



Heritage Trailhead Parking Lot Expansion at NE Goodwin Road City Project: P-911

Application for Shoreline Conditional Use Permit and Type II Site Land Use Application

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

July 24, 2017

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APPLICANT:

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LOCATION OF PROJECT:

Parcel Serial Number: 986030097 and 172965000

Comprehensive Plan Designation: Open space/Green space (OS/GS)

Zoning: Parks/Wildlife refuge (P/WL)

Overlay Zone(s): None

Sec: 20 Township: 2N Range: 3E

Parcel Size: 1 acre

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:

The property is a trailhead for Heritage Trail and undeveloped open space.

3. Proposed use of property:

The City of Camas proposes to use part of the parcel to expand the existing parking lot at the Heritage Trailhead at NE Goodwin Road and NW Alexandra Lane in the City of Camas.

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):

The parcel is within the Lacamas Creek 100-year floodplain. The undeveloped portions of the parcel are vegetated with oak forest, scrub-shrub, and herbaceous native and non-native vegetation.

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 G).

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). Vegetation Mitigation Plan (Appendix E). Mailing List—Properties within 300 feet (Appendix F). Engineering Drawings (Appendix G). Stormwater Report in process—anticipated in late summer 2017.

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.

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:

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1. PROJECT DESCRIPTION

1.1 Project Description

The City of Camas proposes to expand the existing parking lot at the Heritage Trailhead at NE Goodwin Road, and NW Alexandra Lane, in the City of Camas (Figure 1, Appendix A). Current parking at the trailhead is considered inadequate. The existing parking lot is 16 spaces and the proposal would add 17 spaces. The parking expansion would occur approximately 150 feet to the east of the existing lot, with vehicular access from NW Alexandra Lane. The bulk of the project would be located on parcel number 986030097, with the two driveways extending across the trail (parcel number 172965000). The project site (area of potential impact) is approximately 0.35 acres.

The parking lot is within the Lacamas Basin and therefore stormwater must be treated for elevated phosphorous levels. Stormwater from the site would be mitigated via filter treatment cartridges for water quality and underground detention for water quantity. The stormwater would flow overland in the parking lot to a single StormFilter Treatment catch basin with phosphosorb filter cartridges. The phosphosorb cartridge is an approved method of treatment by the Washington State Department of Ecology. Following the treatment, the stormwater would flow to 150 SC-310 StormTech chambers for detention. The StormTech chambers would be located under the parking lot. A flow control structure in a manhole would restrict the amount of flow offsite. The regulated stormwater would eventually outfall to the public ditch along NE Goodwin Road.

1.2 Shoreline Jurisdiction

The proposed parking lot is a Shoreline Conditional Use based on the following findings:

Lacamas Creek, located approximately 160 feet north of the project site at the nearest point (the stormwater outfall), 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 entire parcel where the project site is located is within the contiguous 100-year floodplain for Lacamas Creek (Figure 2, based on FEMA Flood Insurance Rate Map [FIRM] Map 53011C0414D Effective September 5, 2012) and thus within an associated frequently flooded critical area. Section 2.1.1 of the Camas Shoreline Master Program states that shoreline jurisdiction includes associated critical areas and buffers.

SMP shoreline maps only include the north corner of the primary parcel where the project would be located. The shoreline designation given to this area is Urban Conservancy; it is assumed that the designation applies to the entire parcel. Land use at the project site and the proposed project are consistent with the purpose and criteria for the Urban Conservancy designation (SMP 4.3.3): it is in publicly owned open space within an urban area, which contains critical areas, and is planned for open space and recreational use (Photographs 1-5, Appendix B).

Table 6-1 of the SMP indicates that parking lots that are an accessory use within Urban Conservancy shorelines are a Conditional Use with a 150 foot setback from the ordinary high water mark (OHWM). The SMP defines accessory use as "any use or activity incidental and subordinate to a primary use or development." The proposed parking lot expansion provides parking as an accessory to the recreational trail use.

Lacamas Creek nearest the project site (between 500 and 1000 feet upstream of NE Goodwin Road bridge) was reviewed on August 20, 2015 and March 2, 2017. Typically, the OHWM is at the back of the first stream terrace above the active channel. Here the OHWM is readily defined by a distinct and abrupt rise in topography (typically 1 to 3 feet high) and vegetation changes from facultative shrub 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. A 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 streamside and an open ash forest on the other. Wrack and sediment from Lacamas Creek is present along the boundary.

1.3 Approval Request

The applicant requests approval of a Shoreline Conditional Use Permit, Type II Site Plan Review, and critical areas permit for the proposed parking lot expansion.

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

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

2.1 Permitted Uses (Chapter 18.07 – Use Authorization)

Response: The property is zoned Open Space (OS). Parking areas/lots that serve a park use are a permitted use per Section 18.07.050 – Park and open space land uses. Therefore the parking lot is a land use that is permitted outright in the OS zone.

2.2 Parking (Chapter 18.11)

2.2.1 *Parking Design (Section 18.11.020)*

The design of off-street parking shall be as follows:

- A. Ingress and Egress. The location of all points of ingress and egress to parking areas shall be subject to the review and approval of the city.*
- B. Backout Prohibited. In all commercial and industrial developments and in all residential buildings containing five or more dwelling units, parking areas shall be so arranged as to make it unnecessary for a vehicle to back out into any street or public right-of-way.*
- C. Parking Spaces—Access and Dimensions. Adequate provisions shall be made for individual ingress and egress by vehicles to all parking stalls at all times by means of unobstructed maneuvering aisles. The city is directed to promulgate and enforce standards for maneuvering aisles and parking stall dimensions, and to make such standards available to the public.*
- D. Small Car Parking Spaces. A maximum of thirty percent of the total required parking spaces may be reduced in size for the use of small cars, provided these spaces shall be clearly identified with a sign permanently affixed immediately in front of each space containing the notation "compacts only." Spaces designed for small cars may be reduced in size to a minimum*

of eight feet in width and fifteen feet in length. Where feasible, all small car spaces shall be located in one or more contiguous areas and/or adjacent to ingress/egress points within parking facilities. Location of compact car parking spaces shall not create traffic congestion or impede traffic flows.

Response: The code does not contain specific dimensions for parking. The applicant proposes to install 17 parking spaces at a 60-degree angle with one-way drive aisle. It is the applicant's civil engineer and land use planner's experience that a standard parking space in most jurisdictions in the local Metro area is nine (9) feet wide by twenty (20) feet deep. Typical one-way drive aisle is 15 feet wide. All parking spaces are proposed 9 feet X 20 feet with a 16 foot drive aisle.

2.2.2 Parking Unspecified Use (Section 18.11.060)

In case of a use not specifically mentioned in Section 18.11.130 of this chapter, the requirements for off-street parking facilities shall be determined by the city in accordance with a conditional use permit. Such determination shall be based upon the requirements for the most comparable use listed.

Response: There are no minimum parking standards for a trailhead. The trailhead is existing and therefore there is no new use proposed. Since a new use is not proposed, the applicant finds that a conditional use permit for the parking amount should not be required.

2.2.3 Parking for the Handicapped (Section 18.11.110)

Off-street parking and access for the physically handicapped persons shall be provided in accordance with the international building code.

Response: The existing 16-space parking lot located west of this proposed 17-space lot contains one ADA space. Table 1106.1 of the International Building Code (IBC) states that parking lots containing 26 to 50 parking spaces area required to provide two ADA spaces. The applicant proposes to add one ADA parking space next to the space in the existing parking lot to comply with the International Building Code (aka IBC).

2.3 Landscaping (Chapter 18.13)

2.3.1 Landscaping Parking Areas (Section 18.13.060)

- A. Parking areas are to be landscaped at all perimeters.*
- B. All parking areas shall provide interior landscaping for shade and visual relief.*
- C. Parking lots shall have a minimum ratio of one tree per six double-loaded stalls or one tree per three single-loaded stalls (See Figure 18.13-1).*

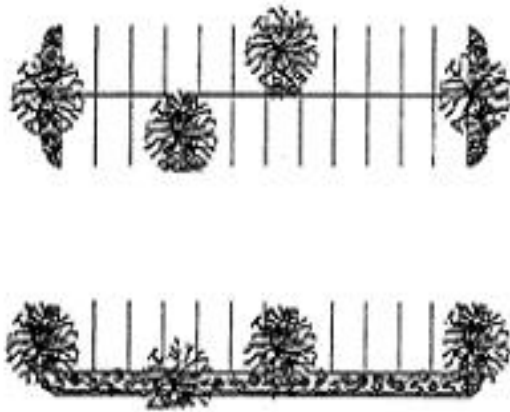


Figure 18.13-1 Parking Lot Planting Islands

- D. Planter strips (medians) and tree wells shall be used within parking areas and around the Perimeter to accommodate trees, shrubs and groundcover.
- E. Planter areas shall provide a five-foot minimum width of clear planting space.
- F. Wheel stops should be used adjacent to tree wells and planter areas to protect landscaping from car overhangs.
- G. Curbed planting areas shall be provided at the end of each parking aisle to protect parked vehicles.
- H. No more than fifteen parking spaces shall be located in a row without a landscaped divider strip (See Figure 18.13-2).

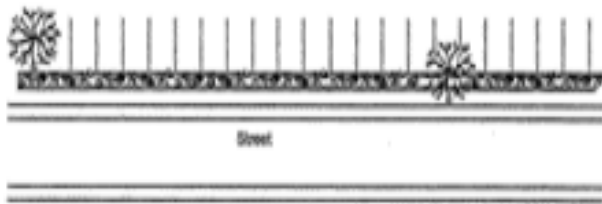


Figure 18.13-2 Parking Lot Landscape Divider Strip

Response: Due to the sensitive areas surrounding the proposed parking lot, including protected White Oaks and archeological areas, the applicant proposes to make the parking lot more compact by not installing the landscaping islands. Most of the site area will be preserved as a natural area achieving the objective of providing shade and visual relief.

2.4 Supplemental Development Standards (Chapter 18.17)

2.4.1 Vision Clearance Area (Section 18.17.030)

Vision clearance area shall be maintained in all zoning districts except in the DC, CC, RC, HI, and MX zoning districts. Within these zoning districts, vision clearance areas shall be maintained on the corners of all property adjacent to the intersection of two streets, a street and

a railroad, or a private street entering a public street. Driveways and alleys are excluded from the provisions of this section.

- A. *On all corner lots no vehicle, fence, wall, hedge, or other obstructive structure or planting shall impede visibility between a height of forty-two inches and ten feet above the sidewalk or fourteen feet above the street.*



Figure 18.17.030-1 Vision Clearance

- B. The triangular area shall be formed by measuring fifteen feet along both street property lines beginning at their point of intersection. The third side of the triangle shall be a line connecting the end points of the first two sides of the triangle. See Figures 18.17.030-1 and 18.17.030-2.

Response: The eastern one-way driveway will provide vehicular exiting onto the private road. Sight distance will be maintained at this driveway with no plantings proposed in the vision triangle.

2.4.2 Fences (18.17.050)

Response: A 6-foot tall chain link fence is proposed around the perimeter of the parking area and complies with this section for maximum height and fencing type.

2.5 Parks and Open Space Zoning (Chapter 18.32)

2.5.1 *Open Space Zone – Development Standards (Section 18.32.030)*

- A. *Lot Area. There is no minimum or maximum lot size in the Park zoning districts.*
- B. *Setbacks. The minimum setbacks are twenty feet.*
- C. *Building lot coverage. The maximum building lot coverage shall not exceed thirty-five percent of lot area, with the exception of community or recreation centers, where lot coverage shall not exceed sixty percent.*
- D. *Landscaping. All required yard setbacks shall be landscaped. Any storage areas visible to the right-of-way shall be screened. Parking area landscaping shall be consistent with CMC Chapter 18.13 Landscaping.*
- E. *Parking. The number and location of off-street parking shall be consistent with CMC Chapter 18.11 Parking.*

F. Signs. Signs shall be permitted according to the provisions of Chapter 18.15 Signs, under the commercial zoning standards.

Response: No buildings are proposed, however the edge of the parking lot is over 100 feet away from the nearest parking lot, far exceeding the minimum 20 foot setback. The parking lot occupies approximately 6,050 square feet (14%) of the lot 43,560 (1-acre) lot (property ID 986030097) far less than the 30% maximum. The existing natural area will be maintained between NE Goodwin Road and the parking lot field. Any signage will be informational or directional related to the parking lot and trailhead.

2.6 Site Plan Review (Chapter 18.18)

2.6.1 Site Plan Review and Design Review

- A. Before a clearing, grading or building permit will be issued; Site Plan approval per Chapter 18.18 Site Plan Review is required. A phased site plan may be allowed in order to guide a new park development as funds and resources become available.*
- B. When Design Review is applicable; the Parks & Recreation Commission shall conduct design review and find that the development is generally consistent with the design standards of CMC Chapter 18.19 Design Review, guidelines and principles for commercial and mixed uses.*

Response: The applicant requests approval of a Type II Site Plan Review per Section 18.18. Section 18.19.020 states that design review is required for all new developments in the commercial, mixed-use, business park or multifamily zones. The property is zoned Parks and Open Space and therefore design review is not required.

2.6.2 Site Plan Review - Applicability (Section 18.18.020)

Response: The proposed parking lot expansion will increase impervious area by more than 1,000 square feet. Therefore a Type II Site Plan Review is required.

2.6.3 Site Plan Review – Criteria for Approval (Section 18.18.060)

The city shall consider approval of the site plans with specific attention to the following:

- A. Compatibility with the city's comprehensive plan;*

Response: The City's comprehensive plan designates the site as Open Space. The proposed parking lot will provide trailhead access to the Heritage Trail supporting the open space use. As indicated in this report, the parking expansion will not impact the existing on-site wetland, and the Oregon white oak mitigation site will not be impacted. Although the lot is within the Urban Conservancy Shoreline designation, the parking lot will be more than 200 feet away from the ordinary high water mark of Lacamas Creek. For these reasons the proposal is consistent with the Comprehensive Plan.

- B. Compliance with all applicable design and development standards contained in this title and other applicable regulations;*

Response: The proposal is consistent with the design and development standards as stated in this report.

- C. *Availability and accessibility of adequate public services such as roads, sanitary and storm sewer, and water to serve the site at the time development is to occur, unless otherwise provided for by the applicable regulations;*

Response: The proposal is a parking lot and does not create demand for water or sanitary sewer. The applicant proposes a private storm drainage system to treat and convey stormwater from new impervious areas.

- D. *Adequate provisions are made for other public and private services and utilities, parks and trails (e.g., provide copies of private covenant documents);*

Response: The proposed parking lot expansion will support users of the Heritage Trail consistent with this section.

- E. *Adequate provisions are made for maintenance of public utilities; and*

Response: The proposal will have no impact on public utilities.

- F. *All relevant statutory codes, regulations, ordinances and compliance with the same. The review and decision of the city shall be in accordance with the provisions of CMC Chapter 18.55 Administration and Procedures.*

Response: This applicant narrative and associated documents and reports demonstrate compliance with all applicable regulations and ordinances.

2.7 Sensitive Areas and Open Space (Chapter 18.31)

2.7.1 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 Conditional Use permits.

2.7.2 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.

2.7.3 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”.

As a result of multiple design revisions intended to reduce impacts, no significant trees are proposed for removal.

2.7.4 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).

2.7.5 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 proposes to protect and maintain the Oregon white oak stand and the existing on-site wetland.

2.8 Administrative Procedures (Chapter 18.55)

2.8.1 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 parking lot 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, located north and east of the subject parcel, is a year-round stream and a WDNR Type-S stream. The entire parcel is within the contiguous 100-year floodplain (per FEMA FIRM Map 53011C0414D, Effective September 5, 2012) and thus within an associated frequently flooded critical area. The northernmost corner of the parcel is also within 200 feet of the mapped floodway. Section 2.1 of the Camas Shoreline Master Program (SMP), dated Effective July 27, 2015, states that when a site is within 200 feet of the floodway or associated critical areas, the area is in shorelands jurisdiction.

Based on the City's Shoreline Designation Map dated August 24, 2012 and the Clark County GIS file "shorebuf" data, dated May 17, 2013, only the northeast approximate 8,800 square feet of the one acre lot is designated Urban Conservancy. However, based on the definition stated above, all of the subject lot and project is within the shoreline and Urban Conservancy designation.

Table 6-1 of the SMP states that parking lots are a conditional use in Urban Conservancy as an accessory use. The master program defines accessory use as "any use or activity incidental and subordinate to a primary use or development." The proposed parking lot expansion provides parking accessory to the recreational trail use.

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)

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

4. ARCHAEOLOGICAL COMPLIANCE (Title 16.31)

Response: 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 45CL1265, a pre-contact lithic scatter, was identified in the project area. An archaeological survey report has been prepared (AINW 2017).

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) protect wetlands, critical aquifer recharge areas, frequently flooded areas, geologically hazardous areas, and fish and wildlife habitat conservation areas.

Pedestrian site visits between August 2015 and May 2017 (August 8, 2015; April 26 and August 5, 2016; and January 26, February 16, March 2 and 17, April 3, 4, 6, and May 25, 2017) assessed site conditions, determined presence of wetlands and OHWM, conducted non-protocol plant and animal reviews, conducted habitat assessments, and evaluated impacts of proposed project actions.

The project is within a Frequently Flooded Area and a Critical Aquifer Recharge Area. A Fish and Wildlife Habitat Conservation Area and a wetland with associated buffer abut the site. Critical areas are shown in Figures 2 through 5.

5.1 Wetlands

A very small (0.044 acre) palustrine scrub-shrub slope wetland (wetland C1) is present approximately 58

feet west of the project site at the closest point (the stormwater outfall) (Figure 3) (HHPR 2016, Appendix D). Vegetation in the wetland consists of a canopy of Oregon ash (*Fraxinus latifolia*) with an understory dominated by Douglas spirea (*Spirea douglasii*) and Nootka rose (*Rosa nutkana*). Black hawthorn (*Crataegus douglasii*), common snowberry (*Symphoricarpos albus*), and multiflora rose (*Rosa multiflora*) are present in smaller quantities. This wetland is rated Category IV according to the 2014 Ecology rating system and City requirements (SMP 16.53.020.B).

The City code identifies a 50 foot water quality buffer around Category IV wetlands, where the proposed project is classified as a high land use intensity (SMP 16.53.040.B.2). The same buffer is considered adequate to protect habitat functions for Category IV wetlands (SMP 16.53.040.B.2). No residential plats or subdivisions are proposed (SMP 16.53.040.B.3). In accordance with SMP 16.53.040.B.4.b, NE Goodwin Road and the existing parking lot, which are functionally separate from the wetland and do not protect the wetland, are excluded from the wetland buffer.

As a result of design revisions intended to minimize impacts to resources, the proposed activity would not occur in the wetland or wetland buffer. The project site is approximately 10 feet from the wetland buffer at the closest point. Upon completion, the parking lot would be approximately 60 feet from the buffer.

The wetland would be protected during construction through implementation of appropriate BMPs to control sediment and discharge. Proposed measures would be outlined in the completed Stormwater Pollution Prevention Plan (SWPPP) and temporary erosion and sediment control (TESC) plan. The SWPPP 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)
- High Visibility Plastic or Metal Fence (BMP C103)
- Stabilized Construction Entrance (BMP C105)
- Wheel Wash (BMP C106)
- Construction Road/Parking Area Stabilization (BMP C107)
- Temporary and Permanent Seeding (BMP C120)
- Mulching (BMP C121)
- Nets and Blankets (BMP C122)
- Surface Roughening (BMP C130)
- Dust Control (BMP C140)
- Concrete Handling (BMP C151)
- Material Delivery, Storage, and Containment (BMP C153)
- 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

Upon completion, stormwater from the proposed parking lot would be collected and treated on site, then conveyed to an outfall in the ditch along NE Goodwin Road, downstream of the wetland.

5.2 Critical Aquifer Recharge Areas (CARA)

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 to the east (parcel number 172543000) (Clark County GIS 2017).

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

The proposed project would result in more than 5 percent total site impervious surface area. Therefore, a level one hydrogeologic assessment, meeting the requirements of SMP 16.55.050.C, is required (SMP 16.55.050.B.1) and provided in Appendix D.

In accordance with SMP 16.55.060.A, the project would not cause contaminants to enter the aquifer and would not adversely affect recharging of the aquifer.

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.

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)

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

The entire project site is 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) and outside of the floodway identified on the same map. The base flood elevation at the project site is identified by FEMA as 193 feet (FEMA 2012).

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).

In accordance with SMP 16.57.020.E, the proposed project is not within the designated floodway.

5.1.2. 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 2 (SMP 16.57.030.B.1-2).

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 by 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.

5.1.3 Performance Standards (SMP 16.57.050-080)

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

The project complies with SMP 16.57.050.B because it is outside of the designated floodway (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. The parking lot would be pavement, which is resistant to erosion compared to other surfaces, such as gravel. Utility conduits would be underground. Slopes would be planted with native vegetation to reduce erosion.

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).

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 (Kelly Bachelder, P.E., pers. comm., 2017). There are no side channels present on or adjacent to the project site. NE Goodwin Road, located between the project site and Lacamas Creek at the closest point (Figure 2), restricts channel migration so that the project site is outside of the channel migration zone (though none is mapped) and would not inhibit channel migration. The project is not located within the designated floodway.

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

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

No new or replacement water supply systems, sanitary sewage systems, or on-site waste disposal systems are proposed (SMP 16.57.060.C).

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.

No variance request is being made (SMP 16.57.080).

5.4 Geological Hazard Areas

5.4.1 *Erosion Hazards*

No erosion hazards, as defined in the SMP 16.59.020.A, exist on-site. The steepest slope is less than 5%. 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. There is no evidence of unstable or recent landslides, and no slopes greater than 15%, areas potentially unstable as a result of rapid stream incision, stream bank erosion, and stream undercutting, or active alluvial fans at the site or in the

immediate vicinity. The terrain is flat to gently sloping and the site is separated from Lacamas Creek by NE Goodwin Road. Clark County GIS does not identify the parcel or immediate vicinity as a landslide hazard area.

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 means 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 area is mapped as Low to Moderate 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

Lacamas Creek, a perennial stream, is approximately 160 feet north of the project site at the nearest point (the stormwater outfall) and approximately 260 feet from the proposed parking lot, on the opposite side of NE Goodwin Road. Lacamas Creek passes beneath NE Goodwin Road approximately 700 feet northeast of the site. Lacamas Creek flows south, entering Lacamas Lake approximately 0.6 miles to the south of the parcel.

Wetland C1, approximately 58 feet west of the project site (at the nearest point), is seasonally ponded and abutting a roadside ditch. The wetland buffer is dominated by common snowberry, Nootka rose (*Rosa nutkana*), black hawthorn, and cascara (*Frangula purshiana*) (Photograph 2).

Away from the wetland and along the southern fence is a shrub stand (typically < 4 inch dia. at the root collar) of English hawthorn (*Crataegus monogyna*) and, to a lesser degree, cascara, with patches of Douglas spirea (*Spirea douglasii*) and clustered rose (*Rosa pisocarpa*) (Photograph 2). The area along the fence appears higher in elevation, possibly a result of the construction prism for the adjoining parking lot. Although the latter two species are typically wetland associates, they also are common in disturbed areas open to sunlight – which appears to be the case here.

A stand of Oregon white oaks (*Quercus garryana*) with an understory dominated by snowberry is present in the northeast portion of the parcel (Photograph 4).

The project site itself lacks mature trees, with the exception of 6 small, ornamental street trees along NW Alexandra Lane. The site is comprised of three vegetation types (Photograph 3 and 5): a portion of the dense stand of English hawthorn; sparse herbaceous vegetation, consisting of a mixture of non-native annual grasses and disturbance tolerant forbs, such as selfheal (*Prunella vulgaris*), oxeye daisy (*Leucanthemum vulgare*), and English plantain (*Plantago lanceolata*); and areas of low shrubby vegetation dominated by common snowberry.

Information on Threatened, Endangered, and Sensitive (TES) species and priority habitats was obtained from the Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) Program (2017), the US Fish and Wildlife Service (USFWS) iPac service (2017), the National Oceanic and Atmospheric Administration Marine Fisheries Service (NOAA Fisheries) species list & critical habitat designations (2016), and the Washington Department of Natural Resources (WDNR) Natural Heritage Program (WNHP) spatial data (2016). Habitat assessments and non-protocol plant and animal surveys were conducted during site visits.

5.5.1 TES Plants

No TES 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). 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 (*Symphyotrichum hallii*, Threatened).

The possible presence of TES plant species in the project site was evaluated through WDNR WNHP spatial data (2016) and site visits (April 26, 2016 and May 21, 2016). WDNR 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 during site visits.

Site visits also 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 or abutting areas (including church property and roadside). 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.

5.5.2 TES Fish

Coastal cutthroat trout (*Oncorhynchus clarki*), a WDFW Priority Species, are mapped in Lacamas Creek, adjacent to the project area (WDFW 2017).

No other 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 southeast of the project site (WDFW 2017, NOAA 2016, USFWS 2017).

Stormwater from the site would discharge to the ditch along NE Goodwin Road, which discharges to Lacamas Creek. The project would avoid impacts to water quality by collecting and treating stormwater, including treatment for phosphorous, prior to discharge.

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 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 Candidate, state-listed Threatened).

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). 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.

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 project area.

The stand of Oregon white oaks abutting the site to the north is part of the Sifton/Lacamas Oaks mapped by WDFW (2017). Trees in the stand range from 10-34 inches diameter breast height. The stand is protected as an oak mitigation site by the City of Camas and was recently enhanced by removal of Douglas fir that were beginning to overtop the oaks. The proposed parking lot extension would be outside of the stand.

The mapped wood duck (*Aix sponsa*) breeding area is a corridor along both sides of Lacamas Creek, completely overlapping the project site. The only area identified during site visits as potential wood duck breeding habitat is the oak stand described above. This stand contains trees of sufficient diameter (minimum 12 inches diameter breast height, based on WDFW management guidelines, Lewis and Kraege 2000) to support cavities for wood duck nesting. No cavity entrances large enough to accommodate wood ducks (minimum 3.5 inch diameter) were observed during site visits. However, the stand has the potential to serve as a breeding area in the future.

