

TECHNICAL MEMORANDUM

TO:
Eric Eisemann

FROM:
Jim Barnes

COMPANY:
City of La Center

DATE:
1/11/2019

RE:
Stephens Hillside Farm

CC:
Ed Greer, Jeff Whitten

URGENT FOR REVIEW PLEASE COMMENT PLEASE REPLY PLEASE RECYCLE

It was recently brought to my attention by the project designer and engineer for the Stephens Hillside Farm Project In La Center, that the city was questioning whether the property contained any Oregon white oak trees that would be regulated as critical areas. Cascadia completed a critical areas report for this project on January 29, 2018. The report did not mention the presence of any oaks on the site.

Because of the recent questions raised to the project team, I completed a second field visit to the site on January 8, 2019. During this visit, I did not locate any oak trees on the site. It is possible that staff may have misinterpreted some of the large mature big-leaf maple trees in the north buffer of the stream in the south part of the property to be oaks because they appear similar in aerial photos and also in person.

Please feel free to contact me a (360) 601-8631 if there are any more questions related to this issue.

CRITICAL AREAS MITIGATION PLAN

Stephens Hillside Farm

**Tax Parcels: 258901-000, 258919-000, 258922-000, 258971-000 and 258972-000
37400 NE North Fork Road, La Center, WA 98629**

Prepared by:

**Jim Barnes, President
Cascadia Ecological Services, Inc.
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Vancouver, WA 98685
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Applicant:

**Carleen Stephens
34700 NE North Fork Road
La Center, WA 98642
(360) 281-0897**

Date: May 2, 2018



Executive Summary

This project proposes 85 residential lots for detached single family homes on 42.3 acres located on the west side of Aspen Avenue; along with Tract A, an improved public park; Tract B, the area for stormwater management; and Tract C & D, open space to be retained by the owners. The site is composed of tax lots 258901-000, 258919-000, 258922-000, 258971-000 and 258972-000. Site addresses are: 34700 NE North Fork Road, 115 NE 348th Street, 208 NE 348th Street and 617 NE 348th Street, La Center.

The zoning district is LDR-7.5, which requires a minimum lot area of 7,500 square feet. All proposed lots exceed the 7,500 sq. ft. minimum. Due to the sloping land, smaller lots will not provide ample space for needed slopes between lots and pads for larger homes. Approximately 32% of the site cannot be developed due to existing streams and associated 200' wide buffers.

Wetlands associated with tributary streams to the East Fork Lewis River were identified along the south and west portions of the project area. Per the Washington State Wetland Rating System for Western Washington: 2014 Update (effective date January 1, 2015) rating completed by CES, the wetlands rate as Category 2 PFO riverine. The City of La Center regulates the wetlands under LCMC 18.300.090(6)(f).

The streams on-site are classified as DNR Type F (fish-bearing) and are regulated under LCMC 18.300.090(2) as fish and wildlife habitat conservation areas.

The applicant proposes to utilize provisions of LMC 18.300.090 to reduce the outer portion of the base riparian ecosystem area buffer on the Type F streams along the south and southwest portions of the project area. The purpose of the buffer encroachments is to construct stormwater facilities and siting of a park in an area identified as "Tract A". Impacts to the wetland and stream buffers will be mitigated through vegetative buffer enhancement of the remaining non-forested buffer.

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Acronyms and Abbreviations

Applicant	Carleen Stephens
CES	Cascadia Ecological Services, Inc.
DNR	Department of Natural Resources
Ecology	Washington State Department of Ecology
FPARS	Forest Practices Application Review System
LMC	La Center Municipal Code
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
WDFW	Washington State Department of Fish and Wildlife
WRIA	Water Resource Inventory Area

The information and data in this critical areas mitigation plan was compiled and prepared by the undersigned:



Jim Barnes
President,
Cascadia Ecological Services, Inc.

Chapter 1. Introduction

The applicant contracted with Cascadia Ecological Services, Inc. (CES) to complete a critical areas mitigation plan for tax parcels 258901-000, 258919-000, 258922-000, 258971-000 and 258972-000. The purpose of the plan is to address encroachments into the wetland and habitat buffers on the property by the proposed project.

This report facilitates the applicant's efforts to:

1. Avoid or minimize impacts to wetlands and streams during the design process.
2. Document wetland and stream boundary determinations for review by regulatory authorities.
3. Provide early indications to project engineers of sensitive species within the project area.
4. Provide background information for critical areas mitigation.

This report is anticipated to support a critical areas permit through the City of La Center. Critical areas are regulated by the City of La Center Municipal Code (LMC Chapter 18.300).

Chapter 2. Proposed Project

2.1 Location

Project Location: 34700 NE North Fork Avenue, La Center, WA 98642 (figure 1 of 5)

County: Clark

Section, Township, and Range: SW 1/4, S34, T5N, R1E of the Willamette Meridian

Milepost: Located 2.7 miles northeast of Interstate 5

Latitude/Longitude: 45.8723, -122.6751

2.2 Purpose and Description

This project proposes 85 residential lots for detached single family homes on 42.3 acres located on the west side of Aspen Avenue; along with Tract A, an improved public park; Tract B, the area for stormwater management; and Tract C & D, open space to be retained by the owners.

All existing structures will be removed except the residence in 208 N 348th Street, which will be retained on a new lot. A 1.06 acre park is proposed within a wetland and stream buffer on the south part of the project area.

The project is being undertaken to construct additional residential housing units in the urban growth area of the City of La Center. The Applicant has completed a conceptual design for this project which is included in this plan as Figure 5 of 5.

2.3 Landscape Setting

The 42.3-acre project area contains three single-family residences that are all accessed via a gravel driveway extending west from NE North Fork Avenue. Of the 42.3 acres, approximately 33 acres consists of mowed grassland pasture, residential areas, and gravel driveways. The remainder consists of a mature forested corridor along a tributary stream to the East Fork Lewis River which flows through the west part of the site from north to south, and a second tributary stream along the south side which originates in wetlands on the Southview Heights Subdivision to the east. Site topography is generally sloping from north to south. According to the Clark County GIS, the slopes on the project area average between 10 and 15 percent except within the riparian corridor of the streams where steeper slopes are present in the range of 25 to 40 percent.

The project area is located along the northeast side of the City of La Center. Land uses to the east and south are in residential subdivisions. Open space, forestland, and farmland are the dominant land uses to the north and west. Interstate 5 is 2.7 miles to the southwest.



Figure 2. Aerial photo of the project area and surrounding land uses.

Chapter 3. Methods

CES completed a critical areas report for this project on November 20, 2017 (Barnes, 2017). The report includes resource information regarding the landscape setting, existing plant community, and general habitat conditions that were observed on the project area. It was determined through the completion of an Ecology Wetland Rating that the wetlands on the site rate as Category 2 riverine wetlands moderate to high levels of water quality, hydrologic, and habitat functions. The streams on-site are tributaries to the East Fork Lewis River and are classified as riparian Fish and Wildlife Habitat Conservation Areas by the City of La Center. No other endangered, threatened, or local habitat areas as regulated by the city area present on the project area.

Table 1. Wetland Function Rating.

Wetland	Wetland Type	Water Quality Functions	Hydrologic Functions	Habitat Functions	Total Score	Wetland Category
1	Riverine	8	8	7	23	II

The site plan developed by The Wolfe Group, LLC (Figure 5 of 5) avoids direct impacts to any of the regulated Category 2 wetlands on the project site.

Chapter 4. Existing Conditions

4.1 Critical Areas Discussion

The project area contains Category 2 PFO riverine wetlands identified in the critical areas report as Wetland 1 consisting of narrow riparian floodplain wetlands associated with tributary streams to the East Fork Lewis River which are located along the south and west portions of the project area. The wetlands lie at the base of a relatively steep mature forested ravine adjacent to the stream and are confined to the stream corridors by the steep slopes leading out of the riparian zone.

