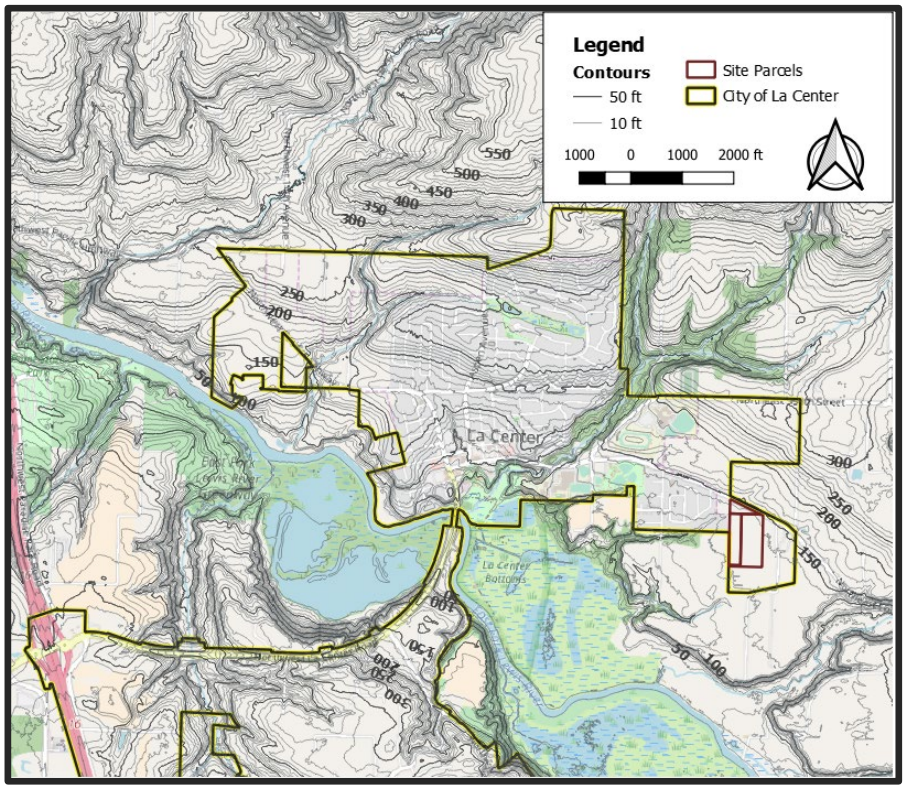
MEMORANDUM

DATE:	October 5, 2018
TO:	David Holmes La Center School District
FROM:	Robert Phipps, PLA
PROJECT:	71282.000
REGARDING:	Critical Areas Report

As required under LMC 18.300, this memorandum provides documentation for the critical areas delineated and surveyed within the project site for the development of La Center Middle School, and proposed mitigation measures for associated environmental impacts.



PROJECT LOCATION

The subject site (site) consists of two tax lots and the triangular portion of a third tax lot comprising approximately 17.32 acres. The tax lots are identified as Property Identification Number 209064000 (#39 OF SEC 2 T4NR1E@M 10.92A), 209118000 (#99 SEC 2 T4N R1EWM 5.48A), and 209120000 (#101 SEC 2 T4N R1EWM 9.78 A M/L), addressed as 2001 NE Lockwood Creek Road, La Center, Washington. The site is in portions of the SW ¼ NE ¼ and the NW ¼ SE ¼ of Section 2, Township 4 North, Range 1 East, of the Willamette Meridian, Clark County, Washington in the City. The site has NE Lockwood Creek Road as its north boundary.

The proposed project will provide a new education facility and associated infrastructure including a play field, trails, pathways, open educational space, parking and vehicular circulation routes. Improvements include a 77,275 SF main building, location for portable classrooms, outdoor classrooms, landscaping, access from Lockwood Creek Road, permanent and event parking areas and underground utilities.

