland, probably because mature trees in the forested fringe and adjacent upland shade the wetland from all sides. The scrub-shrub plant community is dominated by thickets of redosier dogwood (*Cornus alba*). The forested fringe is dominated by Oregon ash (*Fraxinus latifolia*), with an understory of emergent species, such as those described above.

Wetland buffer widths required for water quality functions protection (SMP Table 16.53.040-1) and habitat functions protection (SMP Table 16.53.040-2) are determined based on the intensity of the proposed land use (SMP Table 16.53.040-4 Land Use Intensity Matrix), the wetland rating, and the habitat score for each wetland. Underground utility lines are a low intensity land use according to the Land Use Intensity Matrix. Thus, the buffers designated by the City are 50 feet for water quality and 130 feet for habitat functions. The following discussion only references the buffer for habitat functions, as it is the larger of the two and therefore determines the boundary of the regulated buffer area.

The wetland buffer to the south of the wetland (toward the project alignment) extends up a steep slope and into the developed area of the camp. Here, the buffer is characterized by mature Douglas fir trees (*Pseudotsuga menziesii*, 24 to 55 inches diameter breast height [DBH]) that provide approximately 80 percent canopy cover throughout most of the buffer area. On the slope, the understory is dominated by a carpet of ivy (*Hedera helix*) with occasional shrubs (e.g. Western serviceberry [*Amelanchier alnifolia*], beaked hazelnut [*Corylus cornuta*], and common snowberry [*Symphoricarpos albus*]). In the camp area the understory is sparse and crisscrossed by footpaths. Where present, understory vegetation is dominated by non-native grasses and forbs (e.g. orchard grass [*Dactylis glomerata*], shiny geranium [*Geranium lucidum*], and common dandelion [*Taraxacum officinale*]), with occasional native forbs (e.g. fringecup [*Tellima grandiflora*] and Siberian springbeauty [*Claytonia siberica*]).

The buffer in this area also contains pre-existing buildings, including a restroom, “snack shack”, and four cabins. These are functionally separate from the wetland and do not protect it from adverse impacts, and are therefore excluded from the buffer per SMP 16.53.040.B.4.b.i.

The restroom at the north edge of the complex of buildings sits at the edge of the slope above the wetland. Though the restroom building is excluded from the wetland buffer, it is served by a septic system and leach field located within the buffer, also at the top of the slope. The presence of an old septic system in the buffer poses a risk of water quality impacts, especially given the presence of an impermeable layer (the Troutdale Formation) 2 to 3 feet below the ground surface, dipping towards the wetland and Lacamas Creek.

The wetland would be protected during construction through implementation of appropriate Best Management Practices (BMPs) to control sediment and discharge. Proposed measures would be outlined in the completed temporary erosion and sediment control (TESC) plan.

BMPs that would be employed throughout the project to minimize impacts include the following:

- Preserving Natural Vegetation (BMP C101)
- Construction Road/Parking Area Stabilization (BMP C107)
- Temporary and Permanent Seeding (BMP C120)
- Mulching (BMP C121)
- Dust Control (BMP C140)
- Certified Erosion and Sediment Control Lead (BMP C160)
- Scheduling (BMP C162)
- Silt Fence (BMP C233)
- Straw Wattles (BMP C235)

Minimization measures include:

- Minimizing the area of vegetation disturbance
- Utilizing areas of previous disturbance to the maximum extent practicable
- Avoid work in wetlands and wetland buffers

5.2 Critical Aquifer Recharge Areas (SMP 16.55)

The project site lies within a wellhead protection zone (Figure 4). It is within the 10-year zone of a well located on the parcel and serving Camp Lacamas (Clark County GIS 2017).

The Troutdale Aquifer, designated by the US Environmental Protection Agency (EPA) as a sole source aquifer, underlies the project.

5.2.1. *Applicability/Uses and Activities Prohibited (SMP 16.55.040)*

Per SMP 16.55.040.A., the proposed project is an allowed activity in the CARA.

5.2.2. *Critical Area Report and Hydrogeologic Assessment (SMP 16.55.050)*

A critical area report is in Appendix D. A hydrological assessment is not required because: the project is below the threshold for new impervious surface (5% or 2,500 square feet, whichever is greater); will not divert, alter, or reduce the flow of surface or ground waters, or otherwise reduce the recharging of the aquifer; will not use hazardous substances; and will not construct or use an injection well.

5.2.3. *Performance Standards (SMP 16.55.060-080)*

The proposed STEP system is intended to serve the existing camp and it will not result in a change of use or an increase in the use of hazardous substances (SMP 16.55.060.A). The project will provide a net benefit to the wellhead protection zone and underlying aquifer by decommissioning (pumping dry and backfilling with clean sand per Clark County Public Health regulations, Clark County Code 24.17.210) the existing septic systems.

In accordance with SMP 16.55.060.B, no vehicular repair, residential use of pesticides and nutrients, spreading or injection of reclaimed water, or storage tanks are associated with this project. Septic tanks and piping are exempt from consideration as underground storage tanks per WAC 173-360-11(2) (i).

In accordance with SMP 16.55.060.C, the project would comply with the water source protection requirements and recommendations of the EPA, Washington State Department of Health, and the local health district.

The project would be designed and constructed in accordance with the City Design Standards Manual (SMP 16.55.060.D).

None of the specific uses addressed in SMP 16.55.070 are proposed as part of the project.

None of the prohibited uses identified in SMP 16.55.080 are proposed as part of the project.

5.3 Frequently Flooded Areas (SMP 16.57)

5.3.1. *Applicability/Uses and Activities Prohibited (SMP 16.57.010-020)*

The project site, and almost all of the parcel is located within a Frequently Flooded Area, as defined by SMP 16.57.010.A. The project site is within the 100-year floodplain for Lacamas Creek, as mapped on the FIRM for Clark County (FEMA 2012).

The base flood elevation at the project site is identified by FEMA as 193 feet (FEMA 2012). The majority of the proposed project is mapped as outside of the designated floodway shown on the same map. Two of the proposed STEP tanks (by the caretaker's house and by the restroom) and associated pipes are within the mapped floodway. However, local topography (i.e. relatively flat at the STEP tank sites with a steep slope to the north towards the lower terrace) suggests that the precise location of the floodway boundary lies beyond both STEP tanks.

No critical facilities, wells, on-site sewage or waste disposal systems, or additional lots are proposed as part of the project (SMP 16.57.020.A-D). The purpose of the project is to decommission on-site septic systems and connect to the City's sewer system.

In accordance with SMP 16.57.020.E, the proposed project does not include new development or encroachment into the floodway. The project would connect existing structures to the City's sewer system and discontinue use of existing septic systems, two of which are within the mapped floodway.

5.3.2. *Additional Report Requirements (SMP 16.57.030)*

The project site and special flood hazard areas and other flood areas within 300 feet are shown in Figure 3 (SMP 16.57.030.B.1-3).

Proposed development, clearing limits, floodplain, floodway, other critical areas, and shoreline areas are shown in Figures 1-5; no management zones or buildings are proposed (SMP 16.57.030.C.1.).

The proposed project does not include buildings, so a floodproofing certificate is not required per SMP 16.57.030.C.2.

No watercourse alteration is proposed as part of this project (SMP 16.57.030.C.3).

Potential impacts to wetlands, fish and wildlife habitat, and other critical areas are addressed throughout section 5 of this report, in accordance with SMP 16.57.030.D.

5.3.3. *Performance Standards (SMP 16.57.050-080)*

The project would obtain all necessary permits (SMP 16.57.050.A.).

SMP 16.57.050.B is not applicable because floodway has been designated (FEMA 2012).

SMP 16.57.050.C is not applicable because base flood elevation data is available. The base flood elevation at the project site is 193 feet (FEMA 2012).

In compliance with SMP 16.57.050.D.1, the project would be constructed using materials and methods that are flood resistance and/or minimize flood damage.

In compliance with SMP 16.57.050.D.2, no buildings are proposed within the floodplain.

Utilities would be installed underground (SMP 16.57.050.D.3). The STEP sewer system is water-tight, and all electrical components are NEMA 4 (for wet and submerged conditions). All electrical "J" Boxes are NEMA 4 and are also water-tight. All wire will be fully enclosed in water-tight conduit that will be buried in the same trench for the discharge piping from the STEP tank. Only several feet of wiring will extend from the ground surface to the electrical service panel.

SMP 16.57.050.E-G do not apply because no buildings are proposed.

In accordance with SMP 16.57.050.H, fill and grading proposed as part of this project would not block side channels, inhibit channel migration, increase flood hazards to others, or be placed in the channel migration zone (James Carothers, P.E., City of Camas, pers. comm., December 15, 2017). There are no side channels present on or adjacent to the project site. The project is underground and would not inhibit channel migration. The pipes and STEP tanks will be located underground and will not interfere with the movement of floodwaters. The project will be approximately 160 feet from the OHWM of Lacamas Creek, at the nearest point, and will not be located in slopes or banks that could be susceptible to erosion during a flood.

The sewer pipe will be located underground, and will not result in any change in topography. Pipe fill will be limited to pipe zone bedding material installed at the bottom of the trench and around the pipe. Bedding material will consist of pipe zone gravel backfill sourced from a local quarry. Grading for pipe installation will be limited to that necessary for access, staging, and installation of the pipe, and to restore the area to pre-construction conditions.

No residential units are proposed (SMP 16.57.060.A).

No non-residential buildings are proposed (SMP 16.57.060.B).

The proposed STEP system will be designed to eliminate infiltration of floodwaters into the systems, and discharges from the systems into floodwaters (SMP 16.57.060.C). Unlike the existing septic systems, the new STEP system installations will collect and transport all sewage from Camp Lacamas to the City of Camas Wastewater Treatment Plant. The remaining septic tanks will be decommissioned (per Clark County Public Health regulations) by pumping them dry and backfilling with clean sand. All infiltration of sewage into the underlying soil of the Camp Lacamas Property will upon connection of the new system to the existing residences.

No land division is proposed (16.57.060.D).

No watercourse alteration is proposed as part of this project (SMP 16.57.060.E).

The project would comply with SMP 16.57.070 because no recreational vehicles would be on site for 180 or more consecutive days as part of the proposed project.

No variance request is being made (SMP 16.57.080).

5.4 Geological Hazard Areas (SMP 16.59)

5.4.1 Erosion Hazards

No erosion hazards exist in the vicinity of the proposed project. SMP 16.59.020.A defines erosion hazard areas as those not mapped as landslide hazard areas, but having a slope equal to or greater than 40 percent. The steepest slope on the site is approximately 30 percent, based on the topographic survey for the project. This slope is located at the north edge of the site, between the wetland and the restroom. The rest of the site is generally flat to gently sloping. Steep slopes also exist on the parcel at the banks of the Lacamas Creek channel. However, these are 160 feet or more from the proposed project. Clark County GIS does not identify the parcel or immediate vicinity as having severe erosion hazard or landslide hazard areas (Clark County GIS 2017).

5.4.2 Landslide Hazard Areas

No landslide hazards as defined in the SMP 16.59.020.B exist on-site or within 300 feet of the project (Clark County GIS 2017). There is no evidence of unstable or recent landslides, and no areas meeting the definition in SMP 16.59.020.B.2-7.

5.4.3 Seismic Hazard Areas

The project does not lie within a Seismic Hazard Area. Per SMP 16.59.020.C, Seismic Hazard Area is defined as an area subject to severe risk of damage as a result of earthquake-induced soil liquefaction, ground shaking amplification, slope failure, settlement, or surface faulting. The project site is mapped as Site Class C on the National Earthquake Hazard Reduction Program (NEHRP) site class map of Clark County (Clark County GIS 2017). The project site is mapped as Very Low for risk of liquefaction (Clark County GIS 2017).

5.4.4 Other Hazard Areas

No other hazards as defined in the SMP 16.59.020.D exist on-site.

5.5 Fish and Wildlife Habitat Conservation Areas (SMP 16.61)

Lacamas Creek, a perennial stream, forms the parcel boundary to the north, outside of the project site. The proposed project would be approximately 160 feet south of Lacamas Creek, at the nearest point. Lacamas Creek flows south and east, entering Lacamas Lake approximately 1 mile downstream of the parcel.

The project site, located on a terrace above Lacamas Creek, is developed with camp buildings, gravel access roads, and mowed fields.

Mowed fields near the camp entrance are characterized by non-native lawn grasses (e.g. annual bluegrass [*Poa annua*]) and weedy forbs (e.g. English plantain [*Plantago lanceolata*], common dandelion [*Taraxacum officinale*], rough cat's ear [*Hypochaeris radicata*], and white clover [*Trifolium repens*]).

Cabins and several other buildings at the east end of the camp are in the understory of a stand of mature Douglas fir trees (24 to 55 inches DBH) that provide approximately 80 percent canopy cover throughout most of this area. The understory is sparse and crisscrossed by footpaths. Where present, understory vegetation is dominated by non-native grasses and forbs (e.g. orchard grass, shiny geranium, and common dandelion), with occasional native forbs (e.g. fringecup and Siberian springbeauty).

A stand of Oregon white oaks (*Quercus garryana*, 16 to 24 inches DBH), part of a larger woodland along the creek, is present north and south of the main camp area, and overlaps the project site slightly. In some places this stand has a grassy understory characterized by the same species found in the mowed field. Elsewhere, it has an understory of shrubs (e.g. common snowberry and Himalayan blackberry [*Rubus armeniacus*]). On the lower terrace along Lacamas Creek, oaks are intermixed with riparian trees and shrubs, including bigleaf maple (*Acer macropylum*), Oregon ash, Douglas fir, cascara (*Frangula purshiana*), cluster rose (*Rosa pisocarpa*), and red osier dogwood.

5.5.1 Threatened, Endangered, or Sensitive (TES) Plants

No TES plant species or associated habitats are known to occur within the project site and none were observed during site visits.

An Endangered Species Act (ESA) list of species potentially affected by activities at the project site, obtained from the USFWS IPaC service (2017), included two federally-listed plant species: golden paintbrush (*Castilleja levisecta*, federally-listed Threatened, state-listed Endangered) and Bradshaw's lomatium (*Lomatium bradshawii*, federally- and state-listed Endangered).

The possible presence of TES plant species in the project site was evaluated through WDNR WNHP

spatial data (2017) and site visits. WNHP rare plant spatial data indicates the presence of six additional state-listed species in the project vicinity: Oregon coyote-thistle (*Eryngium petiolatum*, state-listed Threatened), Hall's aster (*Symphyotrichum hallii*, state-listed Threatened), dense sedge (*Carex densa*, state-listed Sensitive), small-flowered trillium (*Trillium parviflorum*, state-listed Sensitive), Nuttall's quillwort (*Isoetes nuttallii*, state-listed Sensitive), and California compassplant (*Wyethia angustifolia*, state-listed Sensitive). WNHP data show that although the site is part of the historic range of golden paintbrush (last known observation 1889), there are no current populations mapped in the area.

No evidence of any TES plant species was observed within the project site. Small-flowered trillium has been identified in the southwest corner of the parcel, outside of the project site. Site visits established that none of the necessary habitats for Bradshaw's lomatium, golden paintbrush, Oregon coyote-thistle, Hall's aster, dense sedge, Nuttall's quillwort, or California compassplant occur in the project site. Bradshaw's lomatium occurs in grasslands and wet prairies. Golden paintbrush inhabits flat grasslands, mounded prairies, and steep, grassy bluffs. Oregon coyote-thistle inhabits wetlands in prairies and open spaces. Hall's aster inhabits moist to dry prairies and open places. Dense sedge inhabits wet meadows and remnant prairies. Nuttall's quillwort occurs in seasonally wet ground, seeps, and vernal pools. California compass plant occurs in seasonally wet open ground and grassy openings. None of these habitats are present within the project site. The grassy areas in the project site are disturbed lawns composed of non-native species. The small wetland adjacent to the project site is enclosed on all sides by riparian forest and will not be disturbed by the project.

5.5.2 TES Fish

No TES fish species, associated Critical Habitat, or Essential Fish Habitat occur in Lacamas Creek upstream of Lacamas Lake Dam, a total passage barrier approximately 4 miles downstream of the project site (WDFW 2017, NOAA 2016, USFWS 2017).

The project would provide a net benefit to water quality in Lacamas Creek by replacing on-site septic systems with city sewer service.

5.5.3 TES Wildlife

No TES wildlife species or associated habitat occur in the vicinity of the project site.

An ESA list of species potentially affected by activities at the project site, obtained from the USFWS IPaC service (2017), indicates the potential presence of three TES wildlife species: Oregon spotted frog (*Rana pretiosa*, federally-listed Threatened, state-listed Endangered), streaked horned lark (*Eremophila alpestris strigata*, federally-listed Threatened, state-listed Endangered), and yellow-billed cuckoo (*Coccyzus americanus*, federally-listed Threatened, state-listed Species of Concern). The project site is not located in designated Critical Habitat for any species.

The possible presence of TES wildlife species in the project site was evaluated through site visits and review of WDFW PHS data (WDFW 2017). PHS does not show any record of these species in or near the project site, and none were observed during site visits.

Site visits also established that none of the necessary habitat for these species occurs at the project site or in abutting areas. Oregon spotted frog habitat is large complexes of meadow and wetland, with pools, a continuum of vegetation densities, and an absence of non-native predators (USFWS 2016). Streaked horned larks nest and winter in flat, open areas with sparse low-stature vegetation and substantial areas of bare ground. Western yellow-billed cuckoos require large (typically larger than 40 hectares and wider than 100 meters) patches of cottonwood and willow dominated riparian habitat for nesting (Wiles and Kalasz 2017). None of these habitats are present.

5.5.4 State Priority Habitats and Species

Three priority habitat and species areas (WDFW 2017) are mapped in and abutting the project site: a Cave-rich Area, an Oak Woodland, and a Wood Duck Breeding Area (Figure 5).

The project site lies within the approximately 6 mile by 8.5 mile rectangle mapped across southeastern

Clark County as a Cave Rich Areas. However, no caves were observed in the vicinity.

The Oregon white oaks on the parcel are part of the Sifton/Lacamas Oaks mapped by WDFW (2017). The proposed project is mostly outside of the canopy of these trees. At the northwest extent of the proposed project alignment, in the lawn of the caretaker's house, approximately 115 feet of piping would be installed in the vicinity of several Oregon white oaks (19 to 25 inches DBH). The excavation would be more than 30 feet from the trunks.

The mapped wood duck (*Aix sponsa*) breeding area is a corridor along both sides of Lacamas Creek, completely overlapping the project site. This species is typically sensitive to disturbance and would not be expected to utilize the developed camp area. The only area identified during site visits as potential wood duck breeding habitat is the oak stand on the lower terrace next to the creek.

Coastal cutthroat trout (*Oncorhynchus clarki*) and Rainbow Trout, WDFW Priority Species, are mapped in Lacamas Creek, adjacent to the project site (WDFW 2017). The project would provide a net benefit to water quality in Lacamas Creek by replacing on-site septic systems with city sewer service.

5.5.5 *Habitats of Local Importance*

The Oregon white oaks described in section 5.5.4 meet the criteria for designation as a Habitat of Local Importance by the City of Camas (SMP 16.61.010.A.3.a).

No other Habitats of Local Importance are mapped at or immediately abutting the project site and none were observed during site visits.

5.5.6 *Analysis of Performance Standards*

The proposed project complies with SMP 16.61.030.A.1 by avoiding disturbance of the potential wood duck breeding area located along the creek and maintaining the level of habitat function and values present in the oak woodland identified in section 5.5.4-5, and by minimizing habitat disruption and alteration to the extent needed to complete the project.

Disturbance in the oak woodland would be limited to temporary disturbance of understory and any trimming necessary to avoid removal of trees. Work would occur at the outer edge of the stand, next to a residence, where the understory is mowed field. The project would not remove trees and work within the dripline of the trees would be avoided wherever possible and minimized elsewhere. Trimming would be avoided if possible. If necessary to avoid removal, trimming would be in compliance with the National Arborist Association pruning standards and meet the criteria of SMP 5.8.5-7.

In accordance with SMP 16.61.030.A.2, no net loss of function and values would occur in the oak stand or wood duck breeding area and no compensatory mitigation is required.

No work is proposed in the specific habitats addressed in SMP 16.61.040. No work is proposed in the small-flowered trillium habitat in the southwest corner of the parcel (SMP 16.61.040.A). No work is proposed in Lacamas Creek (SMP 16.61.040.B) and impacts to the floodplain will be temporary. Likewise, no work is proposed in Wetland K-1 and impacts to the wetland buffer will be temporary (SMP 16.61.040.C). The project will provide a benefit to water quality in the creek and wetland by decommissioning an existing on-site septic system.

The stream buffer width designated for Type S streams is 150 feet from the OHWM (SMP 16.61.040.D). The project would be a minimum of 160 feet from the OHWM of Lacamas Creek.

Erosion control and re-vegetation measures would further protect adjacent habitats from impacts during construction.

6. CITY OF CAMAS SHORELINE MASTER PROGRAM

6.1 Conditional Use Permit

Table 6-1 of the SMP identifies underground utilities parallel to the shoreline as a Conditional Use with a 100 foot right-of-way setback in Urban Conservancy shorelines and underground utilities perpendicular to the shoreline as a Conditional Use with no setback. The project must demonstrate consistency with both City of Camas conditional use criteria, contained in the SMP, and State of Washington conditional use criteria, contained in WAC 173-27-160.

6.1.1 *Camas Shoreline Conditional Use Criteria (SMP Appendix B section X)*

Conditional use approval is contingent on the applicant demonstrating consistency with four criteria (SMP Appendix B, X.A.1-4).

The proposed project is consistent with X.A.1 because it would avoid permanent adverse effects to the environment or other shoreline uses and achieve a net benefit to water quality. The project has been located and designed to avoid wetlands, use existing disturbed areas (driveways) to the extent possible, and avoid removal of woody vegetation, including the many large trees on the project site. The STEP system will be installed underground, using minimally invasive methods, and all disturbed areas will be returned to their original contours. Vegetated areas (grass), will be reseeded and the use of BMPs during construction will minimize temporary impacts. Decommissioning four existing septic systems and leach fields will provide a net benefit by protecting water quality and water resources in the vicinity, including wetlands, Lacamas Creek, and the Troutdale aquifer.

The proposed project is an underground system on private property and as such will have no impact on public use of public shorelines, and is therefore consistent with X.A.2.

The proposed STEP system is consistent with X.A.3. The proposed system would be located underground on private property and thus would not interfere with surrounding authorized uses. It would provide a net benefit to the resources and ecology of the shoreline, including critical areas, by decommissioning on-site septic systems and is thus compatible with the SMP. Connecting existing structures within the city limits to the City's septic system is consistent with the comprehensive plan.

Consistent with X.A.4, the proposed use is consistent with the general intent of the Program and the Act. Both the Program and the Act emphasize protection of shoreline ecological functions and public access to the shoreline. This project has been designed to avoid ecological impacts and provide a net benefit through the disconnection of on-site septic systems. Further, the project will not interfere with other shoreline uses, including public access.

For conditional uses, reviewers must also consider the cumulative impact of additional requests for like actions in the vicinity of the proposed project (X.B). The applicant is not aware of, nor does it anticipate, additional requests for STEP sewer systems at this location or in the vicinity of the proposed project. The proposed STEP system should address Camp Lacamas needs for the indefinite future and the land use of the surrounding land is largely recreational open space.

Consistent with X.C, the proposed project does not seek conditional use authorization for a prohibited use. The proposed project does not include any unclassified uses. Underground utilities within Urban Conservancy shorelines are designated as a Conditional Use. Underground utilities parallel to the shoreline have a 100 foot setback from the ordinary high water mark (OHWM). All proposed utilities are outside of this setback.

6.1.2 *State Conditional Use Review Criteria (WAC 173-27-160)*

Conditional use approval is contingent on the applicant demonstrating consistency with five criteria (WAC 173-27-160 (1) (a-e)).

In accordance with WAC 173-27-160(1)(a), the proposed STEP system is consistent with the policies of RCW 90.58.020 and the SMP. Use preferences identified in RCW 90.58.020 include the protection of

statewide and long-term interests over local and short term interests, preservation of natural character, protection of resources and ecology, increased public access to publicly owned shorelines, and increased public recreational opportunities. The SMP emphasizes protection of shoreline ecological functions and public access to the shoreline. The proposed project would protect water quality and ecology of the shoreline by decommissioning on-site septic systems. This provides a benefit to public and long-term interests. The project is also designed to avoid impacts to the resources, ecology, and natural character of the shoreline on-site. Further, the project would not create a conflict with the other use preferences, as it would be located underground and designed to serve an existing use.

Consistent with WAC 173-27-160(1)(b), the proposed use would not interfere with normal public use of public shorelines. The project would be located underground, primarily on private property.

Consistent with WAC 173-27-160(1)(c), the proposed use of the site and design of the project is compatible with other authorized uses within the area and with uses planned for the area under the comprehensive plan and shoreline master plan. The STEP system would be located underground, primarily on private property, and serve an existing use.

Consistent with WAC 173-27-160(1)(d), the proposed use would not cause significant adverse effects to the shoreline environment in which it would be located. The project would avoid significant adverse effects on the environment through a design that avoids wetlands and minimizes impacts to other critical habitat areas on the site (see sections 5.1 and 5.5 for a full discussion), minimizes vegetation impacts by retaining significant trees and avoiding permanent impacts (see section 2.3.3), and protects water quality through decommissioning of on-site septic systems (see section 1.1).

Consistent with WAC 173-27-160(1)(e), the public interest would suffer no substantial detrimental effect from the proposed project. The project would have a positive effect on the public interest by protecting water quality.

WAC 173-27-160(2) states that, in granting conditional use permits, reviewers must also consider the cumulative impact of additional requests for like actions in the area. The applicant is not aware of, nor does it anticipate, additional requests for STEP sewer systems at this location or in the vicinity of the proposed project. The proposed STEP system should address Camp Lacamas needs for the indefinite future and the land use of the surrounding land is largely recreational open space. As long as such requests are limited to the expansion necessary to support the approved or existing use and are designed to avoid ecological impacts including water quality impacts, no significant adverse cumulative impacts would be expected from approval of such requests. Decommissioning of on-site septic systems within the shoreline, especially with the floodplain and adjacent to wetlands, would cumulatively provide an ecological benefit to the shoreline through improved water quality.

