



WETLAND MITIGATION PLAN

June 11, 2019



Jackson Highway Condos *Lewis County, Washington*

Prepared for
Hubbard and Sons
PO Box 1125
Chehalis, WA
(360) 880-7851

Prepared by
Ecological Land Services, Inc.
1157 3rd Avenue, Suite 220A • Longview, WA 98632
(360) 578-1371 • Project Number 1434.02

EXECUTIVE SUMMARY

On behalf of Hubbard and Sons LLC and Kevin Hubbard, Ecological Land Services, Inc. (ELS) has prepared a mitigation plan report for the unavoidable direct impacts to two small wetlands totaling 133 square feet for the construction of 12-unit condominium complex. The project will also have unavoidable buffer impacts. The property is zoned as an urban growth area and consists of Lewis County Tax Parcel 017840006000 located off Jackson Highway in Chehalis, Washington.

The direct impacts are proposed to small, depressional, Category IV wetlands that are composed of emergent vegetation communities. The two directly impacted wetlands (Wetlands N and O) represent some of the smallest of the wetlands and are the only wetlands that will be impacted by fill because they are the outliers from the remainder of the wetland complex. The project has minimized the impacts to wetland functions by proposing most of the development outside the wetland complex and impacting two of the smallest wetlands. Wetland I is located offsite to the south and its buffer extends onto the project site. The onsite wetland buffer will be impacted by the proposed development and enhancement is proposed to compensate for the impact. Compensation will include enhancement of the remaining wetlands to compensate for the 133 square feet direct impacts and 21,277 square feet of buffer impact. Enhancement will involve planting of native trees and shrubs within Wetlands A through M and within the upland buffers around the onsite wetlands and the offsite portion of Wetland I.

Mitigation Goals and Objectives

Goal 1: Enhance 2,032 square feet of wetland to compensate for the 133 square feet of direct wetland impact and 21,277 square feet of wetland buffer enhancement for 26,770 square feet of buffer impact.

Objective 1a. Cease mowing of wetlands and buffer at west end of the project site to allow for development of native grass understory. Mow the field prior to planting and cease mowing after plant installation.

Objective 1b. Install native trees and shrubs within the wetland areas to encourage development of forest and shrub vegetation community so that there is an increase in the functions of these small wetlands..

Objective 1c. Install native trees and shrubs within the buffer areas to encourage development of forest and shrub vegetation community that will improve the buffer function.

Objective 1d. Control of non-native invasive species will be conducted to prevent establishment of such species as reed canarygrass and Himalayan blackberry.

Goal 2: Create a diverse forested vegetation community with a dense shrub understory of native species.

Objective 2a. Plant a variety of native tree and shrub species in the wetlands and buffer to initiate a trend toward forested communities.

Objective 2b. Place 4 root wads and 4 horizontal logs randomly within the wetland and buffer enhancement area for improvement of habitat.

Goal 3: Protect wetland functions

Objective 3a. Permanently demarcate the wetland buffer boundary.

Objective 3b. Provide long-term legally binding protection.

The mitigation site will be monitored for a 5-year period following implementation. Monitoring will take place in Years 1, 2, 3, and 5. The goal of monitoring is to determine if the mitigation performance standards are being met. The mitigation area will be monitored once during the growing season, preferably during the same two-week period each year to better compare the data. Monitoring will begin at the end of the first summer following full implementation of the mitigation plan.

RESPONSIBLE PARTIES

The project applicant, Kevin Hubbard of Hubbard and Sons, will be responsible for implementing the mitigation plan and ensuring the completion of the 5 years of monitoring and maintenance as described in this plan, prepared by Ecological Land Services, Inc.

Project Applicant
Hubbard and Sons
Kevin Hubbard
PO Box 1125
Chehalis, WA 98532
(360) 880-7851

Wetland Consultant and Preparer of Mitigation Plan:
Ecological Land Services, Inc.
c/o Joanne Bartlett
1157 3rd Ave. Suite 220A
Longview, WA 98632
(360) 578-1371

SIGNATURE PAGE

The information in this report was compiled and prepared under the supervision and direction of the undersigned.

A handwritten signature in cursive script that reads "Joanne Bartlett". The signature is written in black ink and is positioned above a horizontal line.

Joanne Bartlett, PWS
Senior Biologist

TABLE OF CONTENTS

EXECUTIVE SUMMARY..... I

RESPONSIBLE PARTIES.....III

SIGNATURE PAGEIV

TABLE OF CONTENTS V

PROJECT DESCRIPTION1

PROJECT LOCATION 1

SITE CONDITIONS..... 1

Development Site..... 1

Mitigation Site..... 1

PROJECT DESCRIPTION AND PROPOSED IMPACTS 1

WETLAND DELINEATION AND CATEGORIZATION 2

WETLAND FUNCTIONS ASSESSMENT2

BUFFER FUNCTIONAL ASSESSMENT3

Functional Lift..... 3

MITIGATION APPROACH4

 MITIGATION SEQUENCING 4

 MITIGATION RATIOS 5

 WETLAND MITIGATION GOALS..... 6

 PERFORMANCE STANDARDS 6

WETLAND AND BUFFER MITIGATION PLAN.....7

 MOWING OF GRASS AND INVASIVES 8

 PLANTING PLAN..... 8

SPECIFICATIONS FOR PLANTING 8

Plant Materials..... 8

Planting Specifications..... 10

 MITIGATION PLAN SEQUENCING..... 10

MAINTENANCE11

MONITORING PLAN11

 VEGETATION 12

 FAUNA..... 12

 MONITORING REPORT CONTENTS 12

LONG TERM MANAGEMENT PLAN12

SITE PROTECTION13

CONTINGENCY PLAN13

REFERENCES.....14

Tables

Table 1 Required Mitigation Ratios
Table 2 Direct Impacts
Table 3 Wetland Mitigation Overview
Table 4 Buffer Mitigation Overview
Table 5 Planting Specifications for Wetland Enhancement
Table 6 Planting Specifications for Buffer Enhancement

Figures and Photoplates

Figure 1 Vicinity Map
Figure 2 Site Map
Figure 3 Site Plan
Figure 4 Mitigation Plan Overview
Figure 5 Mitigation Planting Plan

PROJECT DESCRIPTION

PROJECT LOCATION

Hubbard and Sons proposes construction of a 12-unit condominium complex on the western half of the property at 3040 Jackson Highway, Lewis County Tax Parcel No. 017840006000, in Chehalis, Washington (Figure 1). The property is within county jurisdiction but is part of the city's urban growth area so the project is being reviewed by the City of Chehalis. This 2.0 acre property is located Section 13, Township 13 North, and Range 2 West, of the Willamette Meridian. It is located within the Newaukum Creek and Chehalis River watershed, which is in Water Resource Inventory Area (WRIA) 23.