5.5.5 Habitats of Local Importance

The Oregon white oak stand described in section 5.5.4 meets 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 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 substantially maintaining the level of habitat function and values present in the oak stand/wood duck breeding area identified in section 5.5.4, and in the adjoining wetland and wetland buffer described in section 5.1, and by minimizing habitat disruption and alteration to the extent needed to complete the project.

The project would not remove oaks, 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.

Removal of portions of the dense hedge of English hawthorn present along the fence line at the edge of the trail would reduce the seed source for this invasive species, which was observed during site visits to be colonizing the understory of the oak stand. This vegetation would be replaced by a dense planting of native species around the perimeter of the parking lot. This planting would discourage parking lot users from entering the stand and provide some screening to reduce wildlife disturbance.

During construction, the stand would be protected from indirect impacts by BMPs to control erosion and sediment. Trees will be marked for protection during construction. Post-construction, the stand and adjoining wetland would be protected from stormwater runoff by a stormwater collection and treatment system for the parking lot. If included, lighting in the parking lot would be designed to direct glare away from the oak stand.

The project has been designed to avoid impacts to oaks while protecting the wetland buffer.

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

None of the other specific habitats in SMP 16.61.040 are present.

6. CITY OF CAMAS SHORELINE MASTER PROGRAM

6.1 Conditional Use Permit

Table 6-1 of the SMP identifies parking lots that are an accessory use within Urban Conservancy shorelines as a Conditional Use with a 150 foot setback from the OHWM. Thus, 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 avoids significant adverse effects on the environment or other shoreline uses. The project achieves this through a design that avoids wetlands and other critical habitat areas (see sections 5.1 and 5.5 for a full discussion), retains significant trees (see section 2.7.3), and protects water quality through stormwater collection and treatment (see section 1.1).

The project is compatible with, and would support, other shoreline uses. Specifically, the trailhead parking lot extension would support recreational use via the Heritage Trail that provides public access to the Lacamas Creek and Lacamas Lake shorelines. The current parking is considered inadequate.

Consistent with X.A.2, the project would not interfere with normal public use of the shoreline. The project would support and expand public use of the shorelines via the Heritage Trail.

Consistent with X.A.3, the design of the project is compatible with the surrounding authorized uses, the Program, and the comprehensive plan. Surrounding shoreline uses include public parks and trails with accessory parking, natural areas, and the Lacamas Conference Center on the abutting church property. The design of the project expands the existing accessory parking use while protecting adjacent natural areas and land uses. The oak stand, wetland C1, and the church property would be protected from impacts of increased recreational use by a dense vegetation screen along the edge of the parking lot and trail. If included, the proposed perimeter fence would provide additional protection.

The project is consistent with the SMP designation of Urban Conservancy because it is designed to protect ecological functions of open space where they occur on or near the project site, while allowing for compatible uses including recreational enjoyment of the shoreline. The City's comprehensive plan designates the site as Open Space. The proposed parking lot would provide trailhead access to public trails supporting the open space use.

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 while supporting expanded public access to the shorelines of Lacamas Creek and Lacamas Lake via the Heritage Trail.

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). Though none are currently proposed or funded, expansion of accessory parking for approved shoreline uses at this or other trailheads and other parks has been included in long range planning. As long as such requests are limited to the expansion necessary to support the approved 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.

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. Parking as an accessory within the Urban Conservancy shoreline designation is identified as a conditional use with a 150 foot setback from the OHWM in SMP Table 6-1. The proposed project meets the definition of an accessory use and would have a setback greater than the required 150 feet from the OHWM of Lacamas Creek (approximately 160 feet).

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 parking lot expansion 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 proposed project is designed to increase public access to public shorelines and to support public recreational opportunities in the shorelines of Lacamas Creek and Lacamas Lake by expanding trailhead parking for the Heritage Trail, where parking is currently considered deficient. The project is further designed to avoid adverse impacts to the natural character, resources, and ecology of the shoreline on the site.

Consistency with the SMP Urban Conservancy designation is discussed in sections 1.2 and 6.1.1, and demonstrated throughout this application.

Consistent with WAC 173-27-160(1)(b), the proposed use would not interfere with normal public use of public shorelines. The project would support and expand public use of the shorelines via the Heritage Trail.

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. Compatibility with authorized uses within the area is discussed in the response to SMP conditional use review criteria X.A.3 in section 6.1.2. The trailhead and parking are part of the City's Parks, Recreation and Open Space Comprehensive Plan Update, indicating that recreational use is consistent with the planned uses for the site.

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 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 (see section 2.7.3), and protects water quality through stormwater collection and treatment (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 is designed to support public interest by improving public access to a popular public trail along Lacamas Creek and Lacamas Lake.

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. Though none are currently proposed or funded, expansion of accessory parking for approved shoreline uses at this or other trailheads and other parks has been included in long range planning. As long as such requests are limited to the expansion necessary to support the approved use and are designed to avoid ecological impacts including water quality impacts, no significant adverse cumulative impact would be expected from approval of such requests.

The proposed project does not include any unclassified uses (WAC 173-27-160(3)). Parking as an accessory within the Urban Conservancy shoreline designation is identified as a conditional use (SMP Table 6-1). The proposed project meets the definition of an accessory use and would have a setback greater than the required 150 feet from the OHWM of Lacamas Creek (approximately 160 feet).

Consistent with WAC 173-27-160(4), the proposed project does not seek conditional use authorization for a prohibited use.

6.2 General Shoreline Use and Development Regulations (SMP 5)

Camas Shoreline Master Program (CSMP) 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. Furthermore, the project site is not appropriate for water dependent uses because it is separated from Lacamas Creek by NE Goodwin Road.

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 avoid impacting other properties by collecting and treating stormwater from the parking lot and by installing a dense perimeter planting to discourage trail users and pets from straying into the abutting natural area and private property.

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; see sections 5 and 6.2.8 for a full discussion. No net loss of function would result from the project.

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 (Section 5.2)

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. Archaeological site 45CL1265, a pre-contact lithic scatter, was identified in the project area. An archaeological survey report has been prepared (AINW 2017).

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 parking lot is located outside of the designated floodway (FEMA 2012) (Figure 2).

In accordance with SMP 5.4.2, no structural flood hazard reduction measures within the floodway or channel migration zone are reasonably foreseeable to become necessary as a result of this parking lot expansion. The project is approximately 220 feet from the mapped floodway. No channel migration zone is mapped, but the site is separated from Lacamas Creek by NE Goodwin Road to the north (the closest point) and approximately 700 feet or more away from the creek after it crosses under the road.

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).

Analysis by project engineers (Kelly Bachelder, P.E., pers. comm., 2017) concluded that geohydraulic characteristics would not be altered in a way that increases flood velocity or risk of damage (SMP 5.4.6). For this project, it is not feasible to place the parking lot on piles or piers because of the need to minimize impacts by placing the stormwater management system beneath the parking lot.

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 (Section 5.5)

In accordance with SMP 5.5.1-2, this expansion of a public parking lot at a public trailhead provides for adequate public access.

In accordance with SMP 5.5.3, the parking lot expansion would be connected to a barrier free route of travel and would comply with the Americans with Disabilities Act.

In accordance with SMP 5.5.4, adjacent properties would be protected from trespass and other adverse impacts of public access. A dense native shrub planting, installed and maintained along the perimeter of the parking lot would provide screening and a barrier to discourage parking lot and trail users from straying into abutting natural areas and adjacent private property. If included, the proposed perimeter fence would provide an additional barrier.

In accordance with SMP 5.5.5, existing signage indicating the public's right to use of the Heritage Trail would remain in place.

In accordance with SMP 5.5.6, public access to the Heritage Trail is already developed. Access to the trail would be maintained during construction. Access improvements provided by expanded trailhead parking would be available upon project completion.

Public access consistent with SMP 5.5.7 is already present at the site in the form of the Lacamas Heritage Trail. The expanded trailhead parking lot would support this access by increasing the number of trail users that can park at the trailhead.

The project is in compliance with SMP 5.5.8 because the project site and connecting trail are already recorded as public property.

Future actions by the City or other parties would not diminish the usefulness or value of the public access (SMP 5.5.9).

The City currently maintains the trailhead parking lot and Heritage Trail and would continue to maintain the expanded facility, in accordance with SMP 5.5.10.

6.2.6 Restoration (SMP 5.6)

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

Impacts to shoreline functions would be fully mitigated, in compliance with SMP 5.6.2 (see section 6.2.8 and the Vegetation Mitigation Plan, Appendix E).

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. BMPs would be implemented in order to control erosion and runoff during construction (see section 5.1).

The proposed parking lot extension has been redesigned multiple times in order to reduce impacts to surrounding sensitive areas. As a result, the impervious footprint of the proposed project is substantially smaller than the original project concept (approximately half the size), in accordance with SMP 5.7.1.2.

The proposed project would be accessed from an existing transportation corridor (NW Alexandra Lane), consistent with SMP 5.7.1.3.

In accordance with SMP 5.7.1.4, the proposed project is designed to minimize clearing, grading, and alteration of topography and natural features, and to accommodate wildlife movement. The proposed parking lot would utilize a flat, open area that requires minimal grading and alteration of topography. The location allows the project to avoid removal of any significant trees. The project does not create any new barriers to wildlife movement.

In accordance with SMP 5.7.1.5, the parking lot is located landward of OHWM and landward of the Heritage Trail, which heads east from the trailhead, towards a southward bend in Lacamas Creek.

There are no dissimilar uses or scenic areas abutting the site that would require screening. The project site does not have visual access to the water (SMP 5.7.1.6). Landscaping along the perimeter of the parking lot would consist of a dense planting of native shrubs.

The project would avoid wetlands and other sensitive areas, thus no elevated walkways would be needed, per SMP 5.7.1.7.

The project would not create new barriers to wildlife movement as fencing already exists along the parking lot and trail in this location (SMP 5.7.1.8).

If included, the parking lot lighting would utilize LEDs and would be designed with a light distribution that projects light out onto the parking area and minimizes back lighting into the natural areas and private property, per SMP 5.7.1.9.

In accordance with SMP 5.7.1.10, utilities, including electrical and stormwater filter vaults and detention structures would be located within the parking lot and roadway wherever feasible. The only utility component that would cross undeveloped areas is the pipe that would connect to the stormwater outfall in the ditch along the side of NE Goodwin Road. Areas of temporary disturbance resulting from the installation of the pipe would be revegetated with native vegetation upon project completion.

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 be halted or delayed whenever heavy rains present a serious risk to water quality due to site runoff.

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. Stormwater from the proposed parking lot would be collected, treated, and then discharged into the

stormwater ditch along NE Goodwin Road. The site is relatively flat and no drainage features would be altered by development; the surrounding areas would continue to drain as they currently do.

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 oak stand, 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. All project activities are separated from Lacamas Creek by NE Goodwin Road.

In accordance with SMP 5.7.2.6, fills would be of the minimum amount necessary to support the proposed use. The project would need to import fill to raise the parking lot approximately two to four feet to achieve finish grades and provide enough fall in the stormwater system. About 0.32 acres would be filled with structural fill from an approved local source to achieve the grades. No speculative fill is proposed.

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

In accordance with SMP 5.7.2.8, fills that are not proposed to be covered by impervious surface would be designed to allow surface water penetration.

In accordance with SMP 5.7.2.9, fills would protect shoreline ecological function, including channel migration. Channel migration by Lacamas Creek is restricted from this location by NE Goodwin Road, which lies between the creek and the project site at the nearest point.

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 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. The project site is currently a public recreation facility and natural area and is planned to remain so indefinitely.

In accordance with SMP 5.7.3.1, the proposed parking lot would be located in a relatively flat, open site that would minimize disturbance to soils and vegetation.

The proposed parking lot extension does not include architectural features (SMP 5.7.3.2).

No building surfaces are proposed on or adjacent to the water (SMP 5.7.3.3).

No buildings, or other structures that could be subject to bird collisions, are proposed (SMP 5.7.3.4).

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 design of the parking lot has been adjusted multiple times to avoid areas of sensitive vegetation. The proposed project design has a footprint that is much smaller than earlier designs (about half the size) and avoids impacts to the adjacent wetland, wetland buffer, and oak mitigation site.

No significant trees will be removed. Areas of temporary disturbance to native vegetation will be revegetated with native vegetation when construction is complete.

Approximately 1600 square feet of native shrub-scrub vegetation dominated by common snowberry will be permanently impacted within the footprint of the proposed parking lot. In accordance with SMP 5.8.2, functions lost as a result of this impact (primarily food and cover for birds, insects, and small mammals) will be mitigated so as to achieve no net loss of functions and maintain habitat connectivity. A vegetation mitigation plan is provided in Appendix E.

No control of invasive or non-native vegetation is proposed beyond the clearing required for construction (and mitigation) activities; thus SMP 5.8.3 is not applicable.

Removal of non-native vegetation within the project site would be completed as part of site preparation for construction of the parking lot extension. This would primarily be the thicket of English hawthorn along the existing fence line (approximately 3600 square feet). Approximately 80 percent of the area cleared would be converted impervious surface as part of the proposed development. Where areas of non-native vegetation are temporarily disturbed, they would be replanted with native vegetation, in accordance with SMP 5.8.4 (see Vegetation Mitigation Plan for details).

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 twenty 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 during project construction, 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). The proposed project location does not have a line of site to Lacamas Creek and the parking lot extension does not include structures of a height that would obstruct views.

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.

Stormwater management for the project is designed to comply with CMC 14.02, Stormwater Control (SMP 5.10.2). See section 1.1 for a discussion of proposed stormwater management.

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 water body or wetland adjacent to the proposed project is wetland C1. See section 5.1 for a discussion of proposed measures to protect wetland C1. 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. Post-construction stormwater management is discussed in section 1.1.

In accordance with SMP 5.10.5, the only use of herbicides, fungicides, fertilizers, and pesticides proposed is the targeted application of herbicides to remove English hawthorn, a Clark County Class C noxious

weed (Clark County 2016). Application will be made by a qualified professional in accordance with state and federal laws. No pesticides subject to the final ruling in *Washington Toxics Coalition, et al., v. EPA* will be used.

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 septic systems are proposed (SMP 5.10.8).

6.3 Chapter 6 – Specific Shoreline Use Regulations

The SMP defines accessory use as “any use or activity incidental and subordinate to a primary use or development.” The proposed parking lot expansion provides parking accessory to the recreational trail use. Parking as an accessory use is listed as a Conditional Use with a 150 foot setback from the OHWM (SMP Table 6-1). The proposed parking lot would be approximately 160 feet from the OHWM of Lacamas Creek.

The specific use regulations contained in SMP 6.3.10, Parking, apply to the project as follows.

6.3.1 Parking (SMP 6.3.10)

In compliance with SMP 6.3.10.1, the proposed parking would not be a primary use. Parking would be an accessory use because the parking lot would provide parking for recreational users at a trailhead for the Heritage Trail.

The entire parcel where the project would be located, the beginning of the Heritage Trail, and the existing parking lot is within the shoreline because the site is within the 100-year floodplain (frequently flooded critical area) (SMP 6.3.10.2). As the trail continues to the east it leaves the shoreline for a short stretch, then reenters it and continues along the shores of Lacamas Creek and Lacamas Lake.

In accordance with SMP 6.3.10.3, the parking lot extension and landscaping is designed to minimize adverse environmental and aesthetic impacts. The design of the parking lot extension has adjusted multiple times to avoid areas of sensitive vegetation, including the adjacent wetland, wetland buffer, and oak stand. Additional measures to avoid, minimize, and mitigate for adverse environmental impacts are presented in 5.1 and 6.2.8. The parking lot extension would be landscaped with native plants, including shade trees and a dense planting of native shrubs around the perimeter of the parking lot.

SMP 6.3.10.3 also addresses the location of parking lots landward or waterward of the primary use and states the City’s preference for building entrances to be located on frontage streets. The parking lot would be closer to Lacamas Creek than the trail is in this location, in compliance with SMP 6.3.10.3. However, Lacamas Creek is approximately 160 feet from the project site at the nearest point (the stormwater outfall), is on the other side of NE Goodwin Road, is not visible from the site, and is only accessible via the Heritage Trail or NE Goodwin Road. Thus, the relative orientation of the two facilities would not impact physical or visual access to the shoreline. Furthermore, no buildings exist on the site and none are proposed.

In accordance with SMP 6.3.10.4, the parking lot extension would be landscaped along the perimeter with native vegetation, planted prior to the final project inspection that would provide effective screening within three years of planting.

Proposed stormwater management for the parking lot extension would prevent surface water runoff from contaminating water bodies (SMP 6.3.10.5). See section 1.1 for a full discussion. The parking lot extension would be part of a public facility owned by the City, and ongoing maintenance would be incorporated into City’s maintenance program and paid for with City funds.

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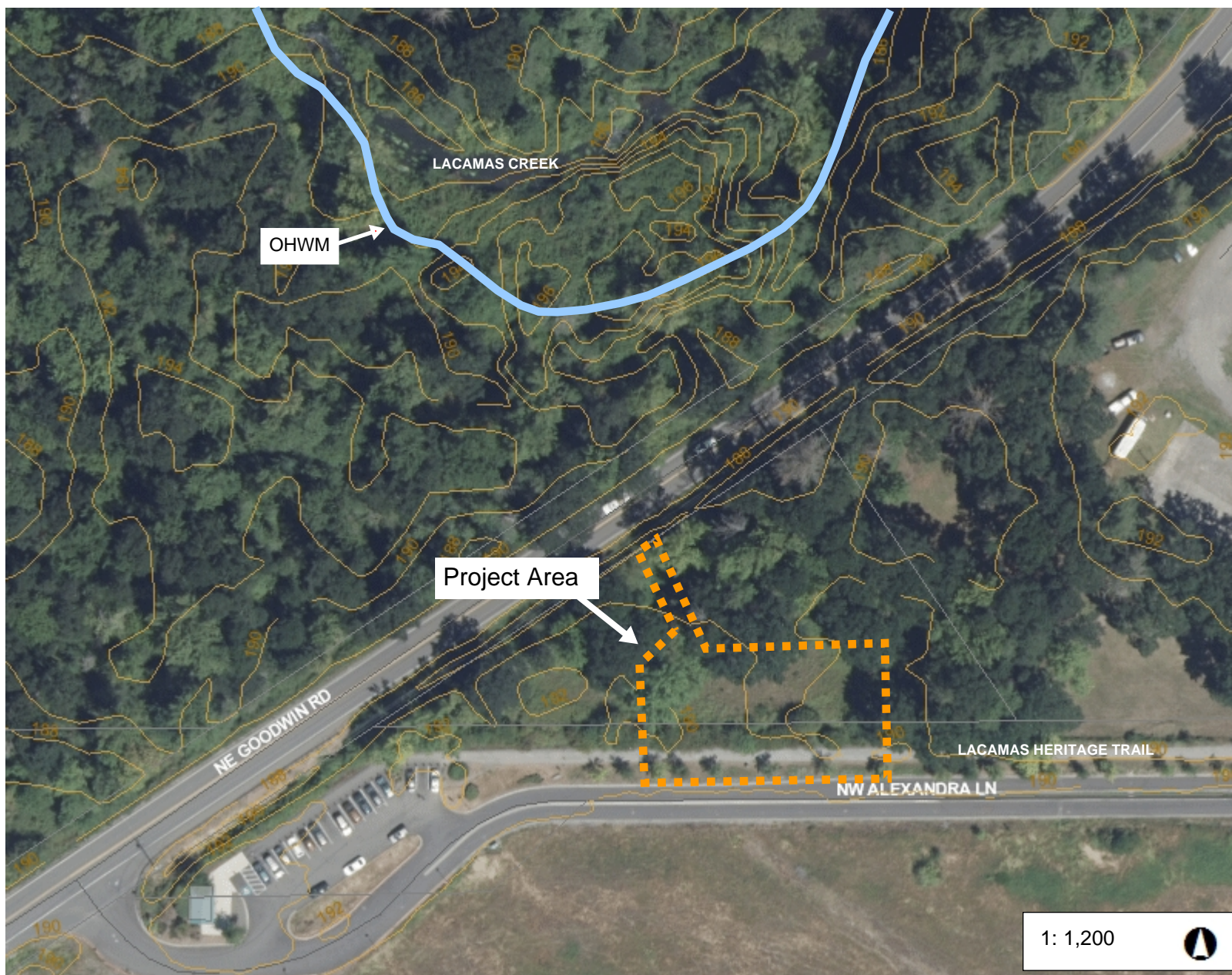
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Appendix A: Figures

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Figure 1: Project vicinity.



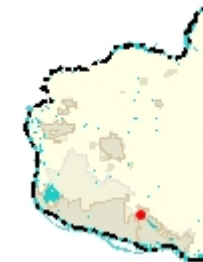
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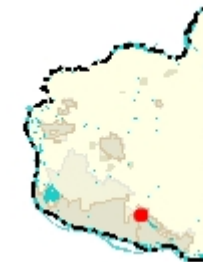
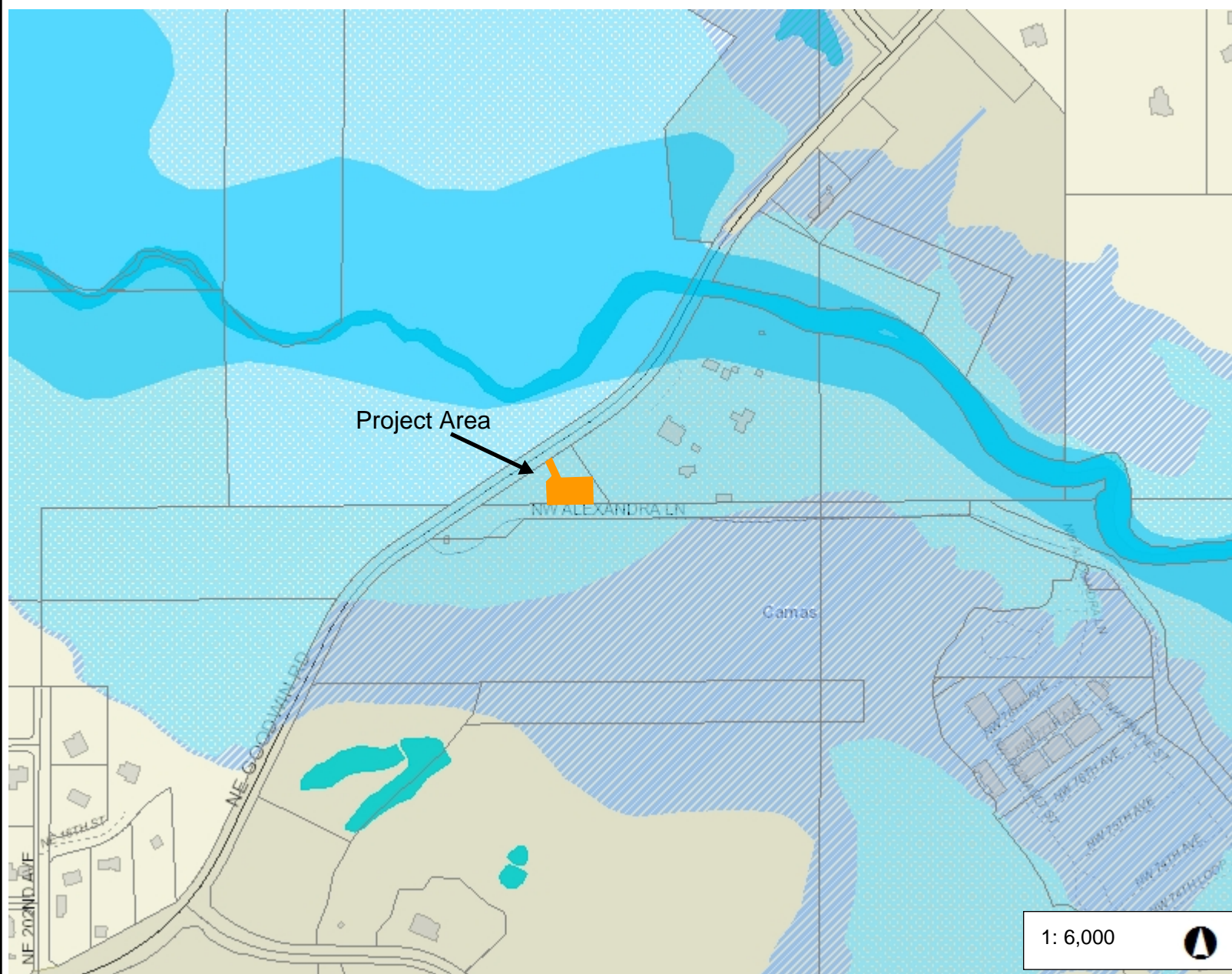
Legend

- Building Footprints
- Taxlots
- Contour Lines - 2 ft
- Roads

Notes:



Figure 2: Frequently Flooded Areas.