The proposed project does not include any unclassified uses (WAC 173-27-160(3)) and, consistent with WAC 173-27-160(4), the proposed project does not seek conditional use authorization for a prohibited use. Underground utilities within Urban Conservancy shorelines are designated as a Conditional Use. Underground utilities parallel to the shoreline have a 100 foot setback from the OHWM. All proposed utilities are outside of this setback.

6.2 General Shoreline Use and Development Regulations (SMP 5)

SMP Chapter 5, *General Shoreline Use and Development Regulations*, provides general regulations to which all use and development activities are subject. These apply to the proposed project as follows.

6.2.1 General Shoreline Use and Development Regulations (SMP 5.1)

Though not a water dependent use, the proposed project is consistent with SMP 5.1.1 because it does not interfere with any water dependent uses. The STEP system will be located underground and serve the existing use.

In accordance with SMP 5.1.2, the proposed project would not cause impacts that require remedial action or loss of shoreline function on other properties. The project would be located underground and mostly on

private property. The project will avoid impacts during construction through implementation of appropriate BMPs to control sediment and discharge. Proposed measures would be outlined in the completed temporary erosion and sediment control (TESC) plan.

BMPs that would be employed throughout the project to minimize impacts include the following:

- Preserving Natural Vegetation (BMP C101)
- Construction Road/Parking Area Stabilization (BMP C107)
- Temporary and Permanent Seeding (BMP C120)
- Mulching (BMP C121)
- Dust Control (BMP C140)
- Certified Erosion and Sediment Control Lead (BMP C160)
- Scheduling (BMP C162)
- Silt Fence (BMP C233)
- Straw Wattles (BMP C235)

Minimization measures include:

- Minimizing the area of vegetation disturbance
- Utilizing areas of previous disturbance to the maximum extent practicable
- Avoid work in wetlands and wetland buffers

In accordance with SMP 5.1.3, no shoreline stabilization would be necessary as a result of the project, at the time of development or in the future.

In accordance with SMP 5.1.4, no land would be cleared, graded, filled, excavated, or otherwise altered prior to issuance of necessary permits and approvals.

No single family residential development is proposed as part of the project (SMP 5.1.5).

In accordance with SMP 5.1.6, the project would fully comply with CMC title 17 and 18.

The project is not located on navigable waters or their beds (SMP 5.1.7).

In accordance with SMP 5.1.8, hazardous materials would be disposed of and other steps taken to protect the ecological integrity of the shoreline area in accordance with applicable policies and regulations.

No in-water work is proposed as part of this project (SMP 5.1.9).

In accordance with SMP 5.1.10, all reasonable efforts have been taken in project design, and would be made during construction, to avoid, minimize, and mitigate impacts to critical area and shoreline functions; no net loss of function would result from the project. See sections 2.3, 5, and 6.2.8 for a full discussion.

No in-stream structures are proposed (SMP 5.1.11).

The project is not requesting relief from use and development regulations (SMP 5.1.12).

6.2.2 Archaeological, Cultural and Historic Resources (SMP 5.2)

AINW reviewed records held by the Washington Department of Archaeology and Historic Preservation (DAHP), AINW's library, the Clark County GIS, and other sources. AINW archaeologists conducted a pedestrian survey and shovel testing of the project area. The archaeological survey report will be

submitted to DAHP and Tribes. The project has been redesigned to avoid and minimize impacts to archaeological resources. Where impacts cannot be avoided, controlled archaeological excavations and archaeological monitoring under a DAHP Archaeological Site Alteration and Excavation Permit may be needed.

If an item of possible archaeological interest is discovered on site, work will immediately cease and notification of the find will be sent to the appropriate parties.

6.2.3 Critical Areas Protection (SMP 5.3)

Compliance with Critical Areas Regulations is discussed in section 5.

The project does not include any non-conforming uses, stream buffers along the Columbia River, Washougal River, or Lacamas Lake.

6.2.4 Flood Prevention and Flood Damage Minimization (SMP 5.4)

In accordance with SMP 5.4.1, the proposed development would not significantly or cumulatively increase flood hazard and is consistent with an adopted comprehensive flood hazard management plan. The STEP system would be located underground, with the exception of the STEP tank caps that will extend 1 to 2 inches above the ground surface, and a small electrical service panel that serves to monitor system operations needs to be located above for access, resulting in only several feet of wiring aboveground.

In accordance with SMP 5.4.2, no structural flood hazard reduction measures within the floodway (FEMA 2012) or channel migration zone are reasonably foreseeable to become necessary as a result of this project. The pipes and STEP tanks will be located underground and will not interfere with the movement of floodwaters. The project will be approximately 160 feet from the OHWM of Lacamas Creek, at the nearest point, and will not be located in slopes or banks that could be susceptible to erosion during a flood.

No new structural flood hazard reduction measures are proposed (SMP 5.4.3).

The sources identified in SMP 5.4.4 are used in this application to identify areas of special flood hazard.

No in-stream structures are proposed (SMP 5.4.5).

In accordance with SMP 5.4.6, no fills are proposed. Pipes and STEP tanks will be installed underground and the site will be returned to the existing grade.

No dikes or levees are proposed (SMP 5.4.7).

No removal of gravel for flood management purposes is proposed (SMP 5.4.8).

No removal of beaver dams is proposed (SMP 5.4.9).

6.2.5 Public Access (SMP 5.5)

Consistent with SMP 5.5, the proposed project would not interfere with public access to the shoreline. The parcel is bordered to the south by the Lacamas Heritage Trail, which provides public access to the shorelines of Lacamas Creek and Lacamas Lake.

In accordance with SMP 5.5.2.c, additional public access is not incorporated into the project because the estimated cost of providing it would be disproportionate with the proposed project, which is limited to connecting existing camp buildings to the public sewage system.

No public access is proposed (SMP 5.5.3-10).

6.2.6 Restoration (SMP 5.6)

No restoration is proposed as part of this project (SMP 5.6.1-4).

6.2.7 Site Planning and Development (SMP 5.7)

In accordance with SMP 5.7.1.1, land disturbing activities such as grading and cut/fill would be conducted in such a way as to minimize impacts to soils and native vegetation. Clearing of vegetation would be kept to the minimum necessary to develop the proposed project and all areas of temporary disturbance would be revegetated. Construction would occur during the dry seasons and BMPs would be implemented in order to control erosion and runoff during construction (see section 5.1).

No new impervious surface would be created as part of the proposed STEP system, in accordance with SMP 5.7.1.2.

The proposed project would be located within existing transportation corridors wherever possible, consistent with SMP 5.7.1.3. The pipes would be installed in, or adjacent to, existing gravel driveways and access roads/paths in the camp where possible.

No vehicle or pedestrian circulation is proposed as part of this project, in accordance with SMP 5.7.1.4. The STEP system would be underground and would not create any new barriers to wildlife movement.

In accordance with SMP 5.7.1.5, the proposed project does not include any parking, storage, or other non-water dependent accessory structures.

There are no dissimilar uses or scenic areas abutting the site that would require screening (SMP 5.7.1.6). The proposed STEP system would be located underground within the existing conference center.

No walkways or similar crossings are proposed as part of this utility project (SMP 5.7.1.7).

No fences, walls, hedges, or similar features are proposed as part of this utility project. The project would not create new barriers to wildlife movement (SMP 5.7.1.8).

No exterior lighting is proposed as part of this project (SMP 5.7.1.9).

In accordance with SMP 5.7.1.10, utilities, including pipes, STEP tanks, and electrical would be located within roadway, driveways, and right-of-way wherever feasible. The pipes would be installed in, or adjacent to, existing driveways and access roads where possible. Where this is not possible, footpaths and disturbed open areas will be used in order to minimize vegetation disturbance.

The project is not located near a legally established aquaculture enterprise, as described in SMP 5.7.1.11.

In accordance with SMP 5.7.2.1, clearing and grading shall be scheduled to minimize adverse impacts, including, but not limited to, damage to water quality and aquatic life. Construction activities would take place during late spring and summer in order to avoid the rainy season. No in-water work is proposed.

In accordance with SMP 5.7.2.2, clearing and grading for the proposed project would not result in substantial changes to surface water drainage patterns off the project site and onto adjacent properties. After installation of the STEP system, disturbed areas would be revegetated and returned to existing grade so drainage patterns would not be altered.

In accordance with SMP 5.7.2.3, the project would control erosion during construction by following an approved TESC Plan meeting City standards. Prior to construction, the work limits would be demarcated with orange construction fence, or similar, and areas of sensitive native vegetation, including the wetland, wetland buffer, and oaks, would be preserved. Areas of temporary disturbance would be revegetated with native vegetation.

In accordance with SMP 5.7.2.4, any grading and grubbing areas that would remain exposed for an extended time would be planted with a native grass cover crop until construction activities are complete.

In accordance with SMP 5.7.2.5, no clearing, filling, or excavation is proposed in locations where shoreline stabilization would be necessary.

No fills are proposed as part of this project (SMP 5.7.2.6).

In accordance with SMP 5.7.2.7, any substrate transported to the site for fill would be screened and

documented as uncontaminated.

No fills are proposed (SMP 5.7.2.8).

No fills are proposed (SMP 5.7.2.9). The pipes and STEP tanks will be located underground and will not interfere with the movement of floodwaters. The project will be approximately 160 feet from the OHWM of Lacamas Creek, at the nearest point, and will not be located in slopes or banks that could be susceptible to stream erosion during a flood.

No fill is proposed waterward of the OHWM (SMP 5.7.2.10).

No fills for beach nourishment or enhancement, or fills along the Columbian River are proposed (SMP 5.7.2.11).

No excavation below the OHWM is proposed (SMP 5.7.2.12).

In accordance with SMP 5.7.2.13, upon completion of construction, remaining cleared areas would be replanted with native species (grass mix) approved by the City and fully re-established within 3 years.

No conversion of land, as described in SMP 5.7.2.14, would occur at the project site.

No structures are proposed as part of this project (SMP 5.7.3.1-4).

6.2.8 Vegetation Conservation (SMP 5.8)

In accordance with SMP 5.8.1, removal of native vegetation would be avoided to the extent possible. The STEP system would be installed in existing access roads and footpaths to the extent possible. Where it would cross vegetated areas, it would be located in open fields and lawns or the sparsely vegetated understory of Douglas fir trees, dominated by non-native grasses and forbs. The location of pipes and STEP tanks has been designed to avoid the need for tree removal. Areas of temporary disturbance will be revegetated with native vegetation (grass mix) when construction is complete.

In accordance with SMP 5.8.2, no permanent vegetation removal is proposed and no net loss of functions would occur. Only herbaceous vegetation, dominated by non-native species, will be temporarily disturbed, and these areas will be revegetated with native vegetation.

No control of invasive or non-native vegetation is proposed beyond the temporary clearing required for construction activities (SMP 5.8.3).

In accordance with SMP 5.8.4, areas of temporary disturbance to non-native vegetation would be revegetated with native vegetation (grass mix).

Pruning of trees would be avoided to the extent possible. If pruning is necessary to avoid removal of a tree, pruning would be conducted in compliance with the National Arborist Association pruning standards and the criteria in SMP 5.8.5. No more than 20 percent of the limbs of any single tree would be removed and no more than 20 percent of canopy in a stand of trees would be removed in a given five year period without a shoreline permit.

In accordance with SMP 5.8.6, no trees would be topped as part of this project.

No hazardous trees, or portions of trees are identified for evaluation at this time. If such trees are identified, removal would be limited to the hazardous portion, per SMP 5.8.7.

No natural features, including snags, stumps, logs, or uprooted trees would be disturbed (SMP 5.8.8).

No natural in-stream features would be disturbed (SMP 5.8.9).

No aquatic weed control is proposed (SMP 5.8.10).

6.2.9 Visual Access (SMP 5.9)

The proposed project would not alter visual access to the shoreline (SMP 5.9.1). Pipes and STEP tanks would be located underground, within the existing developed area of the camp.

6.2.10 Water Quality and Quantity (SMP 5.10)

In accordance with SMP 5.10.1, the proposed project would protect the quality and quantity of surface and groundwater adjacent to the site. Replacing on-site septic systems with city sewer service will protect water quality.

In accordance with SMP 5.10.2, all development will comply with the applicable requirements of CMC Chapter 14.02 Stormwater Control. No new impervious surface will be created as part of this project.

In accordance with SMP 5.10.3, BMPs for erosion and sediment control would be implemented in compliance with CMC 14.06. See section 5.1 for a discussion of proposed measures to control erosion and sediment during construction.

In accordance with SMP 5.10.4, no harmful materials, including but not limited to oil, chemicals, tires, or hazardous materials, would be allowed to enter any body of water or wetland. The only waterbody or wetland adjacent to the proposed project is wetland K-1. See section 5.1 for a discussion of proposed measures to protect wetland K-1. Construction measures to prevent harmful materials from leaving the site with runoff are discussed in section 5.1. In addition, the contractor would be required to prepare and implement a Spill Prevention, Control, and Countermeasures (SPCC) Plan.

In accordance with SMP 5.10.5, no use of herbicides, fungicides, fertilizers, and pesticides is proposed. The shoreline designation in the vicinity of the project is not Aquatic (SMP 5.10.6). The shoreline is designated Urban Conservancy.

No substance not composed entirely of surface and stormwater would be conveyed to water resources (SMP 5.10.7).

No new septic systems are proposed (SMP 5.10.8).

6.3 Specific Shoreline Use Regulations

Table 6-1 of the SMP indicates that underground utilities within Urban Conservancy shorelines are a Conditional Use. Underground utilities parallel to the shoreline have a 100 foot setback from the OHWM. All proposed utilities are 160 feet or more from the OHWM of Lacamas Creek.

The specific use regulations contained in SMP 6.3.15, Utilities Uses, apply to the project as follows:

6.3.1 Utilities Uses (SMP 6.3.15)

The proposed STEP system cannot be located outside of the shoreline because of the need to connect to existing structures located within the shoreline. Pipes, STEP tanks, and practically all electrical wires will be located underground, in accordance with SMP 6.3.15.1. Only a small electrical panel that serves to monitor system operations needs to be located above for access, resulting in only several feet of wiring aboveground.

No overhead electrical transmission lines are proposed as part of this project (SMP 6.3.15.2).

In accordance with SMP 6.3.15.3, the STEP system is designed to minimize adverse environmental and aesthetic impacts and conflicts with other uses. Essentially all of the pipes, STEP tanks, and electrical wires will be located underground. No removal of trees or native woody vegetation will result from the project.

In accordance with SMP 6.3.15.4, the STEP system would be installed in existing access roads and other existing disturbed areas. Where pipes and STEP tanks must be located outside of existing roads in order to connect to structures, they would be located along the shortest feasible route, except where deviation is necessary to avoid tree removal.

In accordance with SMP 6.3.15.5, no utility production or processing facilities are proposed within the shoreline as part of this project.

In accordance with SMP 6.3.15.6, no stormwater control facilities within the shoreline (or otherwise) are

proposed as part of this project.

No new outfalls or modifications to existing outfalls are proposed as part of this project (SMP 6.3.15.7).

No injection wells are proposed as part of this project (SMP 6.3.15.8).

The proposed STEP system would be bored underneath the ditch along NE Goodwin Road, thereby avoiding any disturbance to habitat that may be present (SMP 6.3.15.9).

No underwater pipes are proposed (SMP 6.3.15.10).

No work is proposed on the banks of Lacamas Creek or any other waterbody (SMP 6.3.15.11).

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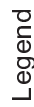
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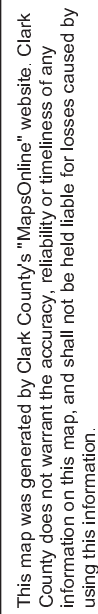
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Appendix A: Figures



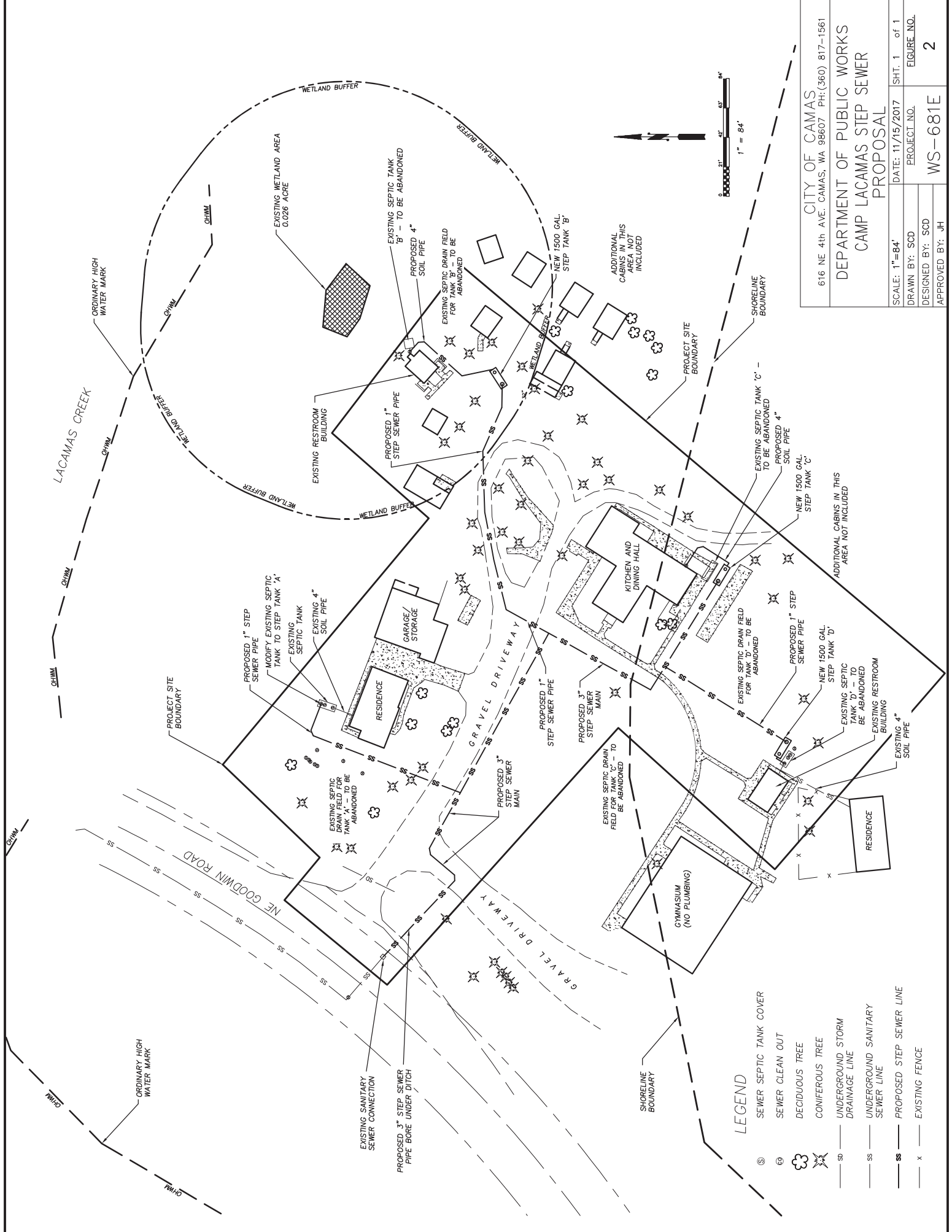
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— Interstate
— State
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Collector
— Public Road
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— DNR Private
Other
— Private
— Alley
— Driveway
— Proposed
— Unknown
- Cities Boundaries
Urban Growth Boundaries

Notes:



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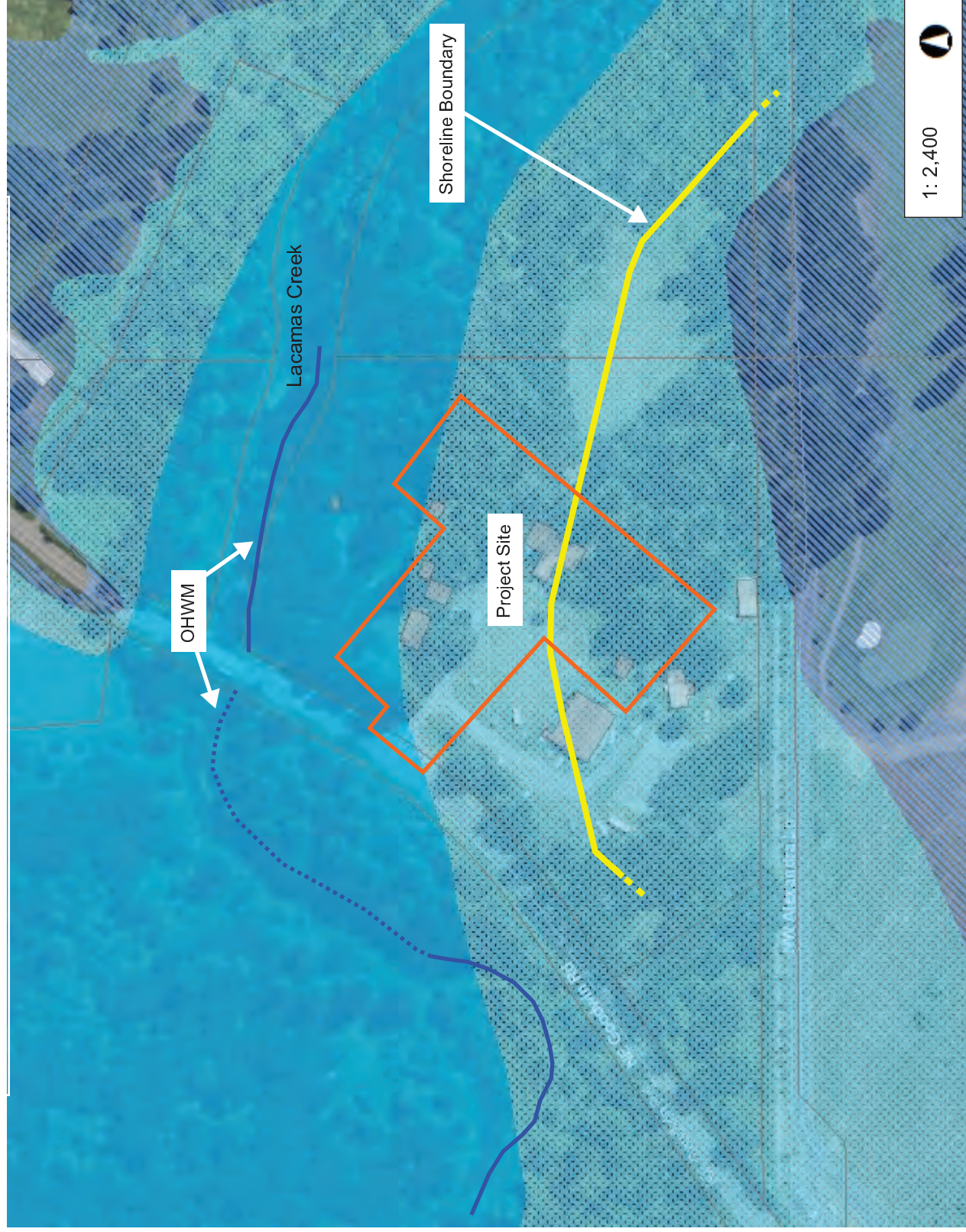
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CITY OF CAMAS			
616 NE 4th AVE. CAMAS, WA 98607 PH: (360) 817-1561			
DEPARTMENT OF PUBLIC WORKS			
CAMP LACAMAS STEP SEWER PROPOSAL			
SCALE: 1"=84'	DATE: 11/15/2017	SHT. 1	of 1
DRAWN BY: SCD	PROJECT NO.	FIGURE NO.	
DESIGNED BY: SCD	WS-681E	2	
APPROVED BY: JH			



Figure 3: Camp Lacamas Floodplain and Shoreline Boundary



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Notes:



Legend

- Building Footprints
- Taxlots
- Flood Zone Designation
 - Floodway
 - Floodway Fringe
 - 500 Year Flood Area
 - Area Not Studied
- Roads



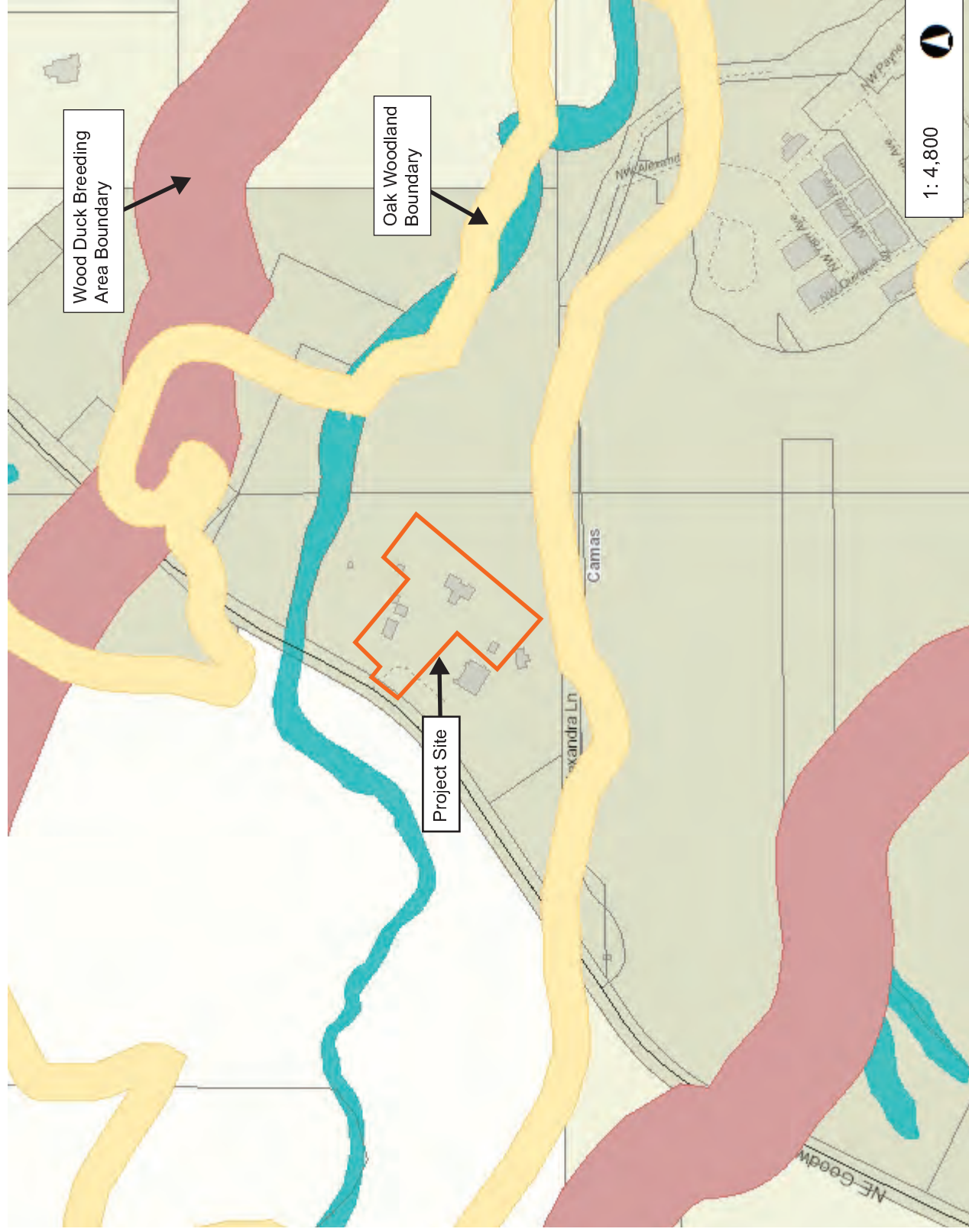
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Figure 5: Camp Lacamas Priority Species and Habitat



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Notes:

Legend

- Priority Habitat Buffer
- Priority Species Buffer
- Building Footprints
- Taxlots
- Cities Boundaries
- Urban Growth Boundaries



Appendix B: Photographs



Photograph 1: View northwest across camp lawn toward NE Goodwin Road. Proposed sewer alignment to be located in gravel road on right and connection to sewer main in NE Goodwin Road near the sign board. Photograph taken July 28, 2017.