SITE CONDITIONS

Development Site

The property consists of an open field that lies southwest of the onsite home. It is bordered to the northwest by a small condo community and single-family residences. Jackson Highway forms the northeast property line while another single-family residence forms the southeast border (Figure 2). The southwestern and western property boundaries consist of freshwater forested/shrub wetland. Site topography is relatively flat with an average site elevation of approximately 250 feet above mean sea level. The property is regularly mowed to keep grasses and invasive plant cover low and at some time, it appears to have been used as recreational area for bicycles and possibly motorized two- and three-wheeled vehicles by the local residents.

A total of 15 small wetland areas (Wetlands A-H and J-O) were identified and delineated in the shallow depressions on the west half of the property. These wetlands are composed of emergent communities that are regularly mowed. They are nearly identical with regard to position in the landscape, vegetative conditions, and hydrologic regime but have no surface water connection to one another. The wetland offsite to the south is a larger depressional system that has scrub/shrub and emergent communities. It is separated from the property by a maintained agricultural ditch. This wetland extends to the west and crosses the very southwest corner of the property. It is identified as Wetland I because a portion of it lies across the southwest corner of the property (Figure 2).

Mitigation Site

Mitigation for the proposed direct wetland impacts is proposed onsite and will involve enhancement of Wetlands A through M that will remain on the west end. These wetlands are regularly mowed, emergent communities that are dominated by volunteer native and non-native plant species. The buffer portion of the mitigation area is composed of a mixture of grasses and herbaceous weeds as well as a few small starts of native shrubs. It is regularly mowed so the vegetation community provides very little protection for the on and offsite wetland areas.

PROJECT DESCRIPTION AND PROPOSED IMPACTS

The project proposes construction of a 12-unit condominium complex in the middle of this property and will retain the homesite at the east end (Figure 3). Access to the project will lie along the south edge of the property beginning at Jackson Highway. The project originally proposed 18

condominium units but was scaled back due to the presence of wetlands at the west end. The minimum number of units to make the project feasible is 12 as currently proposed.

The construction of the condos requires fill of two of the smallest of the 15 onsite wetlands, Wetlands N and O. Both wetlands represent the eastern extent of the onsite wetlands and total 133 square feet of direct impact (Wetland N is 83 square feet and Wetland O is 50 square feet in size). The project is proposed within the buffer of Wetland I, which lies offsite to the south, and will compensate for the buffer impacts by enhancing the remaining buffer areas around the onsite wetlands and the upland between the project and Wetland I boundary. Mitigation will take the form of onsite wetland and buffer enhancement to compensate for the 133 square feet of direct impact and 21,277 square feet of buffer impact.

The overall goals of the proposed mitigation are to:

- 1) Achieve no net loss of wetland function
- 2) Enhance Wetlands A through M to improve functions.
- 3) Enhance the upland and buffers upland south of the proposed road and around the wetlands on the west end to provide functional lift.

WETLAND DELINEATION AND CATEGORIZATION

Wetlands A-H and J-O were identified and delineated on the west half of the property (ELS 2018). They are each composed of shallow depressions that are regularly mowed so do not have any persistent un-grazed vegetation coverage. They are confined to this property and have no surface water outlets, which indicate that they are not hydrologically connected to one another. They are also not connected to the offsite wetland or the agricultural ditch. The main source of hydrology is precipitation with some surface water runoff from both onsite and offsite sources. According to the *Washington State Rating System for Western Washington: 2014 Update* (Hruby 2014); Wetlands A-H and J-O meet the criteria for Depressional, Category IV wetlands that score 5 points for water quality functions, 6 points for hydrologic functions, and 3 points for habitat functions. Wetland I lies offsite to the south but crosses the southwest corner of the property. It is a Category II wetland. The Chehalis Municipal Code (CMC) specifies buffers of 50 feet from Category IV wetlands (Wetlands A-H and G-O) and of 100 feet is required from Category II wetlands (Wetland I).

WETLAND FUNCTIONS ASSESSMENT

Wetlands A-H and J-O are each small, depressional, emergent wetlands that are regularly mowed to control grass cover (Cowardin 1979). Individually, these wetlands have low function for water quality improvement because of the small sizes but when considered in combination, the potential function for water quality improves slightly. The dominance by grasses and emergent plants increases the potential for improvement of water quality within these small wetlands. For hydrologic functions, these wetlands again individually have generally low function to store excess water during storm events but in combination, the function increases. Each wetland lacks an outlet so water can be retained until it evaporates into the air. The soils in the wetlands is mostly composed of clay so there is limited percolation into the water table so these wetlands have low function for groundwater recharge. Habitat functions are generally low for these wetlands because

of their position within an urban growth area with high intensity land uses prevalent to the north and west (existing condos to the north and golf course to the west). There is some potential for providing habitat functions because the wetlands are near a larger system (offsite to the south) with undisturbed conditions to the offsite wetland.

Wetlands N and O are two of the smallest onsite wetlands and because they are the furthest east, they function more individually and less in combination within the other wetlands. Therefore, both wetlands have low value for water quality, hydrology, and habitat functions.

The mitigation will occur as enhancement of Wetlands A through M. By planting the wetlands and buffers as part of the mitigation plan, the function of these wetlands will increase particularly for habitat. The planting of native trees and shrubs will increase the available vertical habitat and the diversity of these areas. The water quality and hydrologic functions will also improve with the installation of plants because there will be pollutant uptake by the native plants as well as the unmaintained grasses and emergent plants currently growing within these areas. The enhancement will have an overall positive impact on the onsite wetlands and will more than adequately compensate for the direct impacts to Wetlands N and O.

BUFFER FUNCTIONAL ASSESSMENT

The buffer of the onsite and offsite wetlands is composed of a maintained/mowed field that is dominated by a mixture of grasses and herbaceous weeds. There is little invasive plant cover because of the regular maintenance. Because the buffer is composed entirely of a maintained field, it has low function to screen noise and light from surrounding development to the onsite and offsite wetlands. The vegetation community provides some improvement of water quality but is low because the field is regularly mowed. The ditch between the project site and Wetland I provides a barrier to potential water quality impacts so there is an additional protection for the offsite wetland. The buffer has low habitat function because of the dominance by mowed grass and herbaceous weeds, which provide no refuge or nesting habitat.

Functional Lift

The proposed buffer mitigation will result in a functional lift over current conditions because the buffer will be planted with a variety of trees and shrubs intended to provide an overall function lift within the buffer as well as the small wetland areas.

- Increase the potential for noise and light screening. The plantings will include varying plant heights so that the buffer becomes composed of a diverse forested community and has the potential to provide noise and light screening particularly for Wetland I. In addition, the grasses and native herbaceous plants will not be regularly maintained after the plan is implemented so that a native understory develops.
- The understory will provide a measure of noise/light protection but will also facilitate water quality protection for Wetland I. The ditch will remain as it currently exists so will continue to provide additional water quality protection. The onsite buffer currently provides no shade for the ditch but once the vegetation has matured, the installed native

plants will provide shade for the ditch. The enhancement of the upland at the west end will provide a functional lift for both the onsite and offsite wetland areas.