Legend

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

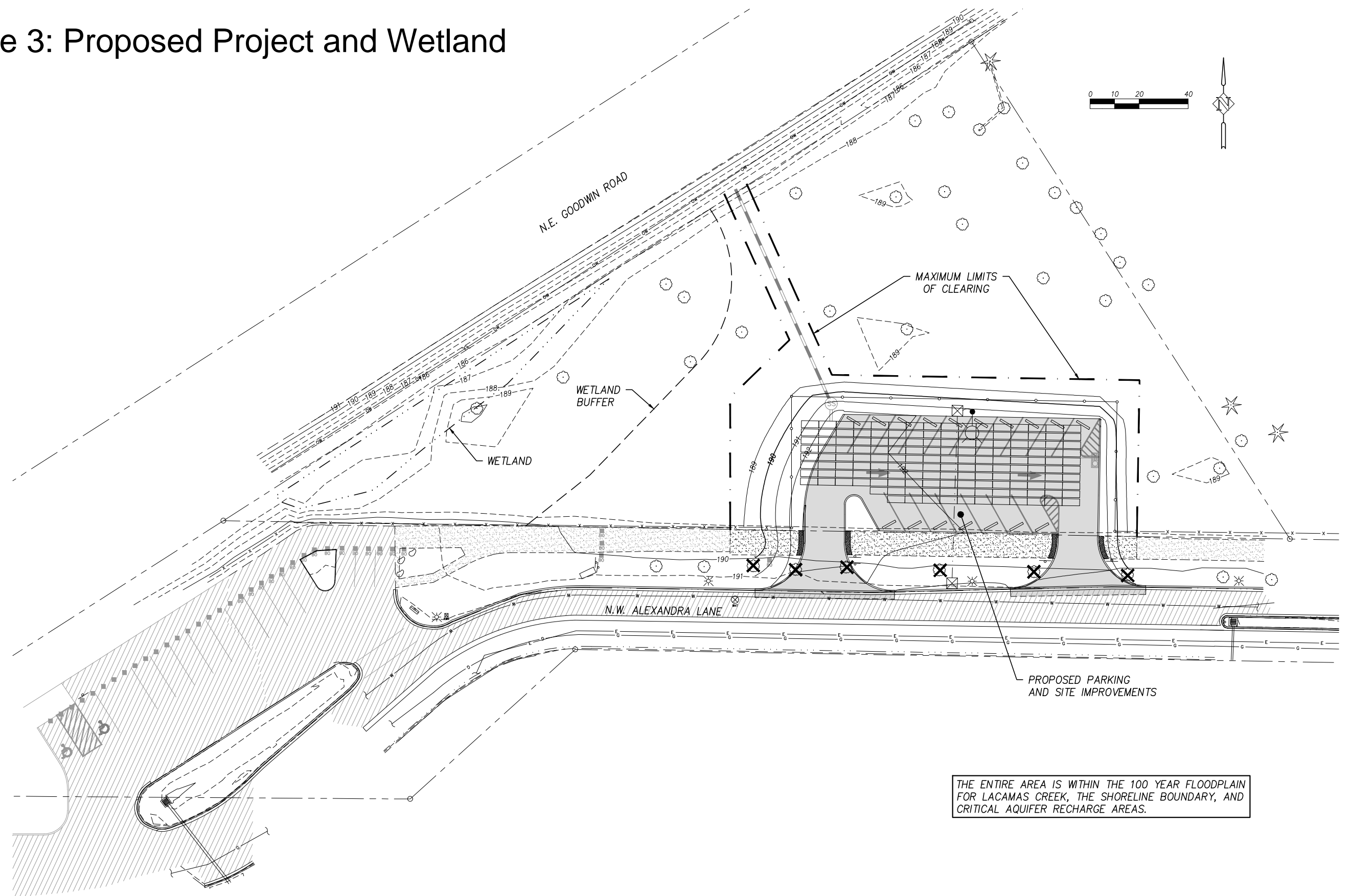
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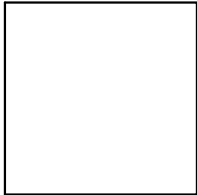
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Figure 3: Proposed Project and Wetland



| | | | | |
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| | | | DRAWN: | JDB |
| | | | CHECKED: | IMW |
| DATE | NO. | DESCRIPTION | DATE: | 06/16/2017 |
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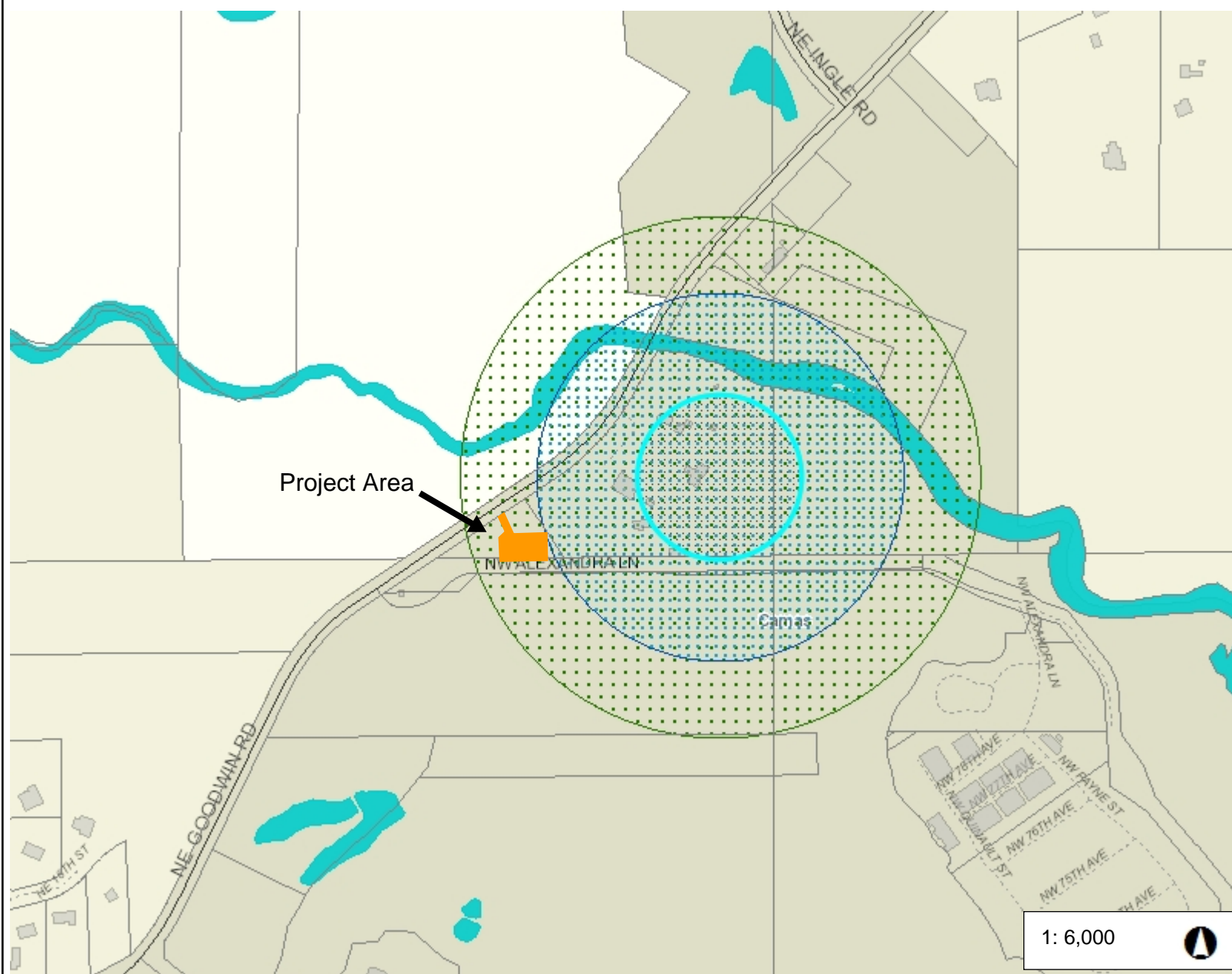


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| | | |
|---|--|-----------------------------------|
| PROPOSED PROJECT AND CRITICAL AREAS LACAMAS HERITAGE TRAILHEAD - PARKING EXPANSION CAMAS, WASHINGTON | | SHEET NO. 1 OF 1 |
| | | JOB NO. CAM-07 |



Figure 4: Critical Aquifer Recharge Area (CARA).



Legend

- Building Footprints
- Taxlots
- Wellhead Protection Areas**
 - 0
 - 1 Year
 - 5 Years
 - 10 Years

Notes:

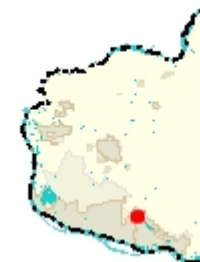
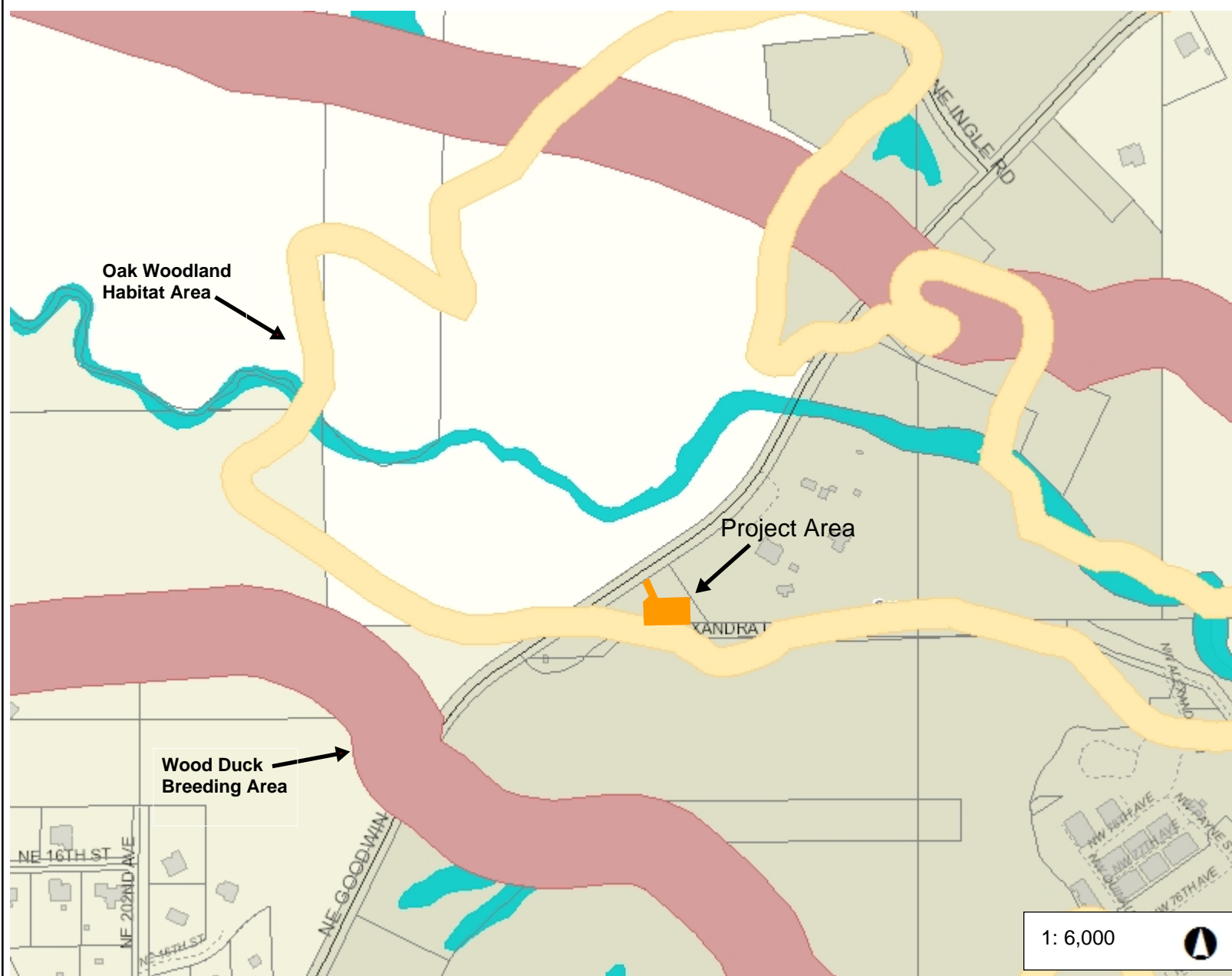
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Figure 5: Fish and Wildlife Habitat Conservation Areas.



Legend

- Priority Habitat Buffer
- Priority Species Buffer
- Building Footprints
- Taxlots

Notes:

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Appendix B: Photographs

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Photograph 1. View to the northeast, showing the existing parking lot. The beginning of the Heritage Trail can be seen in the background, marked by sign. Photograph taken August 26, 2015.



Photograph 2. View to the east, towards the project site. The dense thicket of English hawthorn growing along the existing fence line can be seen in bloom, right and center. Low growing shrubs (common snowberry and cluster rose), typical of the wetland buffer between wetland C1 and the project site, can be seen in the foreground. The oak stand can be seen in the upper left corner. Photograph taken April 26, 2016.



Photograph 3. Typical vegetation in the project site. An area of low shrubs dominated by common snowberry can be seen at the top, and an example of the herbaceous area, dominated by annual grasses and weedy forbs (English plantain in this location) can be seen at the bottom. Photograph taken May 25, 2017.



Photograph 4. View to the northeast from the project site towards the oak stand. Common snowberry forms a low shrub layer. Photograph taken May 25, 2017.



Photograph 5. View to the west along NW Alexandra Lane and the Heritage Trail, showing the approximate location where driveways accessing the proposed parking lot would be located. The English hawthorn thicket can be seen along the edge of the path, with the oak stand in the background. Typical street trees for this stretch of NW Alexandra Lane (small ornamental ash and cherry species) can be seen to the left. Photograph taken May 25, 2017.

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Appendix C: Tree Survey

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Tree Inventory for Lacamas Heritage Trail Parking Lot Expansion, Parcel Number 986030097

Not included here, are six small street trees (deciduous ornamental species <12 inches DBH) present along NW Alexandra Lane (parcel number 172965000) within the project site.

| Tree Diameter (DBH) inches | Oregon White Oak | Oregon Ash | Bitter Cherry* |
|-------------------------------|---------------------|------------|----------------|
| 4 | | 1† | |
| 5 | | 1† | |
| 6 | | | 1 |
| 7 | | | |
| 8 | | 1† | |
| 9 | | | |
| 10 | 1 | | |
| 11 | 1 | | |
| 12 | 2 | | |
| 13 | 1 | | |
| 14 | | | |
| 15 | 1 | | |
| 16 | 3 | | |
| 17 | | 1† | |
| 18 | 2 | | |
| 19 | | | |
| 20 | 3 | 1 | |
| 21 | 1 | 1 | |
| 22 | | | |
| 23 | 1 | | |
| 24 | 2 | | |
| 25 | | | |
| 26 | 2 | | |
| 27 | | | |
| 28 | | | |
| 28 | | | |
| 30 | 1 | | |
| 31 | 1 | | |
| 32 | | | |
| 33 | | | |
| 34 | 1 | | |

Notes: * Identified as native bitter cherry (*Prunus emarginata*), but may be the introduced European sweet cherry (*Prunus avium*)

† These four stems are from one multi-stemmed tree with a collar diameter of 29 inches

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Appendix D: Other Technical Reports

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TECHNICAL MEMORANDUM

DATE: June 6, 2017

TO: City of Camas

616 NE 4th Avenue

Camas, Washington 98607

FROM: Kelly Bachelder, P.E.

RE: Heritage Trailhead Parking Expansion—Level One Hydrogeologic Assessment

| | |
|---|---|
| 1. Introduction | 1 |
| 2. Geologic and Hydrologic Characteristics..... | 2 |
| 3. Ground Water | 3 |
| 4. Wells and Springs | 3 |
| 5. Location of Other Critical Areas..... | 4 |
| 6. Best Management Practices | 4 |

1. INTRODUCTION

The City of Camas proposes to expand the existing parking lot at the Heritage Trailhead at NE Goodwin Road and NW Alexandra Lane, in the City of Camas (Figure 1). Current parking at the trailhead is considered deficient. The existing parking lot is 16 spaces and the proposal would add 17 spaces. The parking expansion would occur approximately 150 feet to the east of the existing lot, with vehicular access from NW Alexandra Lane. The project site (area of impact) is approximately 0.35 acres.

The stormwater from the site would be mitigated via filter treatment cartridges for water quality and underground detention for water quantity. The stormwater would flow overland in the parking lot to a single StormFilter Treatment catch basin with two phosphosorb filter cartridges. The parking lot is within the Lacamas Basin and therefore must be treated for elevated phosphorous levels. The phosphosorb cartridge is an approved method of treatment by the Department of Ecology. Following the treatment, the stormwater will flow to 150 SC-310 StormTech chambers for detention. The StormTech chambers would be located under the parking lot. A flow control structure in



a manhole would restrict the amount of flow offsite. The regulated stormwater would eventually outfall to the public ditch on Goodwin Road north of the site.

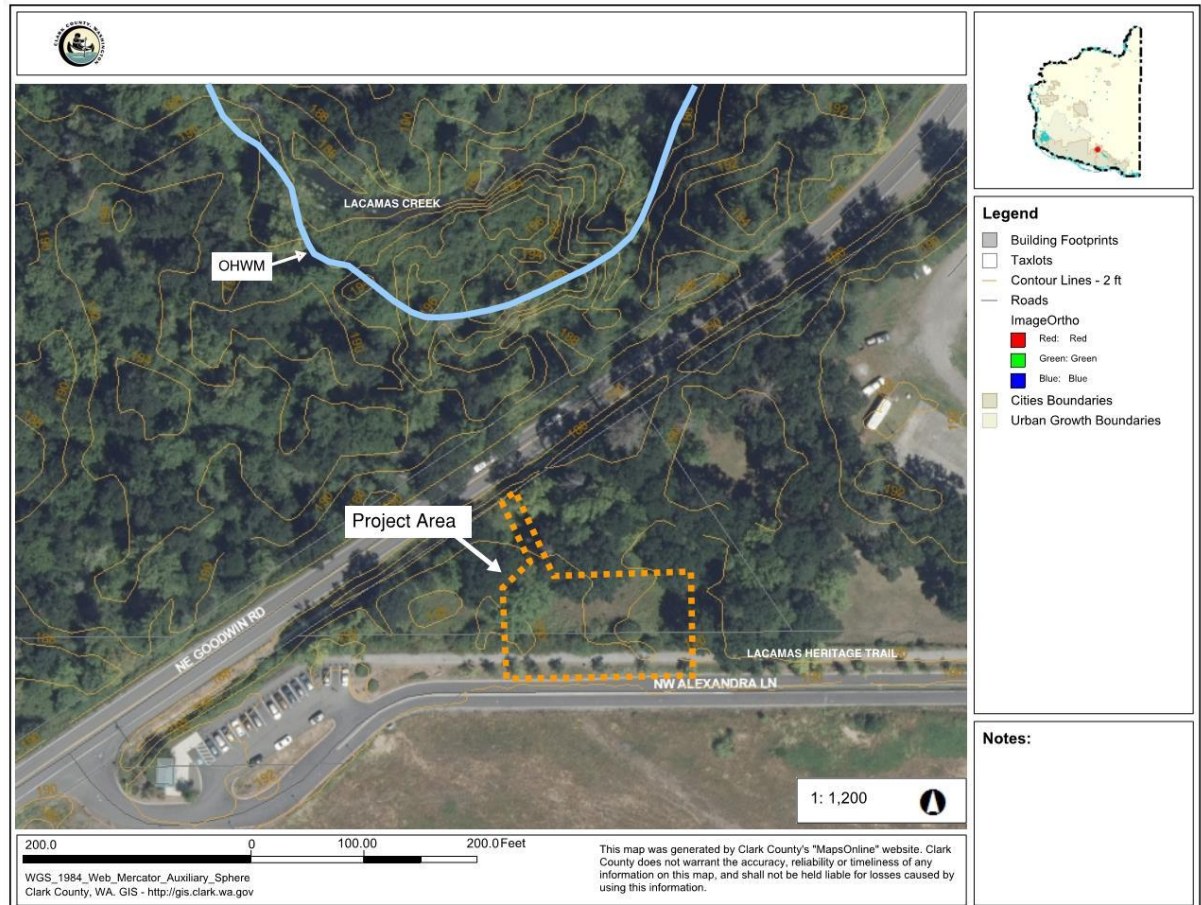


Figure 1: Project vicinity.

2. GEOLOGIC AND HYDROLOGIC CHARACTERISTICS

The site is within the 10-year zone of a wellhead protection zone, a Category 2 Recharge Area (Figure 2). There is a Category 1 Recharge Area approximately 180 feet east of the site. The permeability of the soil at the project site is virtually none. No infiltration was assumed in the design of the storm detention system.

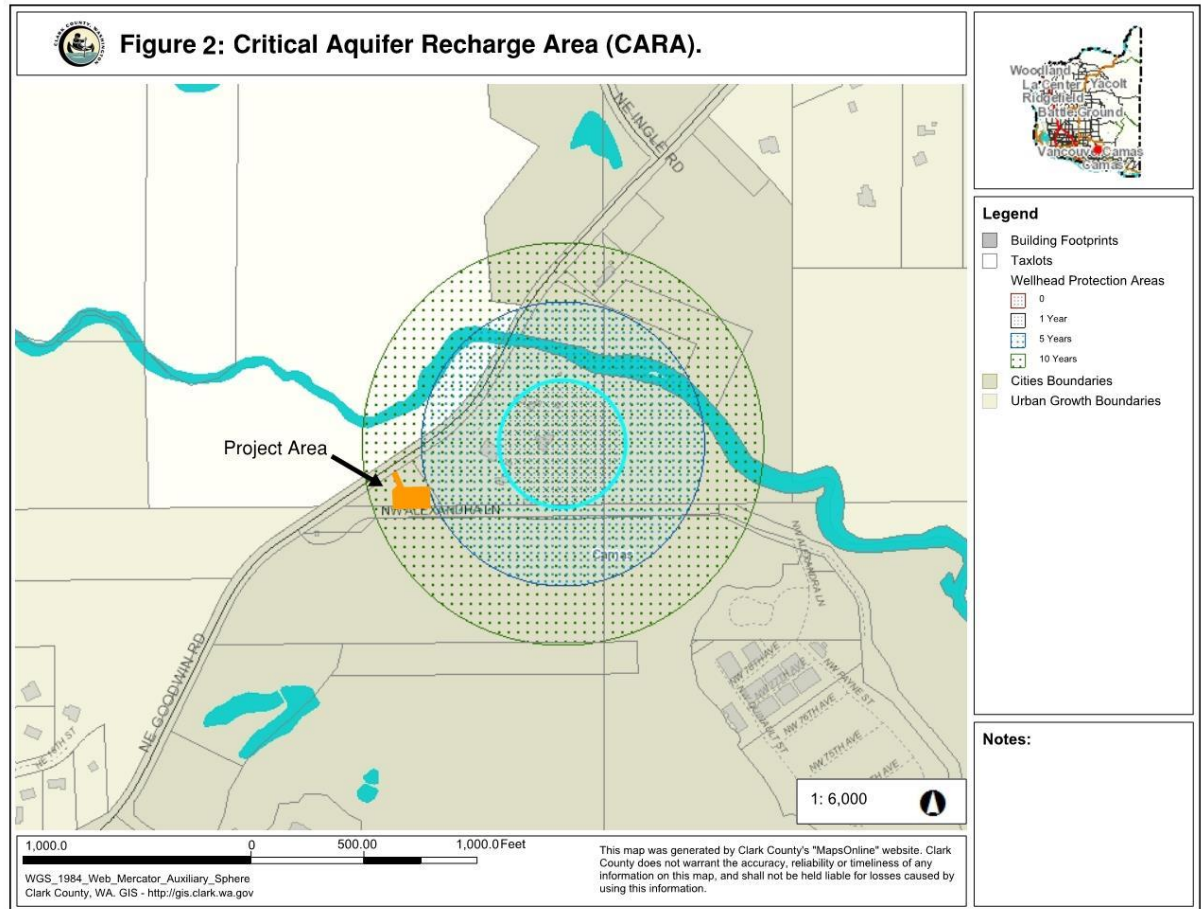


Figure 2: Critical Aquifer Recharge Area (CARA).

3. GROUND WATER

Columbia West Engineering dug four hand-auger borings within the new parking lot area on May 9, 2016. The purpose of the exploration was to assess the depth to groundwater. The depth varied from 30 inches – 32 inches below existing ground. Flow direction is typically from southwest to northeast.

4. WELLS AND SPRINGS

According to the Department of Health, there are ten wells within the project vicinity.

1. Camas Meadows Golf Course – 144 foot completed well. The static water level in the well was 13.0 feet below grade. Drill completed on 2-05-01.

2. Camas Meadows Golf Course – decommissioned on 8-26-05.
3. Harold Witters – 171 foot completed well for private home use. The static water level in the well was 110 feet below grade. Drill completed on 3-31-78.
4. Randy Hanson – 115 foot completed well. The static water level in the well was 65 feet below grade. Drill completed on 7-27-85.
5. Randy Hanson – 108 foot completed well. The static water level in the well was 58 feet below grade. Drill completed on 5-06-86.
6. Randy Hanson – 100 foot completed well. The static water level in the well was 49 feet below grade. Drill completed on 9-03-85.
7. Randy Hanson – 122 foot completed well. The static water level in the well was 59 feet below grade. Drill completed on 9-12-85.
8. Randy Hanson – 117 foot completed well. The static water level in the well was 63 feet below grade. Drill completed on 9-04-86.
9. Ron Warman - 98 foot completed well. The static water level in the well was 12.5 feet below grade. Drill completed on 7-08-91.
10. Vanport Manufacturing / George Schmid – abandoned 109 foot well. Well located on Goodwin Road, approximately 600 feet east of Friberg.

There is no current data available on springs within the vicinity.

5. LOCATION OF OTHER CRITICAL AREAS

Location of other critical areas are shown in the Lacamas Heritage Trail Parking Lot Expansion Application for Shoreline Conditional Use Permit and Type II Site Land Use Application, section 5, *Critical Areas Compliance* (HHPR June 2017).

6. BEST MANAGEMENT PRACTICES

Proposed measures would be outlined in the completed Stormwater Pollution Prevention Plan (SWPPP) and temporary erosion and sediment control (TESC) plan. The SWPPP 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)
- High Visibility Plastic or Metal Fence (BMP C103)
- Stabilized Construction Entrance (BMP C105)
- Wheel Wash (BMP C106)
- Construction Road/Parking Area Stabilization (BMP C107)
- Temporary and Permanent Seeding (BMP C120)
- Mulching (BMP C121)
- Nets and Blankets (BMP C122)
- Surface Roughening (BMP C130)
- Dust Control (BMP C140)
- Concrete Handling (BMP C151)
- Material Delivery, Storage, and Containment (BMP C153)
- 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

Upon completion, stormwater from the proposed parking lot would be collected and treated on site, then conveyed to an outfall in the ditch along NE Goodwin Road.



