

Haley Short Plat

FISH & WILDLIFE HABITAT CONSERVATION AREAS CRITICAL AREAS REPORT - REVISED



Prepared for:

Dale and Leta Anderson, Trustee
4420 S.W. 5th Avenue
Camas, WA 98607

Prepared by:

Olson Environmental, LLC
222 E. Evergreen Blvd.
Vancouver, WA 98683
(360) 693-4555

October 24, 2019



OLSON
ENVIRONMENTAL LLC
ENVIRONMENTAL SERVICES • GIS • HABITAT RESTORATION

TABLE OF CONTENTS

INTRODUCTION.....	1
EXISTING CONDITIONS	1
FISH AND WILDLIFE HABITAT CONSERVATION AREAS	2
MITIGATION SEQUENCING	3
BUFFER REDUCTION & COMPENSATION.....	3
PROJECT SCHEDULE.....	4
PLANTING PLAN	4
PERFORMANCE CRITERIA	5
MONITORING & MAINTENANCE PLANS	6
ADAPTIVE MANAGEMENT PLANS	7
DEMARCATIION	8
LITERATURE CITED	9

ATTACHMENTS

- Figure 1 – Project Location Map
- Figure 2 - Proposed 2-Lot Short Plat
- Figure 3 - Clark County GIS Topographic Map
- Figure 4 - Clark County GIS Shoreline Designation Map
- Figure 5 - Clark County Priority Habitat/Species Map
- Figure 6 – OHWM and Riparian Buffer
- Figure 7 - Proposed Habitat Buffer Reduction/Compensation Areas
- Figure 8 - Riparian Buffer Enhancement Planting Details
- Figure 9 - Planting Details Cross-Section

Photo-Sheet 1 - Project Area Photographs

FISH & WILDLIFE HABITAT CONSERVATION AREAS

Project: Haley Short Plat
Applicant: Dale and Leta Anderson, Trustee
Location: 4550 S.W. 5th Avenue, Camas, Washington
Legal Description: SE ¼ of Sec. 8, T01N, R03E, W.M.; Clark County
Serial Number(s): 127155-000
Parcel Size: 1.4653 Acres
Zoning: R-15
CompPlan: SFL
Shoreline
Designation: Medium Intensity/Aquatic
Watershed: Columbia Slope
WRIA: Salmon-Washougal (28)
Jurisdiction: City of Camas
Project Type: Residential
Assessment by: Kevin Grosz, P.W.S.
Site Visit(s): August 8, 2019
Report Date: August 9, 2019
Updated
Report Date: September 9, 2019
Revised
Report Date: October 24, 2019

INTRODUCTION

This report presents the revised habitat mitigation plan for the Haley Short Plat located at 4550 S.W. 5th Avenue, Camas, Washington (Fig. 1). The Applicant (Dale & Leta Anderson, Trustee) is proposing to divide the 1.4653 acre property into 2-lots as shown in Figure 2. The site is located on the north shore of the Columbia River. The Columbia River is a shoreline of the state and has 150-foot riparian buffer that is regulated under Shoreline Master Programs (SMP) Appendix C 16.61. The Applicant is proposing to reduce the riparian buffer as allowed under this Chapter of the SMP. This plan was revised to show the changes of the lot numbers which have been exchanged.

EXISTING CONDITIONS

Currently, a house, outbuildings, gravel driveway and parking area occur through the central portion of Lot 2 (Fig. 2). The majority of the property is a parklike setting with maintained lawn and landscaping. The Columbia River forms the southern property line. Trees line the outer edges of the west and south edges of the property. The majority of the trees are black cottonwood (*Populus balsamifera*) and Douglas-fir (*Pseudotsuga menziesii*). Blackberry (*Rubus* spp.), native willow (*Salix* spp.) and red-osier dogwood (*Cornus alba*) occur along water ward side the shoreline of the Columbia River. The

property is relatively flat, generally sloping from north to south (Fig. 3). The majority of the property is located within the shoreline buffer of the river. The shoreline designations are medium intensity and aquatic as shown in Figure 4.

FISH AND WILDLIFE HABITAT CONSERVATION AREAS

The City has enacted a fish and wildlife habitat conservation areas ordinance to designate and classify ecologically sensitive and hazardous areas and to protect these areas, their functions and values while allowing for some reasonable use of property. Identified fish and wildlife habitat conservation areas are to be preserved to the greatest extent possible. Any adverse impacts shall be mitigated so that there is no net loss of habitat functions or area. Regulated fish and wildlife habitat conservation areas include (SMP 16.61.010(A)(1-7):

1. Areas with which State or Federally Designated Endangered, Threatened and Sensitive Species have a Primary Association. Field studies shall be conducted to determine the presence of these species within the study area.
2. State Priority Habitats and Areas Associated with State Priority Species. These areas are identified by Washington Department of Fish and Wildlife. A description of priority species and habitats is outlined in 16.61.010(A)(2) of the SMP.
3. Locally Important Habitats and Species – specifically Oregon White Oak and Camas Lily. Protection requirements for each of these species are outlined in 16.61.010(3)(a) for Oregon white oak and (b) for Camas lily.
4. Naturally occurring Ponds under 20-acres – these ponds and their submerged aquatic beds provide valuable fish and wildlife habitat.
5. Waters of the State – as defined by WAC 222-16-031
6. Bodies of water planted with game fish by a governmental or tribal entity
7. State Natural Area Preserves and Natural Resource Conservation Areas which are defined, established and managed by the Washington Department of Natural Resources.

According to the Clark County GIS Habitat Map (Fig. 5) the Columbia River is identified as a Shoreline Stream (Type S). Clark County places a 250-foot riparian buffer (as measured from the ordinary high water mark (OHWM)) on Type S streams as shown in Figure 5. However, this parcel is regulated by the City of Camas under SMP 16.61 which places a 150-foot riparian buffer (SMP 16.61.040(D)) on Type S streams. The OHWM of the Columbia River and 150-foot riparian buffer are shown in Figure 6. Encroachments into the 150-foot riparian buffer will require a habitat permit through SMP 16.61.040(D)(2)(3)(4) as outlined below.

The Columbia River is known to contain fish species listed as threatened under the Endangered Species Act (ESA). These fish species include bull trout (*Salvelinus confluentus*), chinook (*Oncorhynchus tshawytscha*), chum (*O. keta*), coho (*O. kisutch*), and steelhead (*O. mykiss*).

No other fish and wildlife habitat conservation areas have been identified on or adjacent to the property.