- Horizontal logs and root wads will be placed within the enhanced wetlands and buffer to provide functional lift of upland habitat. The combination of the logs and root wads and the installed plant community will improve the buffer as well as the onsite wetlands because they will provide cover, refuge, and habitat for local wildlife species. The enhancement will also provide a corridor across the west end of the project.

MITIGATION APPROACH

This mitigation plan is being prepared to compensate for the fill of Wetlands N and O and to increase the function of the buffer to compensate for the work proposed within the buffer. The total area of direct impact is 133 square feet (0.003 acres) and the total area of buffer impact is 21,277 square feet (0.32 acres). Because of the small area of direct impacts, the mitigation approach will be permittee-responsible, onsite mitigation. The mitigation plan proposes to enhance the remaining areas of wetland by planting native trees and shrubs. Buffer enhancement is proposed to compensate for the buffer impacts and will include the areas around Wetlands A through M and in the onsite buffer from Wetland I.

MITIGATION SEQUENCING

The wetland mitigation requirements of the local, state, and federal agencies specifies that all regulated development activities proposing permanent impact wetlands or buffers shall examine whether the impacts can be avoided and/or minimized prior to proposing compensation for the impacts.

Avoiding Wetland Impacts. Wetlands N and O are small wetlands that lie away from the other onsite wetlands so they are positioned within the development area. The project was designed to avoid all wetland impacts originally but reducing the development area or reducing the number of units was not financially feasible. It was therefore necessary to fill Wetland N and O because of their location. The project avoids impacts to the larger areas of wetland with higher functional value as well as avoiding impacts to 13 of the 15 onsite wetlands.

Minimizing Wetland Impacts. The project initially proposed an 18 unit condo complex but was reduced to 12 units upon identification of the small depressional wetlands. By reducing the number of units, the project has minimized the overall impact to small areas of direct wetland impacts. Buffer impacts are necessary to accommodate the proposed condo complex and they have been minimized to the extent possible.

Mitigation Options in Order of Preference:

Rectifying the Impact by reestablishing, rehabilitating, or restoring the affected environment. Wetlands N and O will be permanently filled to create the 12-unit condo complex so there is no opportunity to rectify the impact.

Compensating for the Wetland Impact by Replacing or Providing Substitute Resources or Environments-Compensation is proposed in the form of wetland and buffer enhancement, which will include installation of native trees and shrubs. The understory will be created by cessation of mowing activities that will allow the native grass and emergent species to become established. Enhancement for Category IV direct impacts is proposed at a ratio of 6:1 and enhancement for wetland buffer impacts is proposed at a ratio of 1:1 (Ecology 2006). The area of mitigation necessary to achieve the ratios is 798 square feet but because all of the remaining wetlands will be included in the mitigation, the total area of wetland enhancement is 2,032 square feet.

Enhancement of buffer is also proposed and includes all of the upland that lies outside the wetland boundaries. Most of the onsite Wetland I buffer will be impacted by the project, which has been allowed by the City of Chehalis as agreed during meetings with planning staff, and the remaining buffer areas will be enhanced to improve buffer functions by creating a functional lift over the existing mowed field buffer.

Monitoring the Impact and Compensation and Taking Appropriate Corrective Measures

Monitoring of the wetland mitigation area for the Jackson Highway Condos is proposed for a period of 5 years to document the improvement of wetland and buffer conditions within the mitigation area.

MITIGATION RATIOS

The *Wetland Mitigation in Washington State, Volume 1, Agency Policy and Guidelines* (Ecology 2006), compiled by the Washington Department of Ecology, (Ecology), the U.S. Army Corps of Engineers, and the US Environmental Protection Agency, which has been adopted per the Chehalis Municipal code (CMC), specifies several ratios for mitigation of impacts to Category IV wetlands. The Category IV wetland mitigation ratios include:

Table 1: Required Mitigation Ratios

Wetland Category	R/C	RH	R/C & RH	EN only
IV	1.5:1	3:1	1:1 & 2:1	6:1

C=Creation; RE=Re-establishment; RH=Rehabilitation; EN=Enhancement

The proposed mitigation will involve enhancement of Wetlands A through M, which total 2,032 square feet of mitigation.

Table 2: Direct Wetland Impacts

Wetland	Area (sq. ft.)	Cowardin Classification	Ecology Rating	Impacts (sq. ft.)
N	83	PEM	IV	83
O	50	PEM	IV	50
				133

Table 3: Wetland Mitigation Overview

Ecology Rating	Wetlands	Direct Impact	Proposed Mitigation Ratio (Enhancement)	Wetland Enhancement Wetlands A-H and J-M
IV	Wetlands N & O	133 sq. ft.	6:1	798 sq. ft. (0.018 acres)
			Total required	798 sq. ft.
			Total available	2,032 sq. ft.

Table 4: Buffer Mitigation Overview

Wetland	Buffer Impact	Buffer Enhancement	Buffer Mitigation Areas
I	14,123 sq. ft.	21,277 square feet	Remainder of onsite upland (south of proposed road and around the remaining wetlands)
C, F, M, N, & O	7,154 sq. ft.		

WETLAND MITIGATION GOALS

The main goal of the mitigation plan is to compensate for the fill of 133 square feet of Wetlands N and O (direct impacts), both of which meet the Category IV criteria. The general goals of this mitigation are:

- **Goal #1** Enhance 2,032 square feet (0.05 acres) of depressional emergent wetlands (Wetlands A through L) that remain on the west end of the project site.
- **Goal #2** Enhance 26,770 square feet (0.6 acres) of the onsite buffer around the remaining wetlands and the onsite buffer of Wetland I.
- **Goal #3** Increase the diversity and function of the onsite wetlands and buffer by planting a variety of plant species that will improve the protective functions of the wetlands and buffers. Increase the habitat function within the wetland and buffer areas by installing 4 horizontal logs and 4 root wads in the mitigation areas.
- **Goal #4:** Permanently demarcate the entire wetland buffer boundary with split rail fencing and place critical area protection area signs on the fence. If required, place the wetland and buffer mitigation in a separate tract.

PERFORMANCE STANDARDS

The performance standards have been developed to monitor the success with respect to the goals and objectives of this mitigation plan, which relate directly to improving wetland functions and development of the desired vegetation community. The following objectives and performance standards have been developed for this wetland mitigation project:

Objective #1 Enhance 2,032 square feet of Wetlands A through M to compensate for the 133 square feet of direct wetland impact and enhance 26,770 square feet of

buffer to compensate for 21,277 square feet buffer impact. By planting the wetlands and buffers with native trees and shrubs, the mitigation is intended to result in a diverse forested vegetation community with a dense shrub understory of native species.

Performance Standard #1a

Plant Survival

Year 1 100 percent survival of installed trees and shrubs.

Years 2 and 3 80 percent survival of installed trees and shrubs.

Performance Standard #1b Vegetation Cover

Yearly percent coverage standards are proposed for the tree and shrub species installed within the enhanced wetlands and buffer areas. The following yearly standards are proposed for the tree and shrub layers.