Vegetation

Most of the project area consists of sloping grassland fields which are mowed for hay during the growing season. No livestock are present on-site. Areas of ornamental shrubs and trees in addition to native species are located around the three single-family residences. The wetlands are forested and dominated by native shrubs, trees, and herbaceous vegetation.

Vegetative cover on the site is near 100 percent and no significant areas of invasive plant species were observed.

Tables 2 and 3 below list the dominant plant species observed in the upland and wetland areas on-site during the site visit.

Table 2. Dominant plant species occurring in wetlands on the project site.

Scientific Name	Common Name	WIS*
<i>Populus balsamifera</i>	Black cottonwood	FAC
<i>Alnus rubra</i>	Red alder	FAC
<i>Thuja plicata</i>	Western red cedar	FAC
<i>Rubus spectabilis</i>	Salmonberry	FAC
<i>Salix lasiandra</i>	Pacific willow	FACW
<i>Cornus stolonifera</i>	Red-osier dogwood	FACW
<i>Juncus effusus</i>	Soft rush	FACW
<i>Carex obnupta</i>	Slough sedge	OBL
<i>Ranunculus repens</i>	Creeping buttercup	FACW
<i>Urtica dioica</i>	Stinging nettle	FAC
<i>Phalaris arundinacea</i>	Reed canarygrass	FACW
<i>Rubus armeniacus</i>	Himalayan blackberry	FAC

Table 3. Dominant plant species occurring in uplands on the project site.

Scientific Name	Common Name	WIS*
<i>Pseudotsuga menziesii</i>	Douglas fir	FACU
<i>Alnus rubra</i>	Red alder	FAC
<i>Polystichum munitum</i>	Swordfern	FACU
<i>Oemleria cerasiformis</i>	Indian plum	FACU
<i>Gaultheria shallon</i>	Salal	FACU
<i>Dactylis glomerata</i>	Orchardgrass	FACU
<i>Taraxacum officinale</i>	Common dandelion	FACU
<i>Hypochaeris radicata</i>	Cat's ear	FACU
<i>Trifolium pratense</i>	Red clover	FACU
<i>Daucus carota</i>	Queen Anne's lace	FACU
<i>Geranium mole</i>	Dovesfoot geranium	FACU
<i>Leucanthemum vulgare</i>	Oxeye daisy	FACU
<i>Festuca arundinacea</i>	Tall fescue	FAC
<i>Plantago lanceolata</i>	Lanceleaf plantain	FACU
<i>Dactylis glomerata</i>	Orchardgrass	FACU

*

Wetland Indicator Status (WIS):

- OBL = occurs in wetlands > 99% of time
- FACW = occurs in wetlands 67-99% of time
- FAC = occurs in wetlands 34-66% of time
- FACU = occurs in wetlands 1-33% of time
- UPL = occurs in uplands > 99% of time
- NI = indicator status not known in this region
- ~ = unsure as to FAC or FACU

4.2.2 Wetland Buffers

In general, the wetland buffers on-site contain an herbaceous and woody shrub plant community with a overstory dominated by a mature upland hardwood overstory which provides shading to the stream and wildlife habitat.

Per LMC tables 18.300.090(6)(h)(i)-3 and 18.300.090(2)(f) the City of La Center requires the following buffers:

- Wetland 1 (High Land Use Intensity/Moderate Habitat Function; 20-23 points): 120 ft.
- Type F (perennial or fish bearing) streams (High Land Use Intensity/Low Habitat Function): 200 ft.

4.2.3 Wetland Functions

The delineated wetlands provide medium to high levels of water quality and hydrologic functions. Habitat functions are low (Table 4).

Table 4. Functions and Values of the Existing Wetlands.

Function/Value ^a	Wetland
	1
Water Quality Functions	
Sediment Removal	+
Nutrient and Toxicant Removal	+
Hydrologic Functions	
Flood Flow Alteration	X
Erosion Control & Shoreline Stabilization	X
Habitat Functions	
Production & Export of Organic Matter	+
General Habitat Suitability	+
Habitat for Aquatic Invertebrates	+
Habitat for Amphibians	+
Habitat for Wetland-Associated Mammals	+
Habitat for Wetland-Associated Birds	+
General Fish Habitat	+
Native Plant Richness	+
Special Characteristics	
Educational or Scientific Value	-
Uniqueness and Heritage	-

^a: “-“ means that the function is not present; “X” means that the function is present is of lower quality; and “+” means the function is present an is of higher quality.

4.3 Streams

The WDFW PHS on the Web website shows riverine aquatic habitat along the south side of the project area associated with a tributary stream to the East Fork Lewis River.

Per the DNR FPARS, two tributary streams to the East Fork Lewis River are located on-site, one along the west side, and second along the south side. Both are classified as Type F (fish-bearing) streams.

Chapter 5. Wetland and Stream Buffer Impact Assessment

5.1 Avoidance and Minimization of Wetland and Stream Buffer Impacts

The applicant has avoided and minimized impacts to wetlands and habitat buffer areas to the greatest extent practicable. To create a subdivision layout that allows cross-circulation, a safe and efficient transportation network and pedestrian connectivity, complete avoidance was not possible due to relatively steep topography on the site and the necessity of locating stormwater facilities at the lower end of the project area which is within the outer part of the habitat buffer.

In order to meet ADA standards, the proposed park must be located on the least steep area of the site, which is the location proposed. Based upon topographic conditions, the park may be situated within the stream buffer per (18.300.050(4)(b)). This location is also centrally located for residents in the surrounding area.

In addition to the steps that were taken to avoid and minimize impacts, mitigation in the form the buffer enhancement is proposed for the unavoidable wetland and stream buffer impacts associated with this project.

5.2 Wetland and Stream Buffer Impacts

The applicant proposes to treat stormwater from pollution generating surfaces (impervious) with bioswales and detain in a detention pond. The bioswales are in the buffer of the Type F streams. Per the comments in the November 2, 2017 Pre-Application Conference notes for the Hillside Farm Subdivision (now known as the Stephens Hillside Farm), the city stated that stormwater treatment in the outer 25 percent of the stream buffer could be allowed. This allowance was also verbally given by city staff Jeff Sarvis and Tony Cooper to the project engineer Jeff Whitten. The stormwater facilities will all be located within the outer 25% of the 200-ft. stream buffer, or outer 50 feet. The total area of buffer encroachment by the stormwater facilities is 1.45 acres. Included in this area is a stormwater outfall corridor that will require removal of vegetation within a 10-foot-wide swath of approximately 1,700 square feet in area extending downslope from the stormwater facility south of Lot 59 to the edge of the stream. The stormwater pipe will be buried underground within this corridor. Rock rip rap

(approximately 150 square feet) will be placed at the outfall to dissipate stormwater and prevent erosion. Upon completion of the construction activities, the disturbed areas will be immediately reseeded with an erosion control seed mix and overlaid with weed free straw to a depth of 1 inch. The stormwater corridor will be replanted with native trees and shrubs as part of the overall mitigation strategy for the project as discussed in Chapter 6.

The location of the aforementioned stormwater facilities in the outer portion of the stream buffer will not impact any existing woody areas except for the stormwater corridor and two areas south of proposed lots 54, 56, and 57. The remaining area is all grassland pasture. Proposed enhancement of the remaining non-forested areas of the stream buffer will ensure that development activity does not yield a net loss of the area or function, including fish and wildlife habitat values, of the critical area.

A proposed park is to be located in the southeast portion of the project area to the south of lots 76, 82, and 83. The park will be located within the 120-ft. wetland buffer in an area of grassland pasture. Some trees are located in the west portion of the park which will be retained. The landscape architect for the project has completed a proposed park plan which includes a landscaping planting plan (see Appendix C). No other encroachments are proposed within the 120-ft. wetland buffers on the project area.

The city stated in the in the November 2, 2017 Pre-Application Conference notes that “within a Critical Area or buffer, open space, and parks and recreational facilities may be allowed where there is no other reasonable alternative, based on topographic and environmental conditions, as determined by the director. LCMC 18.300.050(4)(b). The burden of proof rests on the applicant.”