MITIGATION SEQUENCING (SMP 16.51.160)

The Applicant has avoided all direct impacts to the Columbia River. However, the Applicant is proposing to reduce the riparian habitat buffer provide for Lot 2 which contains the existing house and a building area for Lot 1 as allowed under SMP. These habitat impacts will be compensated through enhancement of riparian habitat on-site along the shoreline of the Columbia River. These impacts and proposed compensations are detailed below.

RIPARIAN BUFFER IMPACTS & COMPENSATION (Fig. 6)

The Applicant is proposing to reduce the 150-foot riparian zone of the Columbia River to allow for the construction of a house on Lot 1 and to maintain the house and landscaped area on Lot 2. According to SMP Table 6-1 the residential building setback in the medium intensity designated shoreline is 35 feet. The Applicant is proposing to reduce the riparian buffer to 75 feet as allowed under SMP 16.61.040(3)(4). Currently a manufactured home, car port, and compacted gravel occur within the 150-foot riparian buffer in Lot 2 (Fig. 7). Due to presence of impervious surfaces and lack of any vegetation in this area it provides a fragmented riparian habitat function and is considered functionally isolated. This 4,860 ft² area (Fig. 7) is therefore not included in the buffer reduction calculations. The riparian buffer impacts and compensation are outlined below:

IMPACTS/COMPENSATION

Lots

The Applicant is proposing to reduce the 150-foot riparian buffer adjacent to the Columbia River to 75 feet (Fig. 7) as allowed under SMP 16.61.040(D)(4) Alternative Mitigation for Stream Buffers which states: *The requirements set forth in this section may be modified at the City of Camas' discretion if the applicant demonstrates the greater habitat functions of a per function basis, can be obtained in the affected drainage basin as a result of alternative mitigation measures.* According to WDFW (Riparian Ecosystems 2018) typical riparian system functions include stream temperature modification, water purification, floodwater storage, stream channel stabilization, woody debris recruitment, and provided areas for fish and wildlife movement. Currently the buffer reduction area consists of a house and gravel driveway and parking area in the northwest portion of the reduction area (4,860 ft², Fig. 7). The remainder of the riparian buffer reduction area (15,078 ft²) is maintained lawn. One black cottonwood tree is within the buffer reduction area and this tree will not be removed as a result of the short plat. Based on these existing conditions, the reduction area provides minimal riparian habitat function for any of the above described functions. To compensate for this buffer reduction, the Applicant is proposing to plant the 20,080 ft² area between the OHWM and the 75-foot reduced riparian buffer as shown in Figure 7. This area is maintained lawn with several black cottonwood trees. No shrub layer exists in this area. This planting will consist of a native tree and shrub planting that will provide a diverse plant community,

increased structure and an overall lift in habitat functions over the existing parklike setting. The enhanced buffer is adjacent to the Columbia River which will provide a corridor for wildlife to move freely through this area to access the river and other habitats that may occur on adjacent properties. In addition to the planting, the Applicant will remove and maintain existing non-native aggressive plant species from the enhancement area and along the shoreline. The proposed planting plan details are specified below.

Photographs of the proposed impact and compensation areas are shown in Photo-sheet 1.

PROJECT SCHEDULE

This project is proposed to begin construction as soon as the appropriate permits are received. Riparian buffer enhancement activities will take place during the first planting season following habitat impacts.

PLANTING PLAN

The riparian buffer enhancement area (20,080 ft²) will be planted with native trees and shrubs at a rate of 5 trees and 10 shrubs per 1000 ft². Planting details are provided in Figures 8 and 9.

Planting Plan Specifications – Riparian Enhancement Area (20,080 ft²), 5 trees/10 shrubs per 1,000 sq. ft. (Fig 7).

Species	Plant Form	Minimum Size	Minimum Spacing	Required Number
Trees				
Western Red Cedar (<i>Thuja plicata</i>)	Seedling	18"	10'	15
Douglas-Fir (<i>Pseudotsuga menziesii</i>)	Seedling	18"	10'	35
Big-Leaf Maple (<i>Acer macrophyllum</i>)	Bare Root	24"	10'	20
Oregon Ash (<i>Fraxinus latifolia</i>)	Bare Root	24"	10'	30
Total Trees				100
Shrubs				
Snowberry (<i>Symphoricarpos albus</i>)	Bare Root	18-24"	8'	55
Indian Plum (<i>Oemleria cerasiformis</i>)	Bare Root	18-24"	12'	25
vine maple (<i>Acer circinatum</i>)	Bare Root	18-24"	12'	10
Red Flowering Current (<i>Ribes sanguineum</i>)	Bare Root	18-24"	8'	30
Hazel Nut (<i>Corylus cornuta</i>)	Bare Root	18-24"	8'	15
Native Willow (<i>Salix</i> spp.)	Cutting	6'	8'	66

Total Shrubs	201
---------------------	------------

Source of Plant Materials. All plants will be obtained from nurseries specializing in native Pacific Northwest plant materials.

Planting Time. Bare-root shrubs and trees should be planted between December 1 and March 31, when plants are dormant. If planting is conducted outside this time period, containerized plant stock will be used and extra care and watering may be needed to ensure that plants become adequately established.

Planting Guidelines. A hole, one foot in diameter and one foot deep, shall be excavated for bare root stock. The holes should be large enough to accommodate the plant roots without restriction. Plants will be held in place with the top of the root mass at ground level. Topsoil will be backfilled around the roots and lightly tamped to remove any air pockets in the soil. Future maintenance should use scarification to keep the 1-foot diameter area free of herbaceous vegetation until plants are well established. If the soils are not saturated, each plant should be watered at the time of planting. Supplemental watering during the dry summer season may also be required to ensure plant survival and mitigation success.

PERFORMANCE CRITERIA

Performance measures and standards are used to provide a basis for evaluating whether the project’s goals and objectives are being met. This plan established the following criteria as the basis for evaluating mitigation compliance and success. In order to meet the goals and objectives, the mitigation must meet the following criteria:

The City requires a minimum of five (5) years of monitoring and maintenance. The criteria listed below are intended to meet the requirements of SMP 16.51.170(D) for this project. Performance measures and standards are used to provide a basis for evaluating whether the project’s goals and objectives are being met. In order to meet the goals and objectives, the mitigation must meet the following criteria:

1. Native Woody Species (Buffer Enhancement Area)
 - a. Performance Standard - Year 1 - Planted, native woody species in the buffer area will achieve at least 100 percent survival one year after the site is planted. If dead plants are replaced, the performance standard will be met.
 - b. Performance Standard Years 2-4 – Native woody species (planted or volunteer) will achieve a density of a minimum of 6 shrubs and 3 trees per 1000 ft² in the enhanced buffer areas.
 - c. Performance Standard Year 5 - at least 50 percent aerial coverage of native trees and shrubs. Natural colonization can make it difficult to separate planted individuals from volunteer trees and shrubs. Therefore, naturally colonized species will be included in vegetation monitoring.