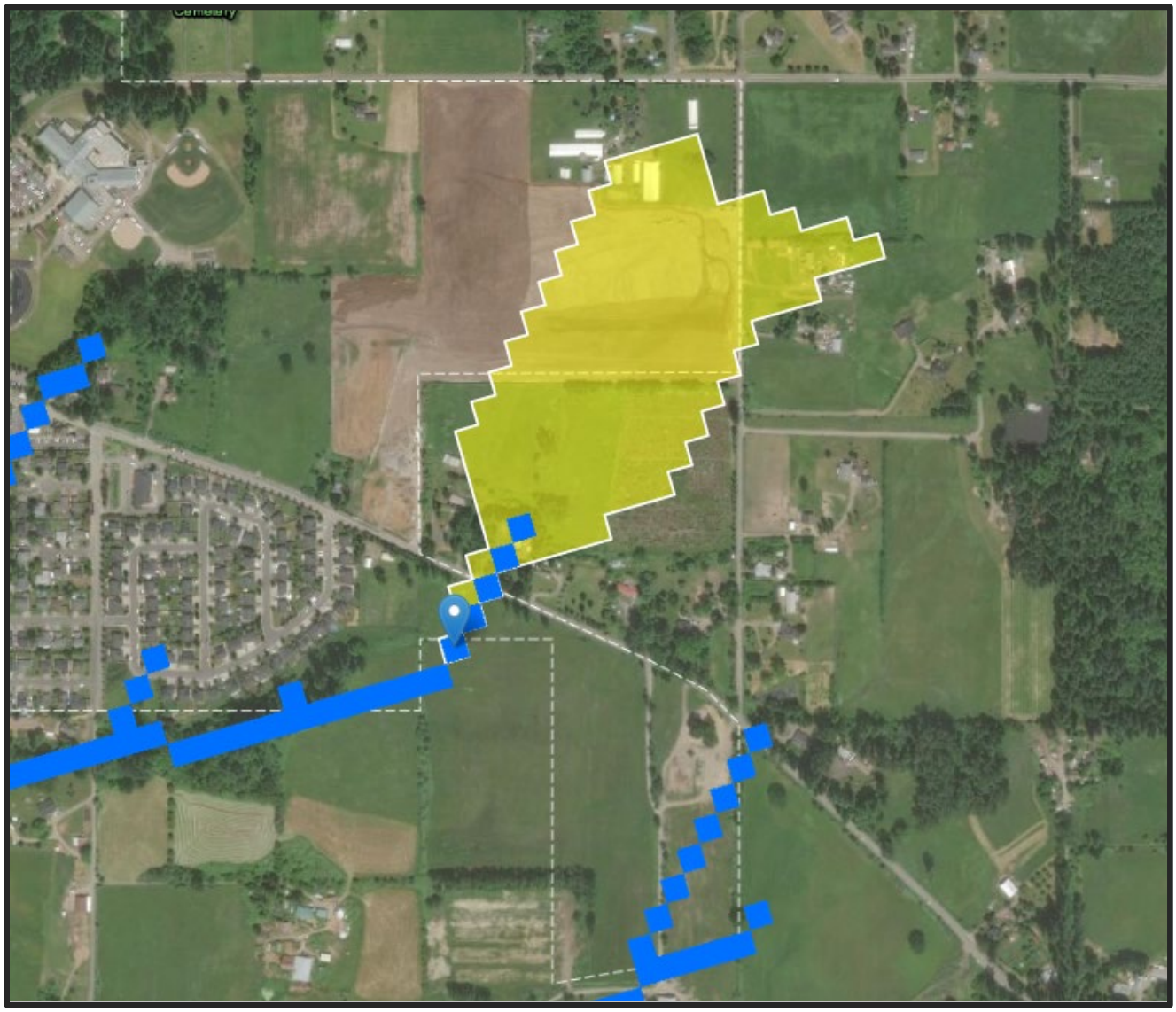


Figure 1. USGS StreamStats Contributing Basin

STORMWATER MANAGEMENT

Existing site drainage is characterized by two outflows. Because drainage courses remain separate for ¼ mile downstream of the two discharges, the drainage areas will be treated as separate threshold discharge areas. On the north side of the site, a sloped wetland collects surface runoff as well as inflows from two culverts under NE Lockwood Road, then discharges west to a 12-inch pipe. On the south side of the site, a separate wetland collects surface runoff, with discharge to a ditch to the west. Runoff from both discharge points is conveyed to Lewis River, approximately ½ mile downstream.

Though the tributary drainage areas of each discharge point will be altered, the development will largely keep existing drainage patterns in tact by utilizing detention ponds with controlled outflows in accordance with the Stormwater Management Manual for the Puget Sound Basin ("Stormwater Manual" - Washington Department of Ecology, 1992), which has been adopted by the City of La Center to govern stormwater management.

Bioretention facilities are proposed for water quality treatment, capturing runoff from pollution generating surfaces (the expanded frontage and parking lots) and all run-on to such surfaces from the surrounding site. Pipe conveyance systems will carry runoff to detention ponds which will meet quantity control requirements, discharging to the existing pipe to the north and the existing wetland to the south.

There is a large drainage area (Figure 1) north of Lockwood Creek Road that discharges through a 24-inch ductile iron culvert and an 8-inch CPP culvert onto the north end of the site. Drainage through these two culverts will be bypassed through extended culverts underneath the proposed western parking lot. The bypass culverts will maintain the same discharge point as existing conditions.

See the full Stormwater Technical Report for further information.