The applicant has designed the park to be in the proposed location due to generally steep topographic terrain over the majority of the site. The proposed location is in the only relatively flat part of the site and is also centrally located to the surrounding residential homes. The park will have frontage along Aspen Ave. A 3’ high non-sight-obscuring fence will contain children and play equipment from entering the roadway and allow police to visually monitor the park from Aspen Avenue.

5.3 Stormwater Discussion

The Department of Ecology 2005 Western Washington Stormwater Manual will be used for this project. This is dictated by the City of La Center Engineering Standards. All post-development stormwater will be treated and detained on site in the stormwater facilities shown on Figure 5 of 5 to match pre-development flows before being released into the wetlands.

Chapter 6. Mitigation Strategy

6.1 Wetland and Stream Habitat Buffer Enhancement

The applicant will enhance the remaining wetland and stream habitat buffer areas to the south

of the stormwater facilities and north of the stream corridor that are currently in grassland pasture and blackberries. The enhancement of these areas will replace and exceed the functional value of the buffers area lost to the stormwater facilities due to the increase in habitat functions from the installation of native woody plantings.

Table 5. Proposed mitigation ratios using permittee responsible mitigation.

Critical Area	Impact Area (acres)	Mitigation Proposed	Mitigation Area (acres)	Proposed Mitigation Ratio
Stream Habitat Buffer	1.45	On-site Stream Habitat Buffer Enhancement	2.65	1.83:1

6.2 Wetland Buffer Mitigation Site Design

Wildlife habitat will be enhanced once the woody mitigation plantings are installed and established. Removal of invasive blackberries from the buffer will allow for native plant species to re-establish providing structure, food, and nesting opportunities for a wide variety of bird species and mammals. Increased density and cover of woody vegetation over time will reduce the capacity of blackberries to dominate and outcompete the native plant species. A summary of the planting plan for the wetland and stream habitat buffer mitigation area is given in Table 6. Plantings will be installed in the appropriate areas within the wetland and stream habitat buffer enhancement areas as directed by the project biologist.

Table 6. Plant list for Wetland Buffer Enhancement Area (2.65 acres)

Common Name	Scientific Name	Community Composition	Plant Size	Required Number to be Planted
Forested and Scrub-shrub Plant Community				
Douglas fir	<i>Pseudotsuga menziesii</i>	33%	Bare Root (Plug)	171
Oregon white oak	<i>Quercus garryana</i>	33%	Bare Root (12" +)	171
Big-leaf maple	<i>Acer macrophyllum</i>	33%	Bare Root (18-24" +)	171
Oregon grape	<i>Mahonia aquifolium</i>	12%	Bare Root (18-24" +)	143
Beaked hazelnut	<i>Corylus cornuta</i>	12%	Bare Root (18-24" +)	143
Saskatoon	<i>Amelanchier alnifolia</i>	12%	Bare Root (18-24" +)	143
Thimbleberry	<i>Rubus parviflorus</i>	12%	Bare Root (18-24" +)	143
Cascara	<i>Rhamnus purshiana</i>	12%	Bare Root (18-24" +)	143
Black hawthorn	<i>Crataegus douglasii</i>	12%	Bare Root (18-24" +)	143
Red elderberry	<i>Sambucus racemosa</i>	12%	Bare Root (18-24" +)	143
Red flowering currant	<i>Ribes sanguineum</i>	12%	Bare Root (18-24" +)	143
Indian plum	<i>Oemlaria cerasiformis</i>	12%	Bare Root (18-24" +)	143
Total				1,800

Wetland and Stream Habitat Buffer Mitigation Area: 2.65 acres (See Figure 5 of 4 for planting area locations)

6.2.1 Implementation Schedule

The mitigation area will be planted during the 2018 to 2019 dormant season per the numbers specified in Table 6. Planting is to occur during the period of November through March.

Project mitigation monitoring will be initiated during the growing season following the initial planting of the mitigation area.

6.2.2 Management Strategy for Himalayan Blackberry

Himalayan blackberry

Portions of the wetland buffer contain Himalayan blackberry thickets. Manual removal of Himalayan blackberry canes is the preferred method of control on this site rather than herbicide applications to limit damage to other existing native vegetation. Removal methods can include the use of machetes and mechanical brush cutters. Upon completion of the cutting of the blackberry canes in the spring prior to berry seed production, they should be arranged in scattered piles and left for cover in the forest understory for wildlife species. Blackberry canes may also be mulched with mechanically and spread on the ground surface within the mitigation area.

In the fall it may be necessary to revisit the areas where the blackberry canes were removed as resprout is likely to occur. Individual spot application in upland areas away from water sources to the resprouted canes with Garlon 3a (triclopyramine formulation) and Roundup (glyphosate) is an effective treatment. Removal of resprouted canes in the vicinity of aquatic areas shall be accomplished by hand by grubbing the root mass from the ground.

Upon completion of the removal activities, large areas of exposed soils are likely to exist especially where larger blackberry thickets occurred. Overseed these areas with sterile weed-free straw or "Re-Green" to help reduce erosion of disturbed soil.

Chapter 7. Mitigation Goals, Objectives, and Performance Criteria

The proposed mitigation site will be monitored for 3 years to demonstrate that the intended goals and objectives are established. Goals describe the overall intent of mitigation efforts, and objectives describe individual components of the mitigation site in detail. Performance measures and performance standards describe specific on-site characteristics that indicate a function is being provided. Performance measures are used to guide management of the mitigation site. Performance standards are used to evaluate compliance with the city critical areas permit in the preliminary year of monitoring. Contingency plans describe what actions can be taken to correct site deficiencies.

An adaptive management process will be used to improve mitigation success. Adaptive management involves learning from monitoring and implementing management activities, such as implementing parts of the site management or contingency plans. Information from monitoring is used to direct subsequent site management activities. As part of the adaptive management process, mid-course corrections may necessitate a change in vision for the site if nature takes its course and things turn out differently than planned. A change in vision may require renegotiation with regulators for a new set of performance standards.

7.1 Goals

The goal of the mitigation is to achieve a net gain in habitat functions through the planting of additional native woody plant species in the wetland and stream habitat buffer enhancement areas on the project site and removal of invasive species as listed below:

- Improve habitat conditions
- Reduce cover of invasive blackberries

7.2 Objectives

1. Wetland and Stream Habitat Buffer Mitigation Area: Plant native shrubs and trees within the 2.65-acre wetland buffer areas as shown on Figure 5 of 5.

7.3 Performance Criteria

The performance standards described below provide benchmarks for measuring achievement of the goals and objectives of the mitigation site. Mitigation activities are intended to meet these performance standards within a specified period. These performance standards measure structural attributes that provide a reasonable indication of wetland or habitat functions. Methods to monitor each performance standard are described in general terms.

Vegetation Performance Criteria

The vegetation performance criteria directly relate to objectives in Section 7.2.

Performance Measures

Years 1-2

Native woody species (planted and volunteer) will achieve an average density of at least 15 plants per 1,000 square feet in the mitigation areas. Plant survival shall be 100 percent.

Year 3

Overall plant survival shall be 80 percent or higher. Aerial cover of native, woody plant species (planted and volunteer) will be at least 30 percent in the mitigation areas.

All years

County-listed Class-A noxious weeds will be eradicated within the mitigation areas as they are discovered during monitoring.

Table 7. Upland woody vegetation performance standards by monitoring year.

Wetland and Stream Habitat Buffer Mitigation Areas	Achieve an average density of at least 15 native woody plants per 1000 square feet.	Comprehensive count of failed plantings.	Years 1 and 2	Replace failed plantings.
	Overall plant survival shall be at 80% or higher. Aerial cover of native woody species (planted and volunteer) will be at least 30 percent.	Visual Estimate & Aerial Photo Review	Year 3	Replace failed plantings.

7.4 Monitoring

Vegetation monitoring will occur and be reported annually so that progress toward meeting performance standards can be evaluated and adaptive management implemented, if necessary. Because this plan includes the implementation of slow developing habitats, a three-year monitoring period with monitoring completed and documented for all years will be required.