Year 1: 15-20 percent cover by installed/volunteer native woody plants.

Year 2: 20-30 percent cover by installed/volunteer native woody plants.

Year 3: 30-40 percent cover by installed/volunteer native woody plants.

Year 5: 45-60 percent cover by installed/volunteer native woody plants.

Performance Standard #1c Plant Species Height and Diversity

Year 5 Enhanced Wetlands and Buffer:

Minimum of 15 percent cover by at least 3 of the shrub species installed within the wetlands and buffer that are at least 4 feet tall.

Minimum of 10 percent cover by at least 2 of the tree species within the wetlands and buffer that are at least 5 feet all.

Objective #2 Maintain Low Cover by Non-Native Invasives

Mitigation projects are often subject to inputs of non-native plant species via seeds deposited by birds or swept in by wind. Low coverage by invasive plants is proposed to allow native plants to become prevalent within the wetland and buffer areas.

Performance Standard #2a Non-Native Invasives Plant Coverage-Years 1 to 5: Less than 15 percent cover by non-native exotics including but not limited to reed canarygrass, Himalayan blackberry, and Scot's broom.

WETLAND AND BUFFER MITIGATION PLAN

The wetland mitigation plan proposes to enhance Wetlands A through M as compensation for the direct impacts to Wetlands N and O. The total area of mitigation is 2,032 square feet, which exceeds the amounts required per the respective ratios by about almost 1,000 square feet. Buffer enhancement is proposed in the remaining areas of upland outside the development to compensate for the buffer impacts. In addition, the upland buffer areas outside of the development will be enhanced with native trees and shrubs. Enhancement components will include mowing of the wetland and buffer to remove tall grass growth and installation of native trees and shrubs. After the plants are installed, the grasses will no longer be mowed except to remove invasive species to allow development of the understory beneath the trees and shrubs. Pre-construction meetings will be held with the project biologist and contractor selected to complete the work and ensure project

meets the stated goals and objectives. The project biologist will be onsite during mowing and planting phases of this project to also ensure goals and objectives of the mitigation are met.

MOWING OF GRASS AND INVASIVES

The mitigation area will be mowed prior to installation of the trees and shrubs to remove invasive species and to make the plant installation easier. Most of the non-native species in the field are not invasive but there are a few areas of reed canarygrass and Himalayan blackberry present in patchy areas. Root wads (4) and horizontal logs (4) will be placed randomly in the mitigation areas following mowing and prior to plant installation.

PLANTING PLAN

The mitigation planting plan proposes to establish a forested community with two new strata (forest and shrub) in the mitigation area (Figure 5). The native volunteers, which include wetland emergent and herbaceous species and deciduous shrubs, that have been observed within the wetlands and buffers will not be mowed after plants are installed. In this way, a natural understory can form beneath the trees and shrubs. The plants installed within the wetland mitigation areas are listed in Table 4 and the buffer plant list is provided in Table 5. The plants selected for installation in the enhanced wetlands and buffer include species that can grow and thrive in onsite soil conditions and can tolerate sometimes heavy seasonal inputs of precipitation. Deciduous trees are proposed to in the upper canopy but conifers will not be planted because of the clay type soils that occur across the property.

SPECIFICATIONS FOR PLANTING

The plants specified for the enhanced wetlands and buffer will diversify the existing plant community and provide cover and wildlife habitat in both the short- and long-term.

Plant Materials

Bare-root Stock:

1. Bare-root or potted species will be purchased from a native plant nursery.
2. Bare-root or potted stock will be a minimum size of 18- to 36-inches tall.
3. Bare-root or potted stock will be kept cool and moist prior to being planted.
4. The bare-root stock will have well-developed roots and sturdy stems, with an appropriate root-to-shoot ratio.
5. No damaged or desiccated roots or diseased plants will be accepted.
6. Unplanted bare-root or potted stock will be properly stored at the end of each planting day to prevent desiccation.
7. The environmental consultant will be responsible for inspecting bare-root or potted stock prior to and during planting and culling unacceptable plant materials.

Plants will be installed in the late fall to early spring when the site conditions are wettest and the plants are dormant. Plants will be installed in mono-specific groups to mimic natural colonization and enhance individual plant survival. Plantings will be spaced to allow for maintenance mowing of invasive species. The following tables summarize the plant species, spacing, size, and quantities for the onsite mitigation areas (Tables 4 and 5):

Table 5: Planting Specifications for Wetland Enhancement

Species	Spacing (feet)	Quantity	Size
TREE STRATUM			
Oregon ash (<i>Fraxinus latifolia</i> , FACW)	10	7	Bareroot/1 gallon
Pacific crabapple (<i>Malus fusca</i> , FACW)	10	8	Bareroot/1 gallon
SHRUB STRATUM			
Pacific ninebark (<i>Physocarpus capitatus</i> , FACW)	4	30	Bareroot/1 gallon
Red osier dogwood (<i>Cornus sericea</i> , FACW)	4	30	Bareroot/1 gallon
Black twinberry (<i>Lonicera involucrata</i> , FAC)	4	30	Bareroot/1 gallon
Pacific willow (<i>Salix lucida</i> sp. <i>lasiandra</i> , FACW)	4	30	Bareroot/1 gallon
PLANT TOTAL		135	

Table 6: Planting Specifications for Buffer Enhancement

Species	Spacing (feet)	Quantity	Size
BUFFER-WETLAND*			
Oregon ash (<i>Fraxinus latifolia</i> , FACW)	10	4	Bareroot/1 gallon
Pacific ninebark (<i>Physocarpus capitatus</i> , FACW)	4	10	Bareroot/1 gallon
Red osier dogwood (<i>Cornus sericea</i> , FACW)	4	10	Bareroot/1 gallon
TOTAL		24	
BUFFER-UPLAND*			
TREE STRATUM			
Bigleaf maple (<i>Acer macrophyllum</i> , FACU)	10	27	Bareroot/1 gallon
Quaking aspen (<i>Populus tremuloides</i> , FAC)	10	27	Bareroot/1 gallon
Oregon white oak (<i>Quercus garryana</i> , FACU)	10	27	Bareroot/1 gallon
Vine maple (<i>Acer circinatum</i> , FAC)	10	27	Bareroot/1 gallon
SHRUB STRATUM			
Black twinberry (<i>Lonicera involucrata</i> , FAC)	5	155	Bareroot/1 gallon
Nootka rose (<i>Rosa nutkana</i> , FAC)	5	155	Bareroot/1 gallon
Indian plum (<i>Oemleria cerasiformis</i> , FACU)	5	155	Bareroot/1 gallon

Species	Spacing (feet)	Quantity	Size
Common snowberry (<i>Symphoricarpos albus</i> , FACU)	5	155	Bareroot/1 gallon
Saskatoon serviceberry (<i>Amelanchier alnifolia</i> , FACU)	5	155	Bareroot/1 gallon
Oregon grape (<i>Mahonia aquifolium</i> , FACU)	5	155	Bareroot/1 gallon
BUFFER PLANT TOTAL		1,062	

*there is 383 square feet of wetland within the designated buffer enhancement area so the planting plan includes wetland plant species.