CONSTRUCTION ACTIVITIES & PROJECT SCHEDULING

Construction will occur in April 2019 and will require approximately 33,000 cubic yards of fill across an area of approximately 12 acres. All excavated material not suitable for structural fill or re-used for other construction needs (i.e topsoil) will be properly disposed of to a permitted off-site location. The construction is scheduled to be complete by August 2020.

The project will implement site specific erosion control and sedimentation measures to minimize erosion. All disturbed soils will be stabilized during construction. Post construction, remaining disturbed areas will be replanted or re-seeded following the landscape and buffer mitigation plans. All ESC measures shall be in place prior to any start of work.

Anticipated types of equipment utilized during construction include front end loaders, excavators, augers, backhoes, dozers, scrapers, graders, pavers, rollers and other equipment as needed.

LANDSCAPE SETTING & SOILS

The site is situated in the rural landscape east of La Center, Washington main urban corridor. Slopes range from 1 percent to 6.5 percent, progressively flattening as grades move from north to south and from east to west. The site is in the East Fork Lewis River watershed and the East Fork Lewis sub-watershed. The water resource inventory area for the site is LEWIS, East Fork Lewis sub-basin. The site is outside the flood hazard area and does not have a shoreline designation. Per Clark County GIS Maps, the site is within a Category 2 Critical Aquifer Recharge Area. The development use will not trigger CARA 2 review and is not be included in this report. Portions of the site have a noted presence of wetlands with a combination of non-hydric and hydric soils. The site does not have any mapped steep slopes, areas of potential instability, or severe erosion hazard areas. Liquefaction is noted as very low. The site is identified with Priority Habitat of Riparian Habitat Conservation Area.

The site is primarily an open field grassland with a combination of non-native pasture grasses, nuisance woody vegetation, sparse native vegetation and naturally occurring emergent soft rush (*Juncus effuses)* vegetation within the wetland areas. A larger row of native tree canopy persists along the south half of the site consisting of Douglas Fir and Black Cottonwood (*Populus balsamifera)*. The northern area consists of tall sweet vernal grass *(Anthoxanthum odoratum)*, false rye grass *(Schedonorus arundinaceus)*, colonial bent grass, reed canarygrass (*Phalaris arundinacea)* and spreading bent grass *(A. stolonifera)*, velvet grass *(Holcus lanatus)*. Vegetation in the upland areas in the north along the roadside consists of black cottonwood, cascara (*Frangula pershiana)*, Nootka rose (*Rosa nutkana)*, Himalayan blackberry (*Rubus armeniacus)*, trailing blackberry and reed canary grass. Sparse

vegetation along the west property line consists of Hazelnut *(Corylus cornata*), nootka, rose (*Rosa nutkana)*, bitter cherry (*Prunus emarginata)* and volunteer willow (*Salix spp.)*. The west and south property line vegetation are anticipated not to be impacted.

Figure 2. Photo of site

Five wetlands were identified and delineated within the project site area. Wetland A is a depressional system within the overall flat area on south end of the site. Wetland B, D, E, and F are slope systems. The contributing basin (Fig. 2) from Lockwood and Riley Creek north and east of the site and channelized drainage patterns throughout the site are the primary hydrology sources for the seasonally and occasionally flooded wetlands. Wetland A is near the southern end of the property line along the lowest part of the site and is the largest system within the project area. Wetland B, D, E, and F are smaller systems within the northern half of the project area. Wetland E and F are along the channelized ditches directly south of Lockwood Creek Rd. All wetlands were scored as low habitat.