The sites will be evaluated by the project biologist during the summer following plant installation to assess survival rates and document the presence of non-native invasive species. Monitoring will be designed to determine if the performance measures or performance standards have been met. Monitoring reports will be submitted for review and comment to the recipient listed in Table 8 by April following the formal monitoring activities conducted the previous year.

Monitoring will consist of the completion of a total plant count of surviving plants within the mitigation area each year. Sampling will be conducted the same season each year, during the growing season when leaf out of woody vegetation is more easily identifiable.

Table 8. Mitigation monitoring report recipient.

Permitting Agency or Organization	Contact Name and Address
City of La Center	City of La Center Attn: Planning Department 305 NW Pacific Highway La Center, WA 98629 (360) 263-7661

7.5 Contingency Plan

It is anticipated that the mitigation goals will be accomplished with the installation of the mitigation design as shown on the planting plan. Contingency actions, however, may be needed to correct unforeseen problems. Contingency revisions typically require coordination with the permitting agencies.

As necessary, contingency measures (site management or revisions to performance criteria with permitting agency agreement) will be implemented to meet performance measures and

performance standards. The following describes potential situations that may occur and the potential contingencies that might be implemented to correct the problem. Because not all site conditions can be anticipated, the contingencies discussed below do not represent an exhaustive list of potential problems or remedies.

Vegetation

Problems related to vegetation include plant mortality, and poor growth resulting in low plant cover. These problems could be the result of insufficient site management, particularly watering in the first few growing seasons, animal browse, competition from non-native or invasive species, incorrect plant selection, altered site conditions, and vandalism.

Contingencies for plant mortality and poor plant cover may include the following:

-) Plant replacement – Additional planting may be required to meet plant survival and plant cover requirements. Causes of plant mortality will be evaluated and replanting locations adjusted as necessary based on the local site conditions.
-) Weed control – Control of non-native and invasive plant species will be required to meet survival and plant cover requirements. Weed control methods could include mechanical or hand control, mulching, or herbicide application.
-) Herbivore control – If plant survival or vegetation cover standards are not met because of animal browse, the wildlife responsible will be identified and appropriate control measures will be attempted. This could include plant protection, fence installation, or the use of repellents. However, some pestilent and invasive wildlife species are difficult to avoid. Implementing precautionary measures with design and placement will minimize unwanted species but likely not eliminate them. Wildlife damage and manipulation to plantings and structures should be expected to occur and, with exceptions, it may be necessary to accept the situation and allow the vegetation to mature under these conditions. Occasionally it may be necessary to dissuade or exclude destructive wildlife species. Native species such as beaver may initially have perceived damaging effects on the expected outcome of a mitigation site; however, the site modifications that result from their activities can create functions and habitats suited to several other species.
-) Vandalism – To prevent vegetation disturbance from vandalism fencing and sensitive area signage will be installed along the perimeter of the mitigation area as required by the city.

7.6 Site Management

The mitigation site will be managed for 3 years. Site management activities shall include non-native and invasive weed control and may include mulching, supplemental watering, maintaining access, repairing damage from vandals, correcting erosion or sedimentation problems, or litter pickup. Sensitive area signage will be installed as detailed in the next section.

7.7 Financial Assurances and Site Protection

Prior to the City approving the development permit application, the applicant will implement the following:

1. **Mark Buffer During Construction.** The location of the outer extent of the wetland buffer shall be marked in the field and such markings shall be maintained throughout the duration of the permit.

2. **Permanent Marking of Buffer Area.** A permanent physical demarcation along the upland boundary of the wetland buffer area shall be installed and thereafter maintained. Such demarcation may consist of fencing, hedging or other prominent physical marking that allows wildlife passage, blends with the wetland environment, and is approved by the community development director or designee.

3. Permanent fencing of the wetland buffer on the outer perimeter shall be erected and thereafter maintained when there is a substantial likelihood of the presence of domestic grazing animals within the property unless the community development director or designee determines that the animals would not degrade the functions of the wetland or buffer.

4. Wood or metal signs shall be posted at an interval of one per lot for single family residential uses or at a maximum interval of two hundred feet or as otherwise determined by the community development director or designee and must be perpetually maintained by the property owner. The sign shall be worded as follows or with alternative language approved by the community development director or designee: "The area beyond this sign is a wetland or wetland buffer. Alteration or disturbance is prohibited by law. Please call the City of La Center for more information."

5. The City shall require the applicant to provide security in a form and amount deemed acceptable by the city. If the development proposal is subject to mitigation, the applicant shall provide security in a form and amount deemed acceptable by the city to ensure mitigation is fully functional subject to the following:

a. The security shall be in the amount of one hundred ten percent of the estimated cost of restoring the functions of the critical area that are at risk.

b. The security authorized by this section shall remain in effect until the city determines, in writing, that the standards bonded for have been met. Bonds or other security shall be held by the city for a minimum of five years to ensure that the required mitigation has been fully implemented and demonstrated to function and may be held for longer periods when necessary.

c. Depletion, failure, or collection of bond funds shall not discharge the obligation of an applicant or violator to complete required mitigation, maintenance, monitoring, or restoration.

d. Public development proposals shall be relieved from having to comply with the bonding requirements of this section if public funds have previously been committed in the project budget or capital improvement budget for mitigation, maintenance,

monitoring, or restoration.

e. Failure to satisfy any critical area requirements established by law or condition including, but not limited to, the failure to provide a monitoring report within thirty calendar days after it is due or comply with other provisions of an approved mitigation plan shall constitute a default, and the city may demand payment of any financial guarantees or require other action authorized by the city code or any other law.

f. Any funds recovered pursuant to this section shall be used to complete the required mitigation. Excess funds shall be returned to the applicant.

6. A conservation covenant shall be recorded in a form approved by the City Attorney as adequate to incorporate the other restrictions of this section and to give notice of the requirement to obtain a wetland permit prior to engaging in regulated activities within a wetland or its buffer. The wetland and stream buffer boundary shall be shown on the face of the plat.

Chapter 5. References

- Hruby, T. (2014). *Washington State Wetland Rating System for Western Washington: 2014 Update*. Olympia, WA: Washington Department of Ecology.
- McGee, D. (1972). *Soil Survey of Clark County, Washington*. Washington, DC: Soil Conservation Service.
- NRCS. (2008). *Hydrogeomorphic Wetland Classification System: An Overview and Modification to Better Meet the Needs of the Natural Resources Conservation Service*. Washington, DC: United States Department of Agriculture Natural Resources Conservation Service.
- USACE. (2010). *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*. Vicksburg, MS: U.S. Army Corps of Engineers Engineer Research and Development Center.
- USDA. (2018, January 10). *Web Site for Official Soil Series Descriptions and Series Classification*. Retrieved from <https://soilseries.sc.egov.usda.gov/>

Appendix A — Methods and Tools

Table A-1. Methods and tools used to prepare the report.

Parameter	Method or Tool	Website	Reference
Wetland Delineation	Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)	http://www.usace.army.mil/Portals/2/docs/civilworks/regulatory/reg_supp/west_mt_finalsupp2.pdf	Website
	USFWS / Cowardin Classification System	https://www.fws.gov/wetlands/data/wetland-codes.html	Website
	National Wetlands Inventory – Wetlands Mapper V2	https://www.fws.gov/wetlands/data/mapper.HTML	Website
Wetland Classification	Washington State Wetland Rating System – 2014 Update	<u>Western Washington:</u> https://fortress.wa.gov/ecy/publications/documents/1406029.pdf	Hruby. 2014. Washington State wetland rating system for western Washington –Revised. Publication # 14-06-029.
	City of La Center Critical Areas Ordinance	https://www.codepublishing.com/WA/LaCenter/	Chapter 18.300 – Critical Areas Protection
Wetland Rating and Stream Classifications	Department of Natural Resources (DNR) Water Typing System	<u>Forest Practices Water Typing:</u> http://www.dnr.wa.gov/forest-practices-water-typing <u>WAC 222-16-030:</u> http://apps.leg.wa.gov/WAC/default.aspx?cite=222-16-030 <u>Water Type Mapping:</u> http://www.dnr.wa.gov/programs-and-services/forest-practices/forest-practices-application-review-system-fpars	Washington Administrative Code (WAC) 222-16-030. DNR Water typing system.
	City of La Center Critical Areas Ordinance	https://www.codepublishing.com/WA/LaCenter/	Chapter 18.300 – Critical Areas Protection
Soils Data	Clark County GIS	http://gis.clark.wa.gov/maponline/	Website
Priority Habitats and Species	Washington Priority Habitats and Species	http://apps.wdfw.wa.gov/phsontneweb/	Website accessed on 1/26/18. The site does not contain and mapped areas of PHS per the Washington Department of Fish and Wildlife (WDFW).
Threatened and Endangered Species	USFWS species lists by County	<u>Western Washington:</u> https://ecos.fws.gov/ecp0/reports/species-by-current-range-county?fips=53011	Website accessed on 1/26/18. The site does not include any T&E species.