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WETLAND REPORT

Lacamas Heritage Trailhead Parking Lot City of Camas Project: P-911

Prepared for:

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1. INTRODUCTION

The City of Camas (City) is planning to expand the Lacamas Heritage Trail parking lot northeast into an undeveloped parcel (Parcel 986030097) located adjacent (north) to the current parking lot. The proposed parking lot expansion will occupy the western third of the parcel. This report provides the methods used and results from evaluating the parcel for the presence of wetlands.¹

2. GENERAL SITE DESCRIPTION

2.1 Land Use and Landscape Setting

The study area for this wetland delineation is Parcel 986030097, which is triangular in shape (Figure 1), approximately 1.0 acre in size, and located within Section 20, of Township 2 North Range 3 East, Willamette Meridian, City of Camas, Clark County, Washington. The parcel is bound by NE Goodwin Road on the north and Lacamas Heritage Trail/Alexandra Lane on the south. A privately owned parcel is located to the east.

The site is nearly level with elevations typically between 190 and 192 feet above sea level (Figure 2). A ditch lies along the south side of NE Goodwin Road. The bottom of this roadside ditch is approximately 3 to 4 feet lower than the parcel. A gentle slope (approximately 15-20 feet wide) occupies the area between the ditch bottom and the parcel. The parcel is located on a floodplain terrace of Lacamas Creek.

The surrounding parcels are a mixture of agriculture, church property, and open space (park and golf course). Parcel 986030097, the Lacamas Heritage Trail, and the trail parking lot are zoned Open Space. Surrounding parcels are zoned Light Industrial / Business Park (URL: <http://www.cityofcamas.us/images/DOCS/MAPS/zoningmap.pdf>).

2.2 Soils

The Clark County soil survey (USDA Natural Resources Conservation Service [NRCS] 2015a) identifies two map units on the parcel: Cove silty clay loam on the western part and Lauren gravelly loam (0-8% slopes) on the eastern part (Figure 3). Cove soils are very deep, poorly and very poorly drained soils (if not drained) that formed in mixed alluvium on floodplains. Cove soils are classified as hydric (wetland) soils. The Lauren series is deep, well drained soils formed in old alluvium, loess, and volcanic ash on terraces and terrace escarpments. Lauren soils are non-hydric soils.

2.3 Streams

Lacamas Creek proper is approximately 250 feet north of the parcel, on the opposite side of NE Goodwin Road. Lacamas Creek passes beneath NE Goodwin Road approximately 700 feet northeast of the parcel. The parcel is within Water Resource Inventory Area (WRIA) 28 and the 6th field Hydrologic Unit Code (HUC) Lower Columbia/Sandy 170800010606. Lacamas Creek

¹ This report has been reformatted and expanded from a technical memorandum (dated October 16, 2015) prepared by Normandeau Associates (Kent Snyder and Pat Togher) and submitted to Harper Houf Peterson Righellis Inc.

drains areas north and east of the parcel, and flows southward, entering Lacamas Lake approximately 0.6 miles to the south of the parcel. Lacamas Creek is listed as fish habitat for resident fish (Clark County GIS, accessed May 1, 2016); however, anadromous fish are prevented from entering Lacamas Lake and thus Lacamas Creek because of Lacamas Lake and Round Lake dams (US Fish and Wildlife Service [USFWS] 2016, URL: <https://ecos.fws.gov/geofin/>).

Lacamas Creek is regulated as a shoreline under the City's Shoreline Master Program (Type S stream). The parcel is within the Urban Conservancy designation and the areas south of the Lacamas Heritage Trail are designated as Park/Open Space. The parcels on the north side of NE Goodwin Road are in Clark County jurisdiction and zoned agricultural or residential (URL: <http://gis.clark.wa.gov/mapsonline/>).

3. METHODS

3.1 Office Review

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

- Topographic map of the project area from the Clark County GIS (URL: <http://gis.clark.wa.gov/mapsonline/>);
- Relevant Wetland Inventory maps from the City (URL: <http://www.cityofcamas.us/images/DOCS/MAPS/wetlandsmay.pdf>) and Clark County GIS;
- USDA Natural Resources Conservation Service (NRCS) soil survey maps (URL: <http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>); and
- Precipitation and climate data from the NOAA National Weather Service (NWS).

The City's wetland inventory map (Figure 4) does not identify wetlands on the parcel. Clark County wetland inventories (Figure 5) indicate potential wetlands along Lacamas Creek and along the south side of NE Goodwin Road, consistent with the roadside ditch location. Soils were discussed in section 2.2.

Rainfall was evaluated for the three months preceding the field visit as measured at the Portland International Airport weather station (NOAA NWS 2015). While July fell within the normal range, precipitation for August at the time of the delineation and for the months of May and June (Table 1) was below the normal range. At the time of the delineation the total precipitation for August was below normal.

Table 1. Summary of Precipitation at Portland International Airport Weather Station (NOAA NWS 2015).

| Month | Total Precipitation (inches) | Normal Range WETS (inches) | Within Normal Range | Average (inches) |
|----------------------|------------------------------|----------------------------|---------------------|------------------|
| May | 0.59 | 1.39 – 2.89 | Drier | 2.38 |
| June | 0.49 | 0.91 – 1.94 | Drier | 1.59 |
| July | 0.57 | 0.29 – 0.89 | Yes | 0.72 |
| August (1-20) | 0.66 (0.12) | 0.30 – 1.12 | Yes (Drier) | 0.93 |
| Overall for May-July | N/A | N/A | Drier than Normal | N/A |

The growing season recorded at 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 2015b).

3.2 Field Wetland Delineation and Waters of the State

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 the 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 Critical Areas ordinance (Camas Municipal Code [CMC] 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 2014 National Wetland Plant List (NWPL) (Lichvar, Butterwick, Melvin, and Kirchner 2014). Wetland boundaries and data plots (Appendix A) 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 Harper Houf Peterson Righellis (HHPR) land surveyors.

Delineated wetland habitats were classified according to the system outlined by the USFWS in *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979) and rated using the *Washington State Wetland Rating System for Western Washington—2014 Update* (Hruby 2014). Wetland rating form and supporting graphics are in Appendix B. Wetlands were also identified consistent with the requirements for the CMC 16.53.

Wetlands beyond the study area, but within 300 feet (CMC 16.53.030.B.2) of the parcel, were identified based on wetland inventories, previously prepared reports, and soil maps. These documents were supplemented by field observation of visual features such as saturated areas or plant communities dominated by wetland species. Wetlands outside of the parcel were not delineated.

4. WETLAND DELINEATION RESULTS

HHPR (Kent Snyder, PhD, CPSS and previously with Normandeau Associates) and Normandeau Associates (Patrick Togher, PWS and Susan Imholt) staff conducted a field visit on August 20, 2015 and identified one wetland (C1) at the site. Delineated boundaries for Wetland C1 are shown in Figure 6, and Table 2 provides a summary of the wetland character.

Table 2. Summary of the Wetland C1 on the Lacamas Trail Parking Lot Expansion Site.

| Wetland | Size* (acres) | HGM Classification | Cowardin Class |
|---------|------------------|-----------------------|---------------------------|
| C1 | 0.044 | Slope | Palustrine Scrub-shrub |

*Based on site survey by HHPR.

4.1 Location and General Description

Wetland C1 is a very small (0.044 acres or 1,950 sq. ft.) scrub-shrub slope wetland located south of NE Goodwin Road and in the southwest corner of the parcel (Photograph 1). The wetland occupies a gentle slope abutting the roadside ditch (Photographs 2 and 3). Based on site topography, truncated soil profiles, and proximity to the roadside ditch, the land surface appears to have been graded in the past, possibly associated with earlier road construction or ditch excavation. The boundary of Wetland C1 is based on changes in elevation on the slope (slope breaks) and changes in dominant plant species.

4.2 Vegetation

Vegetation in Wetland C1 consists of a canopy of Oregon ash (*Fraxinus latifolia*) with an understory dominated by Douglas spirea (*Spirea douglasii*) and Nootka rose (*Rosa nutkana*). Black hawthorn (*Crataegus douglasii*), common snowberry (*Symphoricarpos albus*), and multiflora rose (*Rosa multiflora*) are present in smaller quantities. Areas immediately alongside the ditch also had small populations of cleavers (*Galium aparine*) and spotted lady's-thumb (*Persicaria maculosa*). The dominant species in the data plot (Data Form C1-W, Appendix A) satisfy the wetland vegetation criterion.

Portions of the abutting road ditch are dominated by reed canarygrass (*Phalaris arundinacea*) (Photographs 2 and 3). One small area of common cattail (*Typha latifolia*) is present to the north of the Wetland C1.

4.3 Soils

Soils observed in Wetland C1 consist of a very dark gray (10YR 3/1) silt loam extending from the surface to a depth of 3 inches. From 3 to 13 inches the soil profile consists of a very dark grayish brown (10YR 3/2) silty clay loam, totaling approximately 40 percent of the matrix, with 35 percent dark yellowish brown (10YR 3/4) concentrations and 20 percent gray (10YR 5/1) and 5 percent dark gray (10YR 4/1) depletions in the matrix (Data Form C1-W, Appendix A). Starting at 13 inches the soil structure is platy and very to extremely firm in place (and very difficult to excavate). This structure is typically present lower in the soil profile and the shallow

occurrence is interpreted as evidence of truncation (i.e., the removal of the native soil surface). The soil matrix, with the noted concentrations and depletions, meets the definition for redox dark surface (indicator F6), and satisfies the hydric soil criterion.

4.4 Hydrology

Water appears to enter Wetland C1 as surface and subsurface flows from upland areas to the south and elevated groundwater levels near the ditch along NE Goodwin Road. Because of the prolonged dry summer conditions the most consistent indicators of wetland hydrology — surface ponding, saturation in the soil profile, and elevated water table — were not present and could not be used as reliable indicators of wetland hydrology. Wetland hydrology indicators present in the data plot (C1-W) included water stained leaves (B9, primary indicator), drainage patterns (B10, secondary indicator), and the geomorphic position of the wetland (D2, secondary indicator). The presence of these primary and secondary indicators of wetland hydrology meets the wetland hydrology criterion.

4.5 Wetland Rating

Wetland C1 is a very small wetland (0.044 acre, which is 1,950 square feet). Consequently, the functions and therefore ratings are difficult to assess accurately using the Washington State Wetland Rating System for Western Washington (Hruby 2014). As 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 [sic] 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).”

Dr. Hruby recently reconfirmed the unsuitability of this method for assessing the habitat function of small wetlands in comments made at the 2015 Pacific Northwest Chapter of the Society of Wetland Scientists (SWS) Conference in Olympia, Washington (comments by Thomas Hruby, PhD, at SWS meeting attended by Patrick Togher, Normandeau, October 7, 2015). Dr. Hruby went on to explain that wetland size is no longer considered in wetland ratings because it is addressed by calculation of loss and mitigation in the Washington State Department of Ecology’s (Ecology’s) credit/debit analysis (Hruby 2012).

With this understanding, Wetland C1 was rated using the Washington State Wetland Rating System for Western Washington – 2014 Update (Hruby 2014). The resulting scores indicated moderate water quality function (score of 6), with low to moderate hydrologic function (score of 5), and low habitat function (score of 4). Overall, these scores result in a Category IV rating (Appendix B).

The majority of the points for the habitat score result from landscape potential and habitat value reflective of the surrounding landscape rather than the habitat functions of Wetland C1 proper, which is surrounded by developed areas, segregated from mammalian access and the Lacamas Creek riparian area by busy roadways, and has little or no diversity of habitat niches or species.

As a result, its habitat function is largely confined to disturbance tolerant small mammals and passerine birds that obtain nearly the same habitat from nearby upland areas. The wetland is not ecologically integrated into or relevant to nearby Washington Department of Fish and Wildlife (WDFW) Priority Habitats (WDFW 2015) other than the adjoining oak savanna (Oregon white oak woodland). Features such as a standing snag in this small area are insignificant compared to the number present in the immediate surroundings. Finally, although part of the wetland (10-20%) could be occasionally flooded, the absolute area is very small and not deemed a relevant ecosystem service.

The widest buffer for a Category IV wetland is a 50-foot buffer to facilitate the wetland's water quality function from a high-intensity land use (CMC 16.53.040-1 through 4). Based on the character of Wetland C1 and our specific evaluation of its functions, it is reasonable to assume that buffer impacts could be mitigated by proper application of Best Management Practices (BMPs) and design standards in one of the state water quality manuals, e.g., Ecology's Stormwater Management Manual for Western Washington or the Washington Department of Transportation (WSDOT) Highway Runoff Manual, or the Low Impact Development Technical Guidance Manual for Puget Sound.

Table 3. Summary of the Wetland C1 Rating and Buffer Width.

| Wetland | Size* (acres) | Wetland Rating** | Max. Buffer Width*** |
|-----------|------------------|---------------------|-----------------------------|
| C1 | 0.044 | IV | Water Quality: 50 feet** |

* Based on site survey by HHPR.

** Hruby, 2014.

*** CMC 16.53.040-1 & 3 applying high intensity use per CMC 16.53.040-4.

4.6 Associated Upland

The upland sample plot (C1-U) for Wetland C1 is located 6 feet to the south and 1 to 1.5 feet in elevation above wetland Plot C1-W. Vegetation in the upland immediately south of Wetland C1 is dominated by common snowberry and Nootka rose (Photograph 4). Black hawthorn and cascara (*Frangula purshiana*) are present in smaller quantities (Appendix A, Data form C1-U). Himalayan blackberry (*Rubus armeniacus*) is present across much of the buffer and forms thickets in some areas.

Soils at Plot C1-U consist of a very dark brown (10YR 2/2) silt loam A horizon with approximately 20 percent very dark grayish brown (10YR 3/2) depletions in the matrix, extending from the surface to a depth of 10 inches. From 10 to 14 inches the soils are a dark grayish brown (10YR 4/2) silty clay loam (approximately 50 percent of the soil) with approximately 20 percent strong brown (7.5YR 5/8) and 20 percent yellowish brown (10YR 5/8) concentrations, and 10 percent grayish brown (10YR 5/2) depletions in the matrix. The presence of this low chroma matrix color with prominent redoximorphic features meets the definition of a depleted matrix (Indicator F3), however this soil morphology is not consistent with the current landscape conditions, and appears to reflect the aquic regime present at the time of the soil mapping (1950-1960s). Extensive ditching along both sides of NE Goodwin Road intercept subsurface and surface flow from the northwest and shunt it to Lacamas Creek. Also,

construction of Alexandra Lane/Lacamas Heritage Trail reduced subsurface and surface flow from the southwest. Based on this analysis, we have determined that the soils in the upland plot do not meet the hydric soils criteria. No indicators of wetland hydrology were identified in the sample plot location.

In summary, the plant community is not dominated by wetland species, current conditions do not support hydric soils in this location, and no primary or secondary indicators of wetland hydrology were present.

Southward from the wetland margin described above are areas of European hawthorn (*Crataegus monogyna*) and scattered Douglas fir (*Pseudotsuga menziesii*). Farther yet to the south is oak savanna vegetation (Photograph 5), with an open canopy composed of Oregon white oak (*Quercus garryana*, approximately 40 percent by stem count) Douglas fir (approximately 40 percent), and Oregon ash (20 percent). The understory is also rather open and dominated by snowberry and sword fern (*Polystichum munitum*), and smaller amounts of Himalayan blackberry. Part of this oak savanna landscape contains an open meadow consisting of a mixture of grasses and disturbance tolerant forbs, such as selfheal (*Prunella vulgaris*) and English plantain (*Plantago lanceolata*); white moth mullein (*Verbascum blattaria*) and graceful cinquefoil (*Potentilla gracilis*) are locally common. Numerous small Oregon white oak, Oregon ash, and Douglas fir seedlings are present in the oak savanna and open area—often growing side by side (Photograph 6). Such a mixture is not consistent with the typical moisture requirements or habitat associations of these species, and their presence may represent a response to changing hydrology (less moisture) at the site. In the southernmost portion of the parcel, a narrow fringe of Douglas spirea and clustered rose (*Rosa pisocarpa*) is present along the southern fence. This area appears higher in elevation, possibly a result of the construction prism for the adjoining parking lot. Although these species are typically wetland associates, they also are common in disturbed areas open to sunlight – which appears to be the case here.

4.7 On-site Streams

No streams were identified on the parcel. One roadside ditch (Photographs 2 and 3) was identified on the parcel along NE Goodwin Road. This feature is likely to be regulated by USACE as a water of the US.

4.8 Off-site Wetlands

Two other wetlands were identified within 300 feet of the site: LHT-1 and Lacamas Creek 1 (Photograph 7). These wetlands were not formally delineated. A preliminary wetland assessment was made based on existing reports for the vicinity and the Clark County wetland inventory, supplemented by field observations. A summary of the characteristics of these wetlands is provided in Table 4.

4.9 Off-site Streams

Lacamas Creek (Photograph 8) is approximately 200 feet to the north of the parcel on the opposite side of NE Goodwin Road at its nearest location. Lacamas Creek is identified as a shoreline and is rated as a Type S stream, which requires a 150-foot buffer in Camas (16.61.040 D) and a 250-foot buffer in Clark County (Clark County Code [CCC] 40.460.530.F.1.(3)(a)). In

either case, Lacamas Creek stream buffers do not extend onto the Lacamas Heritage Trail parking lot site.

Table 4. Summary of Off-site Wetlands near the Lacamas Trail Parking Lot Expansion, Camas, Washington.

| Wetland | Location | Estimated Size (acres) | HGM Classification | Cowardin Class | Est. Wetland Rating* | Jurisdiction and Buffer Width |
|------------------------|--|------------------------|--------------------|--|----------------------|--|
| LHT 1 | South of NW Alexandra Lane; this wetland is located in a broad depression. | >5 acres | Depressional | Emergent (including Bradshaw's lomatium), mixed grasses, and patches of willow shrubs | III | City of Camas** WQ: 80 feet Habitat: 120-300 feet, depending on habitat score The buffer for this wetland is terminated by NW Alexandra Lane, thus buffer functions do not extend onto the project parcel. |
| Lacamas Creek 1 | West bank of Lacamas Creek, north of NE Goodwin Road, the wetland occupies floodplain fringe along stream. | >10 acres | Riverine | Forested Oregon ash, red-osier dogwood, willow spp., Himalayan blackberry, reed canarygrass, skunk cabbage, small-fruited bulrush, and jewelweed | II | City of Camas** WQ: 100 feet Habitat: 140-300 feet Clark County*** WQ: 100 feet Habitat: 140-200 feet The buffer for this wetland is terminated by NE Goodwin Road, thus buffer functions do not extend onto the project parcel. |

** CMC 16.53.040-1 & 3 applying high intensity use per CMC 16.53.040-4.

*** CCC 40.450.030-2 & 3 applying high intensity use per CCC 40.450.030-5

5. CONCLUSIONS

On-site Wetlands and Streams

One palustrine scrub-shrub slope wetland (Wetland C1) was identified on the parcel. This wetland was rated Category IV according to the 2014 Ecology rating system (Hruby 2014) and City requirements (CMC 16.53). The City requires a buffer of 50 feet on Category IV wetlands for water quality function and no buffer for habitat function. The buffer of Wetland C1 is

currently affected by existing paved roads and developed areas including NE Goodwin Road, NW Alexandra Lane, the paved Lacamas Heritage Trail, and its associated parking lot. Mitigation for any future development in the buffer of Wetland C1 could adequately address water quality buffer functions by developing an appropriate plan for water quality treatment using an approved stormwater manual.

No streams are on the parcel. One roadside ditch was identified along the north side of the parcel that could be regulated by USACE as a water of the US.

Off-site Wetlands and Streams

Two other potential wetlands were identified within 300 feet of the site: LHT-1 and Lacamas Creek 1. The wetland ratings for these two wetlands are estimated to be Category III and II, respectively. Both wetlands are separated from the Lacamas Heritage Trail parking lot site by existing paved roadways; their buffers do not extend onto the site and would not be affected by proposed development at the Lacamas Heritage Trail parking lot.

Lacamas Creek is approximately 200 feet to the north of the parcel on the opposite side of NE Goodwin Road at its nearest location. Lacamas Creek is identified as fish bearing stream Type F. Lacamas Creek stream buffers do not extend onto the Lacamas Heritage Trail parking lot site.

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Appendix A – Figures

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Figure 1. Location Map



1: 2,016



336.1 0 168.03 336.1 Feet

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

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.



Legend

CCD Culvert Inventory

- Fish Use
- No Fish Use
- Unknown

WDFW Fish Passage Barrier Ii

- Fish Use
- No Fish Use
- Unknown

Clark County 1997 Fish Passa

- Passable
- Priority I
- Priority II
- Other
- Not Recommended

Building Footprints

- Taxlots

Roads

ImageOrtho

- Red: Band_1
- Green: Band_2
- Blue: Band_3

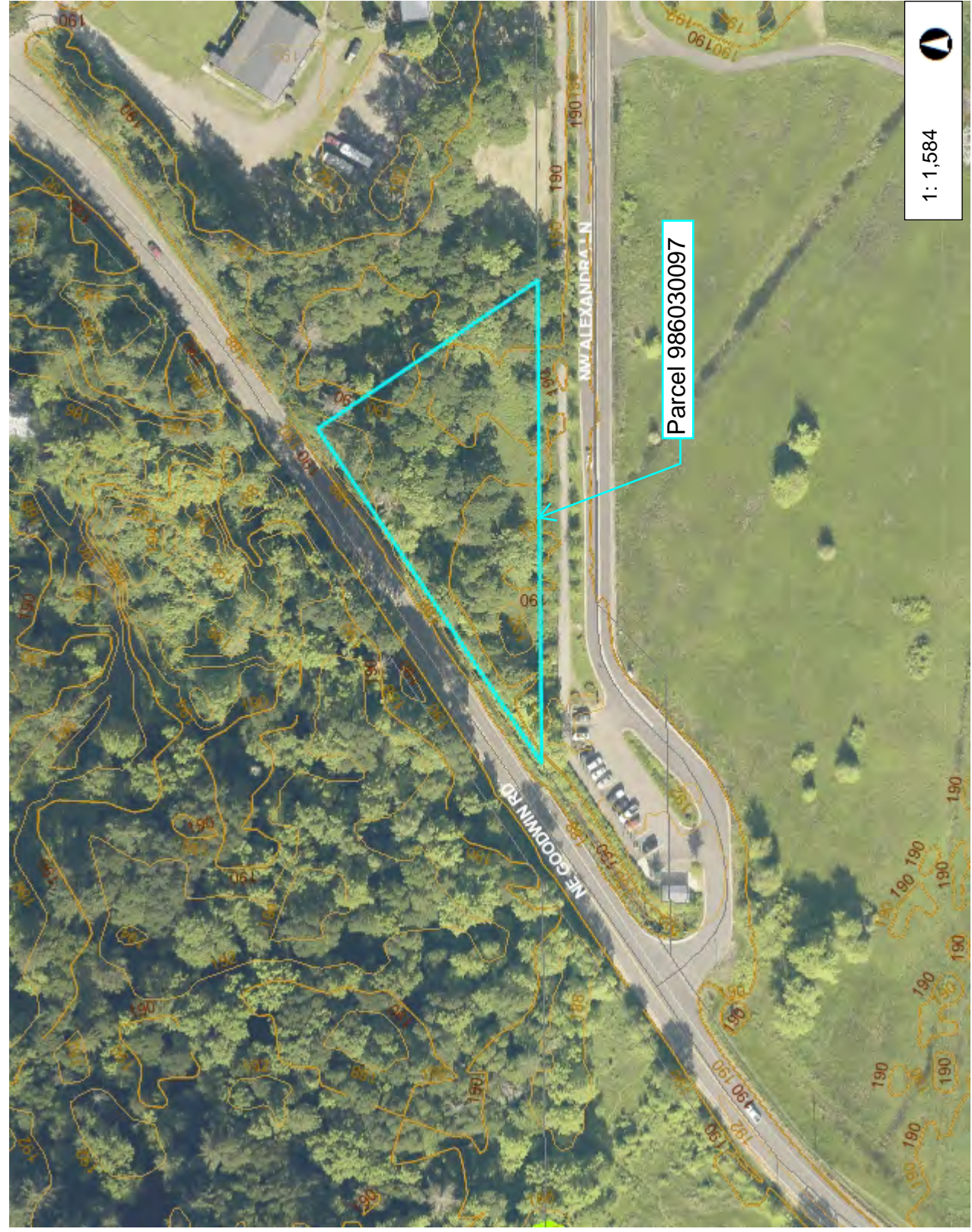
Cities Boundaries

Urban Growth Boundaries

Notes:



Figure 2. Site Topography



Legend

- Building Footprints
- Taxlots
- Contour Lines - 2 ft
- Contour Lines - 10 ft
- Contour Lines - 200 ft
- High Quality Wetland
- NWI Wetland
- Roads
- ImageOrtho
- Red: Band_1
- Green: Band_2
- Blue: Band_3

Notes:

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264.0

131.99

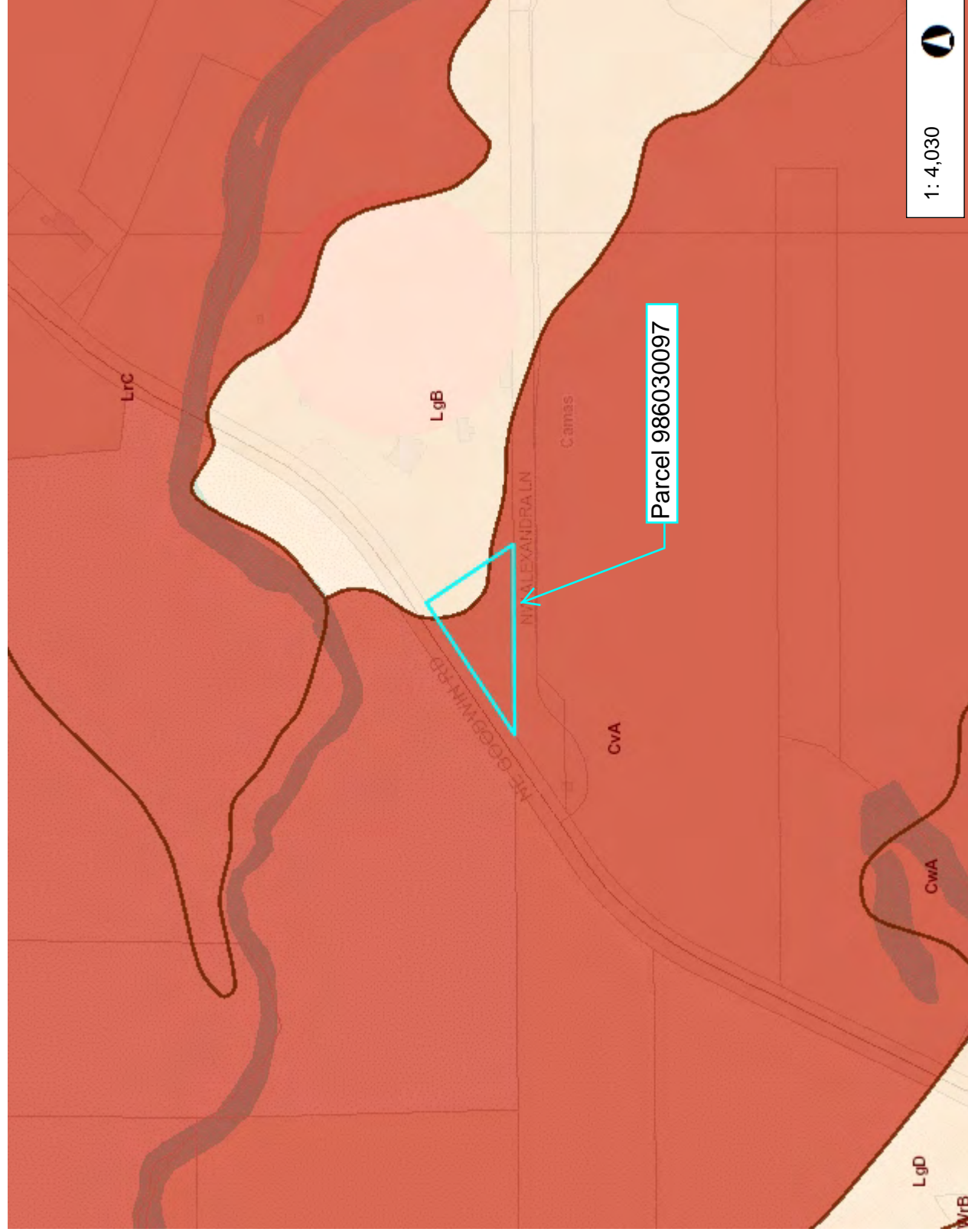
0

264.0 Feet

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



Figure 3. Clark County Soil Map



1: 4,030



Legend

Soil Type

WWHM Soil Group

- 1 - Excessively drained soils
- 2 - Well drained soils
- 3 - Moderately drained soils
- 4 - Poorly drained soils
- 5 - Wetland soils
- Unknown

Critical Aquifer Recharge Area

Category 1 Recharge Areas

Category 2 Recharge Areas

Within 1000 foot buffer

Within 1900 foot buffer

Building Footprints

Taxlots

Cities Boundaries

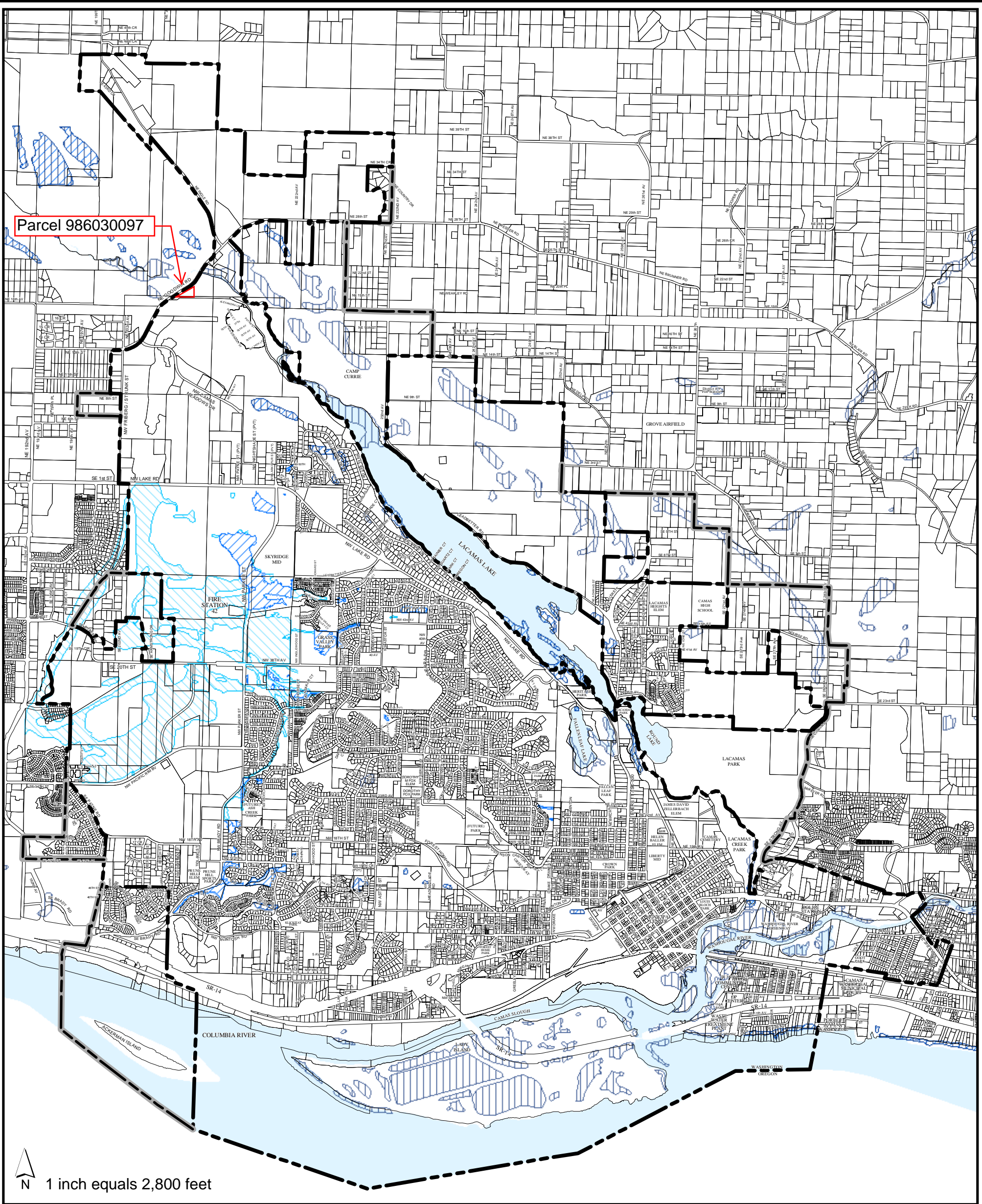
Urban Growth Boundaries

Notes:

671.6 0 335.80 671.6 Feet

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>



Note:
Information on this map was collected from several sources. The City of Camas expressly disclaims any liability for any inaccuracies that may be present. Users of this information should themselves check any details for accuracy.

SMW/ETL 9/10/08

- City Limits

Urban Growth Boundary
- WETLANDS**

1988 NWI

PMX

Delineated

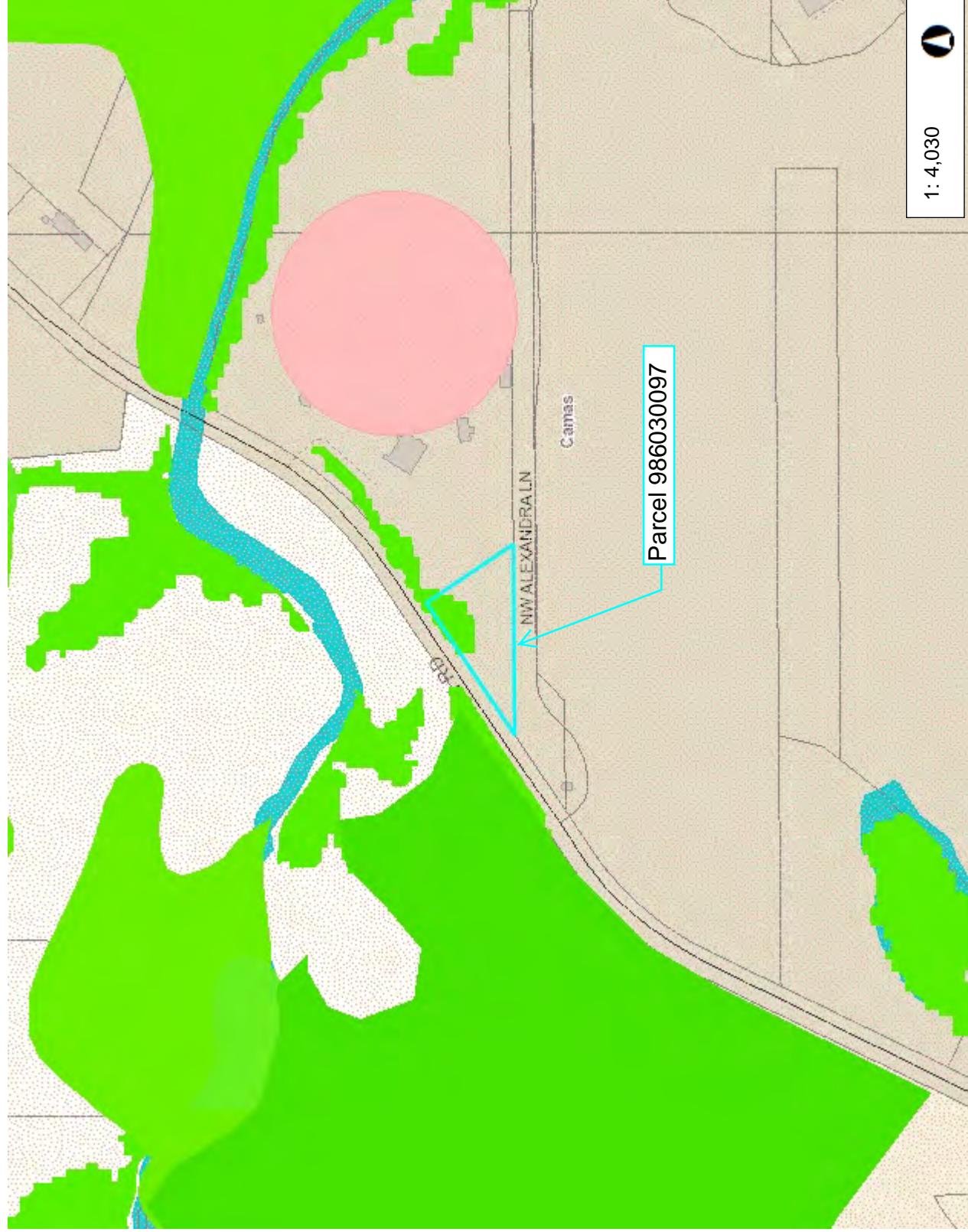
Created

Buffer

FIGURE 4
CITY OF CAMAS
WETLANDS MAP



Figure 5. Clark County Wetland Inventory



Legend

- Wetlands Presence
- Permitted Wetland
- High Quality Wetland
- NWI Wetland
- Modeled Wetland
- Critical Aquifer Recharge Area
 - Category 1 Recharge Areas
 - Category 2 Recharge Areas
 - Within 1000 foot buffer
 - Within 1900 foot buffer
- Building Footprints
- Taxlots
- Cities Boundaries
- Urban Growth Boundaries

Notes:

1: 4,030

671.6 0 335.80 671.6 Feet

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>

Figure 6. Wetland C1 Delineation

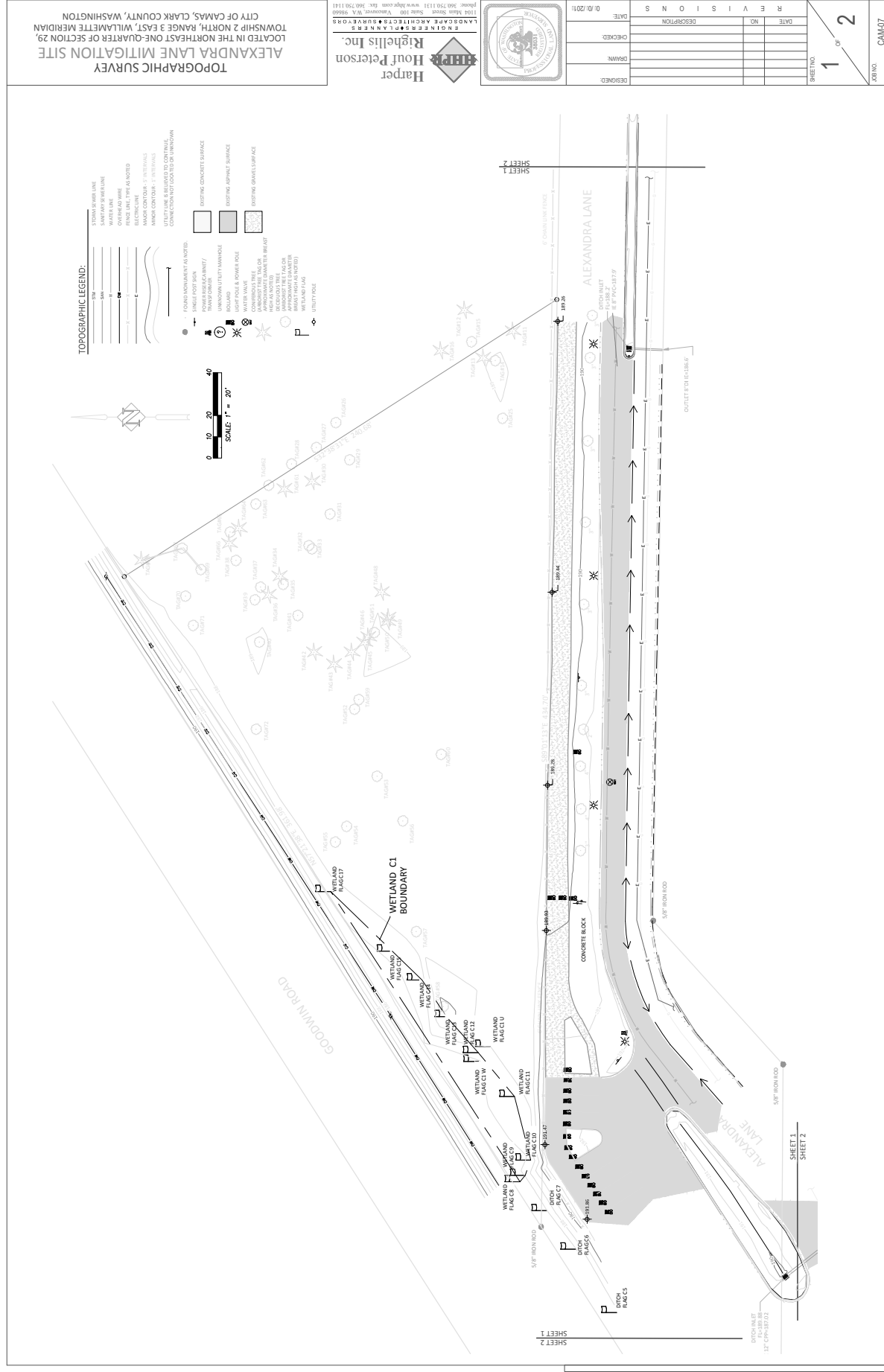


Figure 7. Site Photographs



1. Wetland C1.



2. Ditch along NE Goodwin Road, looking west from parcel.



3. Ditch along NE Goodwin Road, looking east towards parcel.



4. Upland associated with Wetland C1 (to right).



5. Garry oak (Oregon white oak) uplands at the site, looking southeast.



6. Garry oak (Oregon white oak) and Oregon ash growing together.



7. Wetland along Lacamas Creek.



8. Lacamas Creek.

Appendix B – Wetland Data Forms

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

Project/Site: Camas City/County: Camas/Clark Sampling Date: 8/20/15
 Applicant/Owner: City of Camas State: Washington Sampling Point: WP 98, C1-W
 Investigator(s): K. Snyder, P. Togher, S. Imholt Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): flat to concave Slope (%) 1%

Subregion (LRR) A Lat: 45° 38.207' Long: 122° 27.575' Datum: NAD 83
 Soil Map Unit Name: Cove silty clay loam NWI Classification: PSS

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed?

Are vegetation _____, soil _____, or hydrology _____ naturally problematic? Are "normal circumstances" present? No

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | | |
|--|----------|---|
| Hydrophytic vegetation present? | <u>Y</u> | Is the sampled area within a wetland? <u>Yes</u> If yes, optional wetland site ID: <u>C1</u> |
| Hydric soil present? | <u>Y</u> | |
| Indicators of wetland hydrology present? | <u>Y</u> | |

Remarks: (Explain alternative procedures here or in a separate report.)

Sustained drought. All three indicators are present. The sample location is within a wetland.

| Tree Stratum | (Plot size: <u>10 meter</u>) | Absolute % Cover | Dominant Species | Indicator Status |
|-----------------------|-------------------------------|-------------------------|------------------|------------------|
| 1 | <u>Fraxinus latifolia</u> | <u>80</u> | <u>Y</u> | <u>FACW</u> |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| | | <u>80</u> = Total Cover | | |
| Sapling/Shrub stratum | (Plot size: <u>5 meters</u>) | | | |
| 1 | <u>Spiraea douglasii</u> | <u>40</u> | <u>Y</u> | <u>FACW</u> |
| 2 | <u>Rosa nutkana</u> | <u>20</u> | <u>Y</u> | <u>FACU</u> |
| 3 | <u>Crataegus douglasii</u> | <u>5</u> | <u>N</u> | <u>FAC</u> |
| 4 | <u>Symphoricarpos albus</u> | <u>5</u> | <u>N</u> | <u>FACU</u> |
| 5 | <u>Rosa multiflora</u> | <u>1</u> | <u>N</u> | <u>FACU</u> |
| | | <u>71</u> = Total Cover | | |
| Herb stratum | (Plot size: <u>1 meter</u>) | | | |
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| | | <u>0</u> = Total Cover | | |
| Woody vine stratum | (Plot size: <u>5 meters</u>) | | | |
| 1 | | | | |
| 2 | | | | |
| | | <u>0</u> = Total Cover | | |

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 66.67% (A/B)

Prevalence Index Worksheet

Total % Cover of:

| | | | |
|---------------|----------------|-------|----------------|
| OBL species | <u>0</u> | x 1 = | <u>0</u> |
| FACW species | <u>120</u> | x 2 = | <u>240</u> |
| FAC species | <u>5</u> | x 3 = | <u>15</u> |
| FACU species | <u>26</u> | x 4 = | <u>104</u> |
| UPL species | <u>0</u> | x 5 = | <u>0</u> |
| Column totals | <u>151</u> (A) | | <u>359</u> (B) |

Prevalence Index = B/A = 2.38

Hydrophytic Vegetation Indicators:

 Rapid test for hydrophytic vegetation

X Dominance test is >50%

X Prevalence index is ≤3.0*

 Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

 Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present?

Y

Remarks: (Include photo numbers here or on a separate sheet)

Quercus garryana is located right on wetland boundary about 25ft east of plot. *Symphoricarpos albus* is located above wetland boundary line. Species present meet the hydrophytic vegetation criterion.

SOIL

Sampling Point: WP 98, C1-W

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* | Loc** | | |
| 0-3 | 10YR 3/1 | 100 | n/a | | | | SiL | |
| 3-13 | 10YR 3/2 | 40 | 10YR 3/4 | 35 | C | M | SiCL | Platy structure, difficult to dig. |
| | | | 10YR 5/1 | 20 | D | M | | |
| | | | 10YR 4/1 | 5 | D | M | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ☐ Histisol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☒ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (explain in remarks)

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric soil present? Y**Remarks:**

Hydric soil indicator F6 (Redox Dark Surface) is met. The hydric soil criterion is satisfied.

HYDROLOGY**Wetland Hydrology Indicators:**Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1) ☒ Water-Stained Leaves (B9)
☐ High Water Table (A2) ☐ **(Except MLRA 1, 2, 4A, and 4B)**
☐ Saturation (A3) ☐ Salt Crust (B11)
☐ Water Marks (B1) ☐ Aquatic Invertebrates (B13)
☐ Sediment Deposits (B2) ☐ Hydrogen Sulfide Odor (C4)
☐ Drift Deposits (B3) ☐ Oxidized Rhizospheres Along Living Roots (C3)
☐ Algal Mat or Crust (B4) ☐ Presence of Reduced Iron (C4)
☐ Iron Deposits (B5) ☐ Recent Iron Reduction in Thin Soils (C6)
☐ Surface Soil Cracks (B6) ☐ Stunted or Stressed Plants (D1) **(LRR A)**
☐ Inundation Visible on Aerial Imagery ☐ Other (Explain in Remarks)
☐ Sparsely Vegetated Concave Surface (B8)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9)
☐ **(Except MLRA 1, 2, 4A, and 4B)**
☒ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Saturation Visible on Aerial Imagery (C9)
☒ Geomorphic Position (D2)
☐ Shallow Aquatard (D3)
☐ FAC-Neutral Test (D5)
☐ Raised Ant Mounds (D6) **(LRR A)**
☐ Frost Heave Hummocks (D7)

Field Observations:

Surface water present? Yes ☐ No ☒ Depth (inches): _____
 Water table present? Yes ☐ No ☒ Depth (inches): _____
 Saturation present? Yes ☐ No ☒ Depth (inches): _____
 (includes capillary fringe)

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Plot is located on a shallow bench abutting ditch along Goodwin Rd. There is a shallow slope immediately to the south that indicates the boundary. Plot is about 18 inches below the upland plot and about 10ft to the north. Plot is located in a shallow swale with indicators of seasonal ponding which satisfy the wetland hydrology criterion.

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

Project/Site: Camas City/County: Camas/Clark Sampling Date: 8/20/15
 Applicant/Owner: City of Camas State: Washington Sampling Point: WP 97, C1-U
 Investigator(s): K. Snyder, P. Togher, S. Imholt Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): flat to sloped Slope (%) 2%
 Subregion (LRR) A Lat: 45° 38.210' Long: 122° 27.57' Datum: NAD 83
 Soil Map Unit Name: Cove silty clay loam NWI Classification: upland

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed?

Are vegetation _____, soil _____, or hydrology _____ naturally problematic? Are "normal circumstances" present? No

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

| | | |
|--|----------|---|
| Hydrophytic vegetation present? | <u>N</u> | Is the sampled area within a wetland? <u>No</u> If yes, optional wetland site ID: _____ |
| Hydric soil present? | <u>N</u> | |
| Indicators of wetland hydrology present? | <u>N</u> | |

Remarks: (Explain alternative procedures here or in a separate report.)

All three parameters absent. The sample location is not within a wetland. Soil has hydric soil indicators, but soil morphology is not considered consistent with current hydrology based on surrounding land changes and vegetation.

| Tree Stratum | (Plot size: <u>10 meter</u>) | Absolute % Cover | Dominant Species | Indicator Status | Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across all Strata: <u>2</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B) |
|-----------------------|-------------------------------|------------------|------------------|------------------|--|
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| | | <u>0</u> | = Total Cover | | Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>5</u> x 3 = <u>15</u> FACU species <u>100</u> x 4 = <u>400</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>105</u> (A) <u>415</u> (B) Prevalence Index = B/A = <u>3.95</u> |
| Sapling/Shrub stratum | (Plot size: <u>5 meters</u>) | | | | |
| 1 | <u>Symphoricarpos albus</u> | <u>70</u> | <u>Y</u> | <u>FACU</u> | |
| 2 | <u>Rosa nutkana</u> | <u>25</u> | <u>Y</u> | <u>FACU</u> | |
| 3 | <u>Crataegus douglasii</u> | <u>5</u> | <u>N</u> | <u>FAC</u> | |
| 4 | <u>Frangula purshiana</u> | <u>5</u> | <u>N</u> | <u>FACU</u> | |
| 5 | | | | | |
| | | <u>105</u> | = Total Cover | | |
| Herb stratum | (Plot size: <u>1 meter</u>) | | | | Hydrophytic Vegetation Indicators: _____ Rapid test for hydrophytic vegetation _____ Dominance test is >50% _____ Prevalence index is ≤3.0* _____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) _____ Problematic hydrophytic vegetation* (explain) _____ *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic |
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| | | <u>0</u> | = Total Cover | | |
| Woody vine stratum | (Plot size: <u>5 meters</u>) | | | | Hydrophytic vegetation present? <u>N</u> |
| 1 | | | | | |
| 2 | | | | | |
| | | <u>0</u> | = Total Cover | | |

Remarks: (Include photo numbers here or on a separate sheet)

No trees rooted in plot. *Fraxinus latifolia* is rooted in wetland to northeast with about 50% cover; vegetation in the plot does not meet indicators.

SOIL

Sampling Point: WP 97, C1-U

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* | Loc** | | |
| 0-10 | 10YR 2/2 | 80 | 10YR 3/2 | 20 | D | M | SiL | |
| 10-14 | 10YR 4/2 | 50 | 7.5YR 5/8 | 20 | C | M | SiCL | |
| | | | 10YR 5/8 | 20 | C | M | | |
| | | | 10YR 5/2 | 10 | D | M | | Pit ends at 14 inches |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ☐ Histisol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
☐ Loamy Gleyed Matrix (F2)
☒ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (explain in remarks)

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric soil present? N **Remarks:**

Soil morphology is not consistent with current landscape conditions and reflects a prior aquic moisture regime at the time of the soil mapping (1950-1960s). Extensive ditching along both sides of the roadway intercepts subsurface flow from northwest and Alexandra Lane/Lacamas Heritage Trail may reduce subsurface flow from the south. Leaving in-site interception

HYDROLOGY**Wetland Hydrology Indicators:**Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or Crust (B4)
☐ Iron Deposits (B5)
☐ Surface Soil Cracks (B6)
☐ Inundation Visible on Aerial Imagery
☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
☐ **(Except MLRA 1, 2, 4A, and 4B)**
☐ Salt Crust (B11)
☐ Aquatic Invertebrates (B13)
☐ Hydrogen Sulfide Odor (C4)
☐ Oxidized Rhizospheres Along Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Thin Soils (C6)
☐ Stunted or Stressed Plants (D1) **(LRR A)**
☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9)
☐ **(Except MLRA 1, 2, 4A, and 4B)**
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Geomorphic Position (D2)
☐ Shallow Aquatard (D3)
☐ FAC-Neutral Test (D5)
☐ Raised Ant Mounds (D6) **(LRR A)**
☐ Frost Heave Hummocks (D7)

Field Observations:

Surface water present? Yes ☐ No ☒ Depth (inches): _____
 Water table present? Yes ☐ No ☒ Depth (inches): _____
 Saturation present? Yes ☐ No ☒ Depth (inches): _____
 (includes capillary fringe)

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No primary or secondary indicators of wetland hydrology. Surrounding landscape conditions do not indicate wetland hydrology -- ditching along Goodwin Rd and development of parking lot, Alexandra Ln, and trail has altered hydrology.