Figure 3. Photo of site

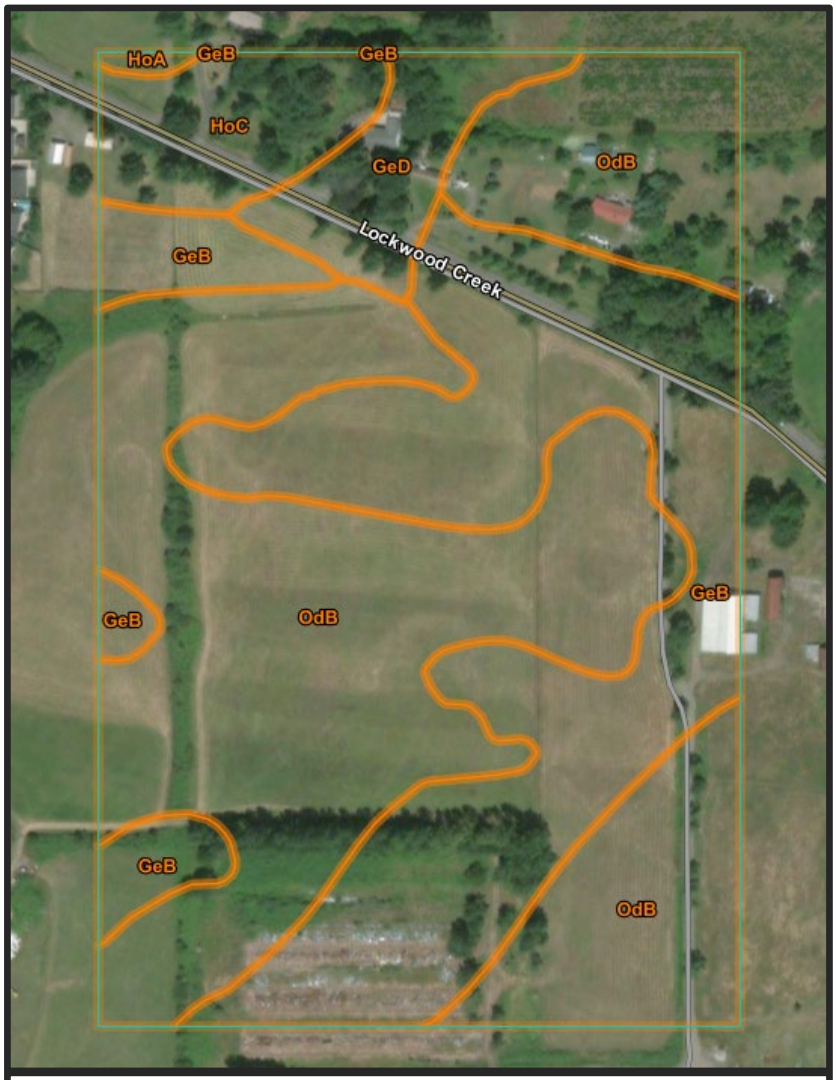
Wetlands A (PEM), B (PEM) and D (PEM) are open grassland plant communities primarily covered in non-native pasture grasses with sporadic blackberry intrusion. Colonial bentgrass, velvet grass, reed canarygrass and soft rush make up the primary vegetation habitat. Wetland A buffer encompasses some mature tree vegetation including Douglas Fir and Black Cottonwood. Wetland E (PSS) consists of snowberry, Scouler's willow, and hardhack. in the shrub layer. Reed canary grass dominates the herbaceous layer, with Himalayan blackberry

interspersed. Wetland F (PSS) appears to be predominately sustained by a road culvert that drains into this of the study area and may contain drain tile that is artificially draining this portion of the study area. Vegetation in Wetland F is dominated by black cottonwood and Nootka rose in the tree and shrub canopies, with soft rush and colonial bent grass in the herbaceous layer.

Per LMC Table 18.300.090(6)(h)(i)-1 – Buffers Required to Protect Hydrologic Functions and Table 18.300.090(6)(h)(i)-2 – Buffers Required to Protect Habitat Functions, wetlands A and B identified are Category III and have 80' buffers, Wetland D, E, F are Category IV and have 50' buffers.

See the wetland delineation and assessment report for more detailed information.

A Type Ns stream through a 10" concrete culvert was identified through the west property line on the northern portion of the site. The stream riparian buffer is 75' per Table 18.300.090(2)(f) – Riparian Areas of the LMC. Clark County PHS Maps were reviewed to determine likelihood of priority habitat species within the project area. No priority habitat species were identified within the site other than the riparian corridor.



Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
GeB	Gee silt loam, 0 to 8 percent slopes	18.3	35.7%
GeD	Gee silt loam, 8 to 20 percent slopes	2.6	5.2%
HoA	Hillsboro silt loam, 0 to 3 percent slopes	0.2	0.3%
HoC	Hillsboro silt loam, 8 to 15 percent slopes	3.0	5.9%
OdB	Odne silt loam, 0 to 5 percent slopes	27.1	52.9%
Totals for Area of Interest		**51.2**	**100.0%**

Figure 4. NCRS Soil Survey Map

Per NCRS Clark County Soil Survey data (See Fig 4.), three existing soil types were mapped within the project site area. Hillsboro Silt Loam, Gee Silt Loam, Odne Silt Loam were mapped. Hillsboro Silt Loam, 8 to 15 percent slopes (HoC) are deep, well drained soils formed in mixed alluvium. They are generally formed on terraces, moderate permeability, with slow to medium runoff. The soils are usually moist but are dry throughout between depths of 4 and 12 inches for more than 45 consecutive days during the summer. HoC soils are not considered