Photograph 2: View of camper residential cabins and restroom (the building on left in background). Proposed sewer alignment to pass between various Douglas fir trees. Photograph taken July 28, 2017.



Photograph 3: View looking east, showing Wetland K-1. Emergent area, dominated by water parsley in foreground and center. Photograph taken July 28, 2017.



Photograph 4: View looking southwest across camp lawn. Proposed sewer alignment to be right and parallel to the sidewalk and extend to the restroom (green building at back, center). The area beyond the blue spruce (*Picea pungens*) in the foreground is outside of Shoreline jurisdiction. Photograph taken July 28, 2017.



Photograph 5: View along the west side of the caretaker's house. Proposed sewer alignment to pass close to the building in the lawn beneath the Oregon white oaks (*Quercus garryana*). The septic tank to be modified is buried at the corner of the building. Photograph taken July 28, 2017.



Photograph 6: View looking east along the south bank of Lacamas Creek, approximately 160 feet north of the project, adjacent to the parcel. Photograph taken July 28, 2017.

Appendix C: Tree Survey

Table C-1. Tree Survey

Species and diameter of trees larger than 4 inches DBH (diameter breast height) in project area.

DBH (in)	Douglas Fir	Oregon White Oak	Blue Spruce (<i>Picea pungens</i>)	Elm (<i>Ulmus sp.</i>)	Yew (<i>Taxus sp.</i>)
4			1*		
7			1*		
8			1		
9			1		
12			1*		
13			1*		
14					1
19	1	1	1 [†]		
20		1		1*	
22				1*	
25		1			
26	1				
27				1	
29	1				
30	1				
33	1				
34	1				
38	2				
40	1				
46	2				
Total	11	3	7	3	1
% of Total	44	12	28	12	4

*Stem of multi-stemmed tree

[†] Collar measurement

Appendix D: Other Technical Reports

WETLAND REPORT

Camp Lacamas Step Sewer Project City of Camas Project WS-681E

Prepared for:

City of Camas
Public Works Department
616 NE 4th Avenue
Camas, Washington 98607

Prepared by:

Harper Houf Peterson Righellis Inc.
1104 Main Street, Suite 100
Vancouver, Washington 98660

December 19, 2017



TABLE OF CONTENTS

1. INTRODUCTION	1
2. GENERAL SITE DESCRIPTION.....	1
2.1 LAND USE AND LANDSCAPE SETTING	1
2.2 SOILS.....	1
2.3 STREAMS	1
3. METHODS.....	2
3.1 OFFICE REVIEW	2
3.2 FIELD WETLAND DELINEATION	3
3.3 FIELD ORDINARY HIGH WATER MARK DELINEATION.....	3
4. WETLAND DELINEATION RESULTS	3
4.1 LOCATION AND GENERAL DESCRIPTION	4
4.2 VEGETATION	4
4.3 SOILS.....	4
4.4 HYDROLOGY	5
4.5 WETLAND RATING	5
4.6 STREAMS	6
5. CONCLUSIONS	7
6. LITERATURE CITED	7
 APPENDIX A – FIGURES	
APPENDIX B – PHOTOGRAPHS	
APPENDIX C – WETLAND DATA FORMS	
APPENDIX D – WETLAND RATING FORM	

1. INTRODUCTION

The City of Camas (City) plans to install a STEP (Septic Tank Effluent Pumping) system to serve Camp Lacamas at 2025 NE Goodwin Road (parcel number 172543000), replacing the existing on-site septic system. This new system will connect to the existing public sewer via an existing stub that lies at the eastern edge of NE Goodwin Road. A new line will be extended from the existing stub to the parcel, by boring under the ditch along the roadway. The proposed STEP system consists of approximately 900 feet of sewer line and four underground septic tanks (three new STEP tanks and one existing septic tank to be modified), hereafter referred to as STEP tanks, to service two residences, the kitchen/dining hall, and two restrooms. Electric pumps are integrated into each STEP tank. One small electrical service panel (to provide power for the system) will be installed aboveground. Three existing septic tanks will be decommissioned in-place (pumped out and filled with sand). Excavations will be either in the existing roadway, adjacent lawn, or areas regularly traversed by pedestrians. No new impervious surface will be created.

2. GENERAL SITE DESCRIPTION

2.1 Land Use and Landscape Setting

The field study area for this wetland delineation is a portion of parcel 172543000, located within the southeast ¼ of Section 20, of Township 2 North, Range 3 East, Willamette Meridian, City of Camas, Clark County, Washington (Figure 1, Appendix A). Lacamas Creek lies to the northeast of the study area and NE Goodwin Road lies to the northwest. The project is located on a terrace of Lacamas Creek. The terrace is developed with camp buildings, access roads, and mowed fields (Photographs 1 and 2, Appendix B). The parcel is zoned Light Industrial/Business Park (Clark County GIS 2017). Surrounding parcels are a mixture of parks, open space, and agriculture.

2.2 Soils

The Clark County soil survey (Soil Survey Staff, accessed November 6, 2017) identifies two map units in the study area (Figure 2): 1) Lauren gravelly loam (0-8% slopes), a deep soil formed in old alluvium and excessively well drained; and, 2) Lauren gravelly loam, cemented substratum (3-15% slopes), which is moderately well drained. Lauren soils are non-hydric.

2.3 Streams

At the nearest point, the project alignment is approximately 160 feet from the ordinary high water mark (OHWM) of Lacamas Creek, a perennial stream. Thus, the project is within Water Resource Inventory Area (WRIA) 28 and the 6th field Hydrologic Unit Code (HUC) Lower Columbia/Sandy 170800010606. The entire project is within the 100-year floodplain of Lacamas Creek (FEMA 2012). Lacamas Creek flows east and south, entering Lacamas Lake approximately 1 mile downstream of the parcel. Lacamas Creek is listed as habitat for resident fish (WDFW 2017). Anadromous fish are prevented from entering Lacamas Lake, and thus Lacamas Creek, by Lacamas Lake and Round Lake dams (WDFW 2017).

Lacamas Creek is regulated as a shoreline (Type S stream) under the City of Camas Shoreline Master Program (SMP). The parcel is within the Urban Conservancy shoreline designation (Clark County GIS 2017).

3. METHODS

3.1 Office Review

Staff reviewed the following resources to assess the presence of wetlands in the study area:

- Clark County GIS (2017) topography and site specific topography by KC Development (March 28, 2017);
- Clark County GIS (2017) wetland data and Wetland Inventory maps from the City (<http://www.cityofcamas.us/images/DOCS/MAPS/wetlandsmap.pdf>);
- USDA Natural Resources Conservation Service (NRCS) Web Soil Survey; and
- Precipitation and climate data from the NOAA National Weather Service (NOAA NWS 2017).

The City's Wetland Inventory map does not identify wetlands on the parcel. Likewise, the National Wetland Inventory (NWI) data (Clark County GIS 2017) does not map wetland on the parcel, only on the north side of Lacamas Creek, which is approximately 200 feet at the closest point to the project (Figure 3). Clark County's modeled wetland data (Clark County GIS 2017) identifies potential wetland adjacent to Lacamas Creek and part of the roadside ditch along the south side of NE Goodwin Road.

No hydric soils are mapped in the study area (section 2.2).

Rainfall was evaluated for the three months preceding the wetland field visit as measured at the Portland International Airport weather station (NOAA NWS 2017). While July at the time of the delineation was drier than the normal range, precipitation in May and June fell within the normal range, and precipitation in April was well above normal. The precipitation for the 3 months plus July was slightly above average for that time period. Based on this analysis, climatic and hydrologic conditions at the time of the delineation are considered normal.

Table 1. Summary of Precipitation at Portland International Airport Weather Station (NOAA NWS 2017).

Month	Total Precipitation (inches)	Normal Range WETS (inches)	Within Normal Range	Average (inches)
April	4.51	1.89 – 3.12	Wetter	2.64
May	1.92	1.39 – 2.89	Yes	2.38
June	1.08	0.91 – 1.94	Yes	1.59
July (1-27)	T	0.30 – 1.12	Drier	0.72
Overall for April-July	7.51	N/A	Yes	7.33

The growing season recorded in the Portland International Airport Station WETS table, based on 28°F for the 50 percentile, is 288 days, beginning February 15 and ending November 30 (USDA NRCS 2017).

3.2 Field Wetland Delineation

The three-parameter wetland delineation method approach was used as described in the *Corps of Engineers Wetland Delineation Manual* (US Army Corps of Engineers [USACE] 1987) and guidance in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region* (USACE 2010). This method is consistent with the requirements of the City's Shoreline Master Program critical areas code (SMP 16.53).

Data plots were recorded on Regional Supplement (USACE 2010) data forms. Plant names and wetland indicator status on the data forms follow the 2016 National Wetland Plant List (NWPL) (Lichvar, et.al. 2016). Wetland boundaries and data plots were flagged with sequentially numbered flagging tape or wire flags, and locations recorded using a handheld GPS unit to produce a sketch map. All data plot and flag locations were then recorded by KC Development (the land surveying firm contracted by the City).

Delineated wetland habitats were classified according to the system outlined in *Classification of Wetlands and Deepwater Habitats of the United States* (Federal Geographic Data Committee 2013) and rated using the *Washington State Wetland Rating System for Western Washington—2014 Update* (Hruby 2014).

3.3 Field Ordinary High Water Mark Delineation

The Ordinary High Water Mark (OHWM) of Lacamas Creek was evaluated following methods in *Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State* (Anderson, et al. 2016). The OHWM for Lacamas Creek in the study area, was consistent with the three primary indicators—break-in-slope, change in sediment texture, and change in vegetation characteristics—applied by the USACE.

4. WETLAND DELINEATION RESULTS

HHPR staff (Kent Snyder, PhD, CPSS and Ivy Watson), conducted field visits on June 20, 2017 and July 28, 2017 and identified one wetland (Wetland K-1) and wetland buffer in the study area. Delineated boundaries for Wetland K-1 are shown in Figure 4. Table 2 provides a summary of the wetland character.

Table 2. Summary of the Wetland K-1 on the Camp Lacamas STEP site.

Wetland	Size (acres)	HGM Classification	Cowardin Class
K-1	0.026	Depressional	Palustrine Scrub-shrub/ Emergent

4.1 Location and General Description

A very small (0.026 acre or 1,112 square feet) palustrine scrub-shrub/emergent (PSS/PEM) depressional wetland with a forested fringe (Wetland K-1; Photographs 3 and 4) is present approximately 40 feet northeast of the project alignment, at the closest point. This wetland is located in a depression at the toe of a steep slope (approximately 30%) that separates the developed camp area on the upper terrace from the forested and relatively undisturbed lower terrace along Lacamas Creek. This wetland could be occupying the bottom of an old, abandoned gravel pit, but this is uncertain.

The boundary of Wetland K-1 lies at the base of a distinct and abrupt break in topography and changes in associated parameters: change in dominant vegetation (from hydrophytic to upland), soils (hydric to non-hydric), and lack of hydrology. The surrounding upland terrace is densely forested (canopy cover approximately 80%), with a mix of Oregon white oak (*Quercus garryana*), Douglas fir (*Pseudotsuga menziesii*), and Oregon ash (*Fraxinus latifolia*), and an understory of native shrubs and saplings.

One roadside ditch (Photographs 7 and 8) was identified in the study area, along NE Goodwin Road. In the vicinity of the project, this ditch is excavated in upland based on USDA NRCS soil mapping (non-hydric soils); corroboration of the same based on the site review, and non-hydrophytic vegetation. Ditches excavated in upland are exempt from City wetland regulations (SMP 16.53.010.C.2); therefore, the ditch was not delineated and no buffer is required. The ditch likely carries seasonal stormwater drainage. The project will not impact this ditch; the sewer line will be bored underneath it and construction will implement relevant Best Management Practices (silt fencing, equipment storage, etc.).

4.2 Vegetation

Vegetation in the wetland consists of a mosaic of emergent and scrub-shrub communities, with a forested fringe. The emergent plant community is dominated by water parsley (*Oenanthe sarmentosa*), intermixed with native forbs (e.g. marsh bedstraw [*Galium palustre*], water smartweed [*Persicaria sp.*], mad dog skullcap [*Scutellaria lateriflora*], and small-fruited bulrush [*Scirpus microcarpus*]), and invasive species (e.g. reed canarygrass [*Phalaris arundinacea*], spotted touch-me-not [*Impatiens capensis*], and climbing nightshade [*Solanum dulcamara*]). The invasive species have not proliferated in the wetland, probably because mature trees in the forested fringe and adjacent upland shade the wetland from all sides. The scrub-shrub plant community is dominated by thickets of red osier dogwood (*Cornus alba*). The forested fringe is dominated by Oregon ash (*Fraxinus latifolia*), with an understory of emergent species, such as those described above. The dominant species in the data plot (Data Form K-1 Plot 2, Appendix C) satisfy the Rapid Test for hydrophytic vegetation.

4.3 Soils

Soils observed in Wetland K-1 have a very dark gray (2.5Y3/1) gravelly loam surface horizon (0-12 inches) with 2 percent dark yellowish brown (10YR4/6) and 2 percent brown (10YR4/3) concentrations in the matrix (Data Form K-1 Plot 2, Appendix C). From 12 to 14 inches, the limit of the soil pit, was weather bedrock (Troutdale Formation) that was very difficult to excavate. The texture was extremely gravelly sandy loam with a brown to strong brown

(7.5YR4/4-6) matrix and yellowish brown (10YR5/6) concentrations in the matrix. The surface (0-12 inches) horizon meets the criteria for redox dark surface (hydric soil indicator F6).

4.4 Hydrology

Hydrology for Wetland K-1 appears to be driven by a high water table associated with Lacamas Creek and having restricted drainage because of the shallow bedrock. Areas of surface water ponding and saturated soils were observed during the June 20, 2017 site visit (Photograph 3). Soil was moist, but not saturated, during the July 28 delineation. Secondary indicators, including water-stained leaves (B9), geomorphic position (D2), and FAC-neutral vegetation (D5) were observed during the July visit. The presence of these primary and secondary indicators of wetland hydrology meets the wetland hydrology criteria.

4.5 Wetland Rating

Wetland K-1 is a very small wetland (0.026 acres). Consequently, the habitat functions and ratings are difficult to assess accurately using the *Washington State Wetland Rating System for Western Washington – 2014 Update*, which Hruby (2014, p. 26) notes:

At present, the accuracy of the scoring has not been tested for wetlands smaller than 1/10 ac, but the method may be applicable to even smaller wetlands because the scoring of water quality and hydrologic functions is not dependent on the size or the habitat niches in the wetland. ...The field testing, however, indicates that the method will not work well for scoring habitat functions in wetlands smaller than 1/10 ac (4000 ft²).

With this understanding, Wetland K-1 was rated using Hruby (2014). The resulting scores indicated moderate to high water quality function (score of 7), with moderate hydrologic function (score of 6), and high habitat function (score of 8). Overall, these scores result in a 21 point Category II rating (Appendix D).

Wetland buffer widths required for water quality functions protection (SMP Table 16.53.040-1) and habitat functions protection (SMP Table 16.53.040-2) are determined based on the intensity of the proposed land use (SMP Table 16.53.040-4 Land Use Intensity Matrix), the wetland rating, and the habitat score for each wetland. Underground utility lines are a low intensity land use according to the Land Use Intensity Matrix. Thus, the buffers designated by the City are 50 feet for water quality and 130 feet for habitat functions. The following discussion will only reference the buffer for habitat functions, as it is the larger of the two and therefore determines the outer boundary of the regulated buffer area.

Table 3. Summary of the Wetland K-1 Rating and Buffer Width.

Wetland	Size* (acres)	Wetland Rating**	Max. Buffer Width***
K-1	0.026	II	Habitat Functions: 130 feet

* Based on survey of delineation by City of Camas.

** Hruby, 2014.

*** SMP Table 16.53.040-2, applying low intensity use per SMP Table 16.53.040-4.

The wetland buffer to the southwest of the wetland (toward the project alignment) extends up a steep slope and into the developed area of the camp. Here, the buffer is characterized by mature Douglas fir trees (*Pseudotsuga menziesii*, 24 to 55 inches diameter breast height [DBH]) that provide approximately 80 percent canopy cover throughout most of the buffer area. On the slope, the understory is dominated by a carpet of ivy (*Hedera helix*) with occasional shrubs (e.g. Western serviceberry [*Amelanchier alnifolia*], beaked hazelnut [*Corylus cornuta*], and common snowberry [*Symphoricarpos albus*]). In the camp area, the understory is sparse and crisscrossed by footpaths. Where present, understory vegetation is dominated by non-native grasses and forbs (e.g. orchard grass [*Dactylis glomerata*], shiny geranium [*Geranium lucidum*], and common dandelion [*Taraxacum officinale*]), with occasional native forbs (e.g. fringe cup [*Tellima grandiflora*] and Siberian spring beauty [*Claytonia siberica*]). The buffer in the camp area contains preexisting buildings, including a restroom, “snack shack”, and four cabins. These are functionally separate from the wetland and do not protect it from adverse impacts, and are therefore excluded from the buffer per SMP 16.53.040.B.4.b.i.

The restroom lies at the top of the slope, above the wetland. Though the building is excluded from the wetland buffer, it is served by a septic tank and leach field located within the buffer, also at the top of the slope. The proposed project would empty and abandon all existing septic systems and connect Camp Lacamas to the City’s sanitary sewer system. The STEP system would include built-in alarm systems that require immediate investigation by City maintenance staff when a problem is detected, in contrast to the 10-year inspection interval required for septic systems (Jim Hodges, City of Camas, pers. comm., 2017). This is considered an ecological benefit because of the potential for water quality impacts posed by old septic systems, especially given the presence of an impermeable layer (the Troutdale Formation) 2 to 3 feet below the ground surface, dipping towards the wetland and Lacamas Creek.

Project impacts within the buffer would be limited to temporary disturbance to soil and non-native annual vegetation.

4.6 Streams

Lacamas Creek, nearest the project alignment (from the NE Goodwin Road bridge to approximately 450 feet downstream), was reviewed on July 28, 2017. The OHWM in this location was identified based on a change of vegetation from facultative herbaceous species dominated by reed canarygrass, to trees and shrubs dominated by upland species (e.g. Oregon white oak, cascara [*Frangula purshiana*], and common snowberry) and, typically, a recognizable slope break. At the downstream end of this area, the OHWM is located at the outer edge of an old backwater channel. Here the OHWM was determined by a distinct and abrupt rise in topography and a shift in vegetation from obligate wetland species (slough sedge [*Carex obnupta*]) to the upland forest described above.

Upstream of the NE Goodwin Road bridge for approximately 1000 feet, the OHWM is typically at the back of the first stream terrace above the active channel (reviewed by Kent Snyder August 20, 2015 and March 2, 2017). Here the OHWM is readily defined by a distinct and abrupt rise in topography (typically 1 to 3 feet high), and vegetation changes from a facultative shrub or herbaceous (e.g., reed canarygrass) community to upland forest community (e.g., snowberry,

sword fern, bigleaf maple, and Douglas fir). Movement of sediment is evident on the terrace below; no such sediment was observed above the OHWM. There were wrack lines in vegetation on active channel, but not above slope break. The uppermost segment of the OHWM follows the edge of an old stream meander. Here the boundary is defined by a lower (typically 1-foot) topographic break along a shallow channel. Either open water or scrub-shrub vegetation (typically red osier dogwood) lies on the stream side and an open ash forest is present on the other. Wrack and sediment from Lacamas Creek are present along the boundary.

5. CONCLUSIONS

One very small (0.026 acre or 1,112 square feet) palustrine scrub-shrub/emergent depressional wetland (Wetland K-1), possibly an old borrow pit, was identified in the study area. This wetland rated as a Category II with a habitat score of 8, according to the 2014 Ecology rating system (Hruby 2014) and City requirements (SMP 16.53). The City requires a buffer of 130 feet to protect habitat function when a project proposes low intensity land uses adjacent to a wetland with this rating (SMP 16.53.040). The project area is within 200 feet of the floodway of Lacamas Creek, and therefore within the regulated Shoreline (SMP 2015).

The proposed project would protect the wetland by discontinuing on-site septic system located inside the 130-foot buffer. Only temporary impacts to the buffer would result from the project in a previously developed area. Implementation of a Temporary Sediment and Erosion Control Plan would protect the wetland from discharges during construction.

6. LITERATURE CITED

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Appendix A – Figures



Figure 1: Wetland Delineation Study Area



1: 2,400



Legend

- Building Footprints
- Taxlots
- Roads

Notes:

400.0 0 200.00 400.0Feet

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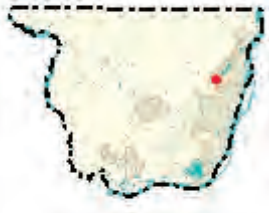
Figure 2. USDA NRCS soil map



1: 1,200



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Clark County, WA. GIS - <http://gis.clark.wa.gov>



Legend

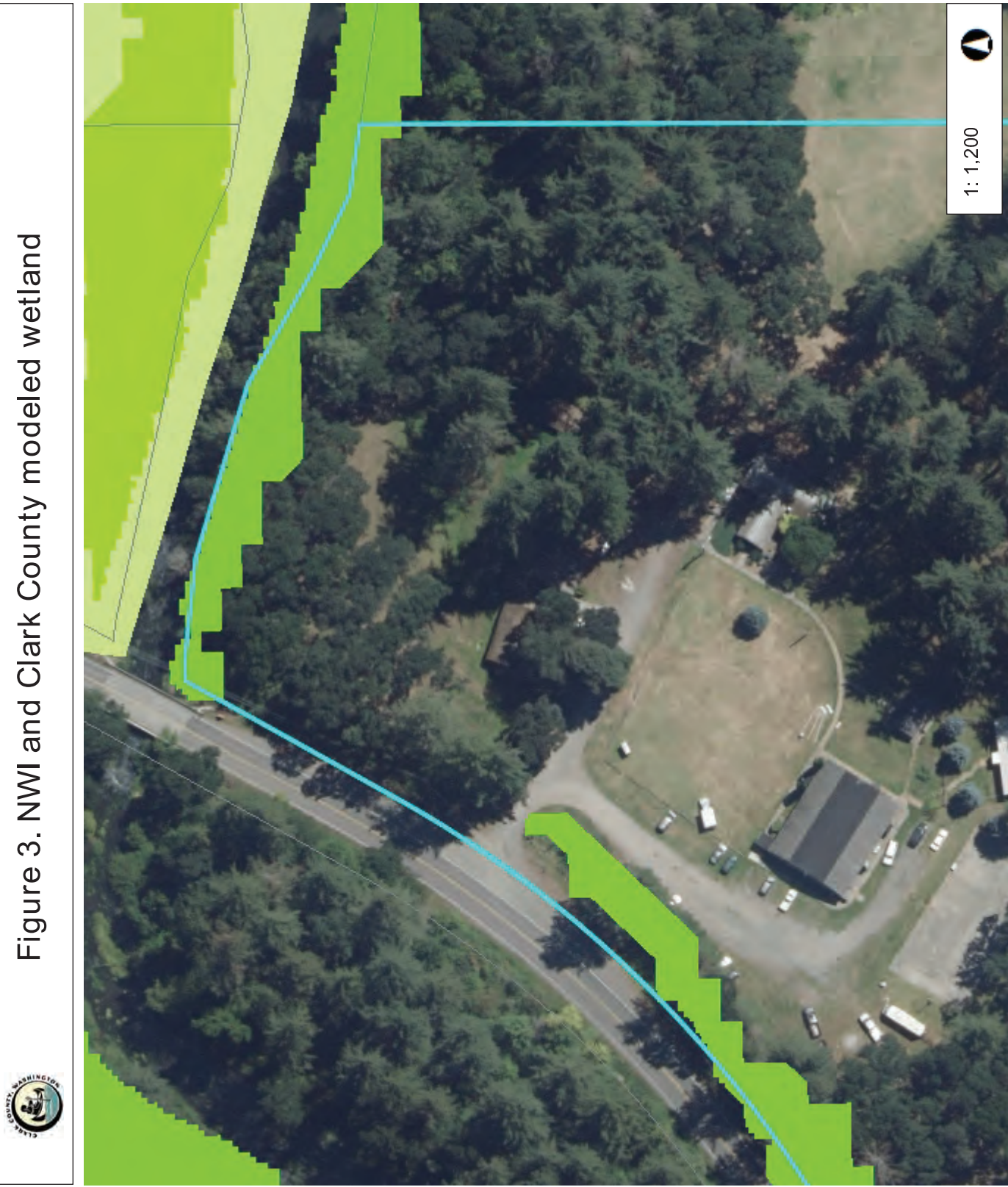
- Taxlots
- Soil Type

LgB - Lauren gravelly loam
(0-8% slopes)
LrC - Lauren gravelly loam,
cemented substratum (3-15%
slopes)

Notes:

This map was generated by Clark County's "MapsOnline" website. Clark County does not warrant the accuracy, reliability or timeliness of any information on this map, and shall not be held liable for losses caused by using this information.