Appendix C – Wetland Rating Form

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Camas C1 Date of site visit: 8/20/2015Rated by P. Togher Trained by Ecology? ☒ Yes ☐ No Date of training 14-SepHGM Class used for rating Slope Wetland has multiple HGM classes? ☐ Yes ☒ No**NOTE: Form is not complete with out the figures requested (figures can be combined).**Source of base aerial photo/map Google Earth, ESRI ArcGIS**OVERALL WETLAND CATEGORY** IV (based on functions ☒ or special characteristics ☐)**1. Category of wetland based on FUNCTIONS**

 Category I - Total score = 23 - 27

 Category II - Total score = 20 - 22

 Category III - Total score = 16 - 19

 X **Category IV** - Total score = 9 - 15

**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

| FUNCTION | Improving Water Quality | Hydrologic | Habitat | |
|--|----------------------------|------------|---------|--------------|
| <i>List appropriate rating (H, M, L)</i> | | | | |
| Site Potential | L | M | L | |
| Landscape Potential | M | M | M | |
| Value | H | L | M | Total |
| Score Based on Ratings | 6 | 5 | 4 | 15 |

2. Category based on SPECIAL CHARACTERISTICS of wetland

| CHARACTERISTIC | Category |
|------------------------------------|----------|
| Estuarine | |
| Wetland of High Conservation Value | |
| Bog | |
| Mature Forest | |
| Old Growth Forest | |
| Coastal Lagoon | |
| Interdunal | |
| None of the above | X |

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 | F1 |
| Hydroperiods | H 1.2 | F1 |
| Plant cover of dense trees, shrubs, and herbaceous plants | S 1.3 | F1 |
| Plant cover of dense, rigid trees, shrubs, and herbaceous plants (<i>can be added to another figure</i>) | S 4.1 | F1 |
| Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>) | S 2.1, S 5.1 | F1 |
| 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 | F2 |
| Screen capture of map of 303(d) listed waters in basin (from Ecology website) | S 3.1, S 3.2 | F3 |
| Screen capture of list of TMDLs for WRIA in which unit is found (from web) | S 3.3 | F4 |

HGM Classification of Wetland in Western Washington

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

- 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.
☐

- ☐ NO - go to 6 ☐ 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**

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.*

SLOPE WETLANDS**Water Quality Functions** - Indicators that the site functions to improve water quality

S 1.0. Does the site have the potential to improve water quality?

S 1.1. Characteristics of the average slope of the wetland: (*a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance*)

| | | |
|--------------------------|------------|---|
| Slope is 1% or less | points = 3 | 2 |
| Slope is > 1% - 2% | points = 2 | |
| Slope is > 2% - 5% | points = 1 | |
| Slope is greater than 5% | points = 0 | |

S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions):

Yes = 3 No = 0

0

S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants:

Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.*

| | | |
|---|------------|---|
| Dense, uncut, herbaceous plants > 90% of the wetland area | points = 6 | 2 |
| Dense, uncut, herbaceous plants > ½ of area | points = 3 | |
| Dense, woody, plants > ½ of area | points = 2 | |
| Dense, uncut, herbaceous plants > ¼ of area | points = 1 | |
| Does not meet any of the criteria above for plants | points = 0 | |

Total for S 1

Add the points in the boxes above

4

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

Record the rating on the first page

S 2.0. Does the landscape have the potential to support the water quality function of the site?

S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants?

Yes = 1 No = 0

1

S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1?

Other Sources Yes = 1 No = 0

0

Total for S 2

Add the points in the boxes above

1

Rating of Landscape Potential If score is: ☒ 1 - 2 = M ☐ 0 = L

Record the rating on the first page

S 3.0. Is the water quality improvement provided by the site valuable to society?

S 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

S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the basin is on the 303(d) list.*

Yes = 1 No = 0

1

S 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

2

Total for S 3

Add the points in the boxes above

4

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

Record the rating on the first page

SLOPE WETLANDS**Hydrologic Functions** - Indicators that the site functions to reduce flooding and stream erosion

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

S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually $> 1/8$ in), or dense enough, to remain erect during surface flows.*

| | | |
|---|------------|---|
| Dense, uncut, rigid plants cover $> 90\%$ of the area of the wetland | points = 1 | 1 |
| All other conditions | points = 0 | |

Rating of Site Potential If score is: ☒ 1 = M ☐ 0 = L

Record the rating on the first page

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

S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? Yes = 1 No = 0

| | |
|--|---|
| | 1 |
|--|---|

Rating of Landscape Potential If score is: ☒ 1 = M ☐ 0 = L

Record the rating on the first page

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

S 6.1. Distance to the nearest areas downstream that have flooding problems:

| | | |
|--|------------|---|
| The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) | points = 2 | 0 |
| Surface flooding problems are in a sub-basin farther down-gradient | points = 1 | |
| No flooding problems anywhere downstream | points = 0 | |

S 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 S 6 ☐ ☐ ☒ Add the points in the boxes above

| | |
|--|---|
| | 0 |
|--|---|

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

Record the rating on the first page

NOTES and FIELD OBSERVATIONS:

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.*

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

H 1.2. Hydroperiods

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 | 0 |
| <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 types present: points = 0 | |
| <input 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 | | |
| Lake Fringe wetland | | 2 points |
| Freshwater tidal wetland | | 2 points |

H 1.3. Richness of plant species

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*

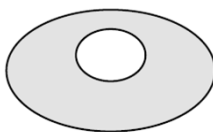
- | | | | |
|-----------------|----------------|------------|---|
| If you counted: | > 19 species | points = 2 | 1 |
| | 5 - 19 species | points = 1 | |
| | < 5 species | points = 0 | |

H 1.4. Interspersion of habitats

Decide from the diagrams below whether interspersion 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.*



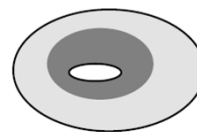
None = 0 points



Low = 1 point

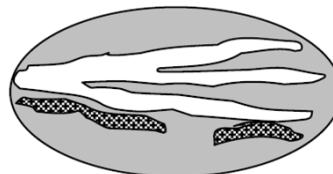
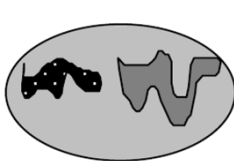


Moderate = 2 points



0

All three diagrams
in this row are
HIGH = 3 points



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.

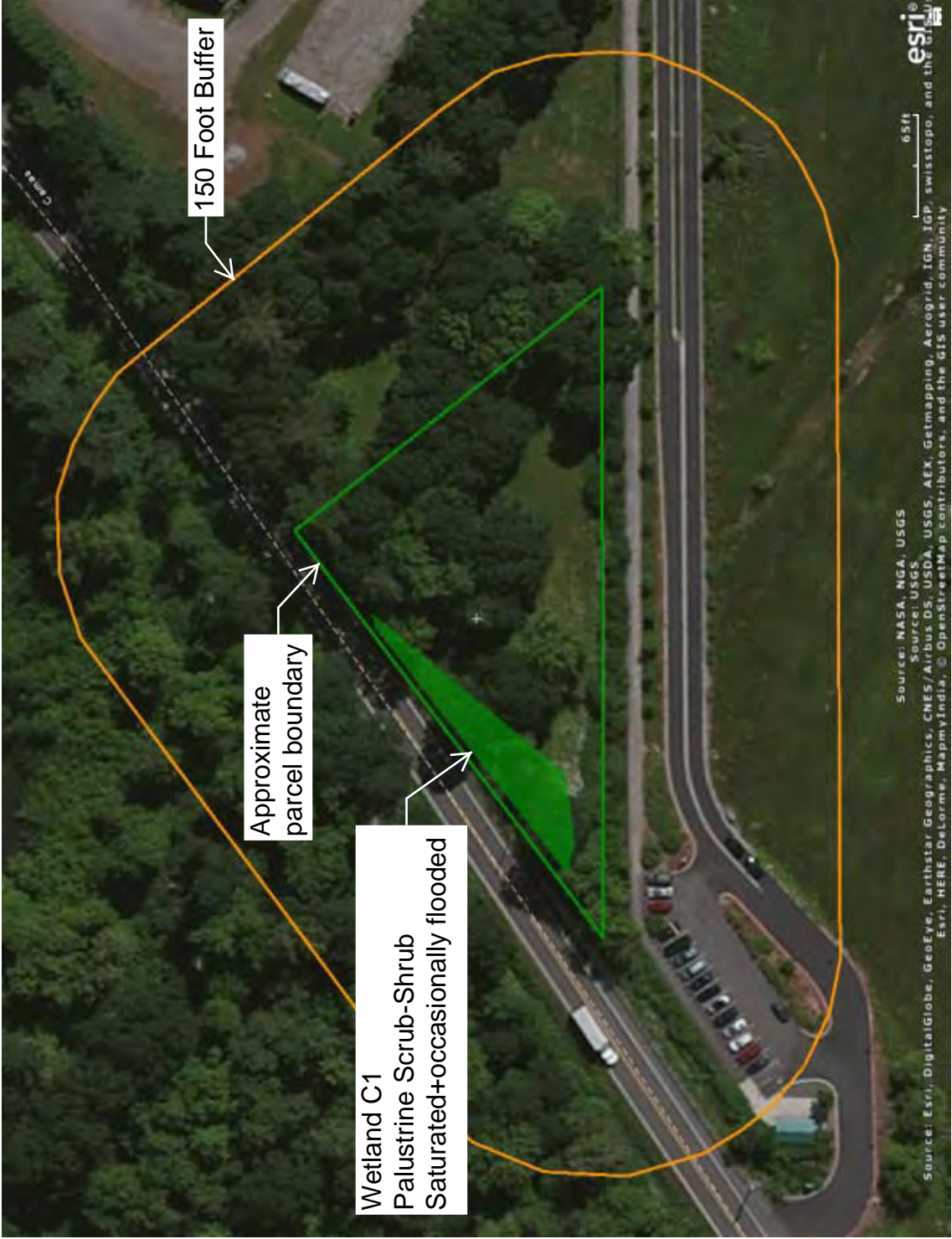
Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

| Wetland Type | Category |
|--|----------|
| <i>Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.</i> | |
| SC 1.0 Estuarine Wetlands <input type="checkbox"/> Does the wetland meet the following criteria for Estuarine wetlands? <input type="checkbox"/> The dominant water regime is tidal, <input type="checkbox"/> Vegetated, and <input type="checkbox"/> With a salinity greater than <input type="checkbox"/> 0.5 ppt <input checked="" type="checkbox"/> <p style="text-align: center;">Yes - Go to SC 1.1 No = Not an estuarine wetland</p> | |
| SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? <input type="checkbox"/> <p style="text-align: center;">Yes = Category I No - Go to SC 1.2</p> | |
| SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? <input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i> , see page 25) <input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. <input type="checkbox"/> The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. <input type="checkbox"/> <p style="text-align: center;">Yes = Category I No = Category II</p> | |
| SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? <input type="checkbox"/> <input checked="" type="checkbox"/> <p style="text-align: center;">Yes - Go to SC 2.2 No - Go to SC 2.3</p> SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? <input type="checkbox"/> <input checked="" type="checkbox"/> <p style="text-align: center;">Yes = Category I No = Not WHCV</p> SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? <input type="checkbox"/> <input checked="" type="checkbox"/> <p style="text-align: center;">Yes - Contact WNHP/WDNR and to SC 2.4 No = Not WHCV</p> SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? <input type="checkbox"/> <input checked="" type="checkbox"/> <p style="text-align: center;">Yes = Category I No = Not WHCV</p> | |
| SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i> SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? <input type="checkbox"/> <input checked="" type="checkbox"/> <p style="text-align: center;">Yes - Go to SC 3.3 No - Go to SC 3.2</p> SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? <input type="checkbox"/> <input checked="" type="checkbox"/> <p style="text-align: center;">Yes - Go to SC 3.3 No = Is not a bog</p> SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? <input type="checkbox"/> <input checked="" type="checkbox"/> <p style="text-align: center;">Yes = Is a Category I bog No - Go to SC 3.4</p> <p>NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog.</p> SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? <input type="checkbox"/> <input checked="" type="checkbox"/> <p style="text-align: center;">Yes = Is a Category I bog No = Is not a bog</p> | |

| | |
|--|--|
| <p>SC 4.0. Forested Wetlands</p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.</p> <p><input type="checkbox"/> Mature forests (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).</p> <p style="text-align: center;"><input type="checkbox"/> Yes = Category I <input checked="" type="checkbox"/> No = Not a forested wetland for this section</p> | |
| <p>SC 5.0. Wetlands in Coastal Lagoons</p> <p><input type="checkbox"/> Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <p>The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks</p> <p><input type="checkbox"/> The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>) <input checked="" type="checkbox"/></p> <p style="text-align: center;">Yes - Go to SC 5.1 No = Not a wetland in a coastal lagoon</p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <p>The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).</p> <p><input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.</p> <p>The wetland is larger than 1/10 ac (435 ft²) <input type="checkbox"/></p> <p style="text-align: center;">Yes = Category I No = Category II</p> | |
| <p>SC 6.0. Interdunal Wetlands</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p><input type="checkbox"/> In practical terms that means the following geographic areas:</p> <p><input type="checkbox"/> Long Beach Peninsula: Lands west of SR 103</p> <p><input type="checkbox"/> Grayland-Westport: Lands west of SR 105</p> <p><input type="checkbox"/> Ocean Shores-Copalis: Lands west of SR 15 and SR 109</p> <p style="text-align: center;">Yes - Go to SC 6.1 No = Not an interdunal wetland for rating</p> <p>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? <input type="checkbox"/></p> <p style="text-align: center;">Yes = Category I No - Go to SC 6.2</p> <p>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? <input type="checkbox"/></p> <p style="text-align: center;">Yes = Category II No - Go to SC 6.3</p> <p>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? <input type="checkbox"/></p> <p style="text-align: center;">Yes = Category III No = Category IV</p> | |
| <p>Category of wetland based on Special Characteristics</p> <p>If you answered No for all types, enter "Not Applicable" on Summary Form</p> | |

Wetland C1 Rating Figure F1



Wetland C1 Rating Figure F2



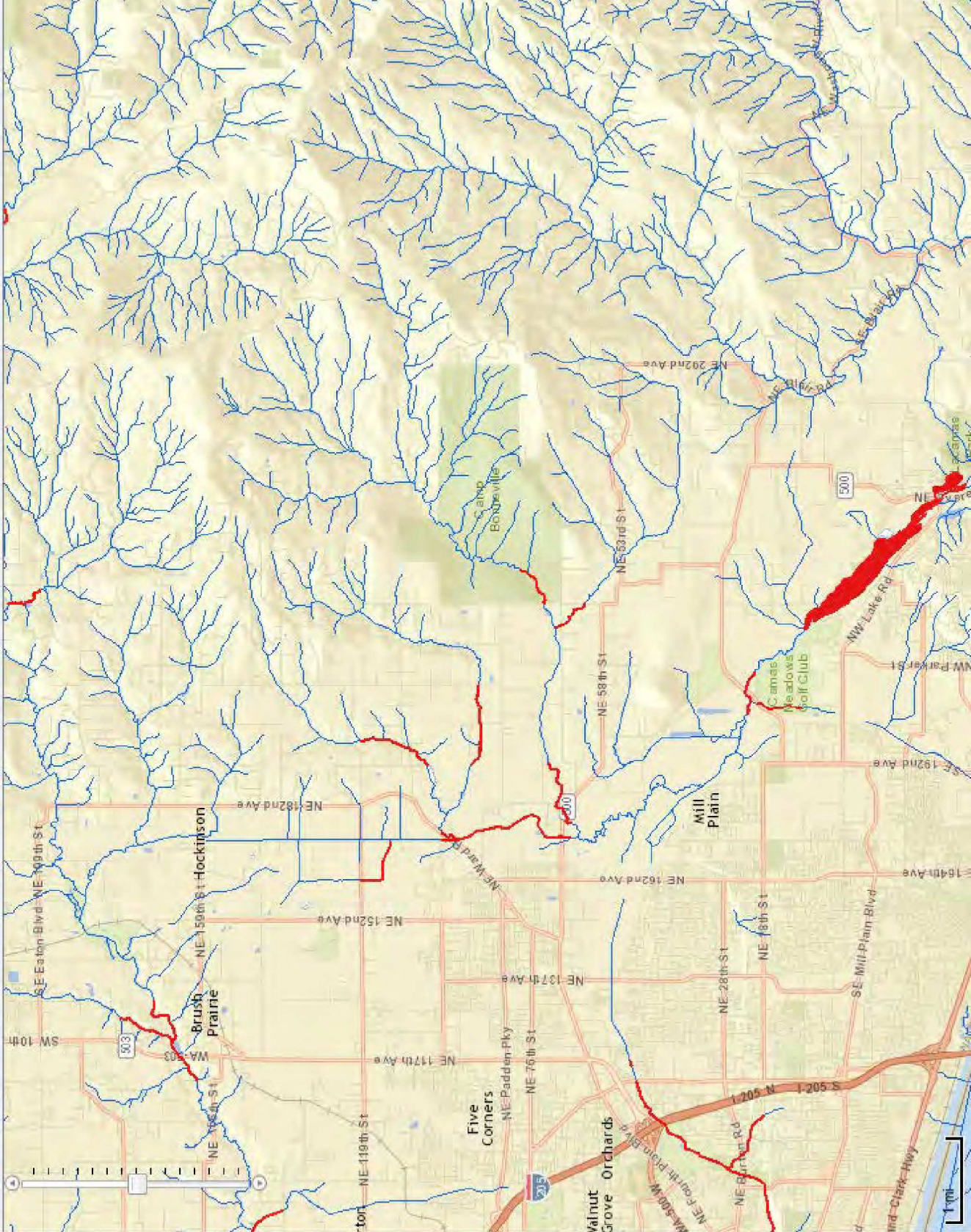


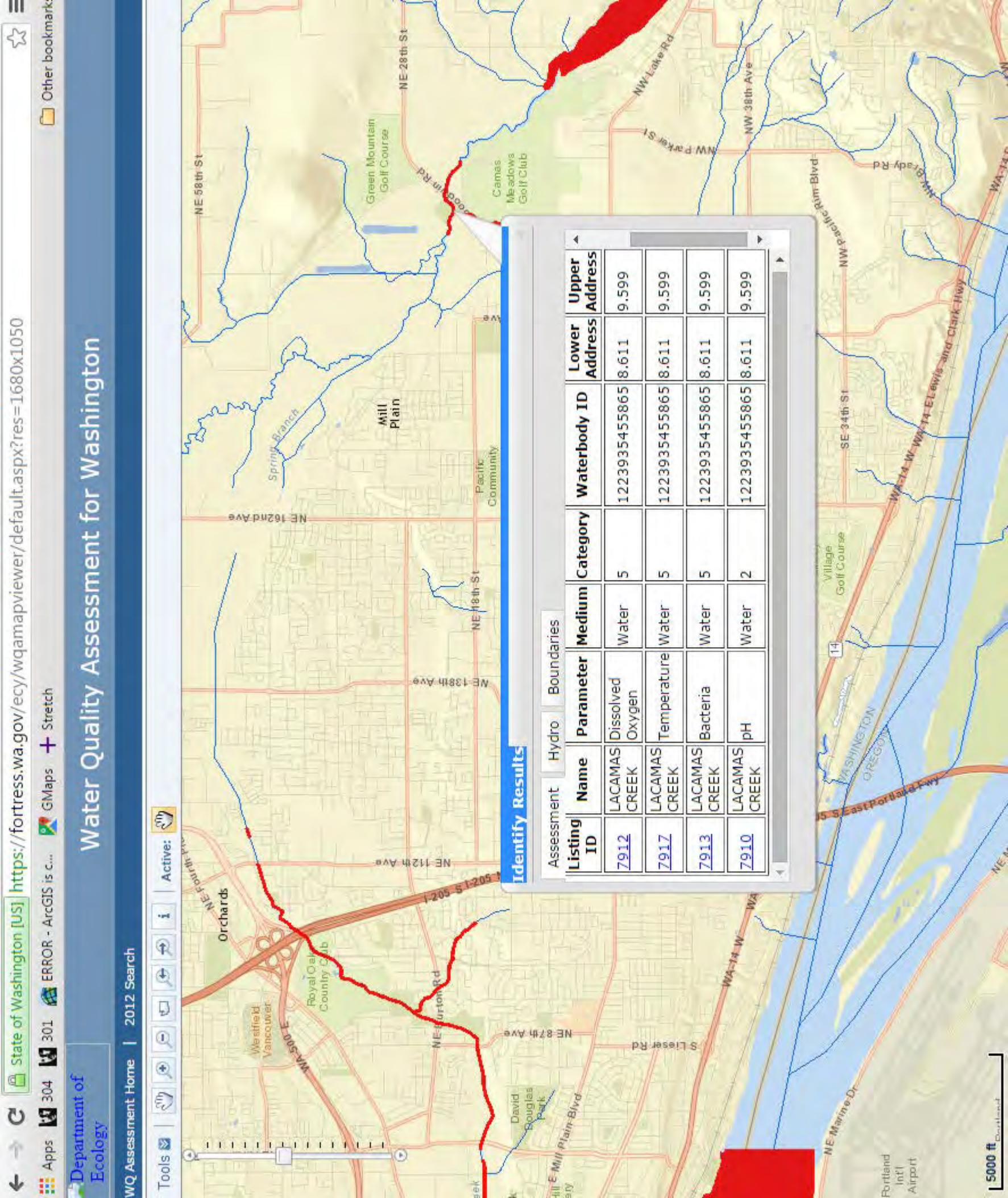
Water Quality Assessment for Washington

WQ Assessment Home | 2012 Search

Tools | Active:

- Hand icon
- Zoom in icon
- Zoom out icon
- Reset icon
- Layers icon
- Info icon





| Listing ID | Name | Parameter | Medium | Category | Waterbody ID | Lower Address | Upper Address |
|----------------------|---------------|------------------|--------|----------|---------------|---------------|---------------|
| 7912 | LACAMAS CREEK | Dissolved Oxygen | Water | 5 | 1223935455865 | 8.611 | 9.599 |
| 7917 | LACAMAS CREEK | Temperature | Water | 5 | 1223935455865 | 8.611 | 9.599 |
| 7913 | LACAMAS CREEK | Bacteria | Water | 5 | 1223935455865 | 8.611 | 9.599 |
| 7910 | LACAMAS CREEK | pH | Water | 2 | 1223935455865 | 8.611 | 9.599 |

Appendix E: Vegetation Mitigation Plan

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Vegetation Mitigation Plan

Heritage Trailhead Parking Lot Expansion at NE Goodwin Road

Prepared by:

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

Prepared for:

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

July 24, 2017

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Appendix A: Vegetation Mitigation Plan Sheet

1. Proposed Project

The City of Camas proposes to expand the existing parking lot at the Heritage Trailhead at NE Goodwin Road and NW Alexandra Lane, in the City of Camas (Figure 1). Current parking at the trailhead is considered inadequate. The existing parking lot is 16 spaces and the proposal would add 17 spaces. The parking expansion would occur approximately 150 feet to the east of the existing lot, with vehicular access from NW Alexandra Lane. The bulk of the project would be located on parcel number 986030097, with the two driveways extending across the trail (parcel number 172965000). The project site (area of potential impact) is approximately 0.35 acres.

The parking lot is within the Lacamas Basin and therefore stormwater must be treated for elevated phosphorous levels. Stormwater from the site would be mitigated via filter treatment cartridges for water quality and underground detention for water quantity. The stormwater would flow overland in the parking lot to a single StormFilter Treatment catch basin with phosphosorb filter cartridges. The phosphosorb cartridge is an approved method of treatment by the Washington State Department of Ecology. Following the treatment, the stormwater would flow to 150 SC-310 StormTech chambers for detention. The StormTech chambers would be located under the parking lot. A flow control structure in a manhole would restrict the amount of flow offsite. The regulated stormwater would eventually outfall to the public ditch along NE Goodwin Road.

2. Vegetation

The project site itself lacks mature trees, with the exception of six small, ornamental street trees along NW Alexandra Lane. The project site is comprised of three vegetation types: a dense stand of English hawthorn (*Crataegus monogyna*) along the fence line at the north edge of the Lacamas Heritage Trail; sparse herbaceous vegetation, consisting of a mixture of non-native annual grasses and disturbance tolerant forbs, such as selfheal (*Prunella vulgaris*), oxeye daisy (*Leucanthemum vulgare*), and English plantain (*Plantago lanceolata*); and areas of low shrubby vegetation dominated by common snowberry (*Symphoricarpos albus*).