2. Invasive species (all years)

- a. Performance Standard - During All Years, non-native, invasive plant species will not exceed 20 percent aerial cover in the riparian buffer enhancement area.

MONITORING AND MAINTENANCE PLANS

The following actions will be implemented as part of the buffer mitigation monitoring and maintenance plan on this site:

1. The initial and all successive year plantings will be supervised by a qualified professional (as defined by SMP Chapter 7.139) to ensure that correct planting procedures are followed; that plantings are done according to the planting scheme; and to determine if the enhancement areas are meeting the performance standards listed above.
2. Monitoring of all planted areas will commence the summer following the initial planting (year 1) and continue in years 2, 3, 4, and 5. Monitoring will be conducted by a qualified professional during the late spring or summer time period. Monitoring will consist of walking the site during mid- to late summer to assess the enhancement area to determine if the performance standards are being met. The monitoring report will identify deficiencies in the mitigation progress and any contingency measures that will be taken to correct those deficiencies. Photographs taken from established photo-stations will be included with these reports. For each year that monitoring is required, a report documenting the monitoring results will be submitted to the City.
3. To ensure planting success, the Applicant will be responsible for performing minor maintenance over the monitoring period. This will include the selective removal of undesirable plant species such as blackberry (*Rubus* spp.) that may be hindering the growth and establishment of the favored plant stands. An area, 1-foot in diameter surrounding each planted woody species, will be kept free of competing vegetation. This can be accomplished either by scarifying the area by hand or through the use of weed-control rings.
4. Maintenance of all mitigation areas may include irrigation of the planted stock. A watering schedule will be established during the dry months (June through September) so that the plants are watered on a weekly basis during this time period. If necessary, a temporary above ground irrigation system capable of watering all of the mitigation areas will be installed.
5. Any maintenance that is required within the enhancement area will be supervised by a qualified wetland professional (as defined by SMP Chapter 7.139) familiar with this project.

ADAPTIVE MANAGEMENT PLANS

Adaptive management plans are designed to identify potential courses of action, and any corrective measures to be taken when monitoring indicates project goals are not being met. Table 2 summarizes the maintenance and contingency requirements for this project. In general, the contingency measures for this site are as follows:

1. Replacement Plantings—Replacement plantings will be made throughout the monitoring period if monitoring reveals that unacceptable plant mortality has occurred. Woody species will be re-planted to the original number of plants proposed in the accepted mitigation plan annually throughout the duration of the monitoring and maintenance period.
2. Planting Plan Modifications—Modifications to the planting plan (i.e., plant species and densities) will be made if monitoring identifies problems with the original planting scheme. For example, if annual monitoring identifies that plant mortality is attributed to an inappropriate hydrologic regime, the replacement plantings should be made using a more suitable plant species. Any recommended changes to the planting scheme will be documented in the annual monitoring report. The addition of any new plant species, not already included in this enhancement plan, must be approved by the City.
3. Soil Erosion—Any areas demonstrating soil erosion problems will be restored as soon as possible. If there does not appear to be a problem with the original design, the eroded areas will be restored by replacing any lost topsoil and replanted according to the original planting scheme.

Table 2. Maintenance And Adaptive Management Requirements.

Maintenance Component	Defect	Conditions When Maintenance is Needed	Results Expected When Maintenance is Performed
Enhancement Areas	Trash and debris	Any trash or debris which exceeds 1 ft ³ /100ft ² (equal to the volume of a standard size office garbage can). In general, there should be no evidence of dumping.	Trash and debris cleared from site.
Enhancement Areas	Erosion	Eroded damage >2 inches deep where cause of damage is still present or where there is potential for continued erosion.	Eroded areas should be stabilized with appropriate erosion control BMPs (e.g., seeding, mulching, rip rap).

Enhancement Areas	Plant mortality	Plant mortality jeopardizes attaining the required survival rate.	Plants should be replaced according to the planting plan. Modifications to the planting plan should be made if monitoring identifies problems with the original planting scheme.
Enhancement Areas	Invasion of undesirable plant species.	Undesirable plant species are hindering the growth and establishment of the favored plant stands.	Undesirable species removed by hand, or in accordance with recommendations of the Clark County Weed Control Board.

DEMARCATIION

SMP 16.51.200 - Critical area markers, signs and fencing.

A. Temporary Markers. The outer perimeter of the management zones and/or critical areas may be required to be marked in the field in such a way as to ensure that no unauthorized intrusion will occur, and verified by the director prior to the commencement of permitted activities. This temporary marking, if required, shall be maintained throughout construction, and shall not be removed until permanent signs, if required, are in place.

B. Permanent Signs. The City may require, as a condition of any permit or authorization issued pursuant to this chapter, that the applicant install permanent signs along the boundary of a critical area or management zone to City standards.