Planting Specifications

1. Plant the specified trees and shrubs in the fall (October-November) or early spring (March-April) at the spacing listed. The plants will be installed somewhat irregularly and in groups of like species to create heterogeneity in the density and appearance of the mitigation areas, but with enough space between each group to allow for maintenance of invasive species. Install plants with a tree shovel or comparable tool.
2. Place the bare-root species in the planting holes so that their roots are able to extend down entirely and do not bend upward or circle inside the hole.
3. Position the root crowns so that they are at or slightly above the level of the surrounding soil.
4. Firmly compact the soil around the planted species to eliminate air spaces.
5. Install anti-herbivory devices, such as seedling protection tubes or mesh protection netting, around the stems of planted species as appropriate. Secure with stakes.
6. Irrigate all newly installed plants as site and weather conditions warrant.

MITIGATION PLAN SEQUENCING

Plant installation can occur at any time of year including prior to and during site construction because the mitigation area is at the west end of the property and outside the project area.

- **Mowing and Invasive Removal Activities-July to September 2019**

- Identify the limits of the proposed mitigation area prior to beginning the mowing activities. Clearly mark the buffer edge with orange construction fencing or similar fencing to demarcate the areas to remain undisturbed during construction activities.
- Identify the appropriate invasive plant removal techniques based on conditions at the time of implementation.
- Mow/maintain the wetlands and buffer on the south edge and west end
- Place root wads (4) and horizontal logs (4) randomly within the mitigation areas prior to plant installation.

- **Planting Activities-October 2019 to March 2020**

- Plant installation will take place during the first winter after receipt of the permits from the agencies. Retain the orange construction fencing until the mitigation plan is fully implemented.
- Install split rail fence around the development after plant installation.
- Post wetland buffer boundary signs at edge of buffer. Signs can be affixed to fence or to posts.

- Prepare as-built report following full implementation of the mitigation plan to document any changes to the clearing, grading, and/or planting activities.

MAINTENANCE

Maintenance of the mitigation area is a 5-year process and will involve removing persisting invasive plant species in addition to watering, fertilizing, and re-installing failed native species as necessary. Maintenance will include the following activities when necessary:

1. Remove and control non-native vegetation around all newly installed plants a minimum of three times during the growing season in each of the monitoring years following implementation in order to meet performance standards.
2. Irrigate planted species as necessary during the dry season, approximately July 1 through October 15. ELS recommends watering the mitigation area at least every two weeks during the dry season for the first year, and monthly in Years 2 and 3. Watering can be conducted by hand or use of a common residential sprinkler connected to the closest hose bib.
3. Fertilize planted species as necessary.
4. Replace dead or failed plants as described for the original installation to meet the minimum annual performance standards.

If the mitigation area is failing or the performance criteria are not met during monitoring years, steps will be taken to rectify the situation in a timely manner. The following steps will be implemented when an area is identified as failing or potentially failing:

1. Identify the cause(s) of the failure or potential failure.
2. Identify the extent of the failure or potential failure.
3. Implement corrective actions such as irrigating, fertilizing, and/or replanting.
4. Document the activities and include this data in the annual monitoring and maintenance reports.
5. In the event that a routine corrective action will not correct the problem, immediately consult with the appropriate agencies.
6. Evaluate recommendations from resource agency staff and implement recommendations in a timely manner.

MONITORING PLAN

The wetland and buffer mitigation area will be monitored annually for a 5-year period following project construction. Monitoring will take place in Years 1, 2, 3, and 5. Monitoring reports will be submitted to the US Army Corps of Engineers, Washington Department of Ecology, and the City of Chehalis Planning Department by December 31 of each monitored year. The goal of monitoring is to determine if the previously stated performance standards are being met. The mitigation area will be monitored once late in the growing season, preferably during the same two-week period each year to better compare the data.

During preparation of the as-built report, monitoring units will be established in the mitigation areas and permanently marked with metal posts. Three to four monitoring units will be established

in the enhanced wetland and buffer areas. Monitoring unit locations will be indicated on the as-built drawing and included in the annual monitoring reports. Photo stations will also be established in several areas to visually document the progress of the mitigation area. Baseline data and photos will be taken of each monitoring unit to document as-built conditions for use in the follow-up monitoring reports.

VEGETATION

Vegetative monitoring will document the development of the forested and shrub layers in the enhanced wetland and buffer. The following information will be included at each monitoring unit:

- Percent cover and frequency of herbaceous species (3.28 feet quadrat)
- Percent cover and frequency of shrub species (30-foot diameter)
- Percent cover and frequency of any tree species (30-foot diameter)
- Species composition of herbs, shrubs, and trees, including non-native, invasive species
- Photo documentation of vegetative changes over time

FAUNA

General observations will be recorded and photographs will be taken of wildlife during site visits to the mitigation areas. Observations of insects and other invertebrates, amphibians, reptiles, birds, and mammals will be recorded and documented in the annual monitoring reports. Use of the onsite mitigation area by any priority species will also be noted.

MONITORING REPORT CONTENTS

The annual monitoring reports will contain at least the following:

- Location map and as-built drawing.
- Historic description of project, including dates of plant installation, current year of monitoring, and restatement of mitigation goals, objectives, and performance standards.
- Description of monitoring methods.
- Documentation of plant cover and overall development of the plant communities.
- Assessment of non-native, invasive plant species and recommendations for management.
- Assessment of buffer conditions, e.g. surrounding land use, use by humans, and use by wild and domestic animals.
- Observations of wildlife, including, amphibians, invertebrates, reptiles, birds, and mammals.
- Photographs from permanent photo points and monitoring units.
- Summary of maintenance and contingency measures proposed for the next season and completed for the past season.

LONG TERM MANAGEMENT PLAN

The wetland and buffer mitigation area will be maintained over the 5-year monitoring period to keep the invasive cover low in order to establish the forested conditions in the mitigation area. A fence will be installed at the edge of the entire buffer and signs will be posted to identify the critical area that requires protection.

SITE PROTECTION

All on and offsite wetlands and mitigation areas shall be permanently protected and managed to prevent degradation and ensure protection of critical area functions and values into perpetuity. Permanent protection shall be achieved through deed restriction or other protective covenant.

CONTINGENCY PLAN

If the performance standards for the wetland mitigation plan are not being met at any time during the 5-year monitoring period, a contingency plan will be developed and implemented. All contingency actions will be undertaken only after consulting and gaining approval from the regulatory permitting agencies that approved this plan. The contingency plan will describe (1) the causes of failure, (2) proposed contingency actions (listed below), (3) time-frame for completing contingency actions, and (4) whether additional maintenance and monitoring is necessary. The proposed contingency actions are as follows:

- Plant cover. If plant cover is determined to be below the proposed standard of that year, plantings may be added to bring the cover up to the proposed standard.
- Non-native invasive weeds. Infestations of non-native invasive weeds will be removed prior to planting through hand removal where needed. Re-emergence of the infestations will be dealt with during routine maintenance. If invasive cover is above 15 percent, maintenance will occur more often until the invasive cover is below 15 percent. The cover of non-native invasive species not currently present onsite will not exceed 15 percent.