Appendix B — Figures

Figure 1 – Project Vicinity Map

Figure 2 –Soil and Site Topographic Contours Map

Figure 3 – Local and National Wetland Inventory Map

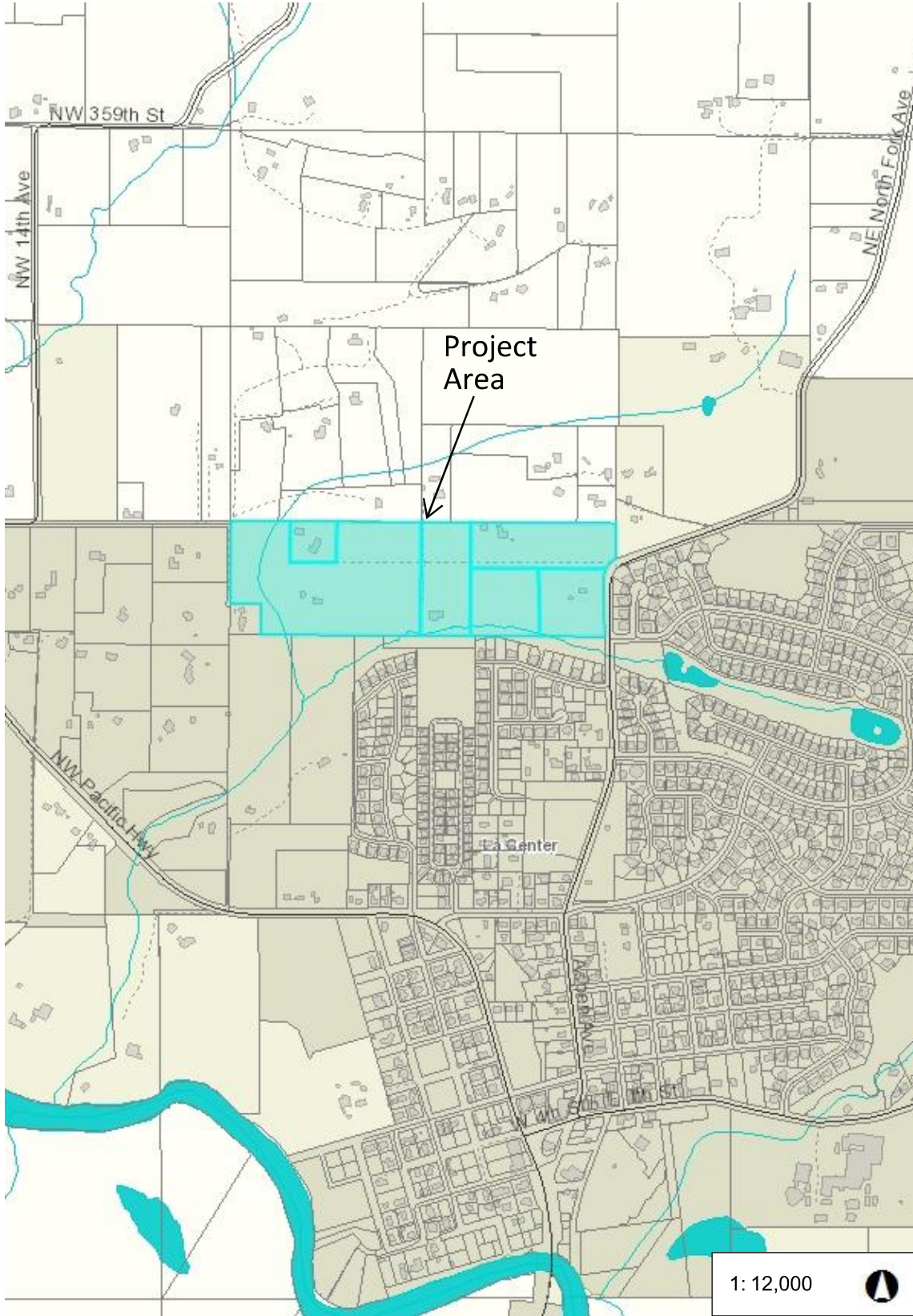
Figure 4 – Existing Site Conditions

Figure 5 – Critical Areas Buffer Impacts and Mitigation



Figure 1 of 5 - Project Vicinity Map
 Critical Areas Mitigation Plan
 Project: Stephens Hillside Farm

Date: 5/2/18



Legend

- Building Footprints
- Taxlots
- Cities Boundaries
- Urban Growth Boundaries

Location:
 37400 NE North Fork Road, La Center,
 WA 98629

Tax Parcels: 258901-000, 258919-000,
 258922-000, 258971-000 and
 258972-000

Legal: A portion of the SW 1/4, S34,
 T5N, R1E of the Willamette Meridian

Lat: 45.8723 N;
 Long: -122.6751 W

County: Clark



1: 12,000



2,000.0 0 1,000.00 2,000.0Feet

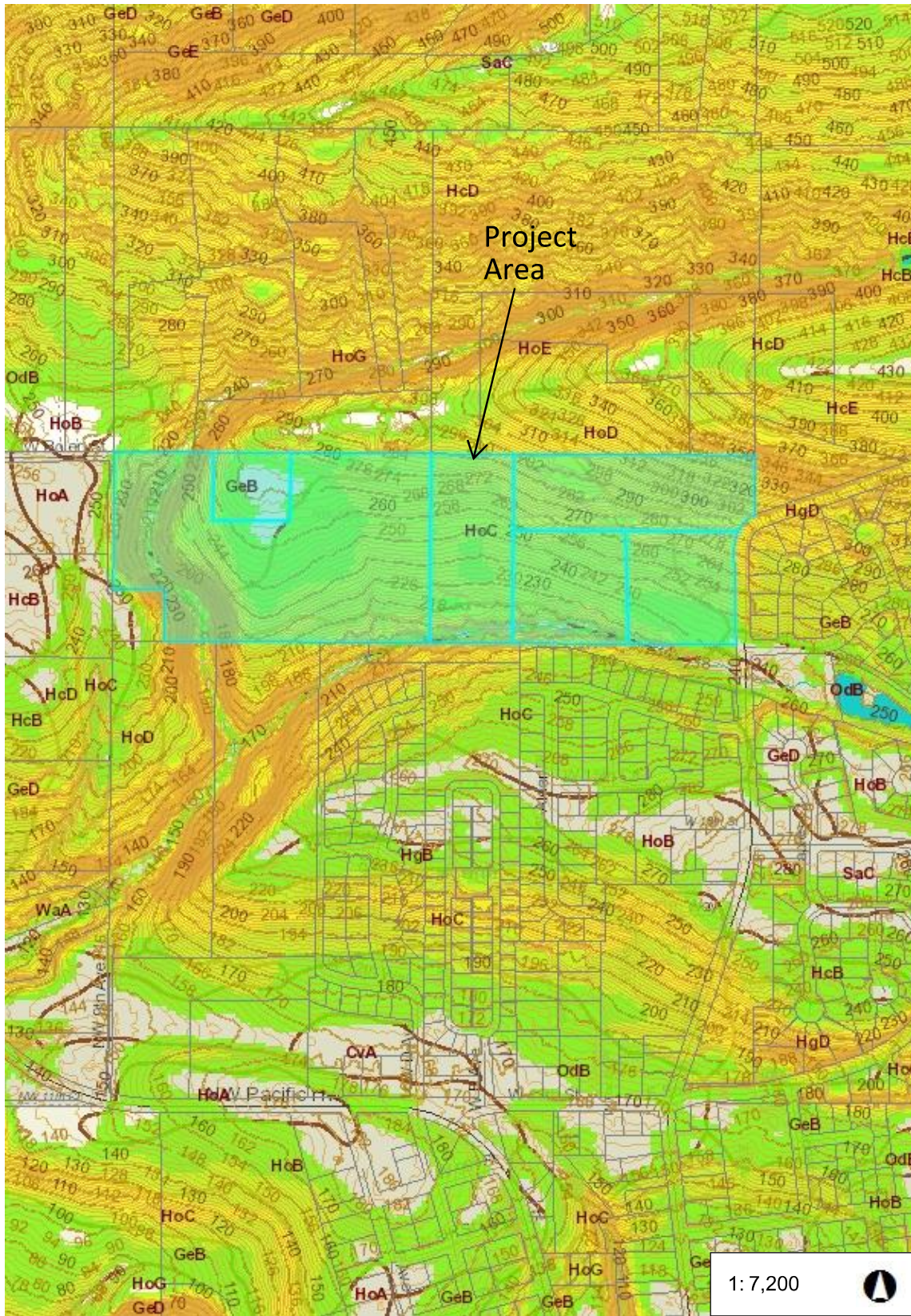
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 Clark County, WA. GIS - <http://gis.clark.wa.gov>