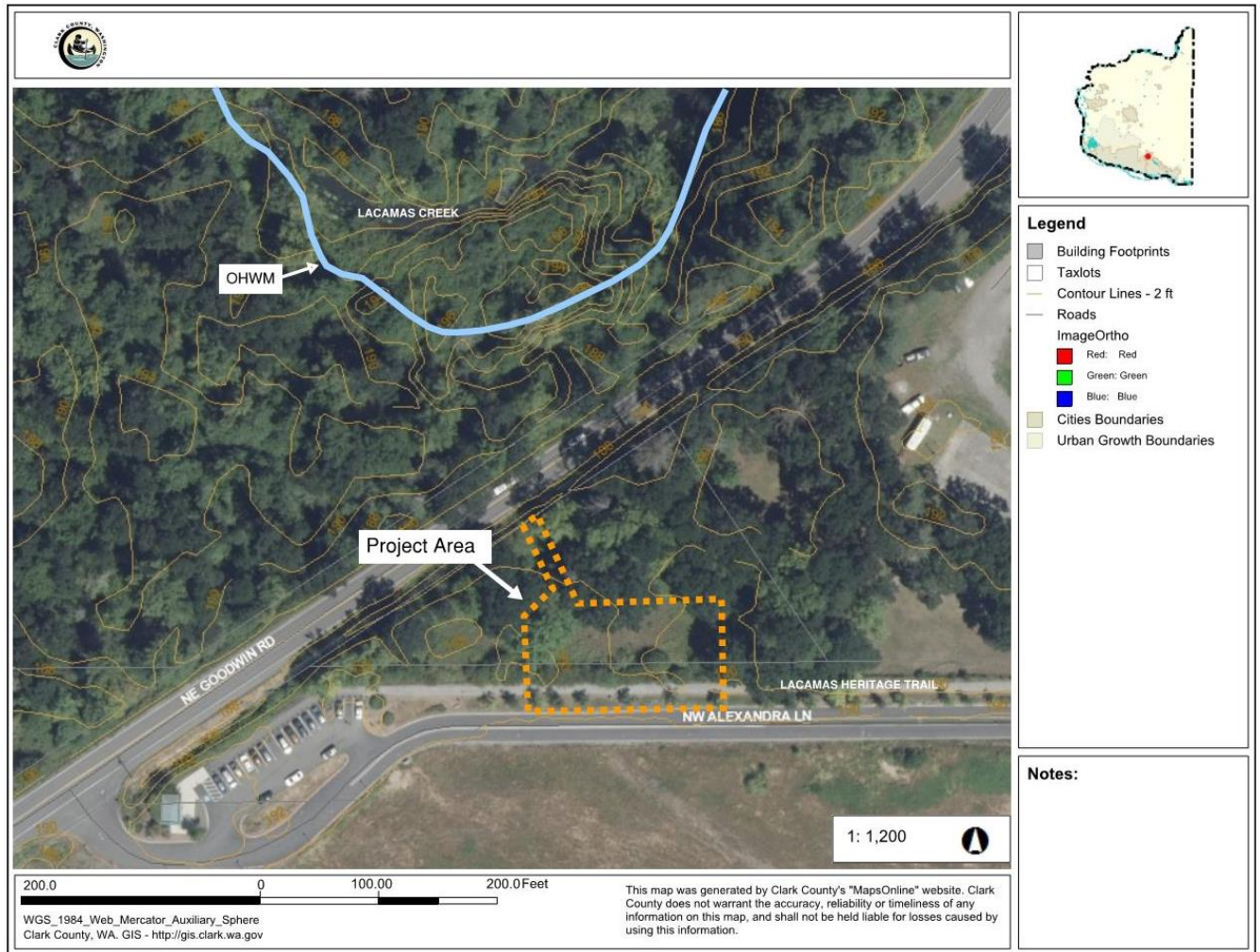


Figure 1. Project vicinity.

3. Avoidance, Minimization, and Impacts

The proposed parking lot extension has been redesigned multiple times to reduce impacts to surrounding natural areas and other resources. As a result, the permanent footprint of the proposed project is substantially smaller than the original concept (approximately half the size). The project would avoid impacts to the adjacent Oregon white oak (*Quercus garryana*) stand, wetland, and wetland buffer.

Approximately 3600 square feet (0.08 acres) of this impact occurs in the dense stand of English hawthorn (a Clark County Class C noxious weed). Approximately 80 percent of this area would be converted to impervious surface (permanent impact), leaving approximately 700 square feet of temporary impact.

Approximately 1600 square feet (0.04 acres) of scrub-shrub vegetation dominated by common snowberry would be converted to impervious surface (permanent impact).

4. Mitigation

The proposed mitigation site is located along the north edge of the Lacamas Heritage Trail, where a dense stand of English hawthorn is present and has been observed seeding into the adjacent Oregon white oak stand. This area overlaps the southwest corner of the project site and continues to the west, between the project site and the existing parking lot.

The goal of proposed mitigation is to enhance shoreline ecological functions by removing the hawthorn stand and replanting those areas not covered by impervious surfaces (i.e. the new parking lot and driveways) with native shrubs. Approximately 700 square feet of the mitigation area would be cleared to facilitate construction. This area would be replanted with native vegetation, in accordance with Camas Shoreline Management Program (SMP) vegetation conservation regulations (SMP 5.8.4). Approximately 1600 square feet of the mitigation area would be treated for hawthorn as part of compensatory mitigation for permanent removal of native shoreline vegetation. The area would then be replanted with native vegetation in order to achieve no net loss of shoreline functions, in accordance with SMP 5.8.2.

Plantings are designed to create a native thicket that provides cover and food for songbirds, insects, and small mammals while maintaining the vegetated screen between the trail and natural areas.

Table 1. Summary of vegetation impacts and mitigation.

| Impact Location | Impact | Mitigation Plan | Location |
|--|---|--|---|
| <i>Non-native Vegetation Replaced with Native</i> | | | |
| Edge of proposed parking lot | Temporary impact to 700 sq ft of English hawthorn thicket | Densely plant with native shrubs (Table 2) | Same location |
| <i>Compensatory Mitigation for Permanent Removal of Native Vegetation</i> | | | |
| Permanent footprint of proposed parking lot | Permanent impact to 1600 sq ft of snowberry thicket | Remove 1600 SF of English hawthorn, densely plant with native shrubs (Table 2) | Along trail between project site and existing parking lot |

5. Planting Plan

The area will be treated for English hawthorn, and any other invasive tree or shrub species that may be present, prior to planting. Treatment will utilize hand tools and targeted herbicide application in order to minimize soil disturbance in the archeologically sensitive area.

Planting will utilize bare root stock in order to minimize soil disturbance. Species selection (Table 2) was made with consideration for site conditions, surrounding land uses (i.e. a public trail abutting habitat areas), and enhancement of the site's ecological functions and values.

Table 2. Planting plan. Refer to Appendix A for further details.

| Species | Form, Spacing, Quantity |
|---|------------------------------------|
| black hawthorn (<i>Crataegus douglasii</i>) | bare root, 4 feet o.c., 20 plants |
| black twinberry (<i>Lonicera involucrata</i>) | bare root, 4 feet o.c., 20 plants |
| common snowberry (<i>Symphoricarpos albus</i>) | bare root, 2 feet o.c., 300 plants |
| Nootka rose (<i>Rosa nutkana</i>) | bare root, 2 feet o.c., 100 plants |
| tall Oregon grape (<i>Mahonia aquifolium</i>) | bare root, 2 feet o.c., 100 plants |

6. General Planting Specifications

6.1 Source of Plants

Plants will be procured from a reputable nursery(s) having a similar climate as the Camas area and specializing in plants native to the Pacific Northwest. Provide bare root stock, genus, species, and variety of plants indicated, complying with applicable requirements in ANSI Z60.1, *American Standard for Nursery Stock*.

6.2 Planting Time

Planting should occur between October 15 and March 15.

6.3 Planting Guidelines

For bare root stock, the wedge method will be used whenever possible to minimize soil disturbance. Holes should be deep and wide enough to accommodate the plant's roots without resulting in J-rooting. Soil will be tamped down firmly to make good contact with roots.

If soil is not saturated at the time of planting, then each plant will be watered when planted.

A scarified area 1-foot in diameter around the root collar will be established and kept free of herbaceous vegetation until plants are well established.

7. Objectives and Performance Standards

Objectives describe the ecological goals or outcomes planned for the site and how those are to be achieved. Performance standards and associated measurements evaluate if the objectives are attained as planned.

7.1 Objective 1 — Non-native Vegetation Areas

To replace non-native vegetation that is removed during project construction with native vegetation in the same location, in accordance with SMP 5.8.4.

7.2 Objective 2 — Native Vegetation Areas

To achieve no net loss of shoreline functions by removing noxious weeds and creating native shrub habitat that provides cover and food for wildlife and screens natural areas from the trail, in accordance with SMP 5.8.2.

7.3 Performance Standards

Performance standards will be evaluated at three different times after installation of plants:

- 1st Year—After at least 12 months and at least one growing season the mitigation area will achieve: 1) at least 80% survival of all woody plants installed, and 2) less than 15% cumulative aerial cover of shrub or tree noxious weed species and Class A or B herbaceous noxious weed species in the most current Clark County noxious weed list. Voluntary recruitment of native tree and shrub species will be counted toward the performance standard.
- 5th Year—Four growing seasons after the 1st year measurement is taken, the mitigation area will achieve: 1) at least 80 percent average aerial coverage of native woody species, and 2) less than 15% cumulative aerial cover of shrub or tree noxious weed species and Class A or B herbaceous noxious weed species in the most current Clark County noxious weed list. Voluntary recruitment of native tree and shrub species will be counted toward the performance standard.
- 10th Year—Nine growing seasons after the 1st year measurement is taken, the area will achieve: 1) at least 80 percent average aerial coverage of native woody species, and 2) less than 15% cumulative aerial cover of shrub or tree noxious weed species and Class A or B herbaceous noxious weed species in the most current Clark County noxious weed list. Voluntary recruitment of native tree and shrub species will be counted toward the performance standard.

8. Monitoring

The following actions will be implemented as part of the vegetation monitoring:

- A qualified professional will supervise initial planting and prepare an as-built report that will include:
 - Plant sources and day of planting
 - Final site map with the mitigation site boundaries identified
 - Photographs of the mitigation area
 - Final species, sizes, and numbers of plants installed

- An analysis of any changes to the mitigation plan that occurred during construction
- Other relevant observations of the professional present during construction and installation
- Monitoring activities will take place during the late spring or summer with the goal of monitoring within the same 3-week window each year. Monitoring of the 1st, 2nd, 3rd, 5th, 7th, and 10th year will be conducted, and a report documenting monitoring results will be submitted to the City. These reports will identify deficiencies in the mitigation and any contingency measures that will be taken to correct those deficiencies.

9. Maintenance

Maintenance will occur annually, at a minimum, during years 1-3, or as necessary to achieve performance standards. Maintenance during years 4-10 will be based on monitoring report recommendations, as necessary to achieve performance standards.

Maintenance for this project will include:

- Additional watering during the first two years (as frequently as every two weeks between June and October) to facilitate plant survival.
- Additional weed control during the first two years to reduce competition to young plants.
- If necessary to achieve performance standards, removal of invasive tree and shrub species, such as English hawthorn and Himalayan blackberry, within the mitigation area; control of other invasives as needed to achieve performance goals.
- If necessary to achieve performance standards, replacement (species for species, unless contingency measures are applied) of any dead woody plants in the mitigation area.

10. Contingency Plans

Contingency measures for post-construction activities are:

Non-native species control – If monitoring reveals that invasive vegetation is retarding the establishment of native woody species, the invasive species will be controlled through the best available method.

Planting Plan Modifications—If changes such as plant species, densities, and location, although not anticipated, are recommended to address an unanticipated problem (e.g., plant disease or mismatched microsite and plant species) then such recommendations will be documented via monitoring reports.

Vandalism—If vandalism occurs, it will be addressed as soon as noticed and practical.

Trampling—If trampling from people or pets using the adjacent trail jeopardizes plant survival or mitigation goals, temporary or permanent exclusion fencing should be installed.

11. Implementation Schedule

Construction is proposed to start spring to early summer 2018 and is anticipated to take approximately 6 weeks. Construction sequencing will begin with installing erosion control elements, stripping the site, and mass grading. The stormwater system will be installed followed by importing the necessary structural fill. Curbs, asphalt, and striping will be the final construction items.

Planting will immediately follow completion of the construction work. Planting will occur between October 15, 2018 and March 15, 2019 to maximize plant survival.

APPENDIX A – VEGETATION MITIGATION PLAN SHEET

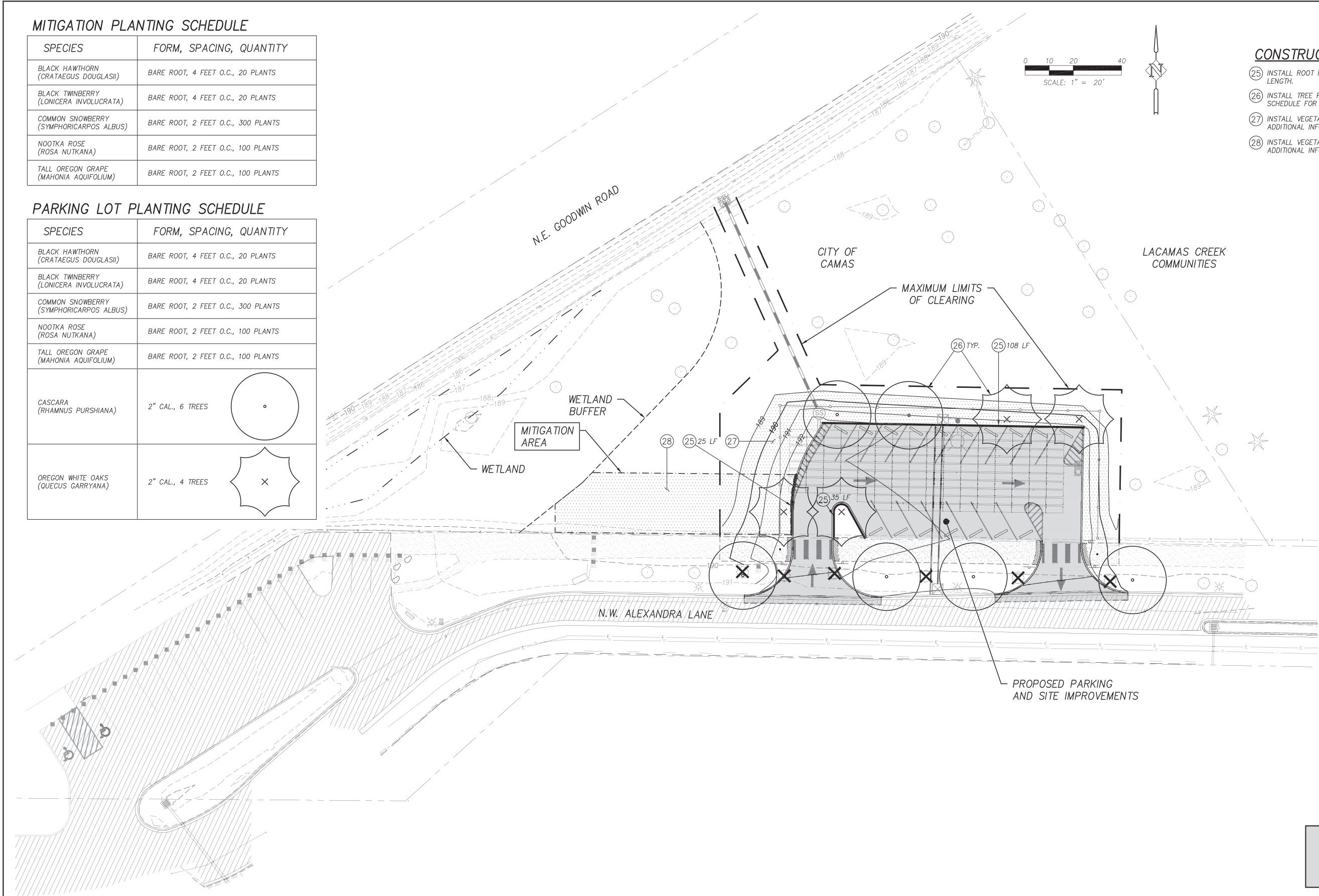
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MITIGATION PLANTING SCHEDULE

| SPECIES | FORM, SPACING, QUANTITY |
|--|------------------------------------|
| BLACK HAWTHORN (CRATAEGUS DOUGLASII) | BARE ROOT, 4 FEET O.C., 20 PLANTS |
| BLACK TWINBERRY (LONICERA INVOLUCRATA) | BARE ROOT, 4 FEET O.C., 20 PLANTS |
| COMMON SNOWBERRY (SYMPHORICARPOS ALBUS) | BARE ROOT, 2 FEET O.C., 300 PLANTS |
| NOOTKA ROSE (ROSA NUTKANA) | BARE ROOT, 2 FEET O.C., 100 PLANTS |
| TALL OREGON GRAPE (MAHONIA AQUIFOLIUM) | BARE ROOT, 2 FEET O.C., 100 PLANTS |

PARKING LOT PLANTING SCHEDULE

| SPECIES | FORM, SPACING, QUANTITY |
|--|------------------------------------|
| BLACK HAWTHORN (CRATAEGUS DOUGLASII) | BARE ROOT, 4 FEET O.C., 20 PLANTS |
| BLACK TWINBERRY (LONICERA INVOLUCRATA) | BARE ROOT, 4 FEET O.C., 20 PLANTS |
| COMMON SNOWBERRY (SYMPHORICARPOS ALBUS) | BARE ROOT, 2 FEET O.C., 300 PLANTS |
| NOOTKA ROSE (ROSA NUTKANA) | BARE ROOT, 2 FEET O.C., 100 PLANTS |
| TALL OREGON GRAPE (MAHONIA AQUIFOLIUM) | BARE ROOT, 2 FEET O.C., 100 PLANTS |
| CASCARA (RHAMNUS PURSHIANA) | 2" CAL., 6 TREES |
| OREGON WHITE OAKS (QUECUS GARRYANA) | 2" CAL., 4 TREES |



CONSTRUCTION NOTES:

- (25) INSTALL ROOT PROTECTION PER DETAIL, SHEET C4.7. SEE PLAN FOR LENGTH.
- (26) INSTALL TREE PER DETAIL, SHEET C4.7. SEE PARKING LOT PLANTING SCHEDULE FOR ADDITIONAL INFORMATION, THIS SHEET.
- (27) INSTALL VEGETATION. SEE PARKING LOT PLANTING SCHEDULE FOR ADDITIONAL INFORMATION, THIS SHEET.
- (28) INSTALL VEGETATION. SEE MITIGATION PLANTING SCHEDULE FOR ADDITIONAL INFORMATION, THIS SHEET.

99% PLAN SET
FOR REVIEW PURPOSE ONLY
NOT FOR CONSTRUCTION

| | | | | |
|-------------------|-----|-------------|-----------|-----------|
| | | | DESIGNED: | KDB |
| | | | DRAWN: | KDB/JDB |
| | | | CHECKED: | CLH |
| DATE | NO. | DESCRIPTION | DATE: | 7/24/2017 |
| R E V I S I O N S | | | | |



HHPR Harper Houf Peterson Righellis Inc.
ENGINEERS • PLANNERS
LANDSCAPE ARCHITECTS • SURVEYORS
1104 Main Street, Suite 100, Vancouver, WA 98660
phone: 360.750.1131 www.hhpr.com fax: 360.750.1141

| | | |
|---|--|--------------------------|
| VEGETATION MITIGATION PLAN HERITAGE TRAILHEAD - PARKING EXPANSION AT GOODWIN ROAD CAMAS, WASHINGTON | | SHEET NO. C2.1 |
| | | JOB NO. CAM-07 |

Appendix F: Mailing List—Properties within 300 feet

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PID(s): 986030097 , 300 Foot Buffer

Locator



Legend

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



Scale: 1:13,853

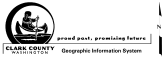
GIS Order Number: 181608

Printed: 7/24/2017

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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.






| Owner Name | Mailing Address |
|----------------------------|--|
| CITY OF CAMAS | 616 NE 4TH AVE, CAMAS, WA, 98607 |
| 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 |
| VANPORT MANUFACTURING INC | PO BOX 97, BORING, OR, 97009 |

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Washington Geographic Information System

Number of records 6

Number of Pages 1

Date Created 7/24/17

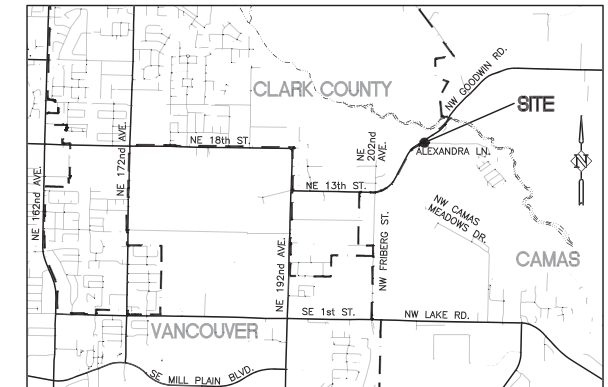
Employee Signature 

Employee Name Bob Pool

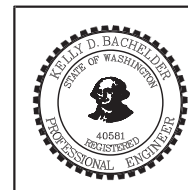
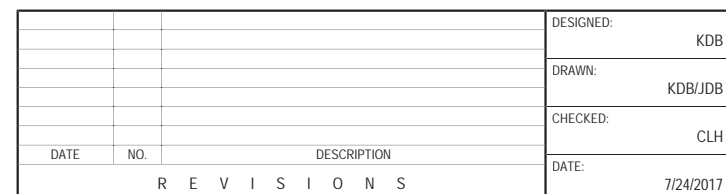
Appendix G: Engineering Drawings

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PARKING EXPANSION AT GOODWIN ROAD PROJECT NO. P-911 CLARK COUNTY, WASHINGTON



CITY OF CAMAS - ENGINEERING
CONTACT: JAMES CAROTHERS
616 N.E. 4TH AVENUE
CAMAS, WA 98607
TEL: 360-817-7230
FAX: 360-834-1535
EMAIL: JCAROTHERS@CITYOFCAMAS.US



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Houf Peterson
Righellis Inc.

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| | | | | |
|---------------|-----------------|------------------|------|--|
| CITY OF CAMAS | | | | |
| CITY ENGINEER | | | DATE | |
| REVISION NO. | SHEETS AFFECTED | INITIAL APPROVAL | DATE | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

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COVER SHEET
HERITAGE TRAILHEAD - PARKING EXPANSION AT GOODWIN ROAD
CAMAS, WASHINGTON

SHEET NO.

C1.0

JOB NO.

CAM-07

VERTICAL DATUM

ELEVATION DATUM: CLARK COUNTY
BENCHMARK: 267
LOCATION: CENTERLINE INTERSECTION OF FRIBERG AND 1ST
ELEVATION: 247.13'

HORIZONTAL DATUM

HORIZONTAL COORDINATES ARE BASED ON WASHINGTON STATE PLANE, SOUTH
ZONE (4602 WA S) - REFERENCE FRAME: NAD 83 (2011)(EPOCH:2010.0000),
US SURVEY FEET.

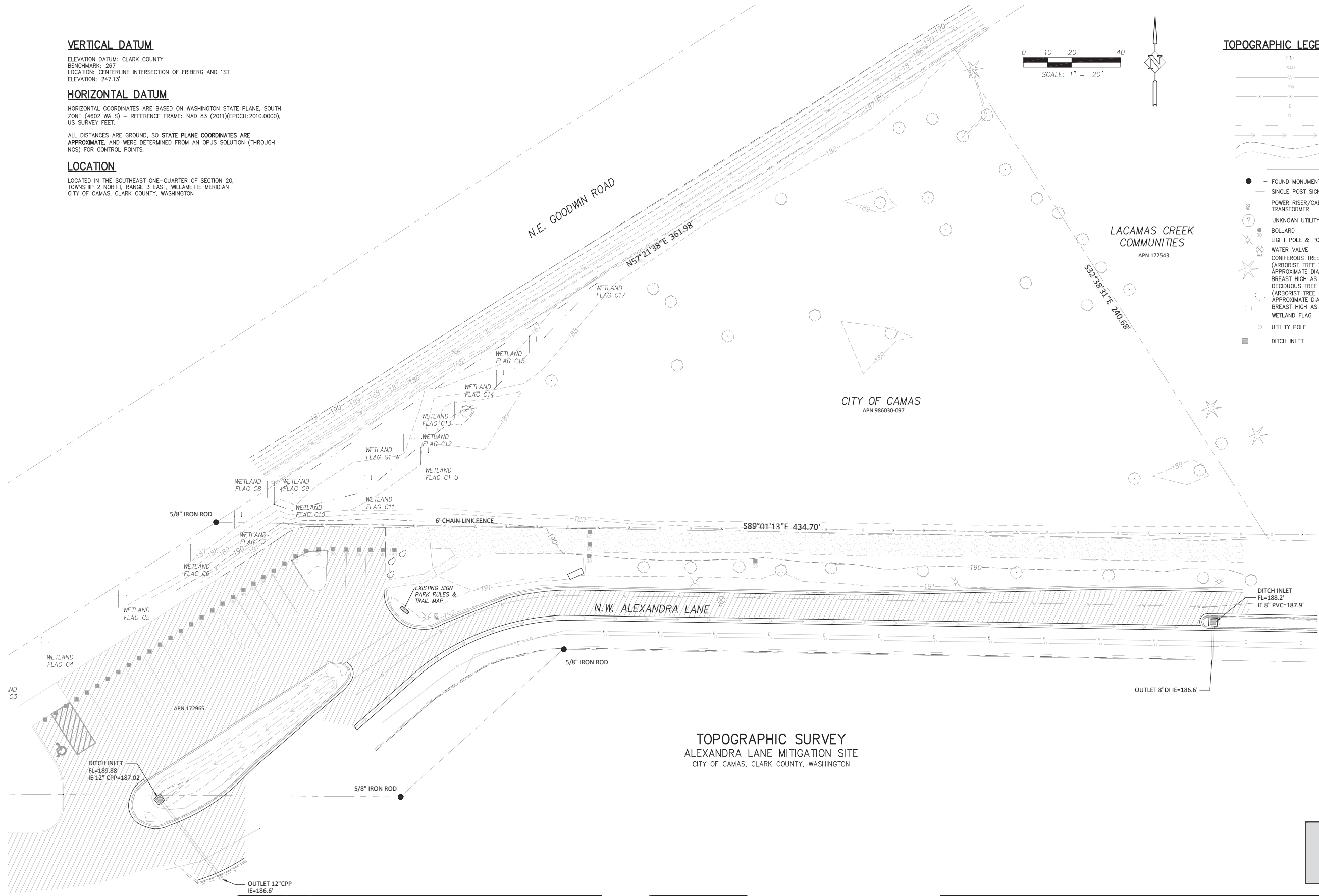
ALL DISTANCES ARE GROUND, SO STATE PLANE COORDINATES ARE
APPROXIMATE, AND WERE DETERMINED FROM AN OPUS SOLUTION (THROUGH
NGS) FOR CONTROL POINTS.