Figure 3. NWI and Clark County modeled wetland



- Legend
- Taxlots
 - NWI Wetland
 - Modeled Wetland

Notes:

1: 1,200

200.0 0 100.00 200.0Feet

This map was generated by Clark County's "MapsOnline" website. Clark County does not warrant the accuracy, reliability or timeliness of any information on this map, and shall not be held liable for losses caused by using this information.

WGS_1984_Web_Mercator_Auxiliary_Sphere
Clark County, WA. GIS - <http://gis.clark.wa.gov>

Appendix B – Photographs



Photograph 1: View northwest across camp toward NE Goodwin Road. Photograph taken July 28, 2017.



Photograph 2: View of camper residential cabins and restroom (the building on left in background). Photograph taken July 28, 2017.



Photograph 3: View looking east, showing Wetland K-1. Emergent area, dominated by water parsley in foreground and center. Photograph taken July 28, 2017.



Photograph 4: View looking northwest from the southeast corner of Wetland K-1 showing emergent wetland vegetation (foreground), scrub-shrub vegetation dominated by red osier dogwood (left), and Oregon ash in the forest fringe (right). A windthrow tip-up can be seen in the center. Photograph taken July 28, 2017.



Photograph 5: Wetland plot (Plot 2) in Wetland K-1, showing sample pit and emergent wetland vegetation. Photograph taken July 28, 2017.



Photograph 6: View looking east into the wetland from the top of the steep slope behind the restroom. Upland vegetation dominated by English ivy, common snowberry, and highbush cranberry can be seen in the foreground. Photograph taken July 28, 2017.



Photograph 7: View of ditch along south side of NE Goodwin Road in vicinity of where sewer line is planned to bored under ditch. Photograph taken June 20, 2017.



Photograph 8: Vegetation in ditch along south side of NE Goodwin Road in vicinity of where sewer line is planned to bored under ditch.. Photograph taken July 28, 2017.

Appendix C – Wetland Data Forms

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Camp Lacamas K-1 City/County: Camas Sampling Date: 7/28/17

Applicant/Owner: City of Camas State: WA Sampling Point: Plot 1

Investigator(s): Kent Snyder, Ivy Watson Section, Township, Range: Sec. 20, T2N, R3E, WM

Landform (hillslope, terrace, etc.): River terrace Local relief (concave, convex, none): slope Slope (%): 30-35%

Subregion (LRR): NW Forests and Coasts Lat: 45°38'17.20" Long: 122°27'19.59" Datum: WGS84

Soil Map Unit Name: Lauren gravelly loam, cemented substratum, 3 to 15% (LrC) NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <input type="text"/> (A) Total Number of Dominant Species Across All Strata: <input type="text"/> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <input type="text"/> (A/B)
1. <u>Frangula purshiana</u>		1	N	FAC	
2. <u>Pseudotsuga menziesii</u>		80	Y	FACU	
3. _____					
4. _____					
		81	= Total Cover		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species <input type="text"/> x 1 = <input type="text"/> FACW species <input type="text"/> x 2 = <input type="text"/> FAC species <input type="text"/> x 3 = <input type="text"/> FACU species <input type="text"/> x 4 = <input type="text"/> UPL species <input type="text"/> x 5 = <input type="text"/> Column Totals: <input type="text"/> (A) <input type="text"/> (B) Prevalence Index = B/A = <input type="text"/>
Sapling/Shrub Stratum	(Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Amelanchier alnifolia</u>		10	N	FACU	
2. <u>Corylus cornuta</u>		25	Y	FACU	
3. <u>Oemleria cerasiformis</u>		2	N	FACU	
4. <u>Symphoricarpos albus</u>		5	N	FACU	
5. <u>Viburnum ellipticum</u>		5	N	UPL	
		47	= Total Cover		
Herb Stratum	(Plot size: <u>5</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Hedera helix</u>		100	Y	FACU	
2. <u>Athyrium filix-femina</u>		2	N		
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
		102	= Total Cover		
Woody Vine Stratum	(Plot size: <input type="text"/>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
1. _____					
2. _____					
			= Total Cover		
% Bare Ground in Herb Stratum <u>0</u>					

Remarks:

Total precipitation for April-July 27 was 7.51 inches, compared to an average of 7.33 inches for April-July per NRCS WETS table for Portland International Airport. Precipitation in early spring (March and April) exceeded the normal range for those months. Thus climatic/hydrologic conditions in July are considered typical to somewhat wet.

SOIL

Sampling Point: Plot 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10YR4/3						gr sl	
7-17	7.5YR3/3						vgr sl	
	10YR7-4/6-8							Cemented sand grains in matrix

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic
--	---

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---

Remarks: The 7-17 inch horizon (Cr) is weathered Troutdale Formation. Plot appears to be on the side of an old borrow pit.

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply)				Secondary Indicators (2 or more required)			
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A) <input type="checkbox"/> Frost-Heave Hummocks (D7)					

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Camp Lacamas K-1 City/County: Camas Sampling Date: 7/28/17

Applicant/Owner: City of Camas State: WA Sampling Point: Plot 2

Investigator(s): Kent Snyder, Ivy Watson Section, Township, Range: Sec. 20, T2N, R3E, WM

Landform (hillslope, terrace, etc.): River terrace Local relief (concave, convex, none): Concave Slope (%): <1

Subregion (LRR): NW Forests and Coasts Lat: 45°38'17.20" Long: 122°27'19.59" Datum: WGS84

Soil Map Unit Name: Lauren gravelly loam, cemented substratum, 3 to 15% (LrC) NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. <u>Fraxinus latifolia</u>		50	Y	FACW	
2. _____					
3. _____					
4. _____					
		50	= Total Cover		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species <input type="checkbox"/> x 1 = _____ FACW species <input type="checkbox"/> x 2 = _____ FAC species <input type="checkbox"/> x 3 = _____ FACU species <input type="checkbox"/> x 4 = _____ UPL species <input type="checkbox"/> x 5 = _____ Column Totals: <u>30</u> (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>30</u>)					
1. <u>Cornus alba</u>		30	Y	FACW	
2. _____					
3. _____					
		30	= Total Cover		
Herb Stratum (Plot size: <u>5</u>)					Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Galium palustre</u>		2	N	OBL	
2. <u>Impatiens capensis</u>		5	N	FACW	
3. <u>Oenanthe sarmentosa</u>		65	Y	OBL	
4. <u>Solanum dulcamara</u>		5	N	FAC	
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
		77	= Total Cover		
Woody Vine Stratum (Plot size: <u>5</u>)					Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. _____					
2. _____					
			= Total Cover		
% Bare Ground in Herb Stratum <u>30</u>					

Remarks:

Total precipitation for April-July 27 was 7.51 inches, compared to an average of 7.33 inches for April-July per NRCS WETS table for Portland International Airport. Precipitation in early spring (March and April) exceeded the normal range for those months. Thus climatic/hydrologic conditions in July are considered typical to somewhat wet.

SOIL

Sampling Point:

Plot 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	2.5Y3/1		10YR4/6	2	C	M	gr l	
			10YR4/3	2	C	M		
12-14	7.5YR4/4-6		10YR5/6	5	C	M	exgr sl	Weathered bedrock (Cr)

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present): Type: <u>Paralithic contact</u> Depth (inches): <u>12 inches</u>	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
---	---

Remarks: The 12-14 inch horizon (Cr) is weathered Troutdale Formation. Plot appears to be in the bottom of an old borrow pit.

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Soil is moist. Saturated soil with areas of ponding was observed during June 20, 2017 visit by K.Snyder.

Appendix D – Wetland Rating Form

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Wetland name or number K-1

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Camp Lacamas K-1 Date of site visit: 07/28/17

Rated by Ivy Watson Trained by Ecology? X Yes ___ No Date of training 11/8-9/16

HGM Class used for rating Depressional Wetland has multiple HGM classes? ___ Y X N

NOTE: Form is not complete without the figures requested (*figures can be combined*).

Source of base aerial photo/map ESRI

OVERALL WETLAND CATEGORY II (based on functions X or special characteristics ___)

1. Category of wetland based on FUNCTIONS

_____ **Category I** – Total score = 23 - 27

X **Category II** – Total score = 20 - 22

_____ **Category III** – Total score = 16 - 19

_____ **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
<i>Circle the appropriate ratings</i>				
Site Potential	(H) M L	H (M) L	H (M) L	
Landscape Potential	H M (L)	H (M) L	(H) M L	
Value	(H) M L	H (M) L	(H) M L	TOTAL
Score Based on Ratings	7	6	8	21

**Score for each
function based
on three
ratings**
(*order of ratings
is not
important*)

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	

Wetland name or number K-1

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (<i>can be added to map of hydroperiods</i>)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (<i>can be added to another figure</i>)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of dense, rigid trees, shrubs, and herbaceous plants (<i>can be added to figure above</i>)	S 4.1	
Boundary of 150 ft buffer (<i>can be added to another figure</i>)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

NO – go to 2 x

YES – the wetland class is **Tidal Fringe** – go to 1.1

- 1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

NO – **Saltwater Tidal Fringe (Estuarine)**

YES – **Freshwater Tidal Fringe**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

NO – go to 3 x

YES – The wetland class is **Flats**

*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?

___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;

___At least 30% of the open water area is deeper than 6.6 ft (2 m).

NO – go to 4 x

YES – The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?

___The wetland is on a slope (*slope can be very gradual*),

___The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,

___The water leaves the wetland **without being impounded**.

NO – go to 5 x

YES – The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?

___**x** The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,

___The overbank flooding occurs at least once every 2 years.

Wetland name or number K-1

NO – go to 6 x

YES – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7

YES – The wetland class is **Depressional** x

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8

YES – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number K-1

DEPRESSIONAL AND FLATS WETLANDS		
Water Quality Functions - Indicators that the site functions to improve water quality		
D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1		3
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions). Yes = 4 No = 0		0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > 1/10 of area points = 1 Wetland has persistent, ungrazed plants < 1/10 of area points = 0		5
D 1.4. Characteristics of seasonal ponding or inundation: <i>This is the area that is ponded for at least 2 months. See description in manual.</i> Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0		4
Total for D 1 Add the points in the boxes above		12

Rating of Site Potential If score is: X **12-16 = H** **6-11 = M** **0-5 = L** Record the rating on the first page

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	0
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0	0*
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3?		0
Source_____	Yes = 1 No = 0	
Total for D 2 Add the points in the boxes above		0

Rating of Landscape Potential If score is: **3 or 4 = H** **1 or 2 = M** X **0 = L** Record the rating on the first page

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0	1
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (answer YES if there is a TMDL for the basin in which the unit is found)?	Yes = 2 No = 0	1
Total for D 3 Add the points in the boxes above		3

Rating of Value If score is: X **2-4 = H** **1 = M** **0 = L** Record the rating on the first page

*Septic systems are being removed by the STEP project.

Wetland name or number K-1

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?

D 4.1. Characteristics of surface water outflows from the wetland:

- | | | |
|---|------------|---|
| Wetland is a depression or flat depression with no surface water leaving it (no outlet) | points = 4 | 4 |
| Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet | points = 2 | |
| Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch | points = 1 | |
| Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing | points = 0 | |

D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*

- | | | |
|--|------------|---|
| Marks of ponding are 3 ft or more above the surface or bottom of outlet | points = 7 | 3 |
| Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet | points = 5 | |
| Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet | points = 3 | |
| The wetland is a "headwater" wetland | points = 3 | |
| Wetland is flat but has small depressions on the surface that trap water | points = 1 | |
| Marks of ponding less than 0.5 ft (6 in) | points = 0 | |

D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*

- | | | |
|---|------------|---|
| The area of the basin is less than 10 times the area of the unit | points = 5 | 0 |
| The area of the basin is 10 to 100 times the area of the unit | points = 3 | |
| The area of the basin is more than 100 times the area of the unit | points = 0 | |
| Entire wetland is in the Flats class | points = 5 | |

Total for D 4

Add the points in the boxes above

7

Rating of Site Potential If score is: 12-16 = H X 6-11 = M 0-5 = L

Record the rating on the first page

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?

D 5.1. Does the wetland receive stormwater discharges? Yes = 1 No = 0

0

D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff? Yes = 1 No = 0

0

D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? Yes = 1 No = 0

1

Total for D 5

Add the points in the boxes above

1

Rating of Landscape Potential If score is: 3 = H X 1 or 2 = M 0 = L

Record the rating on the first page

D 6.0. Are the hydrologic functions provided by the site valuable to society?

D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*

- | | | |
|--|------------|---|
| The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds): | | 1 |
| • Flooding occurs in a sub-basin that is immediately down-gradient of unit. | points = 2 | |
| • Surface flooding problems are in a sub-basin farther down-gradient. | points = 1 | |
| Flooding from groundwater is an issue in the sub-basin. | points = 1 | |
| The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. <i>Explain why</i> _____ | points = 0 | |
| There are no problems with flooding downstream of the wetland. | points = 0 | |

D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?

Yes = 2 No = 0

0

Total for D 6

Add the points in the boxes above

1

Rating of Value If score is: 2-4 = H X 1 = M 0 = L

Record the rating on the first page

Wetland name or number _____

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

2

- | | |
|---|----------------------------------|
| <input type="checkbox"/> Aquatic bed | 4 structures or more: points = 4 |
| <input checked="" type="checkbox"/> Emergent | 3 structures: points = 2 |
| <input checked="" type="checkbox"/> Scrub-shrub (areas where shrubs have > 30% cover) | 2 structures: points = 1 |
| <input checked="" type="checkbox"/> Forested (areas where trees have > 30% cover) | 1 structure: points = 0 |

If the unit has a Forested class, check if:

- ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

H 1.2. Hydroperiods

1

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

- | | |
|---|-------------------------------------|
| <input type="checkbox"/> Permanently flooded or inundated | 4 or more types present: points = 3 |
| <input checked="" type="checkbox"/> Seasonally flooded or inundated | 3 types present: points = 2 |
| <input type="checkbox"/> Occasionally flooded or inundated | 2 types present: points = 1 |
| <input type="checkbox"/> Saturated only | 1 type present: points = 0 |
| <input checked="" type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland | |
| <input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland | |
| <input type="checkbox"/> Lake Fringe wetland | 2 points |
| <input type="checkbox"/> Freshwater tidal wetland | 2 points |

H 1.3. Richness of plant species

1

Count the number of plant species in the wetland that cover at least 10 ft².

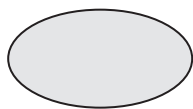
*Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. **Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

- | | |
|------------------------------|------------|
| If you counted: > 19 species | points = 2 |
| 5 - 19 species | points = 1 |
| < 5 species | points = 0 |

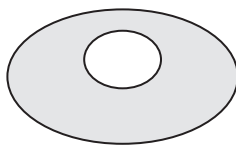
H 1.4. Interspersion of habitats

3

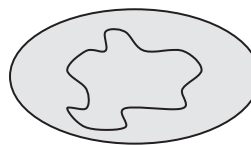
Decide from the diagrams below whether interspersions among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



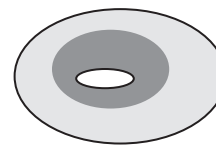
None = 0 points



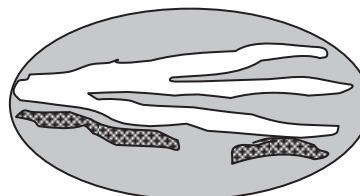
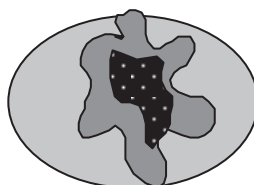
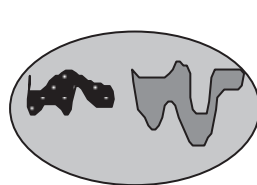
Low = 1 point



Moderate = 2 points



All three diagrams in this row are **HIGH** = 3 points



Wetland name or number K-1

<p>H 1.5. Special habitat features:</p> <p>Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></p> <p><input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).</p> <p><input type="checkbox"/> Standing snags (dbh > 4 in) within the wetland</p> <p><input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)</p> <p><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>)</p> <p><input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>)</p> <p><input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)</p>	2
<p>Total for H 1</p> <p>Add the points in the boxes above</p>	9

Rating of Site Potential If score is: 15-18 = H X 7-14 = M 0-6 = L *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p><i>Calculate:</i> % undisturbed habitat <u>19</u> + [(% moderate and low intensity land uses)/2] <u>5</u> = <u>24</u> %</p> <p>If total accessible habitat is:</p> <p>> 1/3 (33.3%) of 1 km Polygon points = 3</p> <p>20-33% of 1 km Polygon points = 2</p> <p>10-19% of 1 km Polygon points = 1</p> <p>< 10% of 1 km Polygon points = 0</p>	2
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</p> <p><i>Calculate:</i> % undisturbed habitat <u>28</u> + [(% moderate and low intensity land uses)/2] <u>18</u> = <u>66</u> %</p> <p>Undisturbed habitat > 50% of Polygon points = 3</p> <p>Undisturbed habitat 10-50% and in 1-3 patches points = 2</p> <p>Undisturbed habitat 10-50% and > 3 patches points = 1</p> <p>Undisturbed habitat < 10% of 1 km Polygon points = 0</p>	3
<p>H 2.3. Land use intensity in 1 km Polygon: If</p> <p>> 50% of 1 km Polygon is high intensity land use points = (- 2)</p> <p>≤ 50% of 1 km Polygon is high intensity points = 0</p>	0
<p>Total for H 2</p> <p>Add the points in the boxes above</p>	5

Rating of Landscape Potential If score is: X 4-6 = H 1-3 = M < 1 = L *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
<p>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose only the highest score that applies to the wetland being rated.</i></p> <p>Site meets ANY of the following criteria: points = 2</p> <p><input checked="" type="checkbox"/> It has 3 or more priority habitats within 100 m (see next page)</p> <p><input type="checkbox"/> It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)</p> <p><input type="checkbox"/> It is mapped as a location for an individual WDFW priority species</p> <p><input type="checkbox"/> It is a Wetland of High Conservation Value as determined by the Department of Natural Resources</p> <p><input type="checkbox"/> It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan</p> <p>Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1</p> <p>Site does not meet any of the criteria above points = 0</p>	2

Rating of Value If score is: X 2 = H 1 = M 0 = L *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <http://wdfw.wa.gov/publications/00165/wdfw00165.pdf> or access the list from here: <http://wdfw.wa.gov/conservation/phs/list/>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** *This question is independent of the land use between the wetland unit and the priority habitat.*

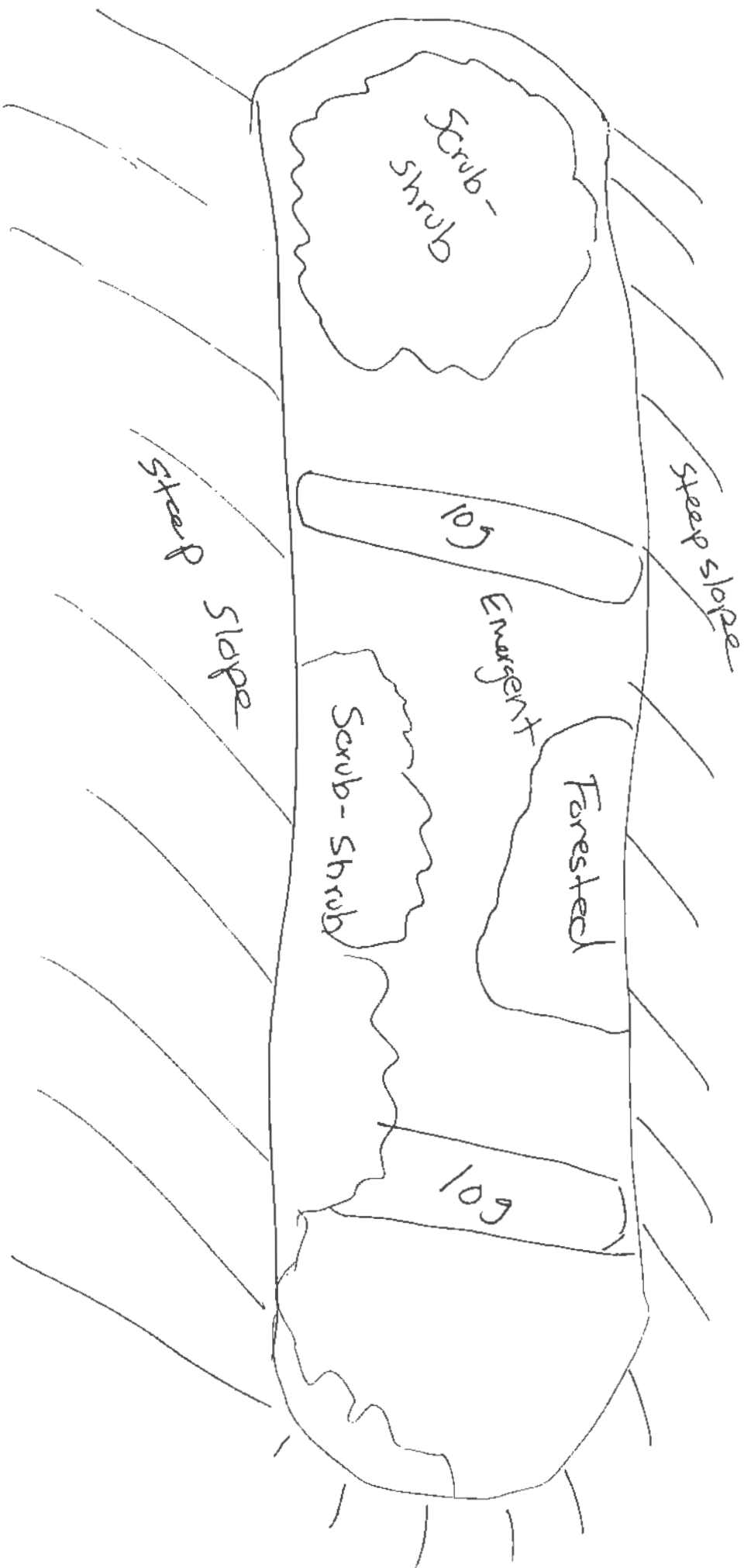
- **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☒ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☒ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☒ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☒ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Camp Lacamas Wetland K-1

Cowardin Classes & Habitat

Floodplain - Forested



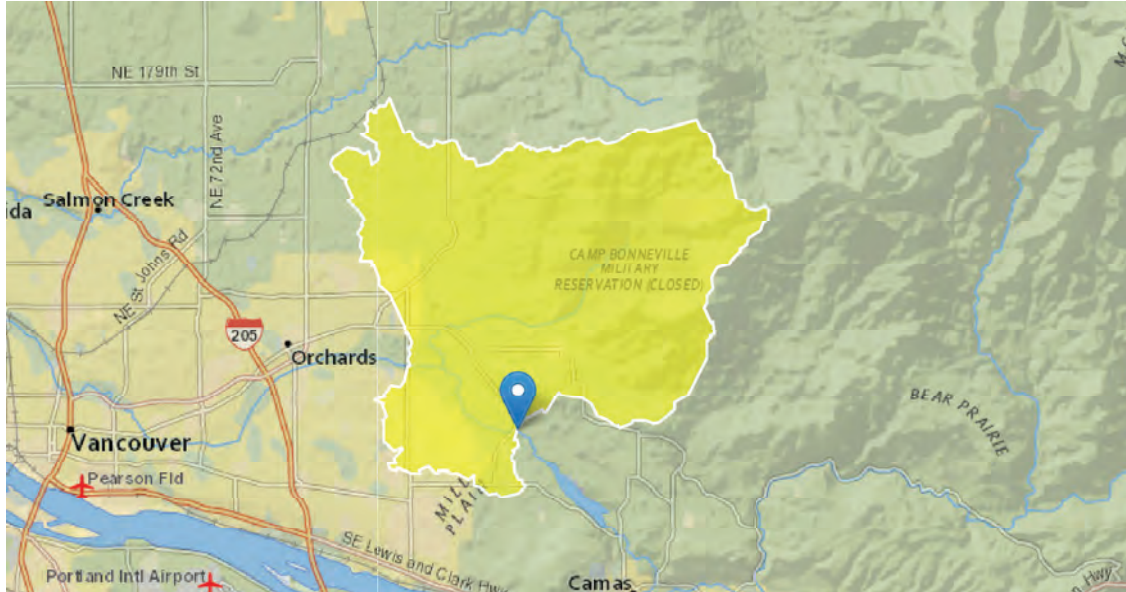


Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, AeroGRID, IGN, GEBCO, and the GIS User Community, Esri HERE, DeLorme, Mapbox, OpenStreetMap contributors, and the GIS user community