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.



Figure 2 of 5 - Soil and Site Topographic Contours Map
 Critical Areas Mitigation Plan
 Project: Stephens Hillside Farm

Date: 5/2/18



Project Area

Legend

- Taxlots
- Contour Lines - 2 ft
- Contour Lines - 10 ft
- Slopes**
- less than 5 Percent
- 5-10 Percent
- 10-15 Percent
- 15-25 Percent
- 25-40 Percent
- 40 - 100 Percent
- Soil Type
- Cities Boundaries
- Urban Growth Boundaries

Location:
 37400 NE North Fork Road, La Center, WA 98629

Tax Parcels: 258901-000, 258919-000, 258922-000, 258971-000 and 258972-000

Legal: A portion of the SW 1/4, S34, T5N, R1E of the Willamette Meridian

Lat: 45.8723 N;
 Long: -122.6751 W

County: Clark



1:7,200



1,200.0 0 600.00 1,200.0 Feet

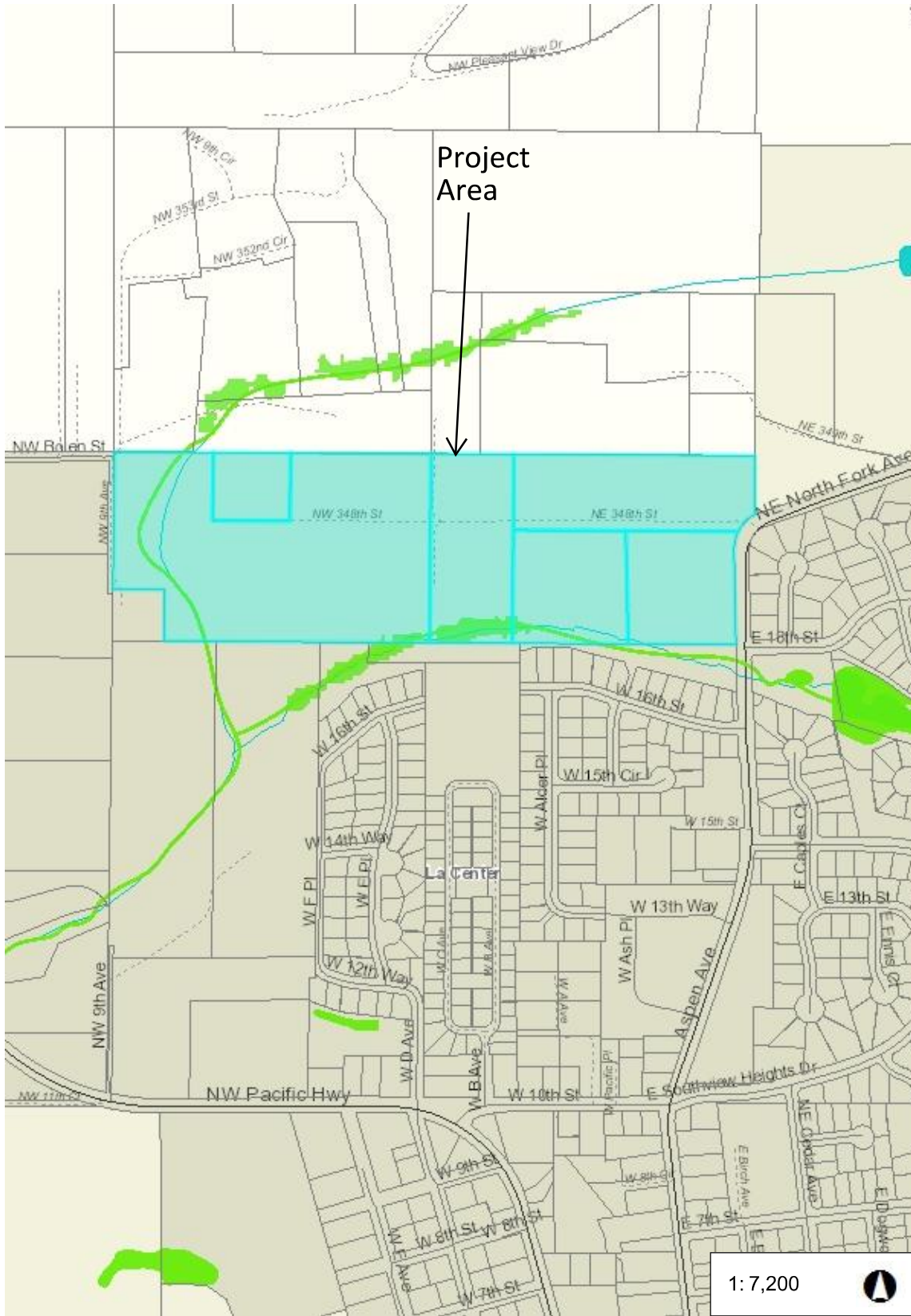
WGS_1984_Web_Mercator_Auxiliary_Sphere
 Clark County, WA. GIS - <http://gis.clark.wa.gov>

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.



Figure 3 of 5 - Local and National Wetland Inventory Map
 Critical Areas Mitigation Plan
 Project: Stephens Hillside Farm

Date: 5/2/18



Legend

- Taxlots
- Wetlands Presence
- NWI Wetland
- Cities Boundaries
- Urban Growth Boundaries

Location:
 37400 NE North Fork Road, La Center,
 WA 98629

Tax Parcels: 258901-000, 258919-000,
 258922-000, 258971-000 and
 258972-000

Legal: A portion of the SW 1/4, S34,
 T5N, R1E of the Willamette Meridian

Lat: 45.8723 N;
 Long: -122.6751 W

County: Clark



1:7,200



1,200.0 0 600.00 1,200.0 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.