The above actions assume that the reasons for failure to achieve the stated performance standards for cover are within the control of the land owner or assignee. If natural disasters such as ice storms or fire impact the mitigation area, appropriate consideration will be taken to determine the limit of responsibility.

REFERENCES

- Cowardin, L.M., C. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. FWS/OBS-78/31. U.S. Department of the Interior, Fish and Wildlife Service, Office of Biological Services, Washington D.C.
- Ecological Land Services, Inc. 2018. *Wetland Delineation Report for 3040 Jackson Highway, Lewis County, Washington*. February 23, 2018.
- Hruby, T. August 2014. *Washington State Wetland Rating System for Western Washington, 2014 Update*. Washington State Department of Ecology Publication #14-06-029. Olympia, Washington. Effective January 1, 2015.
- Chehalis Municipal Code. 2019. *Title 17 Uniform Development Regulations, Chapter 17.23 Wetlands*.
- U.S. Army Corps of Engineers. 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*, ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-08-13. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- Washington State Department of Ecology, U.S. Army Corps of Engineers Seattle District, and U.S. Environmental Protection Agency Region 10. March 2006. *Wetland Mitigation Guidance in Washington State- Part 1: Agency Policy and Guidelines (Version 1) and Part 2: Developing Mitigation Plans (Version 1)*. Washington State Department of Ecology Publication # 06-06-011a. Olympia, Washington.

6/11/2019 2:04 PM 3040 Jackson Highway.dwg Jennifer

LEGEND:

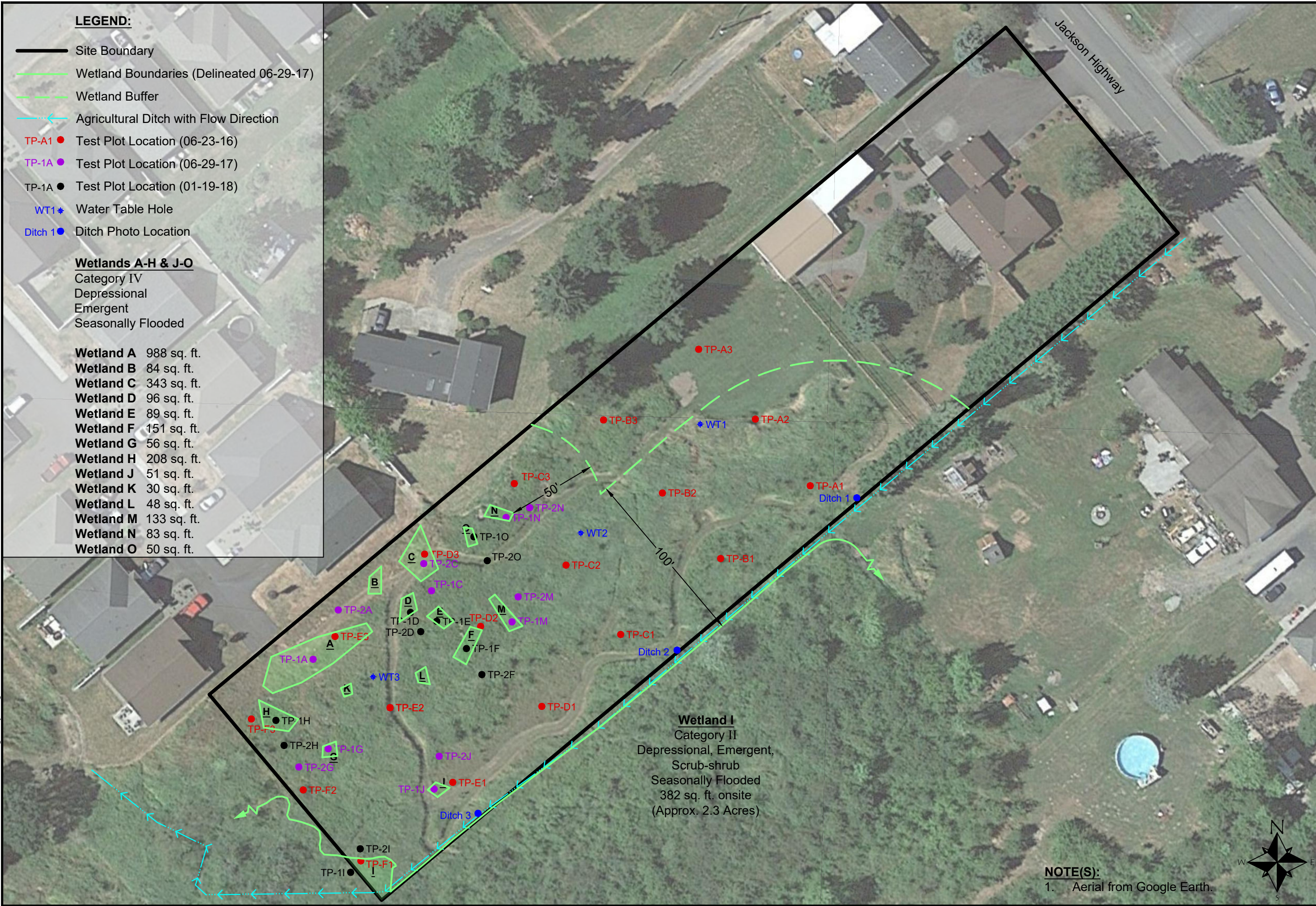
- Site Boundary
- Wetland Boundaries (Delineated 06-29-17)
- Wetland Buffer
- ← Agricultural Ditch with Flow Direction
- TP-A1 Test Plot Location (06-23-16)
- TP-1A Test Plot Location (06-29-17)
- TP-1A Test Plot Location (01-19-18)
- ★ WT1 Water Table Hole
- Ditch 1 Ditch Photo Location

Wetlands A-H & J-O

Category IV
 Depressional
 Emergent
 Seasonally Flooded

- Wetland A 988 sq. ft.
- Wetland B 84 sq. ft.
- Wetland C 343 sq. ft.
- Wetland D 96 sq. ft.
- Wetland E 89 sq. ft.
- Wetland F 151 sq. ft.
- Wetland G 56 sq. ft.
- Wetland H 208 sq. ft.
- Wetland J 51 sq. ft.
- Wetland K 30 sq. ft.
- Wetland L 48 sq. ft.
- Wetland M 133 sq. ft.
- Wetland N 83 sq. ft.
- Wetland O 50 sq. ft.

Wetland I
 Category II
 Depressional, Emergent,
 Scrub-shrub
 Seasonally Flooded
 382 sq. ft. onsite
 (Approx. 2.3 Acres)



NOTE(S):
 1. Aerial from Google Earth.