LOCATION

LOCATED IN THE SOUTHEAST ONE-QUARTER OF SECTION 20,
TOWNSHIP 2 NORTH, RANGE 3 EAST, WILLAMETTE MERIDIAN
CITY OF CAMAS, CLARK COUNTY, WASHINGTON

TOPOGRAPHIC LEGEND:

- STORM SEWER LINE
 - SANITARY SEWER LINE
 - WATER LINE
 - OVERHEAD WIRE
 - FENCE LINE, TYPE AS NOTED
 - ELECTRIC LINE
 - GAS LINE
 - GUTTER LINE
 - FLOW LINE
 - MAJOR CONTOUR - 5' INTERVALS
 - MINOR CONTOUR - 1' INTERVALS
 - UTILITY LINE IS BELIEVED TO CONTINUE,
CONNECTION NOT LOCATED OR UNKNOWN
- FOUND MONUMENT AS NOTED.
 - SINGLE POST SIGN
 - POWER RISER/CABINET/
TRANSFORMER
 - UNKNOWN UTILITY MANHOLE
 - BOLLARD
 - LIGHT POLE & POWER POLE
 - WATER VALVE
 - CONIFEROUS TREE
(ARBORIST TREE TAG OR
APPROXIMATE DIAMETER
BREAST HIGH AS NOTED)
 - DECIDUOUS TREE
(ARBORIST TREE TAG OR
APPROXIMATE DIAMETER
BREAST HIGH AS NOTED)
 - WETLAND FLAG
 - UTILITY POLE
 - DITCH INLET
- EXISTING CONCRETE SURFACE
 - EXISTING ASPHALT SURFACE
 - EXISTING GRAVEL SURFACE



TOPOGRAPHIC SURVEY
ALEXANDRA LANE MITIGATION SITE
CITY OF CAMAS, CLARK COUNTY, WASHINGTON

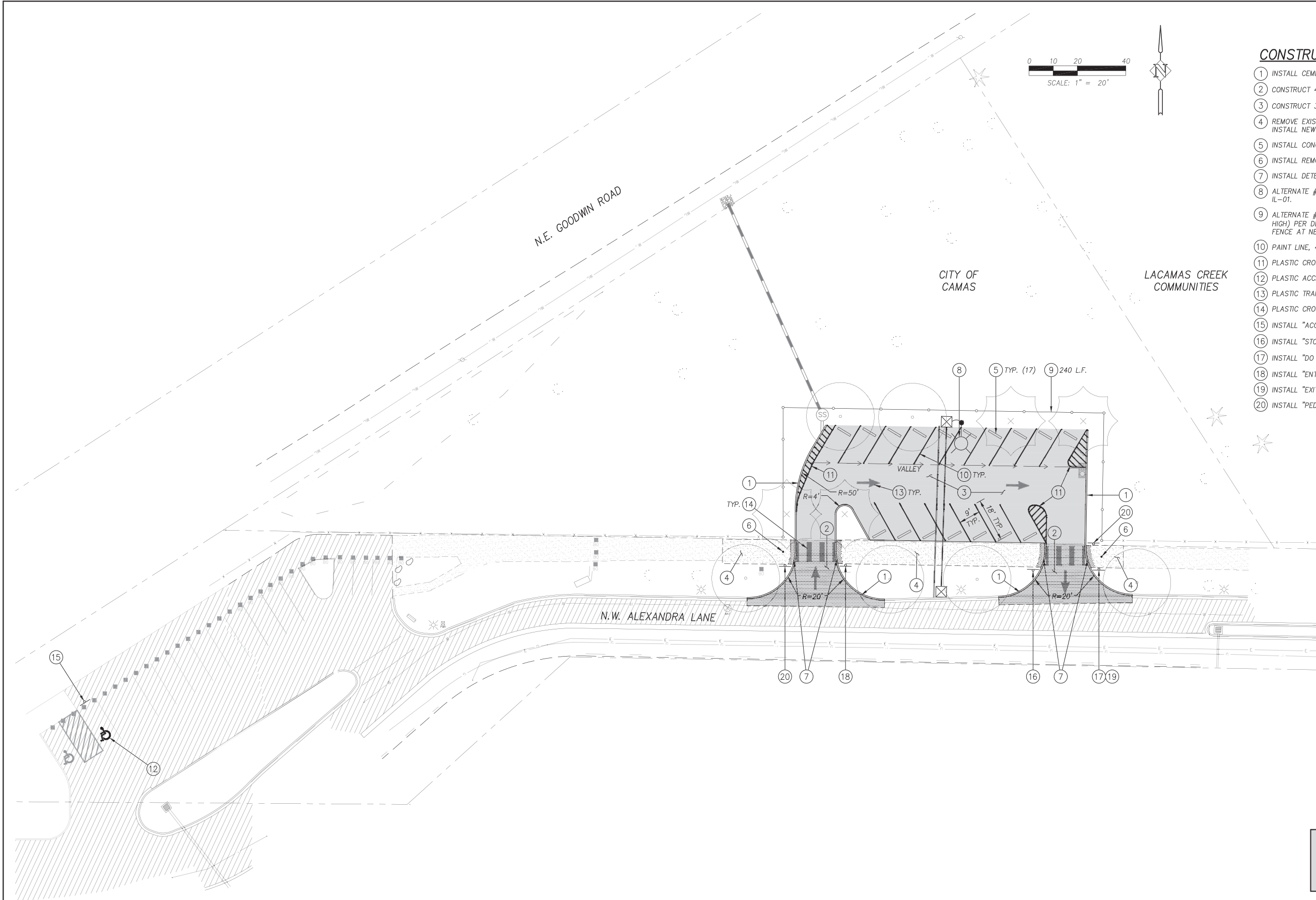
99% PLAN SET
FOR REVIEW PURPOSE ONLY
NOT FOR CONSTRUCTION

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|-------------------|-----|-------------|-----------|-----------|
| | | | DESIGNED: | KDB |
| | | | DRAWN: | KDB/JDB |
| | | | CHECKED: | CLH |
| DATE | NO. | DESCRIPTION | DATE: | 7/24/2017 |
| R E V I S I O N S | | | | |



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phone: 360.750.1131 www.hhpr.com fax: 360.750.1141

| | | |
|--|--|--------------------------|
| EXISTING CONDITIONS HERITAGE TRAILHEAD - PARKING EXPANSION AT GOODWIN ROAD CAMAS, WASHINGTON | | SHEET NO. C1.1 |
| | | JOB NO. CAM-07 |



- CONSTRUCTION NOTES:**
1. INSTALL CEMENT CONCRETE TRAFFIC CURB PER DETAIL, SHEET C4.0.
 2. CONSTRUCT 4" HMA SURFACE PER APRON SECTION, SHEET C4.0.
 3. CONSTRUCT 3" HMA SURFACE PER PARKING LOT SECTION, SHEET C4.0.
 4. REMOVE EXISTING GRAVEL TRAIL AS NECESSARY FOR CONSTRUCTION. INSTALL NEW GRAVEL SURFACE PER SECTION, SHEET C4.0.
 5. INSTALL CONCRETE WHEEL STOP PER DETAIL, SHEET C4.0.
 6. INSTALL REMOVABLE BOLLARD PER DETAIL, SHEET C4.2.
 7. INSTALL DETECTABLE WARNING SURFACE PER DETAILS, SHEET C4.0.
 8. ALTERNATE #1: NEW LIGHT POLE. REFER TO ILLUMINATION PLAN, SHEET IL-01.
 9. ALTERNATE #2: INSTALL BLACK VINYL COATED CHAIN LINK FENCE (42" HIGH) PER DETAIL, SHEET C4.1. CONNECT EXISTING FENCE TO NEW FENCE AT NEW FENCE POST.
 10. PAINT LINE, 4" WHITE PARKING STALL STRIPE.
 11. PLASTIC CROSSHATCH STRIPING PER DETAIL, SHEET C4.2.
 12. PLASTIC ACCESS PARKING SPACE SYMBOL PER DETAIL, SHEET C4.2.
 13. PLASTIC TRAFFIC ARROW PER DETAIL, SHEET C4.2.
 14. PLASTIC CROSSWALK LINE PER DETAIL, SHEET C4.2.
 15. INSTALL "ACCESSIBLE PARKING" SIGN PER DETAIL, SHEET C4.2.
 16. INSTALL "STOP" SIGN PER DETAIL, SHEET C4.2.
 17. INSTALL "DO NOT ENTER" SIGN PER DETAIL, SHEET C4.2.
 18. INSTALL "ENTER ONLY" SIGN.
 19. INSTALL "EXIT ONLY" SIGN.
 20. INSTALL "PEDESTRIAN CROSSING" SIGN PER DETAIL, SHEET C4.2.

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|-------------------|-----|-------------|-----------|-----------|
| | | | DESIGNED: | KDB |
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| DATE | NO. | DESCRIPTION | DATE: | 7/24/2017 |
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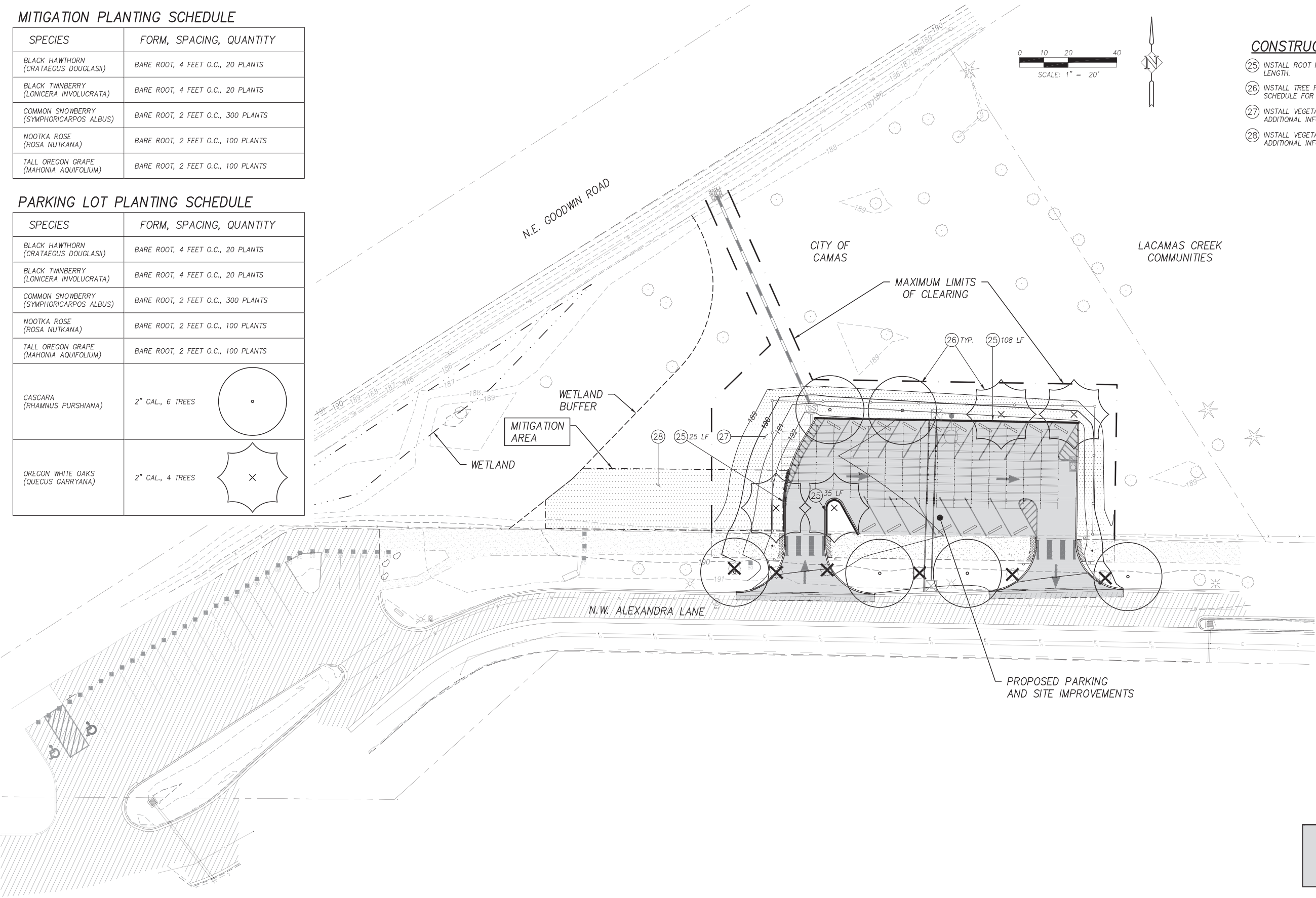
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| SITE PLAN HERITAGE TRAILHEAD - PARKING EXPANSION AT GOODWIN ROAD CAMAS, WASHINGTON | | SHEET NO. C2.0 |
| | | JOB NO. CAM-07 |

MITIGATION PLANTING SCHEDULE

| SPECIES | FORM, SPACING, QUANTITY |
|--|------------------------------------|
| BLACK HAWTHORN (CRATAEGUS DOUGLASII) | BARE ROOT, 4 FEET O.C., 20 PLANTS |
| BLACK TWINBERRY (LONICERA INVOLUCRATA) | BARE ROOT, 4 FEET O.C., 20 PLANTS |
| COMMON SNOWBERRY (SYMPHORICARPOS ALBUS) | BARE ROOT, 2 FEET O.C., 300 PLANTS |
| NOOTKA ROSE (ROSA NUTKANA) | BARE ROOT, 2 FEET O.C., 100 PLANTS |
| TALL OREGON GRAPE (MAHONIA AQUIFOLIUM) | BARE ROOT, 2 FEET O.C., 100 PLANTS |

PARKING LOT PLANTING SCHEDULE

| SPECIES | FORM, SPACING, QUANTITY |
|--|------------------------------------|
| BLACK HAWTHORN (CRATAEGUS DOUGLASII) | BARE ROOT, 4 FEET O.C., 20 PLANTS |
| BLACK TWINBERRY (LONICERA INVOLUCRATA) | BARE ROOT, 4 FEET O.C., 20 PLANTS |
| COMMON SNOWBERRY (SYMPHORICARPOS ALBUS) | BARE ROOT, 2 FEET O.C., 300 PLANTS |
| NOOTKA ROSE (ROSA NUTKANA) | BARE ROOT, 2 FEET O.C., 100 PLANTS |
| TALL OREGON GRAPE (MAHONIA AQUIFOLIUM) | BARE ROOT, 2 FEET O.C., 100 PLANTS |
| CASCARA (RHAMNUS PURSHIANA) | 2" CAL., 6 TREES |
| OREGON WHITE OAKS (QUECUS GARRYANA) | 2" CAL., 4 TREES |



CONSTRUCTION NOTES:

- (25) INSTALL ROOT PROTECTION PER DETAIL, SHEET C4.7. SEE PLAN FOR LENGTH.
- (26) INSTALL TREE PER DETAIL, SHEET C4.7. SEE PARKING LOT PLANTING SCHEDULE FOR ADDITIONAL INFORMATION, THIS SHEET.
- (27) INSTALL VEGETATION. SEE PARKING LOT PLANTING SCHEDULE FOR ADDITIONAL INFORMATION, THIS SHEET.
- (28) INSTALL VEGETATION. SEE MITIGATION PLANTING SCHEDULE FOR ADDITIONAL INFORMATION, THIS SHEET.

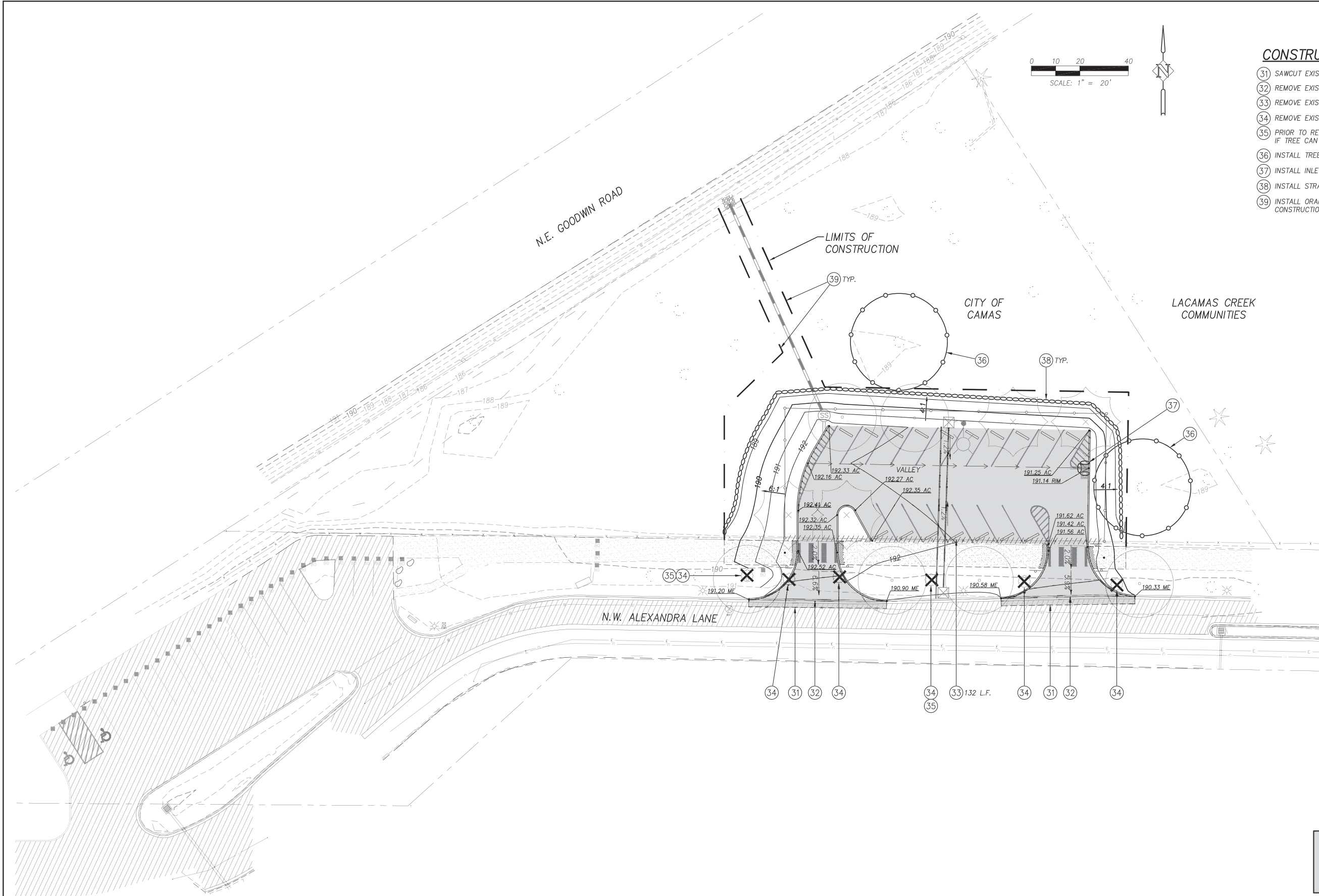
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|---|--|--------------------------|
| VEGETATION MITIGATION PLAN HERITAGE TRAILHEAD - PARKING EXPANSION AT GOODWIN ROAD CAMAS, WASHINGTON | | SHEET NO. C2.1 |
| | | JOB NO. CAM-07 |



- CONSTRUCTION NOTES:**
- 31 SAWCUT EXISTING PAVEMENT.
 - 32 REMOVE EXISTING CURB AND GUTTER.
 - 33 REMOVE EXISTING FENCE, SEE PLAN FOR APPROXIMATE LENGTH.
 - 34 REMOVE EXISTING TREE.
 - 35 PRIOR TO REMOVAL, CONTRACTOR AND CITY INSPECTOR SHALL DETERMINE IF TREE CAN REMAIN. CITY PREFERENCE TO PROTECT TREE IF POSSIBLE.
 - 36 INSTALL TREE PROTECTION FENCING PER DETAIL, SHEET C4.7.
 - 37 INSTALL INLET PROTECTION PER DETAIL, SHEET C4.4.
 - 38 INSTALL STRAW WATTLES PER DETAIL, SHEET C4.4.
 - 39 INSTALL ORANGE, HIGH VISIBILITY FENCING ALONG THE LIMITS OF CONSTRUCTION.

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GRADING AND EROSION CONTROL PLAN

HERITAGE TRAILHEAD - PARKING EXPANSION AT GOODWIN ROAD

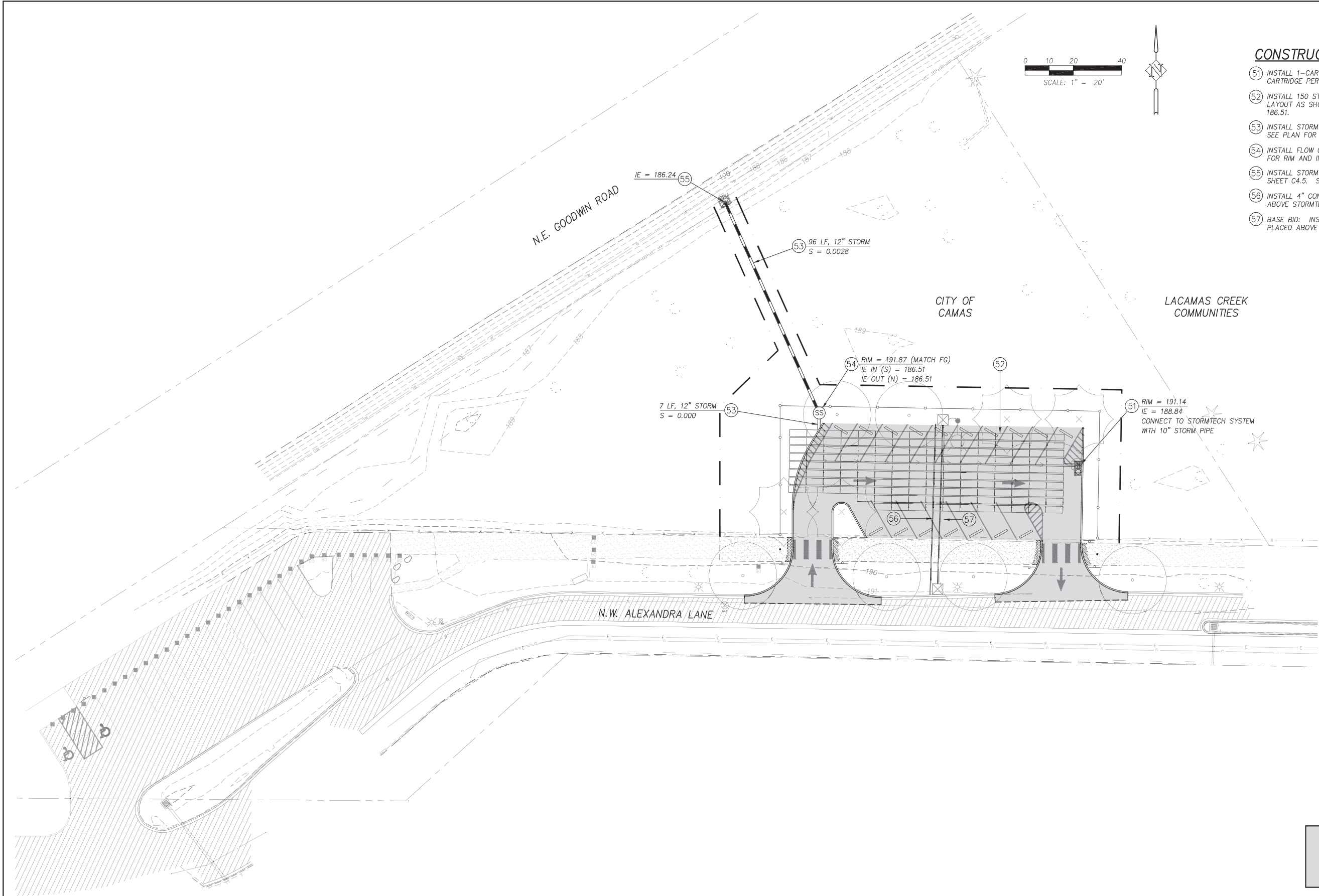
CAMAS, WASHINGTON

SHEET NO.

C3.0

JOB NO.

CAM-07



CONSTRUCTION NOTES:

- 51 INSTALL 1-CARTRIDGE STORMFILTER CATCH BASIN WITH PHOSPHOSORB CARTRIDGE PER DETAIL, SHEET C4.6. SEE PLAN FOR RIM AND INVERT.
- 52 INSTALL 150 STORMTECH SC-310 CHAMBERS PER DETAIL, SHEET C4.6. LAYOUT AS SHOWN ON THE PLAN. BOTTOM OF ROCK ELEVATION = 186.51.
- 53 INSTALL STORM PIPE PER BEDDING AND BACKFILL DETAIL, SHEET C4.5. SEE PLAN FOR SIZE, LENGTH AND SLOPE.
- 54 INSTALL FLOW CONTROL MANHOLE PER DETAIL, SHEET C4.5. SEE PLAN FOR RIM AND INVERT ELEVATIONS.
- 55 INSTALL STORM OUTFALL WITH QUARRY SPALL SPLASH PAD PER DETAIL, SHEET C4.5. SEE PLAN FOR INVERT ELEVATION.
- 56 INSTALL 4" CONDUIT FOR FUTURE VIDEO. CONDUIT SHALL BE PLACED ABOVE STORMTECH UNITS.
- 57 BASE BID: INSTALL 4" CONDUIT FOR LIGHT POLE. CONDUIT SHALL BE PLACED ABOVE STORMTECH UNITS.

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| STORM PLAN HERITAGE TRAILHEAD - PARKING EXPANSION AT GOODWIN ROAD CAMAS, WASHINGTON | | SHEET NO. C3.1 |
| | | JOB NO. CAM-07 |