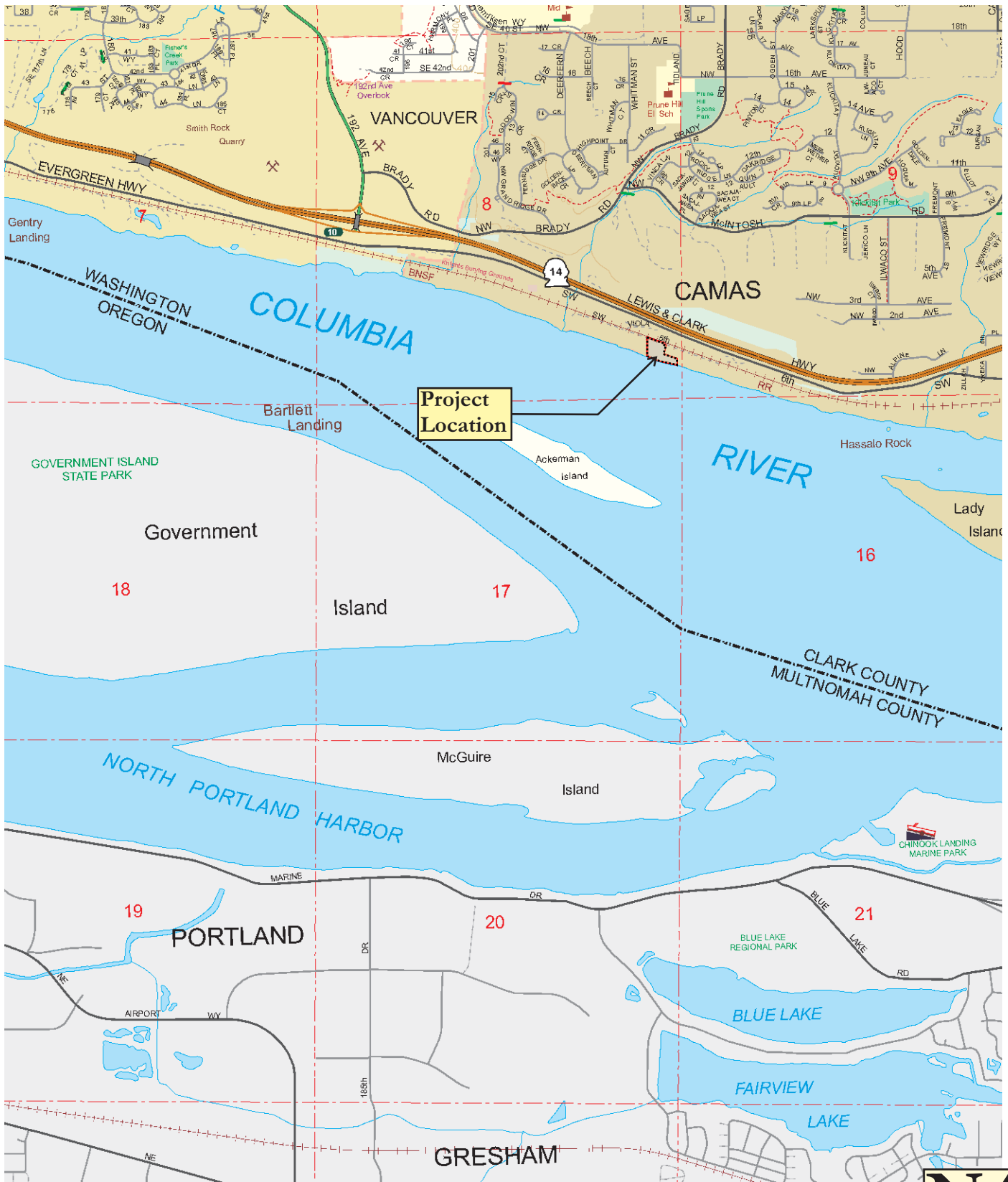
C. Fencing.

1. The director may condition any permit or authorization issued pursuant to this chapter to require the applicant to install a permanent fence to City specifications at the edge of the habitat conservation area or management zone, when, in the opinion of the City, fencing will reasonably minimize or prevent future impacts to the habitat conservation area.

2. Fencing installed as part of a proposed activity, or as required in this subsection, shall be designed so as to not interfere with species migration, including fish runs, and shall be constructed in a manner that minimizes habitat impacts.

LITERATURE CITED

Riparian Ecosystems, Volume 2: Management Recommendations. 2018. Amy Windrope, Timothy Quinn, Keith Folkerts, and Terra Rentz. A Priority Habitat and Species Document of the Washington Department of Fish and Wildlife, Olympia.



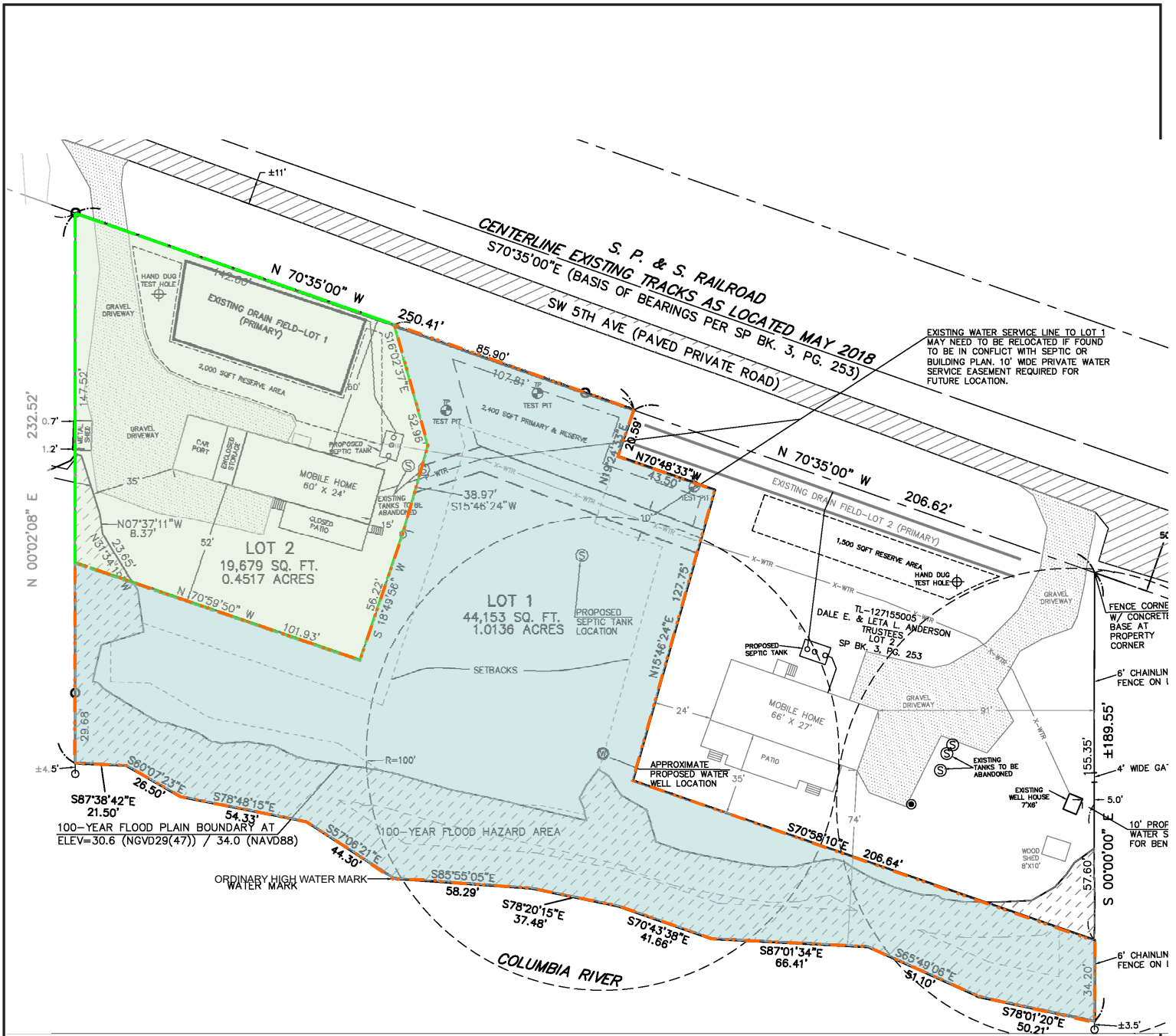
Haley Short Plat
APPLICANT:
 Dale and Leta Anderson, Trustee
 4420 S.W. 5th Avenue
 Camas, WA 98607
PURPOSE: Revised Habitat Mitigation Plan