PROPOSED: Jackson Highway Condos
IN Maintained Field
NEAR: Chehalis
COUNTY: Lewis **STATE:** WA
SHEET 2 OF 5
DATE: 6/11/19

SITE MAP
APPLICANT: Hubbard & Sons Construction, LLC.
PROJECT NAME: 3040 Jackson Highway
REFERENCE #:
SITE LOCATION ADDRESS:
 3040 Jackson Highway,
 Chehalis, WA

PURPOSE: Mitigation Plan
DATUM: NAD83
ADJACENT PROPERTY OWNERS:

1157 3rd Ave., Suite 220A
 Longview, WA 98632
 Phone: (360) 578-1371



6/11/2019 2:04 PM 3040 Jackson Highway.dwg Jennifer

LEGEND:

-  Site Boundary
-  Wetland
(Delineated 06-29-17)
-  Wetland Buffer
-  Agricultural Ditch w/ Flow Direction

Wetlands A-H & J-O

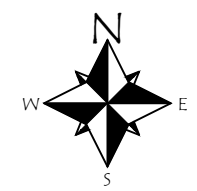
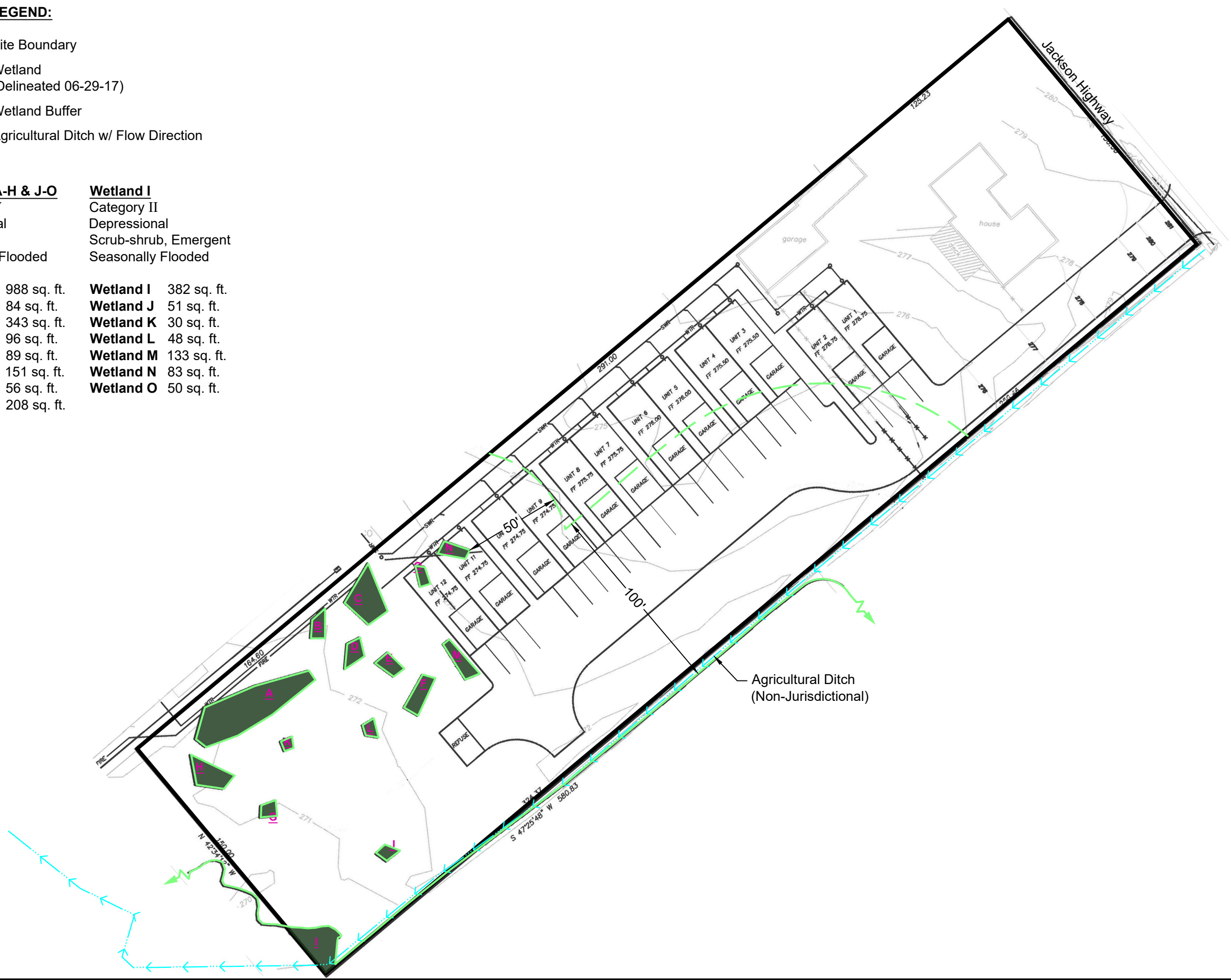
- Category IV
- Depressional
- Emergent
- Seasonally Flooded

- Wetland A** 988 sq. ft.
- Wetland B** 84 sq. ft.
- Wetland C** 343 sq. ft.
- Wetland D** 96 sq. ft.
- Wetland E** 89 sq. ft.
- Wetland F** 151 sq. ft.
- Wetland G** 56 sq. ft.
- Wetland H** 208 sq. ft.

Wetland I

- Category II
- Depressional
- Scrub-shrub, Emergent
- Seasonally Flooded

- Wetland I** 382 sq. ft.
- Wetland J** 51 sq. ft.
- Wetland K** 30 sq. ft.
- Wetland L** 48 sq. ft.
- Wetland M** 133 sq. ft.
- Wetland N** 83 sq. ft.
- Wetland O** 50 sq. ft.



1157 3rd Ave., Suite 220A
 Longview, WA 98632
 Phone: (360) 578-1371



PURPOSE: Mitigation Plan









SITE PLAN

APPLICANT: Hubbard & Sons Construction, LLC.
 PROJECT NAME: 3040 Jackson Highway
 REFERENCE #:
 SITE LOCATION ADDRESS:
 3040 Jackson Highway,
 Chehalis, WA

PROPOSED: Jackson Highway Condos
 IN Maintained Field
 NEAR: Chehalis
 COUNTY: Lewis STATE: WA
 SHEET 3 OF 5
 DATE: 6/11/19

6/11/2019 2:04 PM 3040 Jackson Highway.dwg Jennifer

LEGEND:

-  Site Boundary
-  Wetland (Delineated 06-29-17)
-  Wetland Buffer
-  Agricultural Ditch w/ Flow Direction
-  Direct Wetland Impact (133 sq. ft.)
-  Wetland Buffer Impact (21,277 sq. ft.)
-  Wetland Enhancement Area (2,032 sq. ft.)
-  Buffer Enhancement Area (26,770 sq. ft.)

Wetlands A-H & J-O

- Category IV
- Depressional
- Emergent
- Seasonally Flooded

- Wetland A** 988 sq. ft.
- Wetland B** 84 sq. ft.
- Wetland C** 343 sq. ft.
- Wetland D** 96 sq. ft.
- Wetland E** 89 sq. ft.
- Wetland F** 151 sq. ft.
- Wetland G** 56 sq. ft.
- Wetland H** 208 sq. ft.