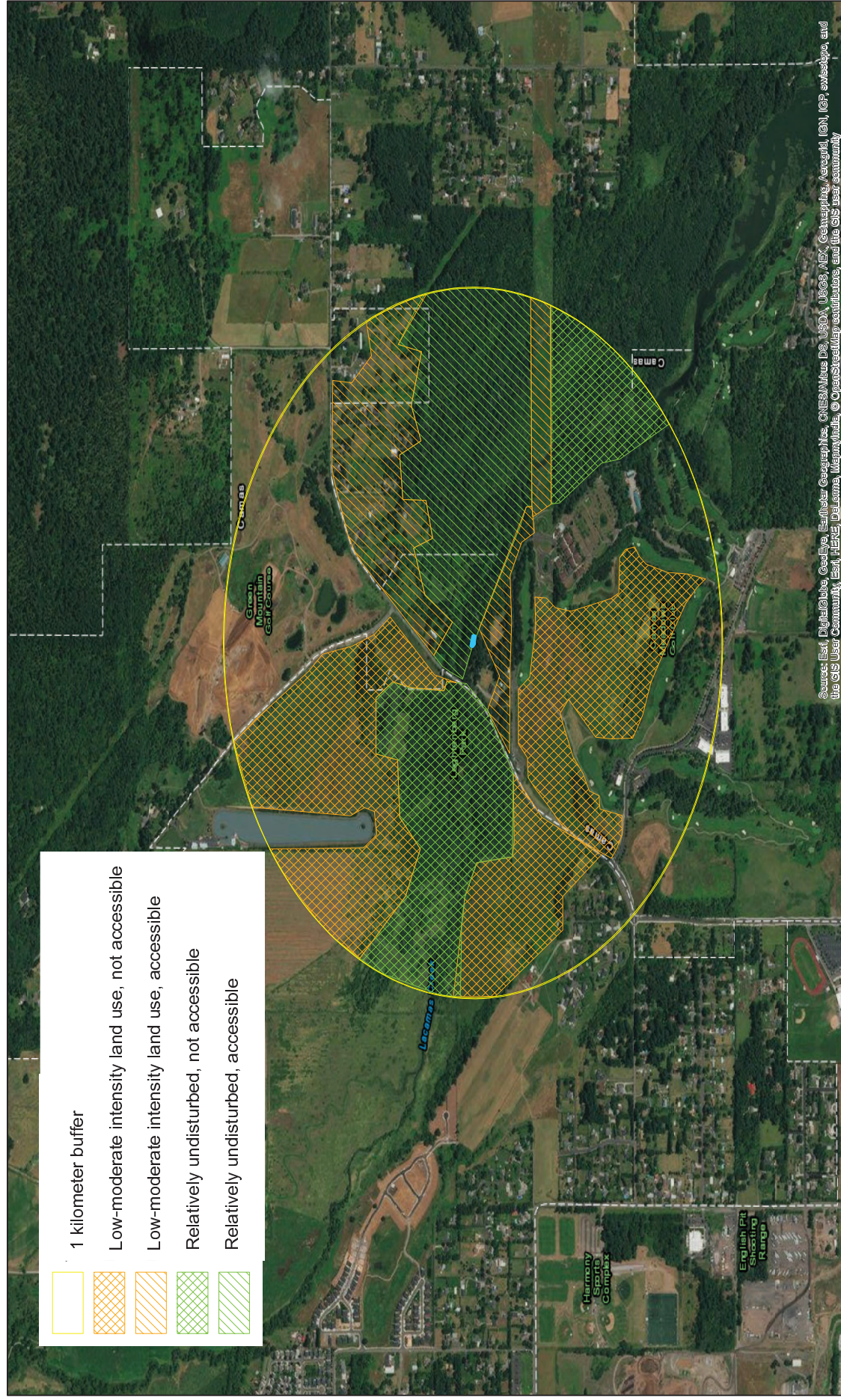
StreamStats Report

Region ID: WA
Workspace ID: WA20170817171944528000
Clicked Point (Latitude, Longitude): 45.63817, -122.45539
Time: 2017-08-17 14:21:35 -0700



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	51.55	square miles



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, AeroGRID, IGN, SGP, swisstopo, and the GIS User Community, Esri, HERE, DeLorme, Mapbox, OpenStreetMap contributors, and the GIS user community

Home Add Map Data Clear Map Data Tutorial Videos

Legend

Filter Data

Zoom To

Tools






 Add or remove map data

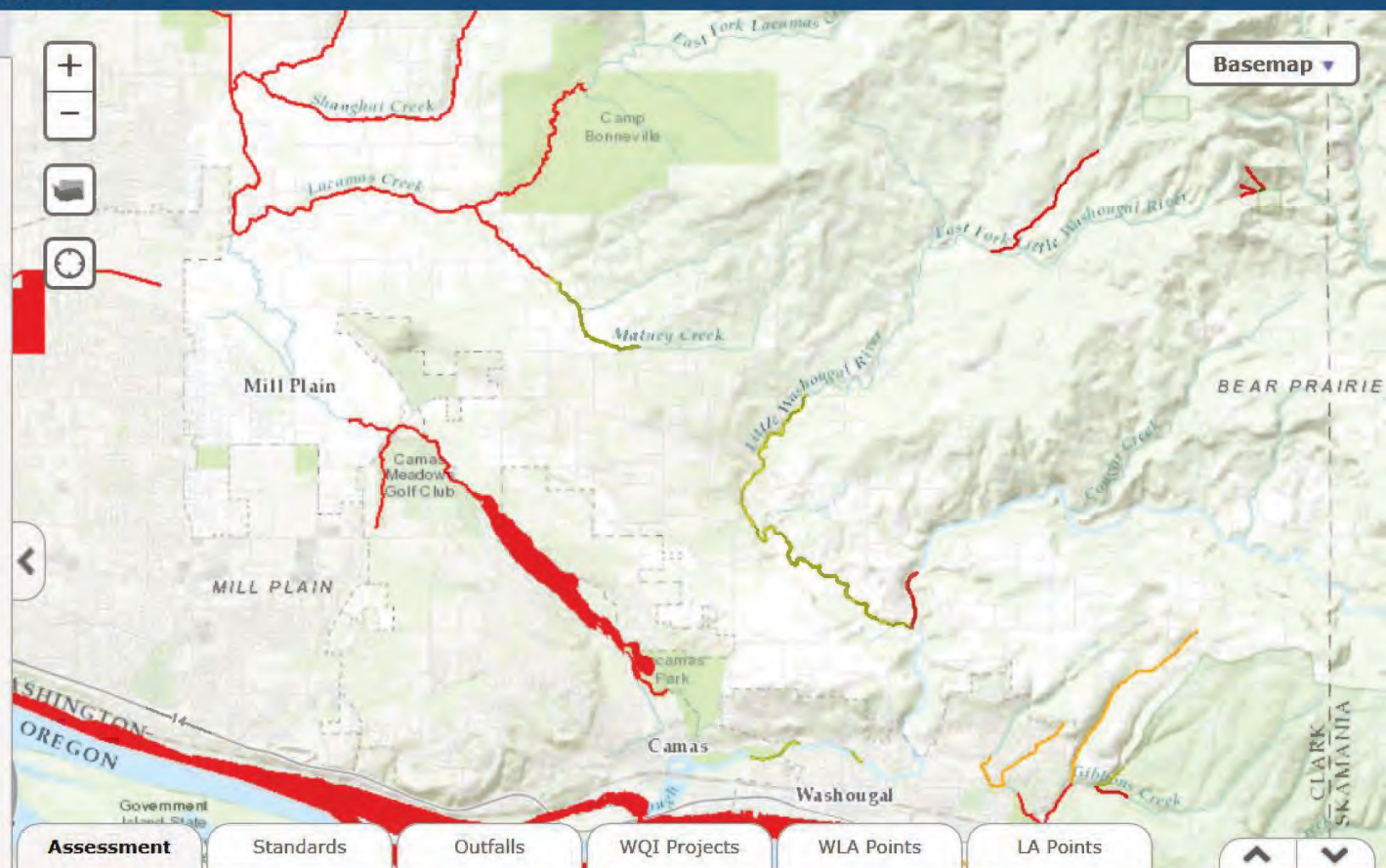
 Assessed Waters/Sediment 

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



Assessment

Standards

Outfalls

WQI Projects

WLA Points

LA Points

Zoom to selection

Export to csv

Find

Listing ID

Assessment Unit ID

Category

Medium

Parameter

Details

No filter applied, to view records [filter data](#)

Change map data transparency

10%

Tools

 **Add or remove map data**

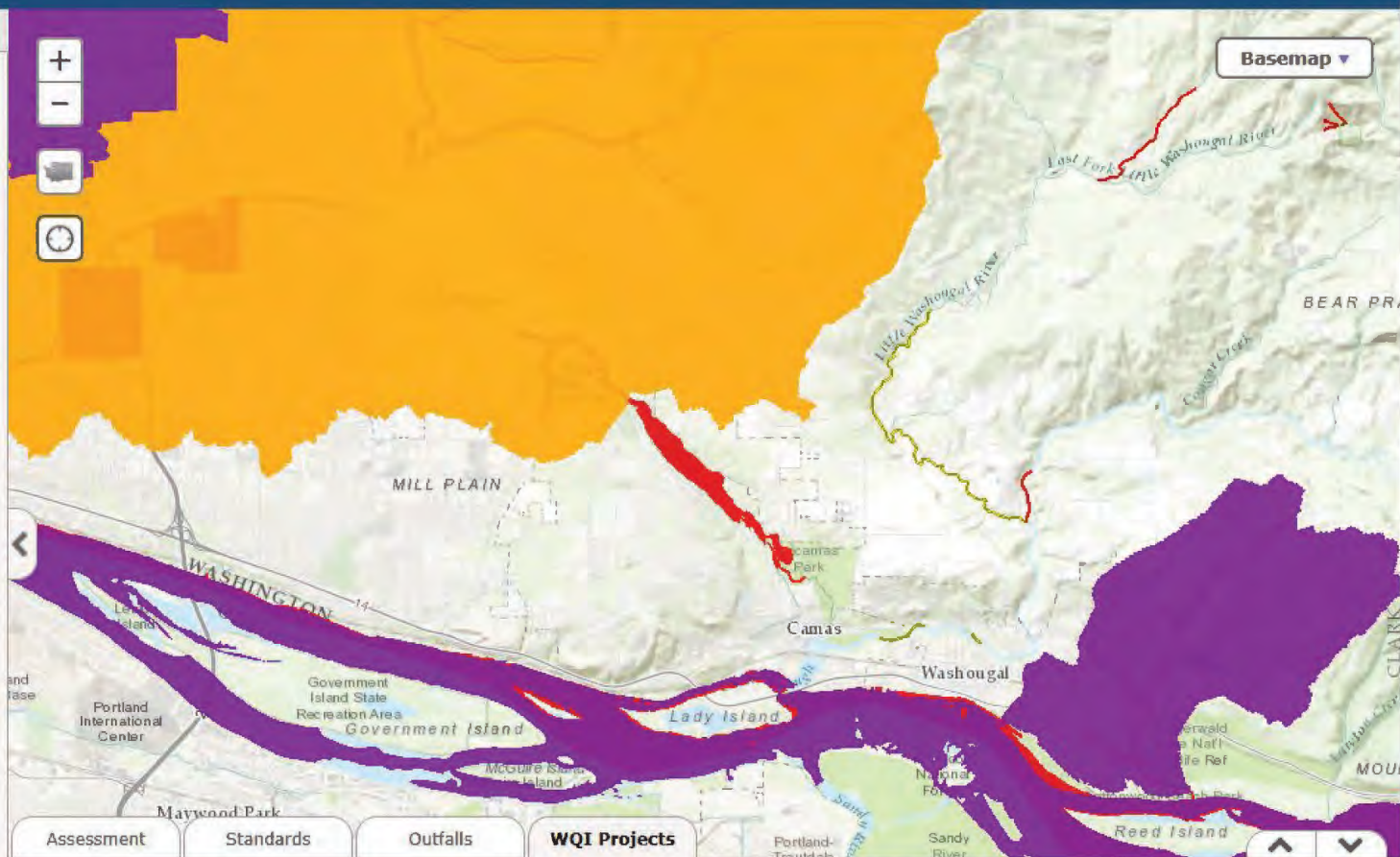
Assessed Waters/Sediment

Category 1

 Category 1

WQ Improvement Projects

 In Development

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Report

No filter applied, to view records [filter data](#)

Showing 0 to 0 of 0 entries

[Previous](#)

Next

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TECHNICAL MEMORANDUM

DATE: December 19, 2017

TO: City of Camas
Community Development Department
616 NE Fourth Avenue
Camas, Washington 98607

FROM: Kent E. Snyder, PhD

RE: Camp Lacamas STEP Sewer Project

1.0 Introduction	1
2.0 Database and Site Review	2
3.0 Wetlands CMC 16.53	3
4.0 Critical Aquifer Recharge Areas (CARA) CMC 16.55	3
5.0 Frequently Flooded Areas CMC 16.57	4
6.0 Geological Hazards CMC 16.59	6
7.0 Fish and Wildlife Habitat Conservation Areas CMC 16.61	7
8.0 References	9

Figures

Photographs

1.0 INTRODUCTION

Project Description

The City of Camas (City) plans to install a STEP (Septic Tank Effluent Pumping) system to serve Camp Lacamas, replacing the existing on-site septic system. The new system will connect to the existing public sewer via an existing stub that lies at the eastern edge of NE Goodwin Road. A new line will be extended from the existing stub to the parcel, by boring under the ditch along the roadway. The proposed STEP system consists of approximately 900 feet of sewer line and four underground septic tanks (three new STEP tanks and one existing septic tank to be modified) to service two residences, the kitchen/dining hall, and two restrooms. Electric pumps are integrated into each STEP tank. One small electrical service panel (to provide power for the system) will be installed aboveground. Three existing septic tanks will be decommissioned in-place

(pumped out and filled with sand). Excavations are planned to be either in the existing roadway, adjacent lawn, or areas regularly traversed by pedestrians. No new impervious surface will be created.

The portion of this project outside of the Camas shoreline boundary includes approximately 200 feet of the new sewer line, and two new STEP tanks. This memorandum serves addresses critical areas outside of the shoreline boundary of the proposed project; however, it also includes resource information regarding the entire project area, e.g., the Critical Aquifer Recharge Area (CARA).

Project Location

Camp Lacamas is 9.63 acres, located at 2025 NE Goodwin Road (parcel number 172543000) in Section 20 of Township 2 North and Range 3 East (Figure 1).

2.0 DATABASE AND SITE REVIEW

Information on federal threatened and endangered species and priority habitats potentially occurring in the project site was obtained from websites and databases of the Washington Department of Natural Resources (WDNR) Natural Heritage Program (WNHP), the Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS), the US Fish and Wildlife Service (USFWS) IPaC Service, and the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries). This information was used in conjunction with the Clark County GIS database to determine the known presence of protected species or habitats in the project site.

Pedestrian reviews were made by HHPR staff (Kent Snyder or Ivy Watson) on June 20, June 26, and July 28, 2017 to assess site conditions and habitats, and evaluate potential impacts of the proposed project action on natural resources.

The project site, located on a terrace above Lacamas Creek, is developed with camp buildings, gravel access roads, and mowed fields. Mowed fields near the camp entrance are characterized by non-native lawn grasses (e.g. annual bluegrass [*Poa annua*]) and weedy forbs (e.g. English plantain [*Plantago lanceolata*], common dandelion [*Taraxacum officinale*], rough cat's ear [*Hypochaeris radicata*], and white clover [*Trifolium repens*]).

Cabins and several other buildings at the east end of the camp are in the understory of a stand of mature Douglas fir trees (*Pseudotsuga menziesii*, 24 to 55 inches diameter breast height [DBH]) that provide approximately 80 percent canopy cover throughout most of this area. The understory is sparse and crisscrossed by footpaths. Where present, understory vegetation is dominated by non-native grasses and forbs (e.g. orchard grass [*Dactylis glomerata*], shiny geranium [*Geranium lucidum*], and common dandelion), with



occasional native forbs (e.g. fringe cup [*Tellima grandiflora*] and Siberian springbeauty [*Claytonia siberica*]).

3.0 WETLANDS CMC 16.53

No wetlands or wetland buffers occur within the project site outside of the Shoreline Jurisdiction. Wetlands or buffers within shoreline jurisdiction is addressed in the shoreline application.

4.0 CRITICAL AQUIFER RECHARGE AREAS (CARA) CMC 16.55

The project site lies within a wellhead protection zone (Figure 4). It is within the 10-year zone of a well located on the parcel and serving Camp Lacamas (Clark County GIS 2017). The Troutdale Aquifer, designated by the US Environmental Protection Agency (EPA) as a Sole Source Aquifer, underlies the project.

Activities Allowed (CMC 16.55.040-50)

The proposed project is an allowed activity in the CARA (CMC 16.55.040.A. and C) and thus do not require submission of a critical area report. Furthermore, a hydrological assessment is not required because: the project is below the threshold for new impervious surface (5% or 2,500 square feet, whichever is greater); will not divert, alter, or reduce the flow of surface or ground waters, or otherwise reduce the recharging of the aquifer; will not use hazardous substances; and will not construct or use an injection well.

Performance Standards (CMC 16.55.060-080)

The proposed STEP system is intended to serve the existing camp and will not result in a change of use or an increase in the use of hazardous substances. The project will provide a net benefit to the wellhead protection zone and underlying aquifer by decommissioning (pumping dry and backfilling with clean sand per Clark County Public Health regulations, Clark County Code 24.17.210) the existing septic systems.

No hazardous or waste materials would enter the groundwater and no groundwater withdrawals would occur as a result of the project. Appropriate BMPs and maintenance would be used to prevent contamination of the ground and groundwater during the construction. In the event that contaminated soils are encountered during construction, removal and disposal of hazardous materials, and remediation of contaminated soil and groundwater, will occur in accordance with applicable regulations.

In accordance with CMC 16.55.060.B, no vehicular repair, residential use of pesticides and nutrients, spreading or injection of reclaimed water, or storage tanks are associated with this project. Septic tanks and piping are exempt from consideration as underground storage tanks per WAC 173-360-11(2) (i).



In accordance with CMC 16.55.060.C, the project would comply with the water source protection requirements and recommendations of the EPA, Washington State Department of Health, and the local health district.

The project would be designed and constructed in accordance with the City Design Standards Manual (CMC 16.55.060.D).

None of the specific uses addressed in CMC 16.55.070 are proposed as part of the project.

None of the prohibited uses identified in CMC 16.55.080 are proposed as part of the project.

5.0 FREQUENTLY FLOODED AREAS CMC 16.57

The parcel and project site is within the 100-year floodplain of Lacamas Creek (per FEMA FIRM Map 53011C0414D Effective September 5, 2012) (Figure 2). The proposed project outside of Shorelines Jurisdiction is mapped as outside of the designated floodway of Lacamas Creek (FEMA 2012).

Applicability/Uses and Activities Prohibited

The base flood elevation at the project site is identified by FEMA as 193 feet (FEMA 2012). The majority of the proposed project is mapped as outside of the designated floodway shown on the same map. Two of the proposed STEP tanks (by the caretaker's house and by the restroom) and associated pipes are within the mapped floodway. However, local topography (i.e. relatively flat at the STEP tank sites with a steep slope to the north towards the lower terrace) suggests that the precise location of the floodway boundary lies beyond both STEP tanks.

No critical facilities, wells, on-site sewage or waste disposal systems, or additional lots are proposed as part of the project (CMC 16.57.020.A-D). The purpose of the project is to decommission on-site septic systems and connect to the City's sewer system.

In accordance with CMC 16.57.020.E, the proposed project does not include new development or encroachment into the floodway. The project would connect existing structures to the City's sewer system and discontinue use of existing septic systems, two of which are within the mapped floodway.

Additional Report Requirements

The project site and special flood hazard areas and other flood areas within 300 feet are shown in Figure 2 (CMC 16.57.030.B.1-3).



Proposed development, clearing limits, floodplain, floodway, other critical areas, and shoreline areas are shown in Figures 1-4; no management zones or buildings are proposed (CMC 16.57.030.C.1.).

The proposed project does not include buildings, so a floodproofing certificate is not required per CMC 16.57.030.C.2.

No watercourse alteration is proposed as part of this project (CMC 16.57.030.C.3).

Potential impacts to wetlands, fish and wildlife habitat, and other critical areas are addressed throughout section 5 of this report, in accordance with CMC 16.57.030.D.

Performance Standards

The project would obtain all necessary permits (CMC 16.57.050.A.).

CMC 16.57.050.B is not applicable because floodway has been designated (FEMA 2012).

CMC 16.57.050.C is not applicable because base flood elevation data is available. The base flood elevation at the project site is 193 feet (FEMA 2012).

In compliance with CMC 16.57.050.D.1, the project would be constructed using materials and methods that are flood resistance and/or minimize flood damage.

In compliance with CMC 16.57.050.D.2, no buildings are proposed within the floodplain.

Utilities would be installed underground (CMC 16.57.050.D.3). The STEP sewer system is water-tight, and all electrical components are NEMA 4 (for wet and submerged conditions). All electrical "J" Boxes are NEMA 4 and are also water-tight. All wire will be fully enclosed in water-tight conduit that will be buried in the same trench for the discharge piping from the STEP tank. Only several feet of wiring will extend from the ground surface to the electrical service panel.

CMC 16.57.050.E-G do not apply because no buildings are proposed.

In accordance with CMC 16.57.050.H, fill and grading proposed as part of this project would not block side channels, inhibit channel migration, increase flood hazards to others, or be placed in the channel migration zone (James Carothers, P.E., City of Camas, pers. comm., 2017). There are no side channels present on or adjacent to the project site. The project is underground and would not inhibit channel migration. The pipes and STEP tanks will be located underground and will not interfere with the movement of floodwaters. The project will be approximately 160 feet from the OHWM of Lacamas



Creek, at the nearest point, and will not be located in slopes or banks that could be susceptible to erosion during a flood.

The sewer pipe will be located underground, and will not result in any change in topography. Pipe fill will be limited to pipe zone bedding material installed at the bottom of the trench and around the pipe. Bedding material will consist of pipe zone gravel backfill sourced from a local quarry. Grading for pipe installation will be limited to that necessary for access, staging, and installation of the pipe, and to restore the area to pre-construction conditions.

No residential units are proposed (CMC 16.57.060.A).

No non-residential buildings are proposed (CMC 16.57.060.B).

The proposed STEP system will be designed to eliminate infiltration of floodwaters into the systems, and discharges from the systems into floodwaters (CMC 16.57.060.C). Unlike the existing septic systems, the new STEP system installations will collect and transport all sewage from Camp Lacamas to the City of Camas Wastewater Treatment Plant. The remaining septic tanks will be decommissioned (per Clark County Public Health regulations) by pumping them dry and backfilling with clean sand. All infiltration of sewage into the underlying soil of the Camp Lacamas Property will upon connection of the new system to the existing residences.

No land division is proposed (CMC 16.57.060.D).

No watercourse alteration is proposed as part of this project (CMC 16.57.060.E).

The project would comply with CMC 16.57.070 because no recreational vehicles would be on site for 180 or more consecutive days as part of the proposed project.

No variance request is being made (CMC 16.57.080).

6.0 GEOLOGICAL HAZARDS CMC 16.59

No erosion hazards exist outside of the shoreline jurisdiction of the proposed project (Clark County GIS 2017). No landslide hazards exist on-site or within 300 feet of the project, and there is no evidence of unstable or recent landslides.

The project is not within a Seismic Hazard Area, which includes areas subject to severe risk of damage as a result of earthquake-induced soil liquefaction, ground shaking amplification, slope failure, settlement, or surface faulting. The project site has a liquefaction susceptibility rating of very low, and a Class C soils amplification designation (Clark County GIS 2017).



No other hazards as defined in the CMC 16.59.020.D exist on-site.

7.0 FISH AND WILDLIFE HABITAT CONSERVATION AREAS CMC 16.61

Waterbodies

No waterbodies occur on the project site outside of the Shoreline Jurisdiction. Lacamas Creek, a perennial stream, is approximately 160 feet north of the project site. This stream flows southeast, entering Lacamas Lake approximately 1 mile southeast of the site (lake level rises and falls based on seasonal drawdown). The site is within Water Resource Inventory Area (WRIA) 28 and the 6th field Hydrologic Unit Code (HUC) Lower Columbia/Sandy 170800010606. No work will occur below the Ordinary High Water Mark of Lacamas Creek.

Fish

No fish species listed as Threatened, Endangered, or Sensitive (TES), associated Critical Habitat, or Essential Fish Habitat occur on or near the site or in Lacamas Creek upstream of Lacamas Lake Dam, a total passage barrier) approximately 4 miles downstream of the project site (WDFW 2017, NOAA 2016, USFWS 2017). No in-water work is proposed. Sedimentation, erosion control, and spill prevention and control BMPs would be implemented throughout the project to avoid discharges of sediment or hazardous materials into any stream. Therefore, there is no effect on listed aquatic species.

Wildlife

An Endangered Species Act (ESA) list of species potentially affected by activities at the project site, obtained from the USFWS IPaC service (2017), indicates the potential presence of three TES species: Oregon spotted frog (*Rana pretiosa*, federally-listed Threatened, state-listed Endangered), streaked horned lark (*Eremophila alpestris strigata*, federally-listed Threatened, state-listed Endangered), and yellow-billed cuckoo (*Coccyzus americanus*, federally-listed Threatened, state-listed Species of Concern).

The possible presence of threatened or endangered wildlife species in the project site was evaluated through site visits and review of WDFW PHS data (WDFW 2017). PHS does not show any record of these species in or near the project site and none were observed during site visits.

Site visits also established that none of the necessary habitat for these species occurs at the project site or in abutting areas. Oregon spotted frog habitat is large complexes of meadow and wetland with pools, a continuum of vegetation densities, and an absence of non-native predators (USFWS 2016). No Critical Habitat was identified in Clark County for this species. Streaked horned larks nest and winter in flat, open areas with sparse low-stature vegetation and substantial areas of bare ground. Western yellow-billed cuckoos



require large (typically larger than 40 hectares and wider than 100 meters) patches of cottonwood and willow dominated riparian habitat for nesting (Wiles and Kalasz 2017). None of these habitats are present.

Other wildlife that could use or be near the project site include those typically habituated to human presence and highly impacted environments, such as small mammals (i.e., raccoons, opossum, rabbits, squirrels, shrews, and mice), coyote, deer, snakes, and passerine birds. Other bird species such as crows and raptors could use the area for foraging or perching.

Plants

No TES plant species or associated habitats are known to occur within the project site and none were observed during site visits.

An Endangered Species Act (ESA) list of species potentially affected by activities at the project site, obtained from the USFWS IPaC service (2017), included two federally-listed plant species: golden paintbrush (*Castilleja levisecta*, federally-listed Threatened, state-listed Endangered) and Bradshaw's lomatium (*Lomatium bradshawii*, federally- and state-listed Endangered).

The possible presence of TES plant species in the project site was evaluated through WDNR WNHP spatial data (2017) and site visits. WNHP rare plant spatial data indicates the presence of six additional state-listed species in the project vicinity: Oregon coyote-thistle (*Eryngium petiolatum*, state-listed Threatened), Hall's aster (*Symphyotrichum hallii*, state-listed Threatened), dense sedge (*Carex densa*, state-listed Sensitive), small-flowered trillium (*Trillium parviflorum*, state-listed Sensitive), Nuttall's quillwort (*Isoetes nuttallii*, state-listed Sensitive), and California compassplant (*Wyethia angustifolia*, state-listed Sensitive). WNHP data also shows that, although the site is part of the historic range of golden paintbrush (last known observation 1889), there are no current populations mapped in the area.

No evidence of any TES plant species was observed within the project site. Small-flowered trillium has been identified in the southwest corner of the parcel, outside of the project site. Site visits established that none of the necessary habitats for Bradshaw's lomatium, golden paintbrush, Oregon coyote-thistle, Hall's aster, dense sedge, Nuttall's quillwort, or California compassplant occur in the project site. Bradshaw's lomatium occurs in grasslands and wet prairies. Golden paintbrush inhabits flat grasslands, mounded prairies, and steep, grassy bluffs. Oregon coyote-thistle inhabits wetlands in prairies and open spaces. Hall's aster inhabits moist to dry prairies and open places. Dense sedge inhabits wet meadows and remnant prairies. Nuttall's quillwort occurs in seasonally wet ground, seeps, and vernal pools. California compass plant occurs in seasonally wet open ground and grassy openings. None of these habitats are present



within the project site. The grassy areas in the project site are disturbed lawns composed of non-native species. The small wetland adjacent to the project site is enclosed on all sides by riparian forest and will not be disturbed by the project.