Project Location Map
Haley Short Plat
Camas, Washington

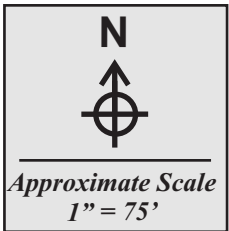


222 E. Evergreen Blvd., Vancouver, WA 98660 ph: 360-693-4555 fax: 360-699-6242

PROPOSED ACTIVITIES IN:
 Columbia Slope Watershed
LEGAL: SE ¼ of Sect. 8, T1N, R3E, W.M.
NEAR: Camas, Washington
COUNTY: Clark County
DATE: October 24, 2019
Figure 1



GRAPHIC PROVIDED BY:
 Planning Solutions, Inc.

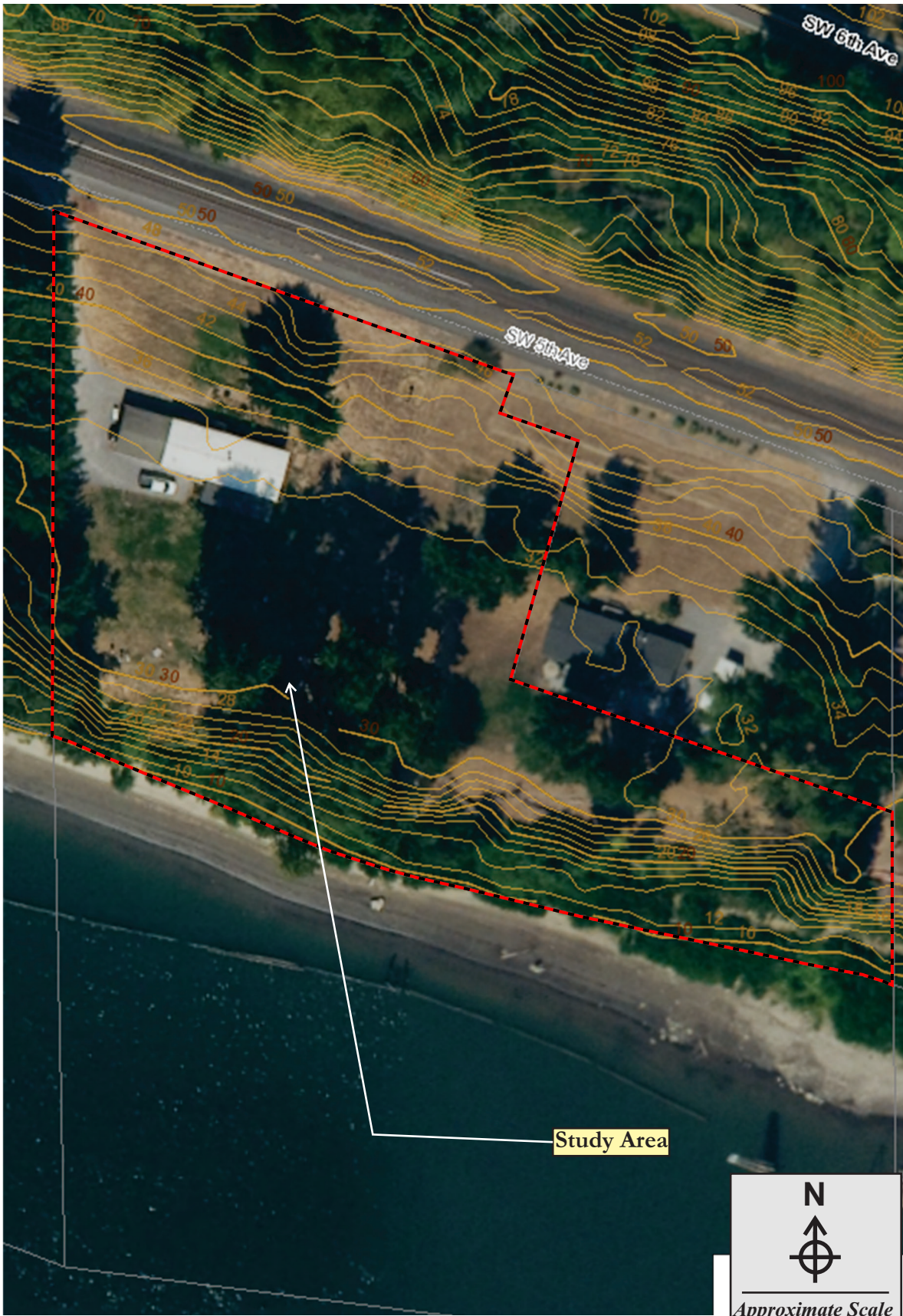



Haley Short Plat
APPLICANT:
 Dale and Leta Anderson, Trustee
 4420 S.W. 5th Avenue
 Camas, WA 98607
PURPOSE: Revised Habitat Mitigation Plan

Proposed 2-Lot Short Plat
Haley Short Plat
Camas, Washington

222 E. Evergreen Blvd., Vancouver, WA 98660 ph: 360-693-4555 fax: 360-699-6242

PROPOSED ACTIVITIES IN:
 Columbia Slope Watershed
LEGAL: SE ¼ of Sect. 8, T1N, R3E, W.M.
NEAR: Camas, Washington
COUNTY: Clark County
DATE: October 24, 2019
Figure 2



N

 Approximate Scale
 1" = 75'

Haley Short Plat

APPLICANT:

Dale and Leta Anderson, Trustee
 4420 S.W. 5th Avenue
 Camas, WA 98607

PURPOSE: Revised Habitat Mitigation Plan

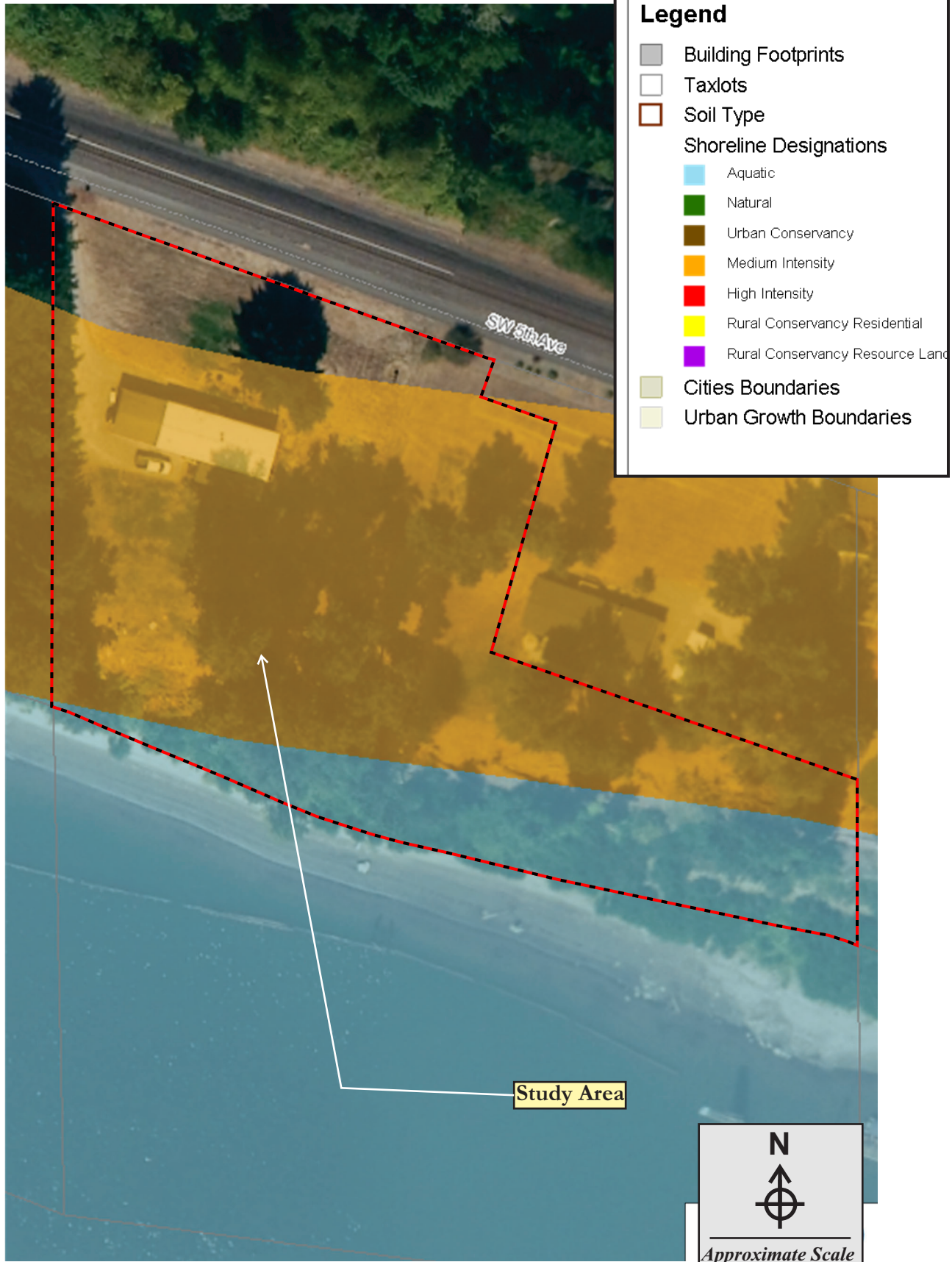
Clark County GIS Topographic Map
Haley Short Plat
Camas, Washington



OLSON
ENVIRONMENTAL LLC
LANDSCAPE ARCHITECTURE • PLANNING • ENGINEERING

222 E. Evergreen Blvd., Vancouver, WA 98680 ph: 360-693-4555 fax: 360-699-6242

PROPOSED ACTIVITIES IN:
 Columbia Slope Watershed
LEGAL: SE ¼ of Sect. 8, T1N, R3E, W.M.
NEAR: Camas, Washington
COUNTY: Clark County
DATE: October 24, 2019
Figure 3



Haley Short Plat
APPLICANT:
 Dale and Leta Anderson, Trustee
 4420 S.W. 5th Avenue
 Camas, WA 98607
PURPOSE: Revised Habitat Mitigation Plan

Clark County GIS Shoreline Designation Map
Haley Short Plat
Camas, Washington

222 E. Evergreen Blvd., Vancouver, WA 98660 ph: 360-693-4555 fax: 360-699-6242

PROPOSED ACTIVITIES IN:
 Columbia Slope Watershed
LEGAL: SE ¼ of Sect. 8, T1N, R3E, W.M.
NEAR: Camas, Washington
COUNTY: Clark County
DATE: October 24, 2019
Figure 4



Study Area



Approximate Scale
1" = 75'

Haley Short Plat

APPLICANT:

Dale and Leta Anderson, Trustee
4420 S.W. 5th Avenue
Camas, WA 98607

PURPOSE: Revised Habitat Mitigation Plan

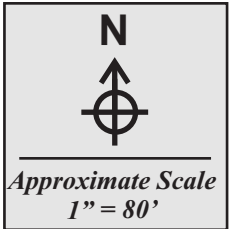
**Clark County Priority Habitat/Species Map
Haley Short Plat
Camas, Washington**



**OLSON
ENVIRONMENTAL, LLC**
ENVIRONMENTAL CONSULTING - FACILITY DEVELOPMENT

222 E. Evergreen Blvd., Vancouver, WA 98680 ph: 360-693-4555 fax: 360-699-6242

PROPOSED ACTIVITIES IN:
Columbia Slope Watershed
LEGAL: SE ¼ of Sect. 8, T1N, R3E, W.M.
NEAR: Camas, Washington
COUNTY: Clark County
DATE: October 24, 2019
Figure 5



Haley Short Plat

APPLICANT:
 Dale and Leta Anderson, Trustee
 4420 S.W. 5th Avenue
 Camas, WA 98607

PURPOSE: Revised Habitat Mitigation Plan

**OHWM and Riparian Buffer
 Haley Short Plat
 Camas, Washington**



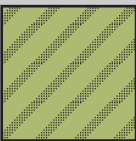

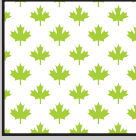
OLSON ENVIRONMENTAL, LLC
 ENVIRONMENTAL SCIENCE • REG • HABITAT RESTORATION


222 E. Evergreen Blvd., Vancouver, WA 98660 ph: 360-693-4555 fax: 360-699-6242

PROPOSED ACTIVITIES IN:
 Columbia Slope Watershed
LEGAL: SE ¼ of Sect. 8, T1N, R3E, W.M.
NEAR: Camas, Washington
COUNTY: Clark County
DATE: October 24, 2019
Figure 6



LEGEND

- 
 Functionally Isolated Riparian Buffer Area = 4,860 sq.ft.
- 
 Riparian Buffer Reduction Area = 15,078 sq.ft.
- 
 Riparian Buffer Compensation/Enhancement Area = 20,080 sq.ft.