hydric. Gee Silt Loam, 0 to 8 and 8 to 20 percent slopes (GeB and GeD), are deep, moderately well drained soils formed in the old alluvium deposited by the Columbia River. They are moderately permeable in the surface layer and very slow in the subsurface, surface runoff is slow and the erosion hazard is slight. These soils are usually moist but are dry in the moisture control section for 45 to 60 consecutive days following summer solstice. Odne Silt Loam, 0 to 5 percent slopes (OdB). This soil generally occurs in concave areas in drainageways or depressions within areas of Gee soils. In most places the slope is 1 to 2 percent. In a typical profile, the surface layer is about 10 inches thick. It is mottled, dark-gray heavy silt loam in the upper part. The subsurface layer is firm, mottled, gray silt loam about nine inches thick. The next eight inches is very firm, mottled, dark-gray silty clay loam that overlies six inches of firm, mottled, dark-gray clay loam. This soil is poorly drained and very slowly permeable. A high-water table is common in winter. It is classified as a hydric soil according to the Clark County hydric soils list.

ANTICIPATED CRITICAL AREA IMPACTS

The proposed project will have unavoidable permanent and temporary impacts to wetlands, vegetated buffers and within the riparian buffer. Most of impacts are to non-native, exotic grasses, noxious weeds and considered to provide low to moderate functionality. Permanent impacts are from fill to accommodate new impervious surfaces of the parking and access roads. Permanent buffer impacts are associated with a pervious pedestrian trail, parking lot and other impervious structures. Temporary buffer impacts to Wetland A and the riparian buffer are associated with the stormwater facility pipe installation, dispersal trench and junction structure.

Total permanent direct Cat IV wetland impacts will be 0.08 acres (3695 SF). Wetland E (PSS) will be permanently impacted in entirety for 0.02 acres (1048 SF). Wetland F (PSS) will be permanently impacted in entirety for 0.06 acres (2647 SF). There are no direct temporary wetland impacts.

Total permanent Cat III wetland buffer impacts will be 0.07 acres (3050 SF). Total temporary Cat III wetland buffer impacts will be 0.04 acres (1470 SF). Total temporary Cat IV wetland buffer impacts will be 0.05 acres (2017 SF). Wetland A buffer will be impacted permanently for 0.07 acres (3050 SF) and temporarily for 0.04 acres (1470 SF). Wetland D buffer will be temporarily impacted for 0.05 acres (2017 SF).

Temporary riparian buffer impacts will be 0.01 acres (300 SF).

A summary of the classification and anticipated impactes acreages by each wetland and riparian buffer is found in Table 1. Drawing exhibit depicting the critical area impacts can be found in Appendix A.

AVOIDANCE AND MINIMIZATION STRATEGIES

The project design has avoided and minimized the impacts to wetlands, wetland buffers and riparian resources to the greatest extent practicable. The site and grading plan have gone through several iterations to minimize overall impacts.

The parking lot, frontage entry and access points were redesigned multiple times in relocation, size and position to avoid the riparian buffer and wetlands B and D to the greatest extent practicable. Fill slopes were steepened to 3:1 where possible to reduce the extent of excavation and clearing limits resulting in no impacts to Wetland B buffer. Due to the required frontage improvement requirements the impacts to wetlands E and F found along Lockwood Creek Road are unavoidable. The temporary and permanent buffer impacts to wetland A are due to the required discharge elevation for the stormwater pond outfall and new pedestrian trail. The grade difference between the building, stormwater pond and wetland is minimal. The pond design was kept very shallow to keep the pond discharge in the buffer and out of the wetland while still meeting stormwater requirements. The project

proposes installation of a 5-foot wide wood chip pervious pedestrian trail running through the buffer of wetland A. The trail will be installed with hand labor and light equipment. The pedestrian trail provides connectivity with the gravel and asphalt running track being constructed around the football field, physical education field, and large grassy area to allow for pedestrian circulation throughout the south portion of the site. Section 18.300.050(4)(a) of LMC, allows pervious trails for nonmotorized use within buffers subject to development and mitigation standards. Mitigation is proposed for the installation of the wood chip trail and stormwater improvements.

Table 1. Wetland Size, Classification, and Proposed Impacts

Critical Area	Wetland Classification							Buffer Width (feet)[F]	Impact Area (sf/acre)[E]			
	Cowardin[A]	HGM	Water Quality Score	Hydrologic Score	Habitat Score	ECY[BC]	Size (acre)[D]		Wetland Permanent (sf/acre)	Wetland Temporary (acre)	Buffer Permanent (acre)	Buffer Temporary (acre)
A	PEM	Depressional	6	5	5	III	0.57	80	N/A	N/A	3,050/0.07	1,470/0.04
B	PEM	Slope	6	5	5	III	0.05	80	N/A	N/A	N/A	N/A
D	PEM	Slope	6	3	5	IV	>0.03	50	N/A	N/A	N/A	2017/0.05
E	PSS	Slope	6	3	4	IV	0.02	50	1048/0.02	N/A	N/A	N/A
F	PSS	Slope	6	4	4	IV	0.06	50	2647/0.06	N/A	N/A	N/A
Riparian	Type Ns	N/A	N/A	N/A	N/A	N/A	N/A	75	N/A	N/A	N/A	300/0.01
Total[E]									3695/0.08	0.00	3,050/0.7	3787/0.10