State Priority Habitats and Species

Three priority habitat and species areas (WDFW 2017) are mapped in and abutting the project site: a Cave-rich Area, an Oak Woodland, and a Wood Duck Breeding Area (Figure 4).

The project site lies within the approximately 6 mile by 8.5 mile rectangle mapped across southeastern Clark County as a Cave Rich Areas. However, no caves were observed in the vicinity.

The Oregon white oaks on the parcel are part of the Sifton/Lacamas Oaks mapped by WDFW (2017). Oregon white oak resources on the parcel are either outside of the project site or within the shoreline boundary.

The mapped wood duck (*Aix sponsa*) breeding area is a corridor along both sides of Lacamas Creek, completely overlapping the project site. This species is typically sensitive to disturbance and would not be expected to utilize the developed camp area. The only area identified during site visits as potential wood duck breeding habitat is the oak stand on the lower terrace next to the creek.

Coastal cutthroat trout (*Oncorhynchus clarki*) and Rainbow Trout, WDFW Priority Species, are mapped in Lacamas Creek, adjacent to the project site (WDFW 2017). The project would provide a net benefit to water quality in Lacamas Creek by replacing on-site septic systems with city sewer service.

Habitats of Local Importance

Oregon white oak resources on the parcel are either outside of the project site or within the shoreline boundary.

8.0 REFERENCES

- Clark County GIS. 2017. Clark County GIS MapsOnline. Available online at <http://gis.clark.wa.gov/mapsonline>. Accessed June to December, 2017.
- Federal Emergency Management Agency (FEMA). 2012. Flood Insurance Rate Map (FIRM). Clark County, Washington and Incorporated Areas: Panel 531, Map Number 53011C0531. Effective date September 5, 2012. URL: <http://map1.msc.fema.gov/idms/IntraView.cgi?JX=1912&JY=1136&ROT=0&KEY=28075951&IFIT=1>

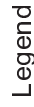


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- US Fish and Wildlife Service (USFWS). 2016. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Oregon Spotted Frog. Federal Register 81: 29335 – 29396. May 11, 2016.
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- Washington Department of Natural Resources (WDNR). 2017. Washington Natural Heritage Program (WNHP). WNHP Current and Historic Element Occurrences. GIS Data Set. Updated February 2017.



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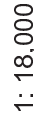
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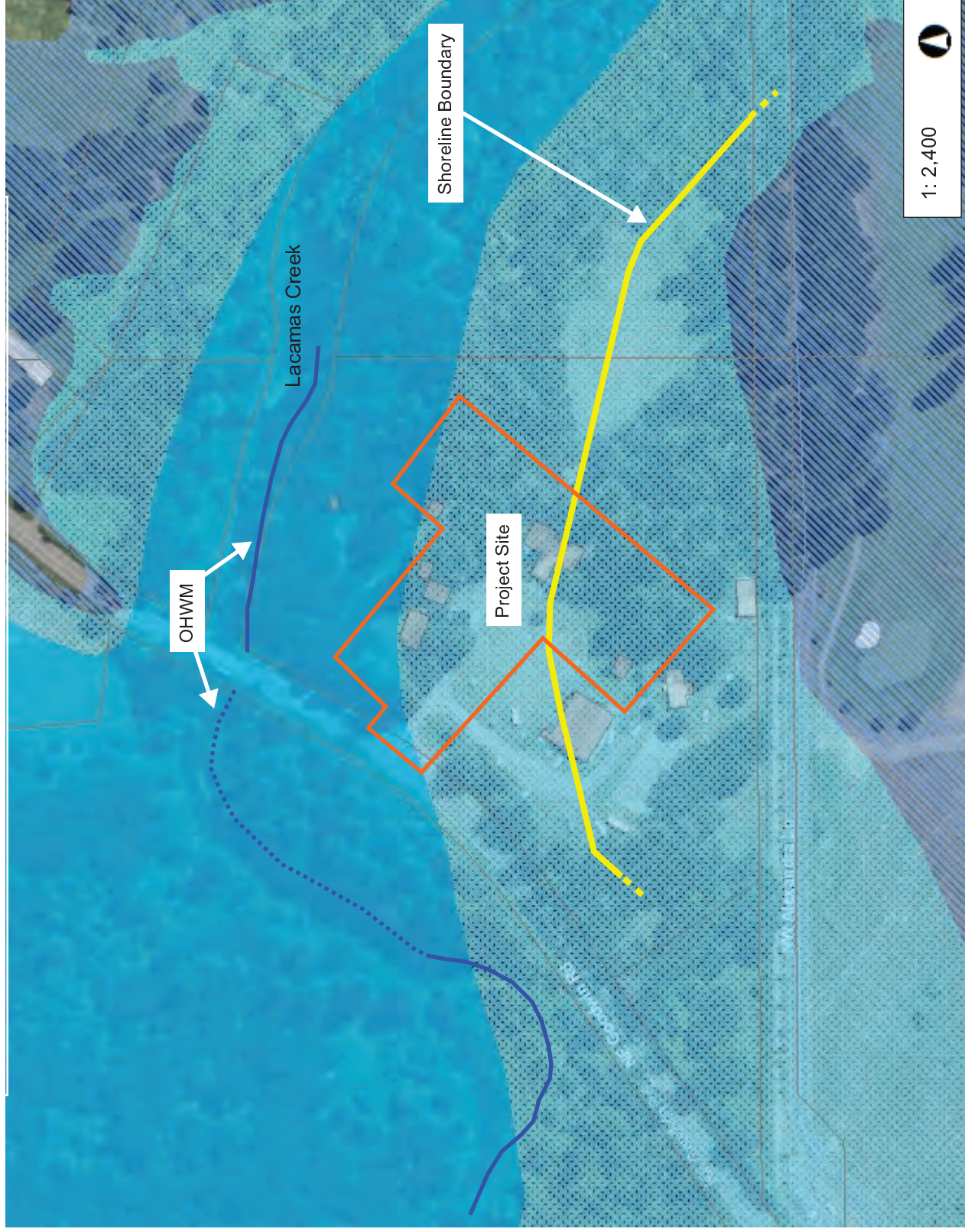
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Figure 2: Camp Lacamas Floodplain and Shoreline Boundary



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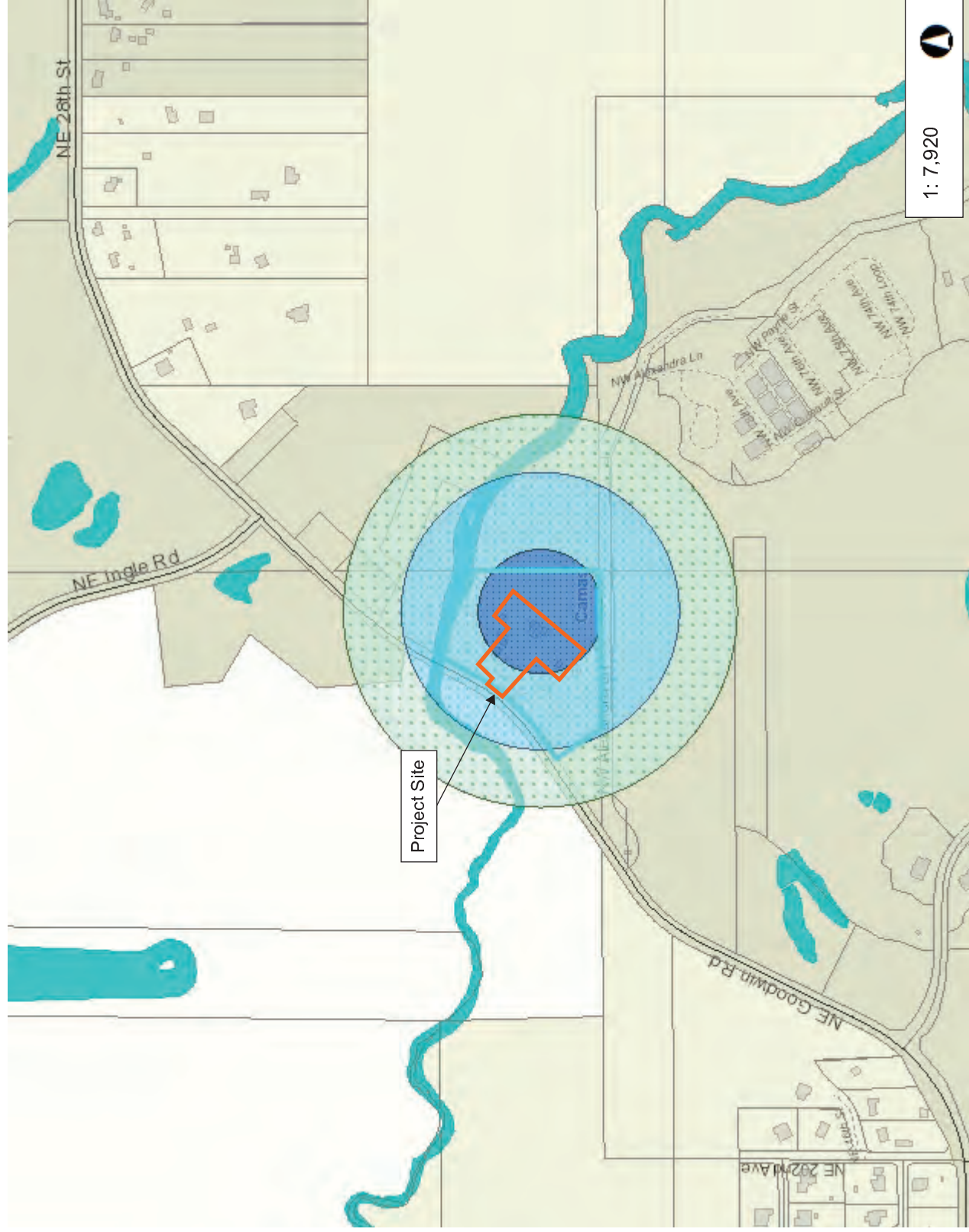


Legend

- Building Footprints
- Taxlots
- Flood Zone Designation
 - Floodway
 - Floodway Fringe
 - 500 Year Flood Area
 - Area Not Studied
- Roads



Figure 3: Camp Lacamas Critical Aquifer Recharge Areas



1: 7,920

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Clark County, WA GIS - <http://gis.clark.wa.gov>

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Legend

Public Wellhead Zones

- 1
- 5
- 10

Private Wellhead Zones

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- 5
- 10

Wellhead Protection Areas

- 0
- 1 Year
- 5 Years
- 10 Years

Building Footprints

Taxlots

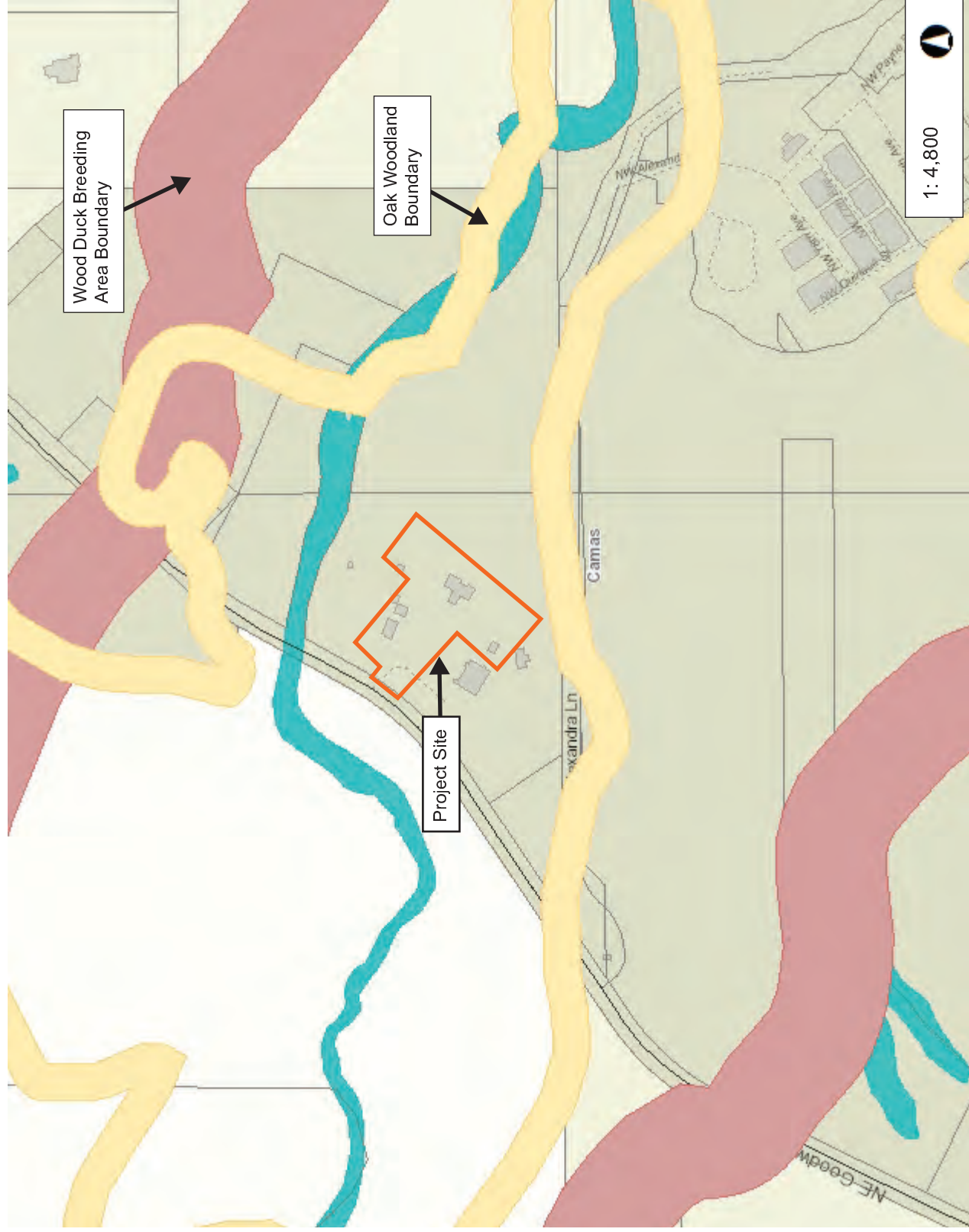
Cities Boundaries

Urban Growth Boundaries

Notes:



Figure 4: Camp Lacamas Priority Species and Habitat



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Legend

- Priority Habitat Buffer
- Priority Species Buffer
- Building Footprints
- Taxlots
- Cities Boundaries
- Urban Growth Boundaries

Notes:

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PHOTOGRAPHS



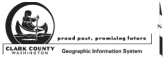
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Photograph 1: View looking southwest across camp lawn. Proposed sewer alignment to be right and parallel to the sidewalk and extend to the restroom (green building at back, center). The area beyond the blue spruce (*Picea pungens*) in the foreground is outside of Shoreline jurisdiction. Photograph taken July 28, 2017.

Appendix E: Mailing List—Properties within 300 feet



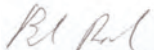
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CLARK COUNTY PARKS	4700 NE 78TH ST, VANCOUVER, WA, 98665
COUNTY PROPERTIES EAST LLC	4600 NW CAMAS MEADOWS DR STE 200, CAMAS, WA, 98607
LACAMAS CREEK COMMUNITIES	2025 NE GOODWIN RD, CAMAS, WA, 98607
STATE OF WASHINGTON	1111 WASHINGTON ST SE, OLYMPIA, WA, 98504

This document created by the Clark County,
Washington Geographic Information System

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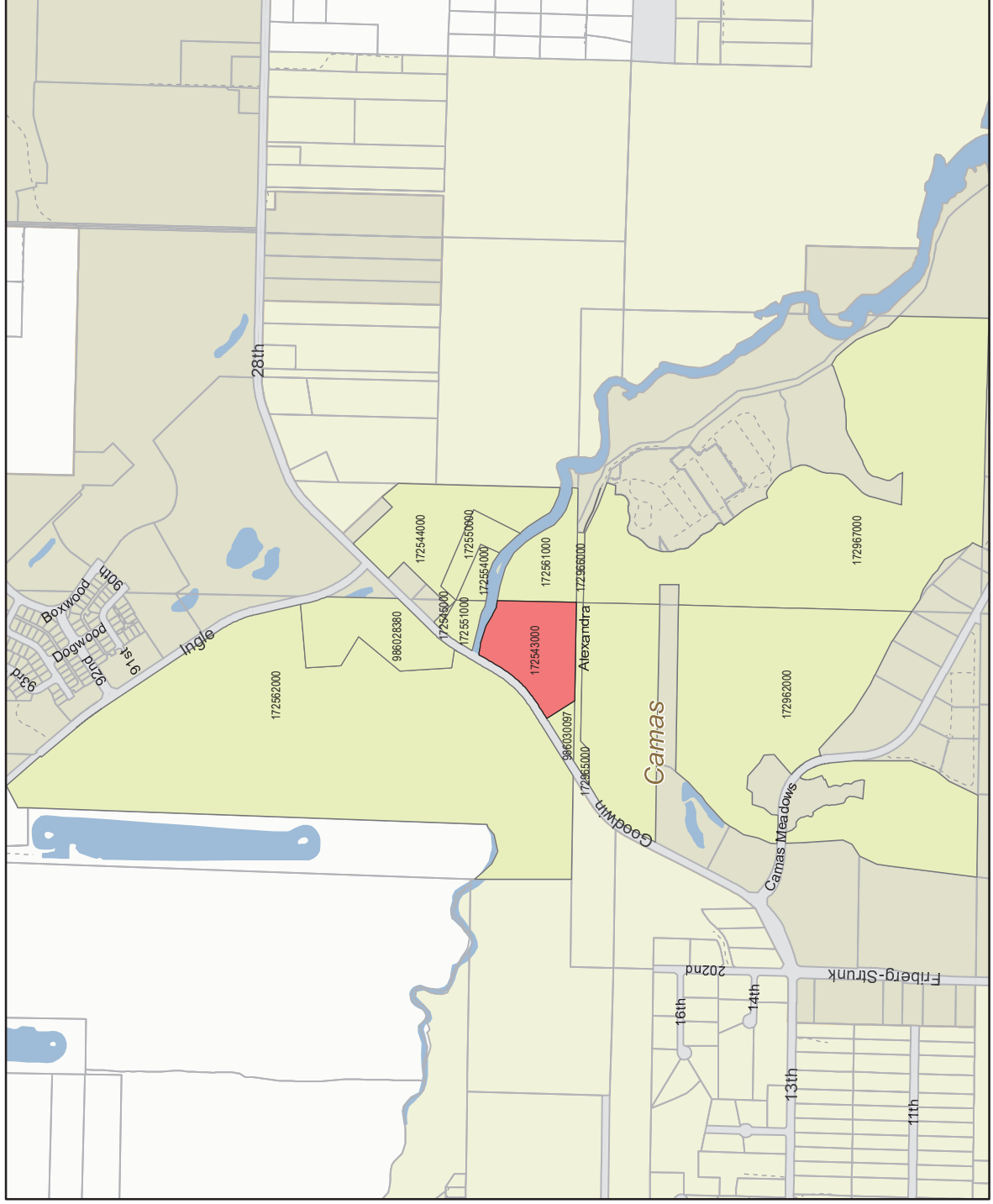
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Date Created 12/15/17

Employee Signature 

Employee Name Bob Pool

PID(s): 172543000 , 300 Foot Buffer



NOTE: This data is compiled from many sources and scales. Clark county makes this information available as a service, and accepts no responsibility for any inaccuracy, actual or implied.

GIS Order Number: 192429

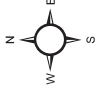
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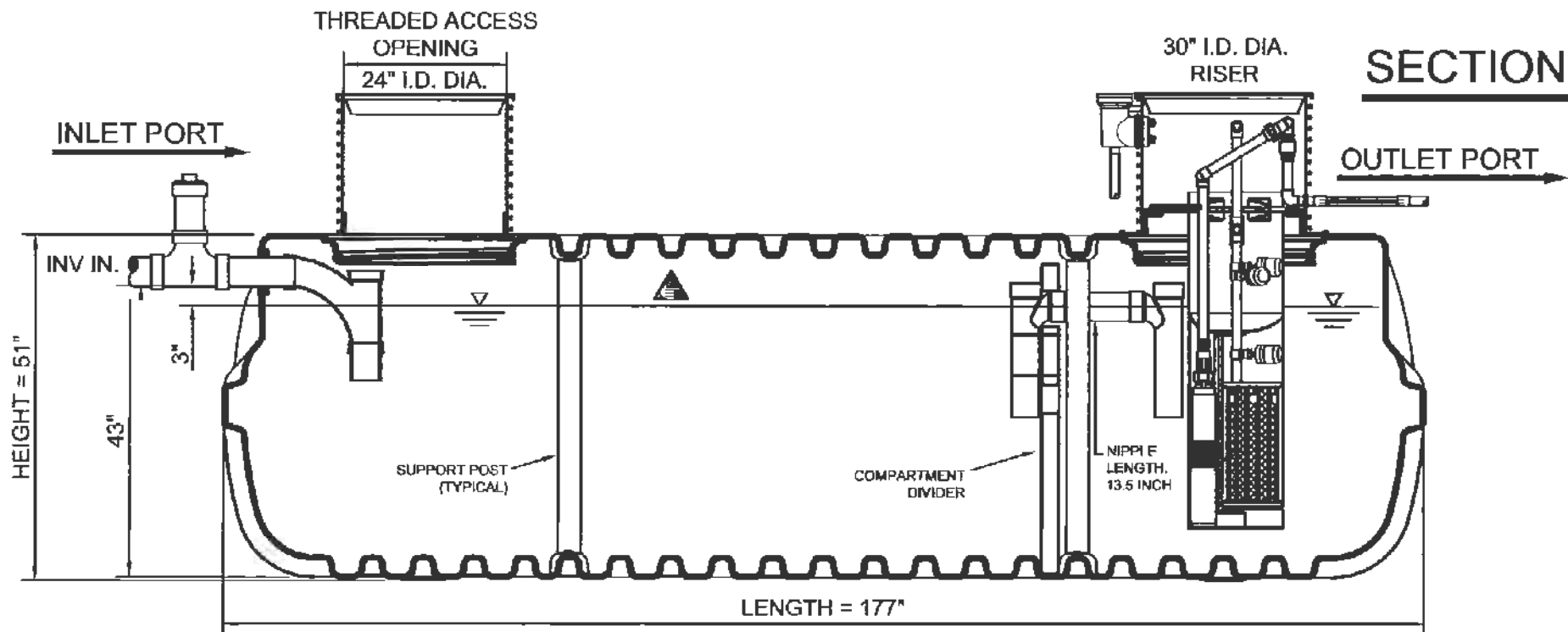
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- Subject Property
- Buffer Selection
- Parcels
- Water Body
- Incorporated
- Urban Growth Area
- Unincorporated



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Appendix F: Engineering Drawings



40" LIQUID LEVEL ▲

TANK SPECIFICATIONS

DESIGN CAPACITY		TOTAL CAPACITY		WEIGHT
GALLONS	LITERS	GALLONS	LITERS	POUNDS
1500	5678	1771	6692	640

NOTES:

1. TANKS SHALL ONLY BE INSTALLED BY LICENSED CONTRACTORS THAT ARE MANUFACTURER CERTIFIED FOR INSTALLATION.
2. SHOWN WITH TYPE P COMPARTMENT DIVIDER WITH TEES CLOSE COUPLED, INSTALLED WITH ORENCO PUMP BIOTUBE IN THE OUTLET COMPARTMENT.
3. 2-WAY CLEAN OUT ON TANK INLET; SOLVENT WELD OR GASKETED CONNECTIONS REQUIRED, FERNCO COUPLINGS NOT ALLOWED, IRON PLUG W/ 2" SQUARE NUT.
4. FOR TANK LOCATED IN DRIVEWAY - SEE CITY OF CAMAS STEP & STEP TANK INSTALLATION INSTRUCTIONS.
5. SUPPORT POSTS REQUIRED FOR ALL 1500 GALLON TANKS.