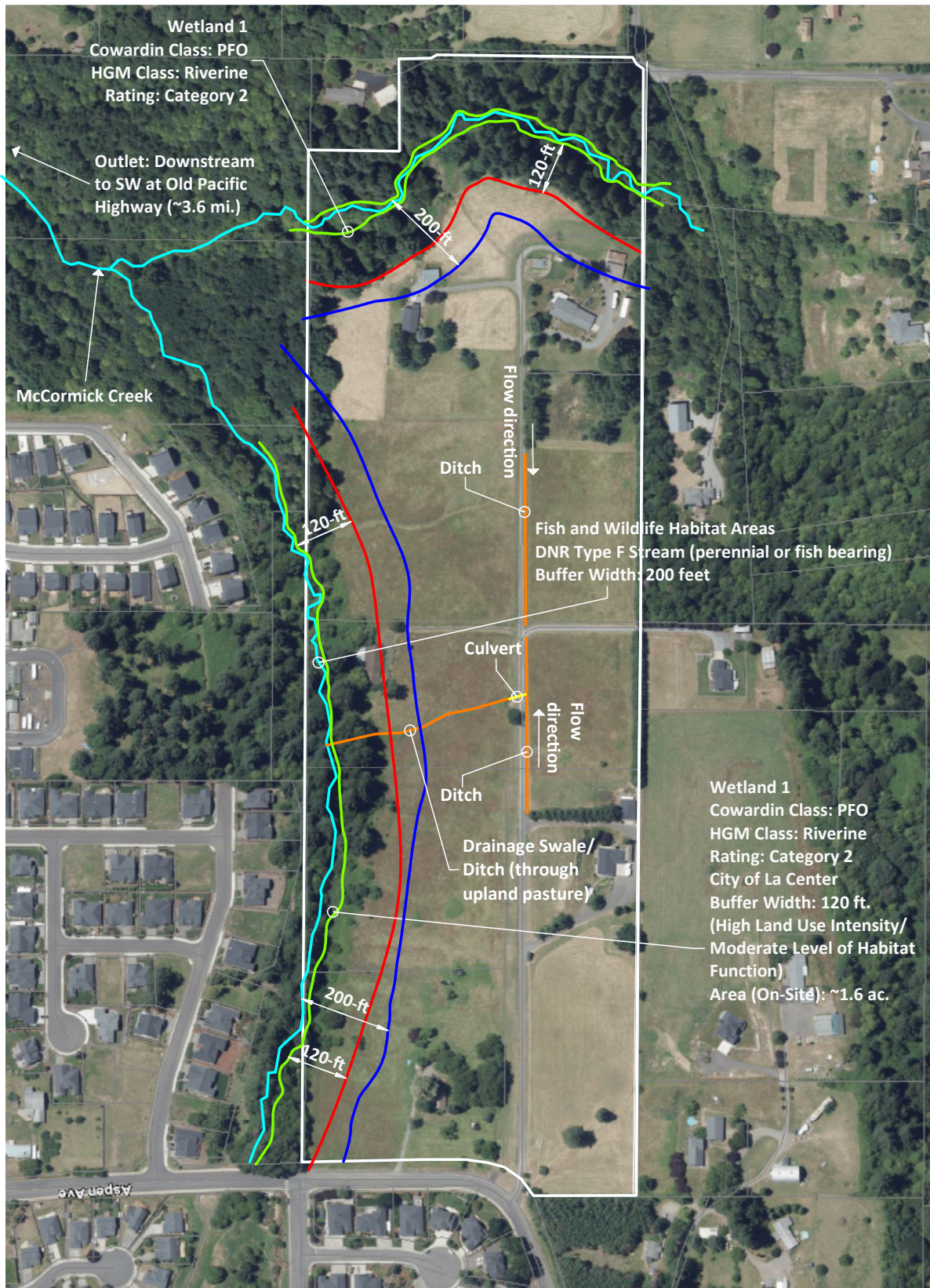


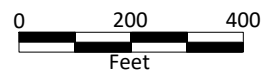
Figure 4 of 5
Existing Site Conditions
Critical Areas Mitigation Plan

Project: Stephens Hillside Farm
 Location: 37400 NE North Fork Road, La Center, WA 98629
 Tax Parcel: 258901-000, 258919-000, 258922-000, 258971-000, 258972-000
 Legal: SW 1/4, S34, T5N, R1E of the Willamette Meridian
 45.8723 N. lat. /-122.6751 W long.
 County: Clark

Cascadia Ecological Services, Inc.
 14205 NW 56th Avenue, Vancouver, WA 98685
 (360) 601-8631
 www.cascadia-inc.com

Date: 5/2/18

CLIENT:
 Carleen Stephens
 24600 NE 98th Court
 Battle Ground, WA 98604
 (360) 606-2408



Drawn by: J. Barnes



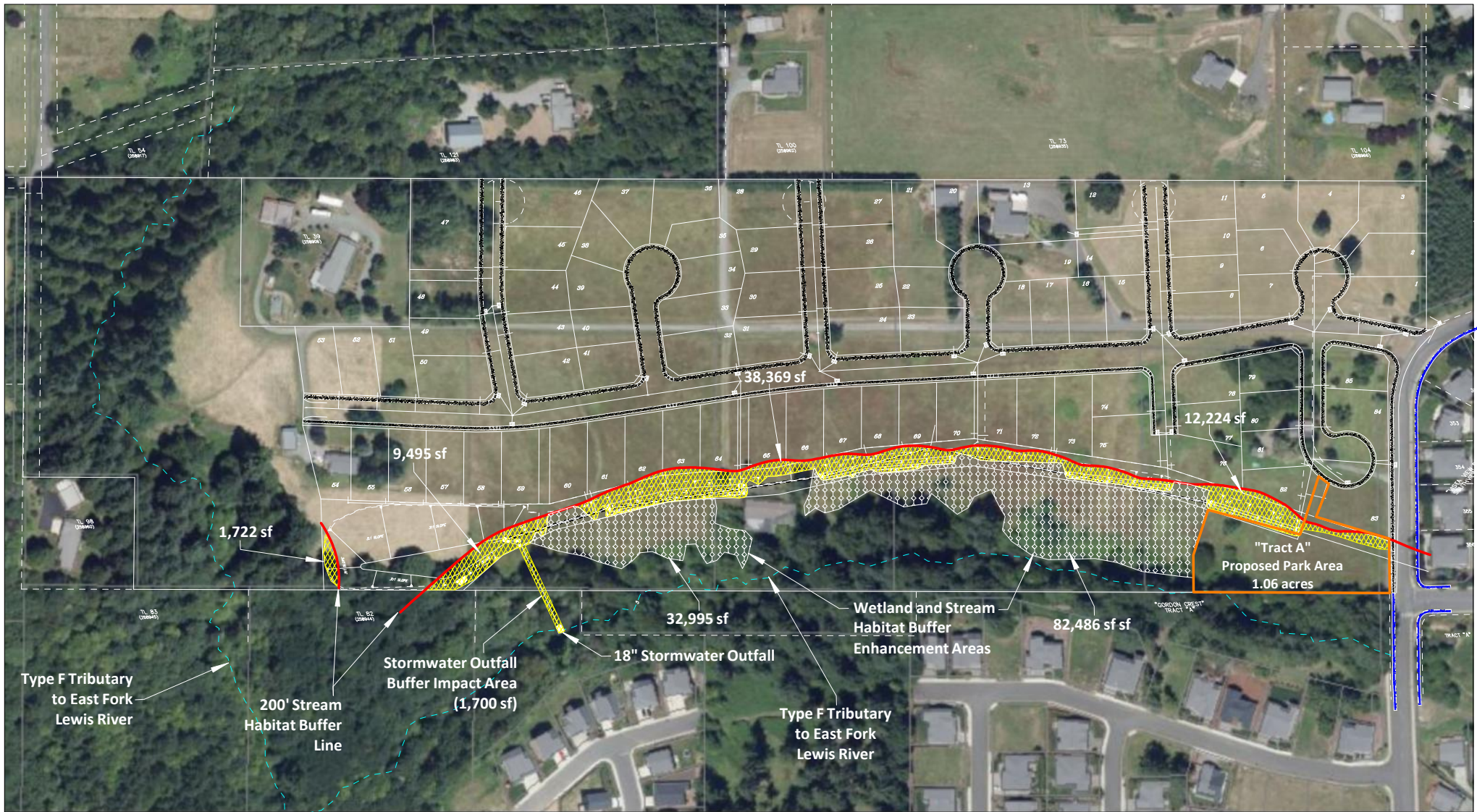
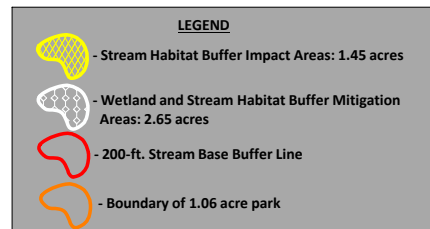