 Approximate Scale
 1" = 80'

Haley Short Plat

APPLICANT:
 Dale and Leta Anderson, Trustee
 4420 S.W. 5th Avenue
 Camas, WA 98607

PURPOSE: Revised Habitat Mitigation Plan

Proposed Habitat Buffer Reduction/Compensation Areas
Haley Short Plat
Camas, Washington


OLSON ENVIRONMENTAL LLC
ENVIRONMENTAL ENGINEERING • SURVEYING • HABITAT RESTORATION

222 E. Evergreen Blvd., Vancouver, WA 98660 ph: 360-693-4555 fax: 360-699-6242

PROPOSED ACTIVITIES IN:
 Columbia Slope Watershed

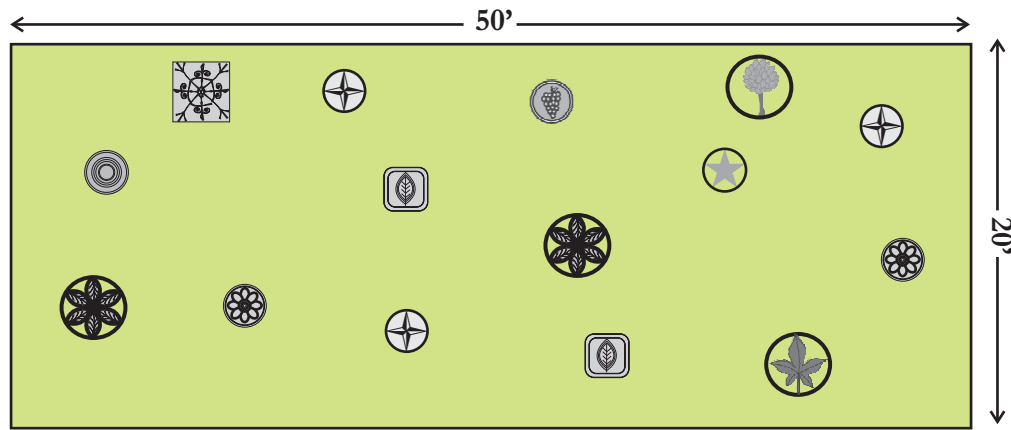
LEGAL: SE ¼ of Sect. 8, T1N, R3E, W.M.

NEAR: Camas, Washington

COUNTY: Clark County

DATE: October 24, 2019











Figure 7



Typical Riparian Buffer Enhancement Area Plantings

Note: Plant locations are approximate.
Actual plant locations will be determined
in the field at the time of planting.

Planting Plan Specifications – Riparian Enhancement Area (20,080 ft²), 5 trees/10 shrubs per 1,000 sq. ft. (Fig 7).

Species	Plant Form	Minimum Size	Minimum Spacing	Required Number	
Trees					
Western Red Cedar (<i>Thuja plicata</i>)		Seedling	18"	10'	15
Douglas-Fir (<i>Pseudotsuga menziesii</i>)		Seedling	18"	10'	35
Big-Leaf Maple (<i>Acer macrophyllum</i>)		Bare Root	24"	10'	20
Oregon Ash (<i>Fraxinus latifolia</i>)		Bare Root	24"	10'	30
Total Trees				100	
Shrubs					
Snowberry (<i>Symphoricarpos albus</i>)		Bare Root	18-24"	8'	55
Indian Plum (<i>Oemleria cerasiformis</i>)		Bare Root	18-24"	12'	25
vine maple (<i>Acer circinatum</i>)		Bare Root	18-24"	12'	10
Red Flowering Current (<i>Ribes sanguineum</i>)		Bare Root	18-24"	8'	30
Hazel Nut (<i>Corylus cornuta</i>)		Bare Root	18-24"	8'	15
Native Willow (<i>Salix spp.</i>)		Cutting	6'	8'	66
Total Shrubs				201	

Haley Short Plat

APPLICANT:

Dale and Leta Anderson, Trustee
4420 S.W. 5th Avenue
Camas, WA 98607

PURPOSE: Revised Habitat Mitigation Plan

Riparian Buffer Enhancement Planting Details

Haley Short Plat
Camas, Washington



OLSON
ENVIRONMENTAL LLC
LANDSCAPE ARCHITECTURE • FACILITY MANAGEMENT • WATER RESOURCES

222 E. Evergreen Blvd., Vancouver, WA 98660 ph: 360-693-4555 fax: 360-699-6242

PROPOSED ACTIVITIES IN:

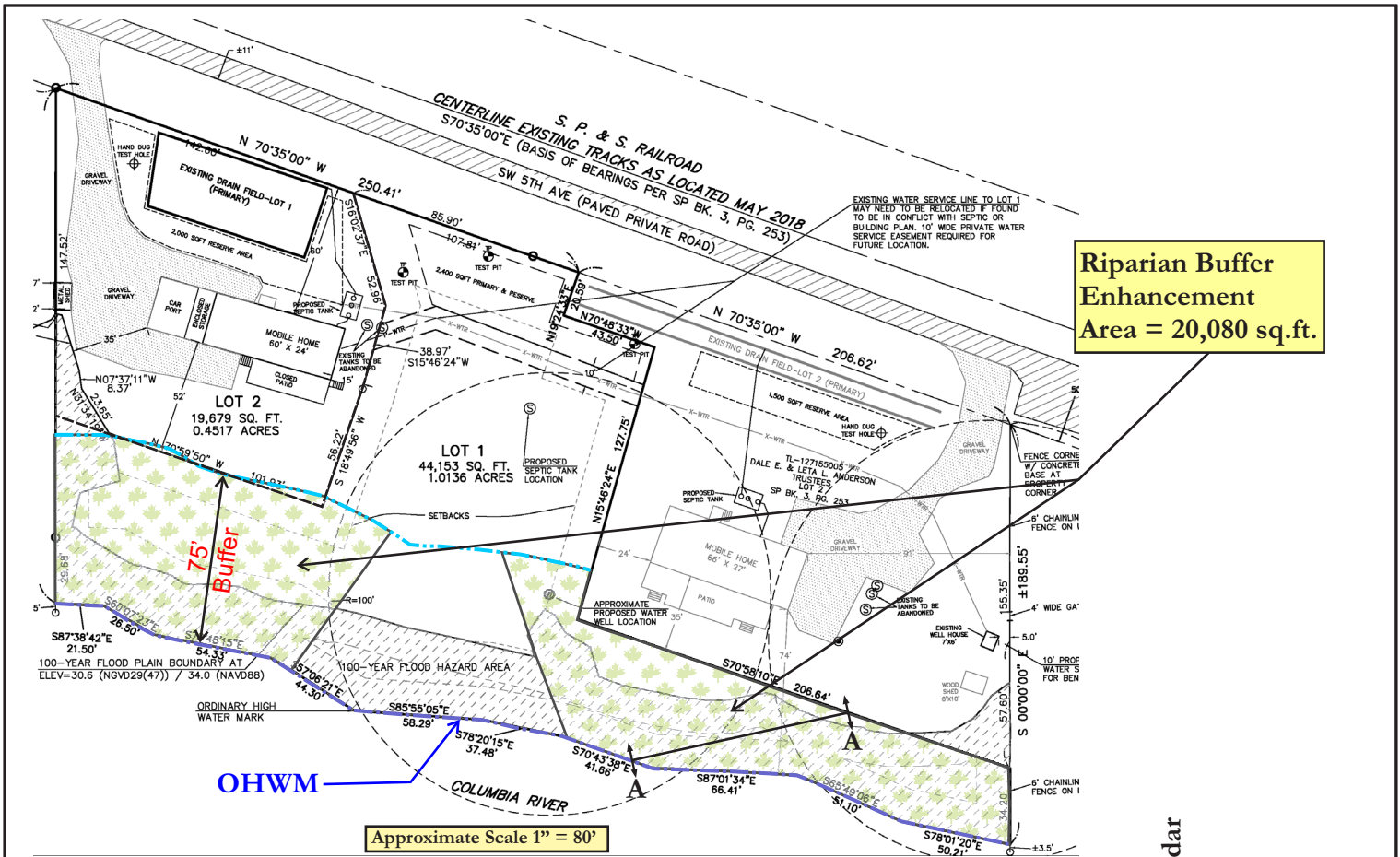
Columbia Slope Watershed
LEGAL: SE ¼ of Sect. 8, T1N, R3E, W.M.

NEAR: Camas, Washington

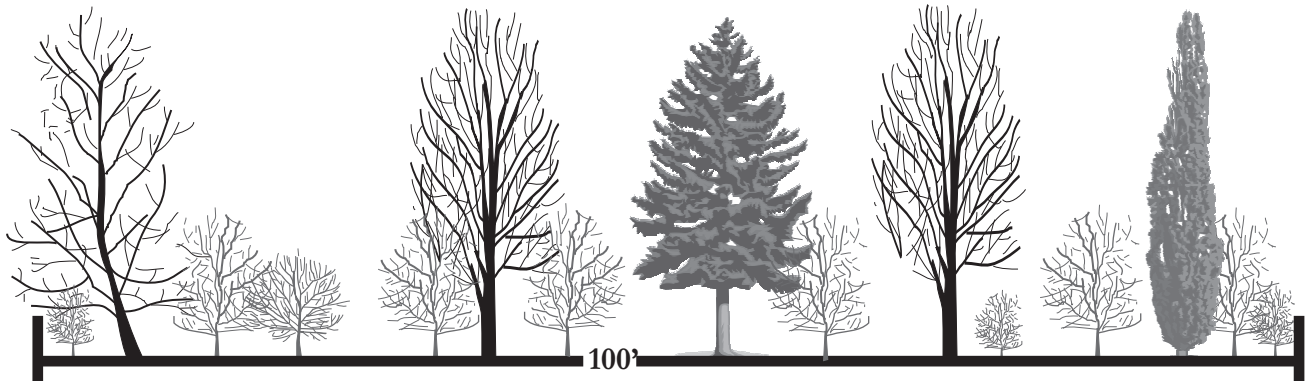
COUNTY: Clark County

DATE: October 24, 2019

Figure 8



- Snowberry
- Big-Leaf Maple
- Hazelnut
- Red-Flowering Currant
- Willow
- Ash
- Vine Maple
- Douglas-Fir
- Willow
- Ash
- Snowberry
- Willow
- Western Red Cedar
- Willow
- Indian Plum



Riparian Buffer Enhancement AreaRiparian Buffer Enhancement Area

Note: Plants are not to scale. Plant locations are approximate. Actual plant locations will be determined in the field at the time of planting. No excavation or grading will occur within the oak mitigation area.

Haley Short Plat
APPLICANT:
 Dale and Leta Anderson, Trustee
 4420 S.W. 5th Avenue
 Camas, WA 98607
PURPOSE: Revised Habitat Mitigation Plan

Planting Details Cross-Section
Haley Short Plat
Camas, Washington

222 E. Evergreen Blvd., Vancouver, WA 98660 ph: 360-693-4555 fax: 360-699-6242

PROPOSED ACTIVITIES IN:
 Columbia Slope Watershed
LEGAL: SE ¼ of Sect. 8, T1N, R3E, W.M.
NEAR: Camas, Washington
COUNTY: Clark County
DATE: October 24, 2019
Figure 9



Haley Short Plat

APPLICANT:

Dale and Leta Anderson, Trustee
 4420 S.W. 5th Avenue
 Camas, WA 98607

PURPOSE: Revised Habitat Mitigation Plan

**Project Photographs
 Haley Short Plat
 Camas, Washington**



OLSON ENVIRONMENTAL, LLC
 ENVIRONMENTAL SERVICES • GIS • HABITAT RESTORATION

222 E. Evergreen Blvd., Vancouver, WA 98660 ph: 360-693-4555 fax: 360-699-6242

PROPOSED ACTIVITIES IN:

Columbia Slope Watershed
LEGAL: SE ¼ of Sect. 8, T1N, R3E, W.M.

NEAR: Camas, Washington

COUNTY: Clark County

DATE: October 24, 2019

Photo Sheet 1