A. Cowardin, et al. (1979) or National Wetland Inventory (NWI) Class based on vegetation: PEM = Palustrine Emergent; PSS = Palustrine Scrub-Shrub; PFO = Palustrine Forested.
B. Ecology 2014 Western Washington Rating System Revised, Hruby (2014).
C. La Center Code references Ecology Rating Methodology
D. Acreage estimated using aerial photography and GIS measurements
E. Total acreage calculated from total square feet of impact
F. La Center Code Table 18.300.090(2)(f) – Riparian Areas & Table 18.300.090(6)(h)(i)-1 – Buffers Required to Protect Hydrologic Functions

During construction, future impacts will be avoided to the greatest extent practicable. Removal of vegetation will be limited to what only is required for the grading and approved plans. All clearing limits, staging areas, preservation of vegetation will be clearly marked prior to commencing construction and maintained until all work is completed. Best Management Practices (BMPS), will be maintained in good working order throughout all construction activities.

MITIGATION PROPOSAL

The project proposes a total of 0.08 acres of permanent CAT IV wetland impacts, 0.07 acres of permanent CAT III wetland buffer impacts, 0.09 acres of temporary CAT III wetland buffer impacts and 0.01 temporary riparian buffer impacts.

The mitigation/enhancement plan proposes to mitigate with a total of 0.25 acres of buffer enhancement area at 1:1 ratio for both Cat III or Cat IV buffer impacts. Wetland A (CAT III) buffer will be enhanced for 0.20 acres. Wetland D (IV) buffer will be enhanced for 0.05 acres. Wetland D buffer overlaps with the regulated riparian buffer and result a mutual enhancement benefit to both critical areas. The remaining buffer enhancement area (0.08 acres) will be available to account for changes during design development and during construction that may impact additional wetland buffers and direct functional losses due to unforeseen issues.

The primary impacted functions are water quality and habitat. The proposed stormwater management plan is anticipated to fully treat for the water quality impacts. With moderate to low habitat scores, the temporal functional habitat loss will be minimal. Impacts to habitat will be mitigated on-site by enhancing the existing non-native grass areas within Wetland A and Wetland D buffers to a native mixed-coniferous forest reference community. The proposed mitigation will see an overall increase in habitat function with established tree canopy, native understory, vertical structure, corridor connectivity, screening, food chain support and shading. The anticipated success of enhancement for temporary and permanent wetland/riparian buffer impacts is obtainable with the appropriate methods outlined in the wetland buffer restoration and planting concept.

Permanent direct impacts to wetlands, (Wetlands D and E) will be mitigated using credit purchase from the East Fork Lewis Mitigation Bank (EFLMB). The East Fork Lewis Mitigation Bank (EFLMB) received final approval and certification in June 2011 and can transfer both wetland and critical area buffer credit to permit applicants within the service area, WRIA 27. The EFLMB will re-establish approximately 100 acres of wetland habitat to the East Fork Lewis River Watershed. The Bank site is located along a portion of the greater Fargher Lake system, a large, shallow basin that is part of a 423-acre peat deposit thought to have formed in an ancient volcanic caldera. Prior to agricultural activity in the area, the US Army Corps of Engineers historical mapping identified the Fargher Lake area as a "treeless swamp with rolling hills in the immediate vicinity in which water collected and drained into the East Fork Lewis River". The EFLMB site supports the restoration of a variety of different habitat types such as forested, shrub and emergent wetlands that historically would have been present on the property. Per the approved documentation of the mitigation bank, Cat IV wetland impacts are mitigated at a rate of 0.85:1. The project has 0.08 acres of Cat IV wetland impacts and will purchase 0.068 acres from the mitigation bank.

All critical area impacts will be mitigated as outlined in the mitigation proposal table summary. See Table 2. See Appendix B for on-site Buffer Mitigation/Enhancement Plan.