Figure 5 of 5
Critical Areas Buffer Impacts and Mitigation
Critical Areas Mitigation Plan

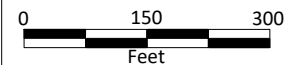
Project: Kemper Grove PUD Subdivision
 Location: North of Pioneer St. (SR 501) and Smythe Road and west of N 32nd Court, Ridgefield, WA 98642
 Tax Parcels: 213804000, 213718000, 213729000, 213716000, 213708000, 213719000, 213731000, and 213732000
 Legal: A portion of the NW 1/4, S20, T4N, R1E of the Willamette Meridian 45.8183 N. lat. /-122.7183 W long.
 County: Clark

Cascadia Ecological Services, Inc.
 14205 NW 56th Avenue, Vancouver, WA 98685
 (360) 601-8631
 www.cascadia-inc.com

Note: Site plan provided by The Wolfe Group, LLC.



CLIENT:
 Carleen Stephens
 34700 NE North Fork Road
 La Center, WA 98642
 (360) 281-0897



Date: 5/2/18



Appendix C – Park Plan

Proposed Park Plan for Stephens Hillside Farm

Parks and Open Spaces 18.147

18.147.020 Applicability.

(1) (a) This development includes more than 40 units.

18.147.030 Park size and design standards.

(1) (a) **Size.** The project proposes 85 lots, which at a ratio of 0.25 acre per 40 lots, this project requires a minimum of 0.53 acre of parks and or open space. This project proposes 1.06 acres of park area and 13.66 acres of open space.

(b) Design.

(v) Parks shall not be located on a collector street. A Variance is requested to allow one side of the park to front along Aspen Ave.

(vi) With 40% of the parks perimeter located on a public street it must be located at a corner intersection, which cannot be accomplished due to the collector street occupying all intersections. This code section allows the park to connect with the public street via a pedestrian walkway. An additional ADA compliant pedestrian connection to the existing Heritage Trail will permit access from the sidewalk along Aspen Avenue.

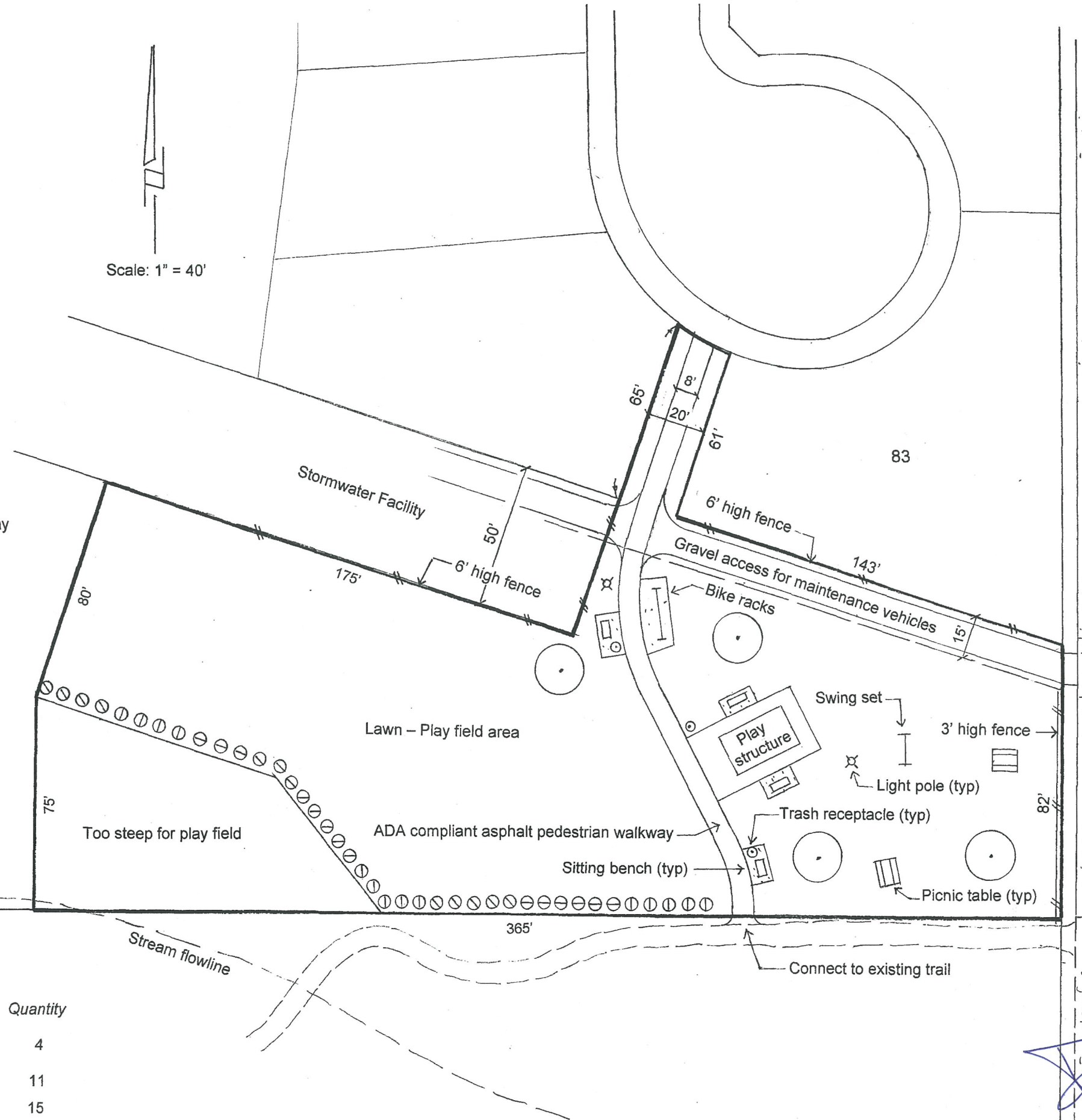
(vii) The park shall improve at least 75% of its area. This project will improve 82%, or 0.87 acre of the 1.06 acre park area.

(viii) The proposed park will include all of the requirements of this section, plus extra amenities.

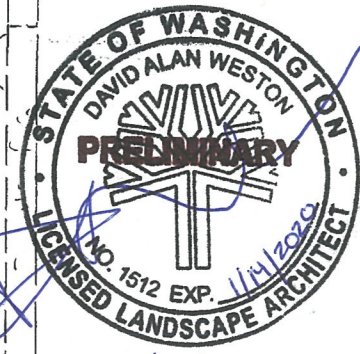
Summary. The park is proposed in the area of least slope and a central location with the surrounding residential homes. The park has frontage along Aspen Ave. A 3' high non sight-obscuring fence will contain children and play equipment from entering the roadway and allow police to visually monitor the park from Aspen Avenue. Refer to the Narrative for additional information.

Notes:

- This Preliminary Landscape Plan is to show compliance with La Center Municipal Code 18.147.
- Plants shown on this plan may be revised on the Final Landscape Plan.
- The proposed play structure will be specified and shown to scale on the Final Landscape Plan.
- Fall zones for the play structure and swing set will be specified and shown to scale on the Final Landscape Plan.



Planting Plan					
Symbol	Common Name	Botanical Name	Planting Size	Mature Size	Quantity
•	Trident Maple	Acer buergeranum	2" cal	25' high	4
⊖	Gulf Stream Nandina	Nandina domestica	2 gal	3' - 4' high	11
⓪	Bird Nest Spruce	Picea abies "Nidiformus"	2 gal	3' - 4' high	15
⊙	Otto Luyken Laurel	Prunus laurocerasus	2 gal	4' high	10



Proposed Park Plan
for Stephens Hillside Farm