Wetland I

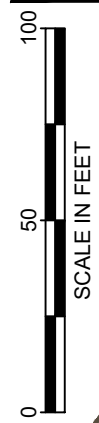
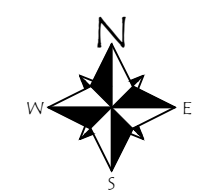
- Category II
- Depressional
- Scrub-shrub, Emergent
- Seasonally Flooded

- Wetland I** 382 sq. ft.
- Wetland J** 51 sq. ft.
- Wetland K** 30 sq. ft.
- Wetland L** 48 sq. ft.
- Wetland M** 133 sq. ft.
- Wetland N** 83 sq. ft.
- Wetland O** 50 sq. ft.



Table 2: Direct Wetland Impacts

Wetland	Area (sq. ft.)	Cowardin Classification	Ecology Rating	Impacts (sq. ft.)
N	83	PEM	IV	83
O	50	PEM	IV	50
				133



1157 3rd Ave., Suite 220A
 Longview, WA 98632
 Phone: (360) 578-1371

PURPOSE: Mitigation Plan

MITIGATION PLAN OVERVIEW
 APPLICANT: Hubbard & Sons Construction, LLC.
 PROJECT NAME: 3040 Jackson Highway
 REFERENCE #:
 SITE LOCATION ADDRESS:
 3040 Jackson Highway,
 Chehalis, WA

PROPOSED: Jackson Highway Condos
 IN Maintained Field
 NEAR: Chehalis
 COUNTY: Lewis STATE: WA
 SHEET 4 OF 5
 DATE: 6/11/19

DATUM: NAD83
 ADJACENT PROPERTY OWNERS:

LEGEND:

- Site Boundary
- Wetland (Delineated 06-29-17)
- Wetland Buffer
- Agricultural Ditch w/ Flow Direction
- Direct Wetland Impact (133 sq. ft.)
- Wetland Buffer Impact (21,277 sq. ft.)
- Wetland Enhancement Area (2,032 sq. ft.)
- Buffer Enhancement Area (26,770 sq. ft.)



Wetland I
Category II
Depressional, Emergent,
Scrub-shrub
Seasonally Flooded
(Approx. 2.3 Acres)

Agricultural Ditch
(Non-Jurisdictional)

Wetland
Enhancement

Buffer-Upland
Enhancement

Buffer-Wetland
Enhancement



NOTE: Plants are not to scale and locations are approximate as shown. Actual planting locations will be determined in the field, with consideration to the listed spacing and density to produce the most natural appearance possible.

Table 5: Planting Specifications for Wetland Enhancement

Species	Spacing (feet)	Quantity	Size
TREE STRATUM			
Oregon ash (<i>Fraxinus latifolia</i> , FACW)	10	7	Bareroot/1 gallon
Pacific crabapple (<i>Malus fusca</i> , FACW)	10	8	Bareroot/1 gallon
TOTAL		15	
SHRUB STRATUM			
Pacific ninebark (<i>Physocarpus capitatus</i> , FACW)	4	30	Bareroot/1 gallon
Red osier dogwood (<i>Cornus sericea</i> , FACW)	4	30	Bareroot/1 gallon
Black twinberry (<i>Lonicera involucrata</i> , FAC)	4	30	Bareroot/1 gallon
Pacific willow (<i>Salix lucida</i> sp. <i>lasianдра</i> , FACW)	4	30	Bareroot/1 gallon
TOTAL		120	
PLANT TOTAL		135	

Table 6: Planting Specifications for Buffer Enhancement

Species	Spacing (feet)	Quantity	Size
BUFFER-WETLAND*			
Oregon ash (<i>Fraxinus latifolia</i> , FACW)	10	4	Bareroot/1 gallon
Pacific ninebark (<i>Physocarpus capitatus</i> , FACW)	4	10	Bareroot/1 gallon
Red osier dogwood (<i>Cornus sericea</i> , FACW)	4	10	Bareroot/1 gallon
TOTAL		24	
BUFFER-UPLAND*			
TREE STRATUM			
Bigleaf maple (<i>Acer macrophyllum</i> , FACU)	10	27	Bareroot/1 gallon
Quaking aspen (<i>Populus tremuloides</i> , FAC)	10	27	Bareroot/1 gallon
Oregon white oak (<i>Quercus garryana</i> , FACU)	10	27	Bareroot/1 gallon
Vine maple (<i>Acer circinatum</i> , FAC)	10	27	Bareroot/1 gallon
TOTAL		108	
SHRUB STRATUM			
Black twinberry (<i>Lonicera involucrata</i> , FAC)	5	155	Bareroot/1 gallon
Nootka rose (<i>Rosa nutkana</i> , FAC)	5	155	Bareroot/1 gallon
Indian plum (<i>Oemleria cerasiformis</i> , FACU)	5	155	Bareroot/1 gallon
Common snowberry (<i>Symphoricarpos albus</i> , FACU)	5	155	Bareroot/1 gallon
Saskatoon serviceberry (<i>Amelanchier alnifolia</i> , FACU)	5	155	Bareroot/1 gallon
Oregon grape (<i>Mahonia aquifolium</i> , FACU)	5	155	Bareroot/1 gallon
TOTAL		930	
BUFFER PLANT TOTAL		1,062	

*there is 383 square feet of wetland within the designated buffer enhancement area, so the buffer planting plan includes wetland plant species.

Table 3: Wetland Mitigation Overview

Ecology Rating	Wetlands	Direct Impact	Proposed Mitigation Ratio (Enhancement)	Wetland Enhancement Wetlands A-H and J-M
IV	Wetlands N & O	133 sq. ft.	6:1	798 sq. ft. (0.018 acres)
			Total required	798 sq. ft.
			Total available	2,032 sq. ft.

Table 4: Buffer Mitigation Overview

Wetland	Buffer Impact	Buffer Enhancement	Buffer Mitigation Areas
I	14,123 sq. ft.	21,277 square feet	✓ Remainder of onsite upland (south of proposed road and around the remaining wetlands)
C, F, M, N, & O	7,154 sq. ft.		

PROPOSED: Jackson Highway Condos
IN Maintained Field
NEAR: Chehalis
COUNTY: Lewis
SHEET 5 OF 5
STATE: WA
DATE: 6/11/19

MITIGATION PLANTING PLAN
APPLICANT: Hubbard & Sons Construction, LLC.
PROJECT NAME: 3040 Jackson Highway
REFERENCE #:
SITE LOCATION ADDRESS: 3040 Jackson Highway, Chehalis, WA

PURPOSE: Mitigation Plan
DATUM: NAD83
ADJACENT PROPERTY OWNERS:

SCALE IN FEET
0 40 80



1157 3rd Ave., Suite 220A
Longview, WA 98632
Phone: (360) 578-1371