Table 2. Impact Types and Proposed Mitigation

Impact Activity	Wetland Name	Wetland category	Impact area (acres)	Duration of impact	Proposed mitigation type	Mitigation area (credits or acres)
Excavation/Fill	Wetland A Buffer	III	0.07 acres	Permanent	1:1 On-site*	0.07 acres
Excavation	Wetland A Buffer	III	0.04 acres	Temporary	1:1 On-site*	0.04 acres
Excavation/Fill	Wetland D Buffer	IV	0.05 acres	Temporary	1:1 On-site*	0.05 acres
Excavation/Fill	Wetland E	IV	0.02 acres	Permanent	0.85:1 EFL Mitigation Bank**	0.017 acres
Excavation/Fill	Wetland F	IV	0.06 acres	Permanent	0.85:1 EFL Mitigation Bank**	0.051 acres
Excavation/Fill	Riparian Buffer	Type Ns	0.01 acres	Temporary	1:1 On-site*	0.01 acres
			Total EFL Credits Required			0.068 acres
			Total Wetland Buffer Mitigation Acreage Required			0.17 acres
* Wetland Buffer mitigation ratios based on La Center recommended ratios for on-site enhancement ** East Fork Lewis Wetland Mitigation Bank (EFLMB) represented by Habitat Bank LLC.						

WETLAND BUFFER RESTORATION AND PLANTING CONCEPT

Temporary and permanent impacts to wetland buffers and riparian buffers will be restored and/or enhanced by the development of on-site restoration of areas disturbed by construction. Temporary impacts will be restored to previous conditions using native grass and plantings where feasible. The proposed buffer enhancement mitigation area will convert the existing non-native grass field located within Wetland A's and Wetland D's regulated buffer limits to a dense mixed-coniferous forest restoring and enhancing both riparian and wetland buffer function. Functions restored and enhanced include light and glare screening, general habitat function, vertical structure, habitat interspersion, riparian corridor connectivity, shading, and increase in primary food chain support.

The buffer mitigation site will consist of soils restoration and planting/establishment of a dense mixed-coniferous forest community. Soils restoration will include clearing to remove invasive brush species (including Himalayan blackberry) and competitive non-native pasture grass sod, de-compaction of formerly grazed and mowed soils, addition of a compost blanket to establish an O soil horizon, and a bark mulch blanket to mimic a forest duff layer. The mulch amendments will improve soil texture, infiltration, and soil fertility, help retain soil moisture into the growing season, and significantly reduce competition with invasive weeds and grasses. Logs and rootwads will be placed within the buffer mitigation area as woody habitat structures throughout the buffer mitigation site as appropriate.

Forested buffer species will include a canopy of Douglas Fir, Western Red Cedar, Vine Maple, Oregon Ash (in transitional wetter areas). Understory species will be typical of the area, including, but not limited to, Snowberry,

Oregon Grape, Indian Plum, Vine Maple, Western Hazelnut, and Nookta Rose. Understory density will be 3-foot on center (diagonal, with trees densely planted at 10 feet apart). Species will be selected that can tolerate high variabilities of hydrologic changes due to the existing soils permeability and late winter flooding expected within the buffer mitigation areas.

Soils restoration activities (clearing and grubbing, decompaction, soil amendments) will occur in conjunction with the first year's construction schedule with final restoration and mitigation plantings to occur in the first dormant season after the start of construction work.

PERFORMANCE CRITERIA

The performance standards described below provide benchmarks for measuring achievement of the goals and objectives of the restoration site. Restoration activities are intended to meet these performance standards within a specified time frame. The performance standards are based on function characteristics described in *Method for Assessing Wetland Functions* (Hruby et al. 1999). These function-based performance standards measure structural attributes that provide a reasonable indication of wetland functions. Methods to monitor each performance standard are described in general terms. Monitoring of success standards begins immediately following initial planting with the collection of baseline data and initial (year 1) survival standards.

Woody planting areas will be monitored and managed for 10 years following initial planting to ensure survival and establishment.

Objective 1: Establish approximately 0.27 acres of forested wetland buffer and associated function by promoting the establishment of dense native woody riparian vegetation within the on-site buffer mitigation areas.

Performance Standards	*Monitoring Methods*
1A Success Standard *On-Site Buffer Mitigation Areas will be planted in accordance with the final contract planting plans.*	*As-built plans documenting that the On-Site Buffer Mitigation Areas have been planted according to the final contract planting plan and surveyed acreages and planting area boundaries will be submitted within year 1.*
1B Success Standard *At monitoring year 1, there will be a minimum survival rate of 90% for woody species installed in the On-Site Buffer Mitigation Areas.*	*Conduct plant assessment of contract-installed vegetation (plant counts based on as-built plans) and GPS survey of planting area boundaries.*
1C Success Standard *At monitoring year 3, there will be a minimum density, amount, and/or cover of native vegetation (planted and volunteer native trees and shrubs) in the On-Site Restoration Areas as follows:* *<u>Native Woody Species</u> (planted and volunteer native trees and shrubs)* • *minimum density of 3,500 living native woody stems per acre.*	*Use current monitoring protocols (see Monitoring Plan) to determine density (number of living trees and shrubs per acre) and species diversity On-Site Buffer Mitigation Areas.*