STEP (SEPTIC TANK EFFLUENT PUMP SYSTEM)

SECTION VIEW TYPICAL 1500 GALLON TANK W/ PUMP BIOTUBE
EFFLUENT FILTER

REV. NO.	DATE	BY	APPR.
1	7/10/17	SCD	SA



CITY OF CAMAS ~ SANITARY DETAIL

STEP & STEP 1500 GAL HDPE TANK - STEP SYSTEM

Sam Adams 8-14-17

DETAIL APPROVED BY

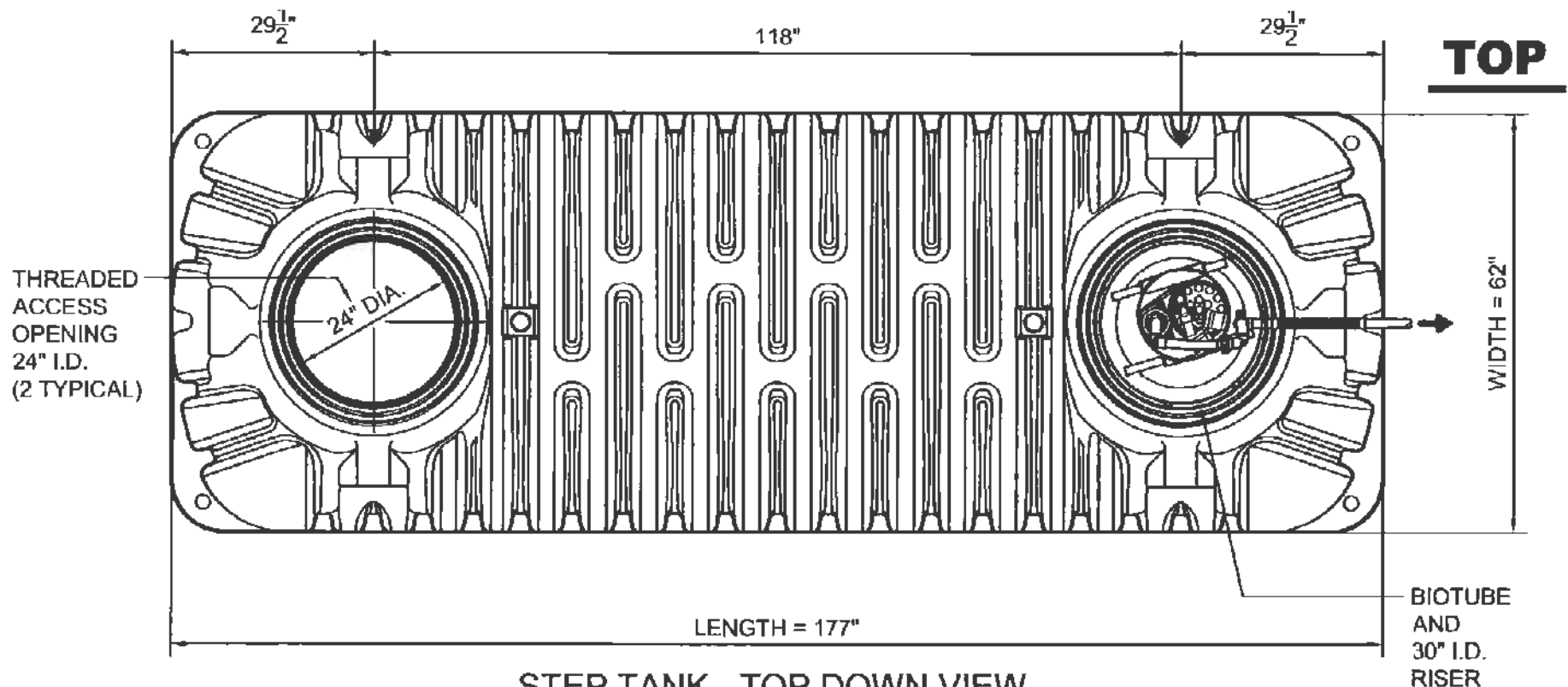
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STEP-STEP-TANK-1500 GAL.DWG



STEP TANK - TOP DOWN VIEW
CUT-AWAY VIEW OF PUMP BIOTUBE EFFLUENT FILTER

TANK NOTES:

1. ACCESS AT OR ABOVE GRADE LEVEL SHALL BE SECURED AGAINST UNAUTHORIZED ACCESS.
2. TANK IS NOT RATED FOR VEHICULAR TRAFFIC LOADING WITHOUT FOLLOWING DRIVEWAY INSTALLATION REQUIREMENTS.
3. ALL RESIN USED SHALL BE COMPLIANT WITH ASTM D 1248 AS REQUIRED BY CSA B66 AND IAPMO / ANSI Z1000-2007.
4. TANK MATERIAL OF CONSTRUCTION SHALL BE HMW-HDPE.
5. PRIMARY DIMENSIONS ARE IN INCHES.
6. MINIMUM TANK WALL THICKNESS SHALL BE 1/4".
7. LABELING WILL INCLUDE: MAUFACTURER NAME, LIQUID CAPACITY, DATE, MAXIMUM BURIAL DEPTH, AND MODEL NUMBER.
8. RISER COVER SHALL CONTAIN THE FOLLOWING: 6" X 3" WARNING:
"DANGER - DO NOT ENTER - POISON GAS" - WRITTEN IN ENGLISH, FRENCH & SPANISH
9. MAXIMUM BURIAL DEPTH FROM MANUFACTURER IS 36" UNLESS SPECIFICALLY INSTRUCTED OTHERWISE BY THE FACTORY.
10. TANK SHALL BE CERTIFIED TO CSA AND IAPMO STANDARDS.

REV. NO.	DATE	BY	APPR.
1	7/10/17	SCD	SA



CITY OF CAMAS ~ SANITARY DETAIL

STEP & STEP 1500 GAL HDPE TANK - TOP - STEP BIOTUBE

DETAIL APPROVED BY

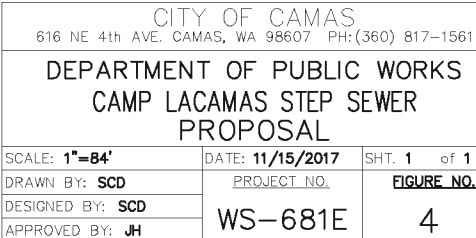
DATE

NOT TO SCALE

DETAIL NO.

S6D

STEP-STEP-TANK-1500 GAL DWG



Date Published: March 8, 2018

To Whom It May Concern:

Please find enclosed a Determination of Non-Significance (DNS) for the **Camp Lacamas Sewer Step System (SEPA17-25)** that was issued pursuant to the State Environmental Policy Act (SEPA) Rules, Chapter 197-11, Washington Administrative Code. The enclosed review comments reflect evaluation of the environmental checklist by the lead agency as required by WAC 197-11-330(1)(a)(i).

The following materials were submitted with the initial application:

- General application form and fee
- Pre application notes
- Applicant's narrative
- Site drawings
- SEPA checklist
- Wetland report
- Critical Areas memo
- Archaeological report and permit
- Mailing labels

All application materials are available for review upon request from the Community Development Department, with the exception of the archaeological information (RCW 42.56.300).

Written comments may be submitted on this determination within fourteen (14) days of its issuance, after which the DNS will be reconsidered in light of the comments received.

Please address all correspondence to:

City of Camas, SEPA Official
Community Development Department
616 NE Fourth Avenue
Camas, Washington 98607
communitydevelopment@cityofcamas.us

Distribution:

Bureau of Indian Affairs
C-Tran
Camas School District
Camas City Administrator, Peter Capell
Camas Building Official, Bob Cunningham
Camas Community Development Director, Phil Bourquin
Camas Engineering Department Managers and Staff
Camas Fire Department, Randy Miller
Camas Finance Director, Cathy Huber Nickerson
Camas Mayor and City Council Members
Camas Parks and Recreation, Jerry Acheson
Camas Planning Commission Members
Camas Shoreline Management Review Committee
Camas Planning Manager and Staff
Camas Police Chief, Mitch Lackey
Camas Public Works Director, Steve Wall
Camas Public Library, Connie Urquhart
Camas-Washougal Post Record
Chinook Indian Nation
Cultural Resource Program, Cowlitz Indian Tribe
Cultural Resource Program, Yakama Indian Nation
Clark County Community Development
Clark County Department of Environmental Services
Clark County Public Works – Development Engineering Program
Clark County Department of Transportation
Clark County Natural Resources Council
Clark Public Utilities
Department of Ecology
Department of Fish and Wildlife, Region 5
Department of Natural Resources, SEPA Center
Southwest Clean Air Agency
US Army Corps of Engineers
Vancouver-Clark Parks and Recreation
Washington Office of Archaeology & Historic Preservation
Washington State Department of Transportation
Washington State Parks and Recreation Commission, Environmental Program
Property Owners within 300 feet *(mailed the SEPA Determination & map)*



State Environmental Policy Act
Determination of Non-Significance

CASE NO: SEPA 17-25

APPLICANT: City of Camas
616 NE 4th Avenue
Camas, WA 98607

REQUEST: To install a new Septic Tank Effluent Pumping (STEP) system consisting of approximately 900 feet of sewer line, four underground septic tanks and an above ground small electrical panel. The existing septic tanks will be decommissioned in place.

LOCATION: 2025 NE Goodwin Road
Camas, WA 98607

LEGAL DESCRIPTION: The project is located in the City of Camas in the SE ¼ of Section 20, Township 2 North, Range 3 East, of the Willamette Meridian. The location is also dedicated as parcel number 172543000).

SEPA DETERMINATION: Determination of Non-Significance (DNS)

COMMENT DEADLINE: **March 22, 2018, at 5:00 p.m.**

As lead agency under the State Environmental Policy Act (SEPA) Rules [Chapter 197-11, Washington Administrative Code (WAC)], the City of Camas must determine if there are possible significant adverse environmental impacts associated with this proposal. The options include the following:

- DS = Determination of Significance (The impacts cannot be mitigated through conditions of approval and, therefore, requiring the preparation of an Environmental Impact Statement (EIS).
- MDNS = Mitigated Determination of Non-Significance (The impacts can be addressed through conditions of approval), or;
- DNS = Determination of Non-Significance (The impacts can be addressed by applying the Camas Municipal Code).

Determination:

Determination of Non-Significance (DNS). The City of Camas, as lead agency for review of this proposal, has determined that this proposal 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)(e). This decision was made after review of a completed environmental checklist, and other information on file with the City of Camas.

Date of Publication & Comment Period:

Publication date of this DNS is **March 8, 2018**, and is issued under WAC 197-11-340. The lead agency will not act on this proposal until the close of the 14-day comment period which ends on **March 22, 2018**. Comments may be sent by email to communitydevelopment@cityofcamas.us.

SEPA Appeal Process:

An appeal of any aspect of this decision, including the SEPA determination and any required mitigation, must be filed with the Community Development Department within fourteen (14) calendar days from the date of the decision notice. The letter of appeal should contain the following information.

1. The case number designated by the City of Camas and the name of the applicant; and,
2. The name and signature of each person or group (petitioners) and a statement showing that each petitioner is entitled to file an appeal as described under Title 16 of the Camas Municipal Code. If multiple parties file a single petition for review, the petition shall designate one party as the contact representative with the City Planner. All contact with the City Planner regarding the petition, including notice, shall be with this contact person.

The appeal request and appropriate fee of **\$369** must be submitted to the Community Development Department between 8:00 a.m., and 5:00 p.m., Monday through Friday, at the address listed below:

Appeal to the City of Camas SEPA Official
Community Development Department
616 NE Fourth Avenue
Camas, Washington 98607

Responsible Official: Robert Maul (360) 817-1568


Robert Maul, Planning Manager and
Responsible Official

March 8, 2018
Date of publication



Camp Lacamas STEP Sewer Project

City Project WS-681E

SEPA Checklist

Submitted By:

City of Camas
Public Works Department
616 NE 4th Avenue
Camas, Washington 98607

December 19, 2017

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A. Background [\[help\]](#)

1. Name of proposed project, if applicable: [\[help\]](#)

Camp Lacamas STEP Sewer Project

2. Name of applicant: [\[help\]](#)

City of Camas, Washington

3. Address and phone number of applicant and contact person: [\[help\]](#)

James Hodges
City of Camas
616 NE 4th Avenue
Camas, Washington 98607
(360) 817-1561

Name of person(s) completing form:

Laura Haunreiter, Ivy Watson, and Kent E. Snyder, PhD - Harper Houf Peterson Righellis Inc.

4. Date checklist prepared: [\[help\]](#)

December 19, 2017

5. Agency requesting checklist: [\[help\]](#)

Public Works Department, City of Camas, Washington

6. Proposed timing or schedule (including phasing, if applicable): [\[help\]](#)

Construction is proposed for either spring or fall 2018 and is anticipated to take approximately 6 weeks. The construction schedule will be planned to avoid the summer camp season. Construction sequencing would begin with installing erosion control elements. The STEP system would then be installed through open-cut construction and trenchless boring construction.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain. [\[help\]](#)

No further additions or activities are planned for this project at this time.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal. [\[help\]](#)

Dubois, Sarah L., Eva L. Hulse, and Jo Reese. 2017. Archaeological Survey for the Proposed Camp Lacamas STEP Sewer Project, Camas, Washington. Archaeological Investigations Northwest, Inc. Report No. 3958. Prepared for City of Camas. Camas, Washington.

Harper Houf Peterson Righellis Inc. 2017. Wetland Report. Camp Lacamas STEP Sewer Project. Prepared for City of Camas, Washington. December 19, 2017.

Harper Houf Peterson Righellis Inc. 2017. Camp Lacamas STEP Sewer Project City Project: WS-681E. Application for Shoreline Conditional Use Permit. Concurrent.

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. [\[help\]](#)

None to our knowledge.

10. List any government approvals or permits that will be needed for your proposal, if known. [\[help\]](#)

- City of Camas Shoreline Conditional Use Permit
- Critical Areas Permit
- Archeological Review
- Building Permit and Plan Review
- WA L&I Electrical Permit

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.) [\[help\]](#)

The City of Camas (City) plans to install a STEP (Septic Tank Effluent Pumping) system to serve Camp Lacamas at 2025 NE Goodwin Road (parcel number 172543000), replacing the existing on-site septic system. This new system will connect to the existing public sewer via an existing stub that lies at the eastern edge of NE Goodwin Road. A new line will be extended from the existing stub to the parcel, by boring under the ditch along the roadway. The proposed STEP system consists of approximately 900 feet of sewer line and four underground septic tanks (three new STEP tanks and one existing septic tank to be modified), hereafter referred to as STEP tanks, to service two residences, the kitchen/dining hall, and two restrooms. Electric pumps are integrated into each STEP tank. One small electrical service panel (to provide power for the system) will be installed aboveground. Three existing septic tanks will be decommissioned in-place (pumped out and filled with sand).

Excavations will be either in the existing roadway or adjacent lawn. No new impervious surface will be created.

Camp Lacamas is 9.63 acres, and is used seasonally as a retreat and conference center. There are two single family residences on the subject parcel, which are occupied year-round.

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. [\[help\]](#)

The project site address for Camp Lacamas is 2025 NE Goodwin Road, Camas, Washington (parcel number 172543000). (SE ¼ of Section 20 of Township 2 North, Range 3 East, Willamette Meridian).

Vicinity map attached (Figure 1).

B. ENVIRONMENTAL ELEMENTS [\[help\]](#)

1. Earth [\[help\]](#)

a. General description of the site: [\[help\]](#)

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

b. What is the steepest slope on the site (approximate percent slope)? [\[help\]](#)

The majority of topography in the project site is flat to gently sloping.

The steepest slope in the vicinity of the project site (25%) is near the north restroom at the northeast edge of the project site.

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. [\[help\]](#)

The Clark County soil survey (USDA NRCS 2017) identifies one map unit on the project site: Lauren gravelly loam, 0-8% slopes (LgB). The Lauren series is deep, well-drained soils formed in old alluvium, loess, and volcanic ash on terraces and terrace escarpments.

Lauren gravelly loam (LgB) map units are classified as prime farmland. The parcel is neither in agricultural production nor abutting land in agricultural production. The potential for this small parcel being placed into agricultural production in the future is very low because of its small size, its isolation relative to other agricultural land, and current site development. Thus no agricultural land of long-term significance would be removed as a result of this project.

USDA Natural Resources Conservation Service (NRCS). 2017. URL:
<http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx> Accessed August 1, 2017.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe. [\[help\]](#)

There are no indications or history of unstable soils on site or in the immediate vicinity. Clark County GIS (2017) does not identify the project site or immediate vicinity as a severe erosion hazard or landslide hazard area.

Clark County GIS. 2017. Clark County GIS MapsOnline. Available online at <http://gis.clark.wa.gov/mapsonline>. Accessed November 9, 2017.

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. [\[help\]](#)

A new sanitary sewer line will be extended from the existing stub to the parcel, by boring under the ditch along the roadway. The designed layout on the parcel consists of approximately 900 feet of sewer line, with a maximum trench width of 18-inches. In addition, three STEP tanks will be installed within excavation pits 18-feet long, 9-feet wide and 9-feet deep. It is anticipated that excavations will be either in the existing roadway or adjacent lawn. Native material will serve as backfill within the trench excavations, with sand likely used as pipe bedding material.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe. [\[help\]](#)

The potential for localized erosion of areas being temporarily disturbed is slight across the project site, given the flat to gently sloping topography. The chance of erosion would be greatest during a period of extended or intensive rainfall.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)? [\[help\]](#)

Presently, 21 percent of the project site is covered in impervious surfaces. No new impervious surface will be created as part of this project.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any: [\[help\]](#)

Proposed measures to reduce and control erosion, or other impacts to the earth, would be outlined in the completed temporary erosion control (TESC) plan. The TESC would include Best Management Practices (BMPs) that would be employed throughout the project to minimize impacts.

BMPs that would be employed throughout the project to minimize impacts include the following:

- Preserving Natural Vegetation (BMP C101)
- Construction Road/Parking Area Stabilization (BMP C107)
- Temporary and Permanent Seeding (BMP C120)
- Mulching (BMP C121)
- Dust Control (BMP C140)
- Certified Erosion and Sediment Control Lead (BMP C160)
- Scheduling (BMP C162)
- Silt Fence (BMP C233)
- Straw Wattles (BMP C235)

Minimization measures include:

- Minimizing the area of vegetation disturbance
- Utilizing areas of previous disturbance to the maximum extent practicable
- Minimize work in wetland buffer
- Avoid work in wetland

2. Air [\[help\]](#)

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. [\[help\]](#)

The only emissions would be from the equipment used during construction. The equipment to be used could include:

- Excavator
- Pickup truck
- Semi truck (deliveries)
- Dump truck
- Front end loader
- Back hoe
- Compactor (ground)
- Concrete saw
- Paver

Post-construction emissions would come from personal vehicles traveling to and from the camp.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe. [\[help\]](#)

No off-site sources of emission or odor would affect the proposal.

c. Proposed measures to reduce or control emissions or other impacts to air, if any: [\[help\]](#)

This project would comply with all federal, state, and local pollution control standards. Because no long-term adverse air quality effects are expected from the project, no long-term mitigation measures would be required. For short-term construction impacts, contractors are required to take reasonable precautions to avoid dust emissions, along with other construction-related air quality mitigation measures, to reduce the potential for air quality impacts during construction.

3. Water [\[help\]](#)

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. [\[help\]](#)

Lacamas Creek, a perennial stream, is approximately 160 feet north of the project site. This stream flows southeast, entering Lacamas Lake approximately 1 mile downstream of the project site (lake level rises and falls based on seasonal drawdown). The project site is within Water Resource Inventory Area (WRIA) 28 and the 6th field Hydrologic Unit Code (HUC) Lower Columbia/Sandy 170800010606.

A very small (0.026 acre or 1,112 square feet) palustrine scrub-shrub/emergent (PSS/PEM) depressional wetland with a forested fringe (Wetland K-1) is present on the northeast portion of the project site, approximately 40 feet northeast of the project alignment, at the closest point. This wetland is located in a depression at the toe of a

steep slope (30 to 35%) that separates the developed camp area on the upper terrace from the forested and relatively undisturbed lower terrace along Lacamas Creek. This wetland could be occupying the bottom of an old, abandoned gravel pit, but that is uncertain.

Harper Houf Peterson Righellis Inc. 2017. Wetland Report. Camp Lacamas Step Sewer Project. Prepared for City of Camas, Washington. December 19, 2017.

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. [\[help\]](#)

At the nearest point, the sewer alignment is approximately 160 feet from the ordinary high water mark (OHWM) of Lacamas Creek. The entire project is within the 100-year floodplain of Lacamas Creek (FEMA 2012).

Wetland K-1 is approximately 40 feet northeast of the project alignment, at the closest point. No work is proposed within Wetland K-1, but temporary construction activities (including trenching) will occur within the wetland buffer.

The project will not impact the ditch identified on the parcel along NE Goodwin Road, but will instead bore underneath it and utilize relevant construction Best Management Practices (silt fencing, equipment storage, etc.).

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. [\[help\]](#)

No fill is proposed below the OHWM of waters or within wetland boundaries.

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known. [\[help\]](#)

No surface water withdrawal or diversions would occur.

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan. [\[help\]](#)

The entire project is within the 100-year floodplain of Lacamas Creek (FEMA 2012).

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. [\[help\]](#)

No. The project would not discharge waste materials to surface waters.

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. [\[help\]](#)

No groundwater withdrawals or discharges to groundwater would occur as a result of this project.

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. [\[help\]](#)

No waste material would be discharged into the ground from septic tanks or other sources. Unlike the existing septic system, the new STEP system installation will collect and transport all sewage from Camp Lacamas to the City wastewater treatment plant. The existing septic tanks are to be decommissioned in place (per Clark County Public Health regulations, Clark County Code 24.17.210) after all of the septic tank contents are pumped and disposed of properly, and the tanks filled with sand. All infiltration of sewage into the underlying soil of the Camp Lacamas Property will cease upon connection of the new system to the existing residences.

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. [\[help\]](#)**

No new impervious surface would be created as part of this project.

- 2) Could waste materials enter ground or surface waters? If so, generally describe. [\[help\]](#)**

Waste materials associated with the use, storage, and maintenance of construction equipment (e.g., leaks or spills of fuel, hydraulic fluids, lubricants, and other chemicals from storage containers or machinery), as well as equipment wash water, could enter groundwater through infiltration or surface waters through the stormwater system. However, BMPs would be used to prevent and minimize such releases.

- 3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe. [\[help\]](#)**

No. Drainage patterns would not be altered.

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any: [\[help\]](#)

A Temporary Erosion and Sediment Control Plan (TESC), and BMPS would be implemented to control runoff during construction. A Spill Prevention, Control, and Countermeasure (SPCC) Plan would be implemented to prevent and control discharges during construction. BMPs that would be employed throughout the project to minimize impacts include the following:

- Preserving Natural Vegetation (BMP C101)
- Construction Road/Parking Area Stabilization (BMP C107)
- Temporary and Permanent Seeding (BMP C120)
- Mulching (BMP C121)
- Dust Control (BMP C140)
- Certified Erosion and Sediment Control Lead (BMP C160)
- Scheduling (BMP C162)
- Silt Fence (BMP C233)
- Straw Wattles (BMP C235)

Minimization measures include:

- Minimizing the area of vegetation disturbance
- Utilizing areas of previous disturbance to the maximum extent practicable
- Avoid work in wetlands and wetland buffers

4. Plants [\[help\]](#)

a. Check the types of vegetation found on the site: [\[help\]](#)

- ☒ deciduous tree: alder, maple, aspen, other (street trees-ornamental species)
- ☒ evergreen tree: fir, cedar, pine, other
- ☒ shrubs
- ☒ grass
- ☐ pasture
- ☐ crop or grain
- ☐ orchards, vineyards or other permanent crops.
- ☐ wet soil plants: cattail, buttercup, bulrush, 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? [\[help\]](#)

Installation of the STEP system would temporarily impact approximately 8,000 square feet of non-native, herbaceous upland vegetation located in lawns and around buildings. This area would be revegetated with a native grass seed mix.

c. List threatened and endangered species known to be on or near the site. [\[help\]](#)

No threatened or endangered plant species or associated habitats are known to occur on or near the project site and none were observed during site visits.

An Endangered Species Act (ESA) list of species potentially affected by activities at the project site, obtained from the USFWS IPaC service (2017), included two federally-listed plant species: golden paintbrush (*Castilleja levisecta*, federally-listed Threatened, state-listed Endangered) and Bradshaw's lomatium (*Lomatium bradshawii*, federally- and state-listed Endangered).

The possible presence of threatened and endangered plant species in the project site was evaluated through Washington Department of Natural Resources (WDNR) Natural Heritage Program (WNHP) spatial data (2017) and site visits (June 20, June 26, and July 28, 2017). WNHP rare plant spatial data indicates the presence of two additional state-listed species in the project vicinity: Oregon coyote-thistle (*Eryngium petiolatum*, Threatened) and Hall's aster (*Symphotrichum hallii*, Threatened). WNHP data also shows that, although the project site is part of the historic range of golden paintbrush (last known observation 1889), there are no current populations mapped in the area. No evidence of any threatened or endangered plant species was observed during site visits.

Site visits established that none of the necessary habitats for Bradshaw's lomatium, golden paintbrush, Oregon coyote-thistle, or Hall's aster occur in the project site. Bradshaw's lomatium occurs in grasslands and wet prairies. Golden paintbrush inhabits flat grasslands, mounded prairies, and steep, grassy bluffs typically in sandy, well-drained soils of glacial origin. Hall's aster inhabits moist to dry prairies and open places. Oregon coyote-thistle inhabits wetlands in prairies and open spaces. None of these habitats are present. The grassy areas in the project site are disturbed lawns composed of non-native species. The small wetland adjacent to the project site is enclosed on all sides by riparian forest.

US Fish and Wildlife Service (USFWS). 2017. Information for Planning and Consultation (IPaC). <https://ecos.fws.gov/ipac/> Accessed November 22, 2017.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any: [\[help\]](#)

Areas of disturbance not covered in impervious surfaces would be revegetated with native grass seed mix. No permanent impacts are proposed.

e. List all noxious weeds and invasive species known to be on or near the site. [\[help\]](#)

No noxious weeds listed as Class A in the Clark County Weed List (2016) were observed on the project site. Shiny geranium (*Geranium lucidum*), a Class B weed, occurs along NE Goodwin Road adjacent to the project site. Several Class C weeds—reed canarygrass (*Phalaris arundinacea*), Himalayan blackberry (*Rubus armeniacus*), and English ivy (*Hedera helix*)—occur throughout or about the project site.

Clark County. 2016. 2016 Clark County Noxious Weed List. URL: <https://www.clark.wa.gov/sites/all/files/environmental-services/weed/2016WeedList.pdf>.

5. Animals [\[help\]](#)

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. [\[help\]](#)

Examples include:

birds: hawk, heron, eagle, songbirds, other: crows

mammals: deer, bear, elk, beaver, other: rabbits, raccoon, opossums

fish: bass, salmon, trout, herring, shellfish, other _____

Wildlife that could be near the project site include those typically habituated to human presence, such as small mammals (e.g., raccoons, opossums, rabbits, squirrels, shrews, mice), snakes, deer and passerine birds. Other bird species such as crows and raptors could use the project site for foraging or perching.

The forest along Lacamas Creek is mapped as wood duck breeding habitat. This species is typically sensitive to disturbance and would not be expected to utilize the developed camp area. The only area identified during site visits as potential wood duck breeding habitat is the oak stand on the lower terrace next to the creek.

b. List any threatened and endangered species known to be on or near the site. [\[help\]](#)

No threatened or endangered wildlife species, associated Critical Habitat, or Essential Fish Habitat occur on or near the project site or in Lacamas Creek upstream of Lacamas Lake Dam, a total passage barrier approximately 4 miles downstream of the project site (WDFW 2017, NOAA 2016, USFWS 2017).

An ESA list of species potentially affected by activities at the project site, obtained from the USFWS IPaC service (2017), indicates the potential presence of three TES species: Oregon spotted frog (*Rana pretiosa*, federally-listed Threatened, state-listed Endangered), streaked horned lark (*Eremophila alpestris strigata*, federally-listed Threatened, state-listed Endangered), and yellow-billed cuckoo (*Coccyzus americanus*, federally-listed Threatened, state-listed Species of Concern).

The possible presence of threatened or endangered wildlife species in the project site was evaluated through site visits and review of WDFW PHS data (WDFW 2017). PHS does not show any record of these species in or near the project site and none were observed during site visits.

Site visits also established that none of the necessary habitat for these species occur at the project site or in abutting areas. Oregon spotted frog habitat is large complexes of meadow and wetland with pools, a continuum of vegetation densities, and an absence of non-native predators (USFWS 2016). No Critical Habitat was identified in

Clark County for this species. Streaked horned larks nest and winter in flat, open areas with sparse low-stature vegetation and substantial areas of bare ground. Western yellow-billed cuckoos require large (typically larger than 40 hectares and wider than 100 meters) patches of cottonwood and willow dominated riparian habitat for nesting (Wiles and Kalasz 2017). None of these habitats are present.

NOAA National Marine Fisheries Service. 2016. Status of ESA Listings & Critical Habitat Designations for West Coast Salmon & Steelhead (July 2016).
http://www.westcoast.fisheries.noaa.gov/publications/gis_maps/maps/salmon_steelhead/critical_habitat/wcr_salmonid_ch_esa_july2016.pdf.

US Fish and Wildlife Service (USFWS). 2017. Information for Planning and Consultation (IPaC).<https://ecos.fws.gov/ipac/> Accessed November 22, 2017.

US Fish and Wildlife Service (USFWS). 2016. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Oregon Spotted Frog. Federal Register 81: 29335 – 29396. May 11, 2016.

Washington Department of Fish and Wildlife (WDFW). 2017. Priority Habitat and Species (PHS) on the Web. Olympia, Washington. URL: <http://wdfw.wa.gov/mapping/phs/disclaimer.html>. Accessed November 9, 2017.

Wiles, G. J., and K. S. Kalasz. 2017. Draft Status Report for the Yellow-billed Cuckoo in Washington. WDFW, Olympia, Washington. URL: <http://wdfw.wa.gov/publications/01881/>.

c. Is the site part of a migration route? If so, explain. [\[help\]](#)

The project site lies within the Pacific Flyway, which hosts migrating bird species.

d. Proposed measures to preserve or enhance wildlife, if any: [\[help\]](#)

Wetland K-1 would be avoided. No Oregon white oaks (*Quercus garryana*), or other mature trees, would be removed. Any potential impacts due to construction activities will be temporary. The project would provide a net benefit to water quality in Lacamas Creek by replacing on-site septic systems with city sewer service.

BMPs that would be employed throughout the project to minimize impacts include the following:

- Preserving Natural Vegetation (BMP C101)
- Construction Road/Parking Area Stabilization (BMP C107)
- Temporary and Permanent Seeding (BMP C120)
- Mulching (BMP C121)
- Dust Control (BMP C140)
- Certified Erosion and Sediment Control Lead (BMP C160)
- Scheduling (BMP C162)
- Silt Fence (BMP C233)
- Straw Wattles (BMP C235)

Minimization measures include:

- Minimizing the area of vegetation disturbance
- Utilizing areas of previous disturbance to the maximum extent practicable
- Avoid work in wetlands and wetland buffers

e. List any invasive animal species known to be on or near the site. [\[help\]](#)

No animal species on the priority species list of the Washington Invasive Species Council were observed at or near the project site.

Washington State Recreation and Conservation Office. Washington Invasive Species Council Priority List. URL: <http://www.invasivespecies.wa.gov/priorities.shtml>. Accessed November 15, 2017.

6. Energy and Natural Resources [\[help\]](#)

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. [\[help\]](#)

Electric energy will be used to power the pumps within the STEP sewer system. The STEP sewer system is water-tight, and all electrical components are NEMA 4 (for wet and submerged conditions). All electrical "J" Boxes are NEMA 4 and are also water-tight. All wire will be fully enclosed in water-tight conduit that will be buried in the same trench as the discharge piping from the STEP tanks.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe. [\[help\]](#)

No effects. All completed work would be below grade and would not block solar access for adjacent properties.

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: [\[help\]](#)

Construction would use conventional means, methods, and equipment (e.g., gasoline and diesel powered) to construct the project elements. Due to the scale of the various project elements, cost-effective, extraordinary energy-saving measures are limited. However, ordinary measures, such as not leaving equipment idling for extensive periods, would be specified and/or implemented as practical.

7. Environmental Health [\[help\]](#)

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. [\[help\]](#)

Potential environmental health hazards could include breathing, ingesting, or absorbing through the skin hazardous materials associated with fluids, fuels, and lubricants used in the operation of construction equipment. There is also a risk of accidental spills and leaks of these same fluids during construction and staging.

1) Describe any known or possible contamination at the site from present or past uses. [\[help\]](#)

There is no known or possible contamination at the project site from past or present uses, per the State of Washington Department of Ecology (2017).

Washington Department of Ecology. 2017. Toxics Cleanup Program. What's In My Neighborhood interactive web map. <https://fortress.wa.gov/ecy/neighborhood/> Accessed November 14, 2017.

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. [\[help\]](#)

There are no existing hazardous chemicals/conditions that might affect the proposed project.

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. [\[help\]](#)

There would be no toxic or hazardous chemicals (other than those associated with operation of construction equipment, see 7.a), stored, used or produced during the project's development or construction.

4) Describe special emergency services that might be required. [\[help\]](#)

No special emergency services are anticipated.

5) Proposed measures to reduce or control environmental health hazards, if any: [\[help\]](#)

Any potential impacts from hazardous materials would be addressed through standard minimization measures and BMPs such as:

- All equipment to be used for construction activities would be cleaned and inspected prior to arriving at the project site, to ensure no potentially hazardous materials are exposed, no leaks are present, and the equipment is functioning properly.
- Construction equipment would be inspected daily to ensure there are no leaks of hydraulic fluids, fuel, lubricants, or other petroleum products.
- Should a leak be detected on heavy equipment used for the project, the equipment would be immediately removed from the area and not used again until adequately repaired.
- Management of contaminated media will be in accordance with applicable environmental regulations.
- The City will comply with current local, state, and federal regulations for worker safety.
- The City will require the contractor to implement a Spill Prevention, Control, and Countermeasure (SPCC) Plan to minimize or avoid the effects hazardous materials would have on surface water and soils.

b. Noise [\[help\]](#)

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)? [\[help\]](#)

The dominant noise source within the project site is vehicles along NE Goodwin Road. Such traffic is not anticipated to have adverse impact on 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. [\[help\]](#)

During construction, short-duration increases in the local noise environment are expected. The contractors are required to comply with all applicable regulations governing equipment levels and noise resulting from

construction site activities. The City noise ordinance (City of Camas Municipal Code 9.32.050) permits unrestricted construction noise between 7 a.m. and 7 p.m. Monday through Friday and from 7 a.m. to 5 p.m. on Saturdays. Therefore, as long as all construction is performed during these daytime hours, no direct construction related impacts are predicted. The Washington Administrative Code (Chapter 173-60) exempts most project construction noise during normal daytime hours (7 a.m. to 10 p.m.). If construction is performed during nighttime, the contractors must meet special noise-level requirements.

No long-term noise impacts are anticipated.

3) Proposed measures to reduce or control noise impacts, if any: [\[help\]](#)

By complying with the City noise ordinance, no additional BMPs or mitigation measures are needed to control noise impacts.

8. Land and Shoreline Use [\[help\]](#)

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. [\[help\]](#)

Camp Lacamas is used seasonally as a retreat and conference center. The parcel is zoned Light Industrial/Business Park (Clark County GIS 2017). Surrounding parcels are a mixture of parks, open space, and agriculture.

The project would not affect current land uses of nearby or adjacent properties.

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? [\[help\]](#)

The project site is not currently used as agricultural or forest land. No agricultural or forest land of long-term commercial significance would be converted to other uses by the proposal. No designated resource lands would be converted.

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: [\[help\]](#)

No. There is no working farm or forest land abutting the project site, or close enough to affect or be affected by the proposal. The project would only support an existing use, not introduce a new one.

c. Describe any structures on the site. [\[help\]](#)

Camp Lacamas is used seasonally as a retreat and conference center. The project site is comprised of two single-family residences (occupied year-round), a gymnasium, a kitchen/dining hall, restrooms, and over a dozen dry cabins.

d. Will any structures be demolished? If so, what? [\[help\]](#)

No structures would be demolished.

e. What is the current zoning classification of the site? [\[help\]](#)

The property is zoned Light Industrial/Business Park (LI/BP).

Clark County GIS. 2017. Clark County GIS MapsOnline. Available online at <http://gis.clark.wa.gov/mapsonline>. Accessed November 9, 2017.

f. What is the current comprehensive plan designation of the site? [\[help\]](#)

The comprehensive plan designation for the project site is Industrial (IND).

Clark County GIS. 2017. Clark County GIS MapsOnline. Available online at <http://gis.clark.wa.gov/mapsonline>. Accessed November 9, 2017.

g. If applicable, what is the current shoreline master program designation of the site? [\[help\]](#)

The shoreline designation for the parcel is Urban Conservancy (2015 Camas Shoreline Master Program).

Table 6-1 of the Camas Shoreline Master Program indicates that underground utilities within Urban Conservancy shorelines are a Conditional Use. Underground utilities parallel to the shoreline have a 100 foot setback from the OHWM. This project is setback approximately 160 feet from the OHWM at the nearest point.

City of Camas. 2015. Camas Shoreline Master Program. URL: <http://www.ci.camass.wa.us/images/DOCS/PLANNING/REPORTS/shorelinemasterplancurrent.pdf>.

h. Has any part of the site been classified as a critical area by the city or county? If so, specify. [\[help\]](#)

The project site contains the following critical areas:

- Frequently Flooded Areas. The parcel and project site is within the 100-year floodplain of Lacamas Creek (per FEMA FIRM Map 53011C0414D Effective September 5, 2012) (Figure 2).
- Critical Aquifer Recharge Areas (CARAs). The project site lies within the 10-year wellhead protection area of a public well (Clark County GIS 2017) (Figure 3). The underlying Troutdale aquifer system is designated by the US Environmental Protection Agency (EPA) as a Sole Source Aquifer. This project is exempt because there is no new impervious surface and no change in use.
- Wetland. A very small part of the project (128 feet of pipe and one new underground tank) is within the buffer of Wetland K-1, a 0.026 acre Category II wetland, north of the project site. (Figure 4).
- Priority Habitats/Habitats of Local Importance. There are Oregon white oak stands outside the project area. The area lies within a wood duck breeding area (WDFW, 2017) (Figure 5).

Clark County GIS. 2017. Clark County GIS MapsOnline. Available online at <http://gis.clark.wa.gov/mapsonline>. Accessed November 15, 2017.

Washington Department of Fish and Wildlife (WDFW). 2017. Priority Habitat and Species (PHS) on the Web. Olympia, Washington. URL: <http://wdfw.wa.gov/mapping/phs/disclaimer.html>. Accessed October 12, 2017.

i. Approximately how many people would reside or work in the completed project? [\[help\]](#)

Camp Lacamas is used seasonally as a retreat and conference center. There are two single family residences on the parcel, which are occupied year-round. Any project impacts to the existing residents will be temporary during construction.

j. Approximately how many people would the completed project displace? [\[help\]](#)

None.

k. Proposed measures to avoid or reduce displacement impacts, if any: [\[help\]](#)

Not applicable. No people would be displaced by this project.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any: [\[help\]](#)

The project site is within the City, zoned Light Industrial/Business Park. This proposal supports an existing use.

m. Proposed measures to reduce or control impacts to agricultural and forest lands of long-term commercial significance, if any: [\[help\]](#)

No impacts are anticipated (see section 8.b. for land use description.)

9. Housing [\[help\]](#)

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing. [\[help\]](#)

No housing units would be provided.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing. [\[help\]](#)

No housing units would be eliminated as a result of this project.

c. Proposed measures to reduce or control housing impacts, if any: [\[help\]](#)

Not applicable (no impacts).

10. Aesthetics [\[help\]](#)

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

The tallest structure proposed is a small electrical service panel, less than 6 feet tall, on a 4 feet x 4 feet piece of plywood that is supported by two 4 inch x 4 inch wooden posts.

b. What views in the immediate vicinity would be altered or obstructed? [\[help\]](#)

No views in the vicinity of the project will be altered or obstructed. The project will result in underground facilities.

c. Proposed measures to reduce or control aesthetic impacts, if any: [\[help\]](#)

No aesthetic improvement measures are proposed, as the project will be entirely below grade.

11. Light and Glare [\[help\]](#)

a. What type of light or glare will the proposal produce? What time of day would it mainly occur? [\[help\]](#)

During construction activities, typical temporary light, glare, and other visual impacts would result from construction equipment, traffic signage, stockpiled materials, and accessories (such as worker's vehicles). Greatest visual impacts would occur during the typical work hours of 7 a.m. to 7 p.m. Monday through Friday and from 7 a.m. to 5 p.m. on Saturdays. There would also be the typical visual impacts from traffic signage and barricades left on project site during the evening hours for safety.

b. Could light or glare from the finished project be a safety hazard or interfere with views? [\[help\]](#)

No additional lighting is proposed as part of this project.

c. What existing off-site sources of light or glare may affect your proposal? [\[help\]](#)

The surrounding property is undeveloped rural, open space, and habitat areas. No off-site sources of light will affect the proposal.

d. Proposed measures to reduce or control light and glare impacts, if any: [\[help\]](#)

No additional lighting is proposed as part of this project.

12. Recreation [\[help\]](#)

a. What designated and informal recreational opportunities are in the immediate vicinity? [\[help\]](#)

The project is just north of Heritage Trail. Recreational activities in the vicinity of the project include walking, running, bike riding, and wildlife viewing.

City of Camas. 2007. Park, Recreation and Open Space Comprehensive Plan. <http://www.ci.camas.wa.us/parks/index.htm>.

b. Would the proposed project displace any existing recreational uses? If so, describe. [\[help\]](#)

No. Existing recreational use will not be affected by this project. Construction of the project is planned to occur during the off-season of the camp. NE Goodwin Road will remain open to traffic.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any: [\[help\]](#)

There will be no impacts to recreational use. NE Goodwin Road will remain open to traffic.

13. Historic and cultural preservation [help]

- 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. [help]**

Several buildings associated with the camp were constructed more than 45 years ago; none have been evaluated for their eligibility for listing in the National Register of Historic Places. These buildings are outside of the proposed project impact area.

One nearby archaeological site was previously identified within a portion of the project area. The site has not been evaluated for eligibility for its listing in the National Register of Historic Places. Contact the applicant for more information.

- 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. [help]**

An archaeological survey was conducted for the project by Archaeological Investigations Northwest, Inc. (AINW), in 2017. In 1998, AINW conducted a pedestrian survey that included the area of the proposed project, for a planning study. A pre-contact archaeological site was identified during the 1998 pedestrian survey. During the 2017 fieldwork, this nearby site was found to be larger than originally documented. An updated resource form was filed in 2017.

Professional studies conducted:

Dubois, Sarah L., Eva L. Hulse, and Jo Reese. 2017. *Archaeological Survey for the Proposed Camp Lacamas STEP Sewer Project, Camas, Washington*. Archaeological Investigations Northwest, Inc. Report No. 3958. Prepared for City of Camas, Camas, Washington.

Reese, Jo. 1998. *Cultural Resources Study of the North Dwyer Creek Master Plan Study Area*. Archaeological Investigations Northwest, Inc. Report No. 156. Submitted to David Evans and Associates, Inc., Portland, and City of Camas, Washington.

- 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. [help]**

AINW reviewed records held by the Washington Department of Archaeology and Historic Preservation (DAHP), AINW's library, the Clark County GIS, and other sources. AINW archaeologists conducted a pedestrian survey and shovel testing of the project area. Archaeological site 45CL492, a pre-contact lithic scatter, was identified in a portion of the project area. The archaeological survey report will be submitted to DAHP and Tribes.

- 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. [help]**

The project has been redesigned to avoid portions of the pre-contact site referenced above, and to minimize impacts. In areas where the site cannot be avoided, controlled archaeological excavations and archaeological monitoring under a DAHP Archaeological Site Alteration and Excavation Permit may be needed.

14. Transportation [\[help\]](#)

- 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. [\[help\]](#)**

The project site is accessed from NE Goodwin Road.

- 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? [\[help\]](#)**

No. C-Tran Route #35 is located approximately two miles south of the project site.

- c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate? [\[help\]](#)**

No parking spaces will be added or eliminated as part of this project.

- 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). [\[help\]](#)**

No transportation improvements will be required.

- e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe. [\[help\]](#)**

No. The project will not use water, rail or air transportation.

- 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? [\[help\]](#)**

No additional vehicular trips will be generated by this project.

- 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. [\[help\]](#)**

No. The project will not affect or be affected by the movement of agricultural and forest products.

- h. Proposed measures to reduce or control transportation impacts, if any: [\[help\]](#)**

None deemed necessary.

15. Public Services [\[help\]](#)

- 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.** [\[help\]](#)

No. The project does not create demand for these services.

- b. Proposed measures to reduce or control direct impacts on public services, if any.** [\[help\]](#)

Not applicable.

16. Utilities [\[help\]](#)

- a. Circle utilities currently available at the site:** [\[help\]](#)
electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system,
other:

- 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.** [\[help\]](#)

This project will install a new STEP system to serve Camp Lacamas, replacing the existing on-site septic system. This new system will connect to the existing public sewer via an existing stub that lies at the eastern edge of NE Goodwin Road. The proposed STEP system will collect and transport all sewage from Camp Lacamas to the City wastewater treatment plant. The existing septic tanks are to be decommissioned in place (per Clark County health code) by pumping out the septic tank contents (and disposing properly) and filling the tanks with sand. All infiltration of sewage into the underlying soil of the Camp Lacamas Property will cease immediately upon connection of the new system to the existing facilities.

A new sewer line will be extended from the existing stub to the parcel, by boring under the ditch along the Goodwin Road. The preliminary layout on the parcel consists of approximately 900 feet of sewer line and three underground tanks to service two single-family residences, the kitchen/dining hall, and two restrooms. It is anticipated that excavations will be either in the existing roadway or adjacent lawn. The proposed sewer line is 3-inches in diameter, with a maximum trench excavation width of 18-inches. The excavations for the 1,500-gallon storage tanks will be 18-feet long by 9-feet wide by 9-feet deep.

The only above ground components will be the fiberglass STEP tank lids. Each of the three new STEP Tanks will have a 24 inch and a 30 inch green fiberglass lid that will be raised slightly (1-2 inches) above the surrounding ground elevation. Electric pumps are integrated within the underground tanks.

C. Signature [\[help\]](#)

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: Kent E. Snyder

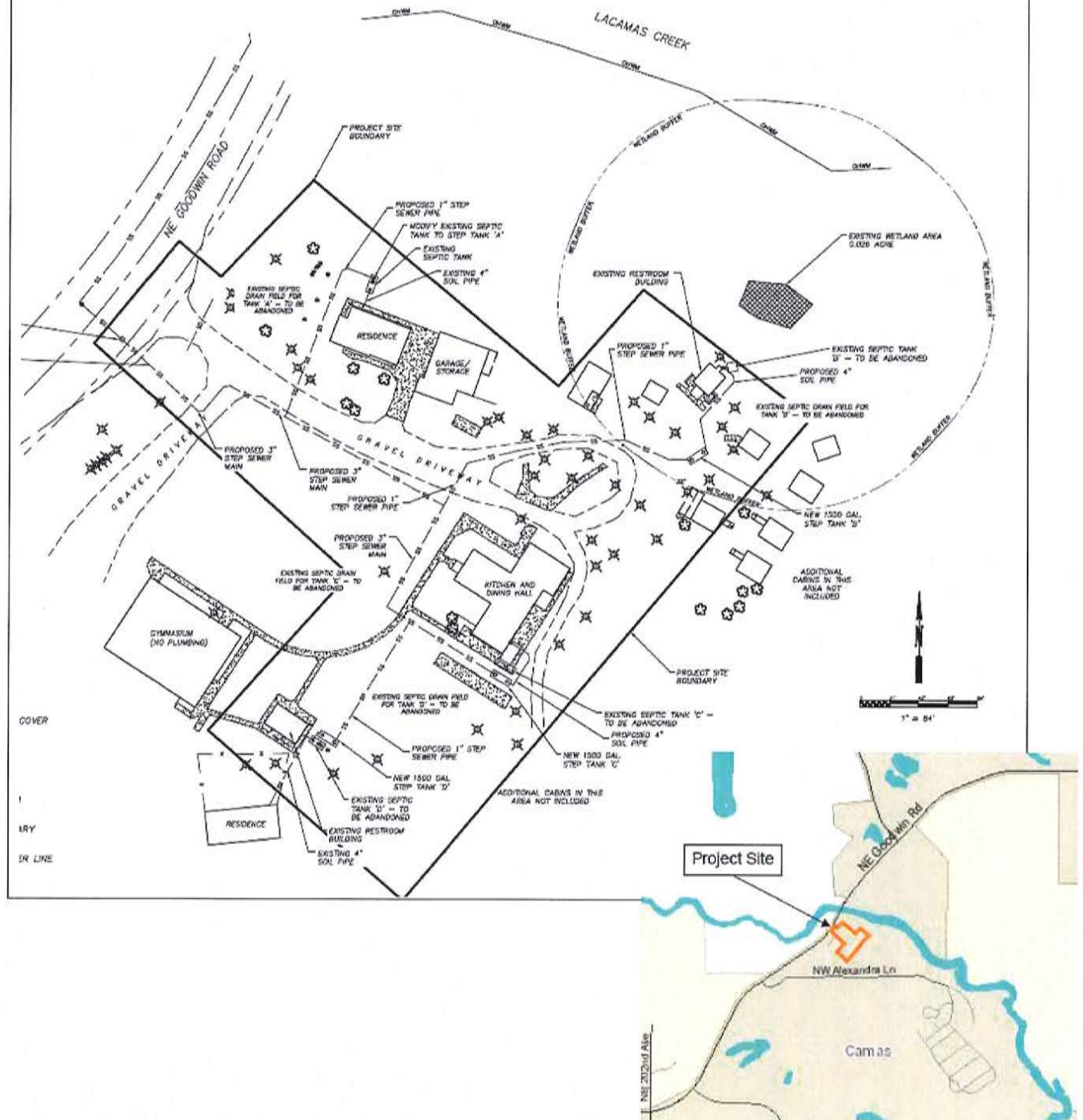
Name of signee: Kent E. Snyder

Position and Agency/Organization: Harper Houf Peterson Righellis Inc.

Date Submitted: Dec. 19, 2017

VICINITY MAP

Camp Lacamas Sewer Step System (SEPA17-25)



MEMORANDUM

DATE: April 16, 2018

TO: James Hodges, City of Camas

FROM: Kent E. Snyder, PhD
Senior Natural Resources Scientist
Harper Houf Peterson Righellis Inc.
1104 Main Street, Suite 100
Vancouver, Washington 98660

RE: City of Camas Camp Lacamas STEP Sewer Project – Vegetation Near the NE Restroom

This memorandum describes vegetation along the alignment of the proposed sewer line and STEP tank, between the restroom building in the northeast area of the camp and the existing gravel driveway that serves this area. This information is based on pedestrian site visits by Harper Houf Peterson Righellis Inc. (HHPR) staff on June 20 and 26, and July 28, 2017. The City of Camas (City) plans to install approximately 70 feet of 4-inch sewer pipe between the restroom building and a new STEP tank, and approximately 55 feet of 1-inch pipe between the tank and the gravel driveway. The alignment was selected to avoid removal of trees and impacts to cultural resources.

The proposed lines and STEP tank would pass through the center of an area that receives very high pedestrian traffic between camp buildings, and, to a lesser degree, ATV traffic (Figure 2, Appendix A in the shoreline application). The northeast restroom (Photograph 1) is located for use by overnight campers, in its proximity, and is also one of two restrooms for day campers. In addition to the summer camp season, the facility is used as a conference center throughout the year. Within 100 feet of the restroom are six multi-occupancy overnight cabins (southeast of the alignment), the camp “snack shack” (northwest of the alignment), and a storage building (also to the northwest). Still more cabins served by the restroom lie further to the east, and the kitchen and dining hall lies to the southwest.

The forest canopy in this area is characterized by mature Douglas fir trees (*Pseudotsuga menziesii*, 24 to 55 inches diameter breast height [DBH]) that provide approximately 80 percent canopy cover throughout. As would be expected for an area receiving such shade and substantial amounts of pedestrian traffic, the understory is typically sparse and the soil surface is typically barren or covered by a thin layer of needles (Photographs 1 through 4). Where present, understory vegetation is dominated by non-native grasses and forbs (e.g. orchard grass [*Dactylis glomerata*], shiny geranium [*Geranium lucidum*], English ivy (*Hedera helix*), and common dandelion [*Taraxacum officinale*]), with occasional native forbs (e.g. fringe cup [*Tellima grandiflora*] and Siberian spring beauty [*Claytonia sibirica*]).



Photograph 1: View east towards the restroom (back left), showing generally barren and sparsely vegetated understory in the vicinity of the proposed alignment. The storage building can be seen, front left, and two cabins are on right, in background. Photograph taken July 28, 2017.



Photograph 2: View west towards gravel driveway, showing generally barren and sparsely vegetated area along the proposed pipe alignment, which would run left to right in the foreground of the photograph. Camp “snack shack” is on the right behind the ATV. Photograph taken July 28, 2017.



Photograph 3: View along east side of restroom, showing barren soil and sparse vegetation in foreground and area of less trampled (taller) vegetation and piles of grass clippings at back of restroom. The tall shrubs at the edge of the herbaceous cover are beyond the area of impact. The proposed alignment runs between the building and the Douglas fir on right center. Photograph taken July 28, 2017.



Photograph 4: View around base of a Douglas fir in the vicinity of the proposed alignment, showing barren ground and sparse vegetation. Photograph taken July 28, 2017.

Both trenches will be backfilled with native soil over pipe bedding material (sand or gravel) and returned to pre-construction conditions. Returning these two trench areas to pre-construction conditions includes returning the landscape to the existing topography. Contract language will be included in the bid specifications that the contractor is to return the landscape to pre-construction contours (level with the adjoining undisturbed landscape) along the trenches. No mounds or bumps of soil will exist after construction to influence post-construction flood flow conditions. Consequently, based on the equivalence of pre- and post-site contours, the proposed development in the floodway (placement of these pipes below ground level) will not result in an increase in flood levels during the occurrence of the base flood discharge (James Carothers, P.E., City of Camas, pers. comm., February, 13, 2018).