• *at least 5 species of native trees and/or shrubs will be present On-Site Restoration Buffer Mitigation Areas.*	
1D. Success Standard *At monitoring year 5 and 7, minimum cover of native vegetation (planted and volunteer native trees and shrubs in the and On-Site Buffer Mitigation Areas as follows:* *<u>Monitoring Year 5</u>* • *minimum 35% cover of native woody vegetation (planted and volunteer).* • *at least 5 species of native trees and/or shrubs will be present in the On-Site Buffer Mitigation Areas.* *<u>Monitoring Year 7</u>* • *minimum 50% cover of native woody vegetation (planted and volunteer).* • *at least 5 species of native trees and/or shrubs will be present in the Buffer Mitigation Site and On-Site Restoration Areas with a minimum 5% cover for each species.*	*Use current monitoring protocols (see Monitoring Plan) to determine density (number of living trees and shrubs per acre) and species diversity On-Site Buffer Mitigation Site.*
1E. Success Standard *(final year monitoring)* *At monitoring year 10, there will be a minimum density, amount, and/or cover of native vegetation (planted and volunteer native trees and shrubs) in Buffer Mitigation Site and On-Site Restoration Areas as follows:* *<u>Monitoring Year 10</u>* • *minimum 70% cover of native woody vegetation (planted and volunteer trees and shrubs).* • *at least 4 species of native trees and/or shrubs will be present in the native woody*	*Use current monitoring protocols (see Monitoring Plan) to determine density (number of living trees and shrubs per acre) and species diversity On-Site Buffer Mitigation Areas.*

Contingency: If the monitoring reports indicate insufficient establishment and/or plant survival, those areas not meeting current-year standard(s) will be replanted to bring them in compliance with the failing current-year standard(s).

Objective 2: Promote the development of native wetland and riparian buffer plant communities by limiting the growth and spread of noxious and nuisance vegetation.

Performance Standards	*Monitoring Methods*
2A. Performance Standard *Conduct a pre-construction survey of the existing extent of invasive vegetation within the On-Site Buffer Mitigation Areas including Reed Canarygrass, Blackberry Species, Scotch Broom and Japanese Knotweed to establish a baseline for invasive species monitoring and management at years 1, 3, 5, 7, and 10.*	*Provide photographic and map (GPS or notations on plan sheets) documentation of existing stands of Reed Canarygrass, Blackberry Species, Scotch Broom and Japanese Knotweed species.*
2B. Performance Standard *At monitoring years 1, 3, and 5, 7 and 10, Invasive Species will be managed as follows:* *The aerial extent of Reed Canarygrass, Blackberry Species, Scotch Broom, and other invasive nuisance species, and Class A/Class B Designate (WA Dept. of Agriculture and Clark County Weed Board) noxious weeds will not exceed 15% in the planted areas. Other nuisance species that may affect plant development include volunteer willow, cottonwood, lotus, and erosion control grasses encroaching into bark mulch planting areas.* *If/when detected, Class A Noxious Weeds (WA Dept. of Agriculture and Clark County), shall be immediately treated so that the species do not exist on the site. These species shall not be included in the 15% cover allowed for invasive and other nuisance species.*	*Observe and map (notations on plan sheets) locations of Reed Canarygrass, Blackberry Species, Scotch Broom, and Japanese Knotweed as part of annual vegetation surveys using current monitoring techniques. For larger stands, GPS measurements of stand perimeters will be provided to measure the extent of change over time. Observations will form the basis of on-going site management and integrated vegetation management activities.*

Contingency: Implement a long-term integrated vegetation management plan to maintain the aerial extent of invasive species at or below the established thresholds. Weed management activities may be conducted in all monitoring years.

Monitoring

The school district will monitor the On-Site Buffer Mitigation Areas for 10 years after completion of the project. The monitoring objective for the On-Site Buffer Mitigation Areas is to achieve the prescribed standards unless upon consultation with regulatory agencies replacement standards are accepted based on circumstances and conditions observed at the site. A quantitative monitoring plan will be developed and implemented (beginning in the first growing season following project acceptance -1 year following initial installation) that addresses the

standards listed in this plan. The site will be monitored in years 1, 3, 5, 7, and 10 by a third-party representative hired by the La Center school district to evaluate compliance with performance standards. In formal monitoring years, years 1, 3, 5, 7, and 10, reports of the formal monitoring will be prepared and submitted to The City of La Center, Clark County, WDFW, WDOE, and the USACE (Table 4). Additional monitoring will occur in intervening non-report years to inform and guide site development activities, and informal monitoring. Successful mitigation will be measured by attainment of the performance standards described in the mitigation plan.

Objective-based monitoring will be used to document the condition of mitigation areas. Monitoring protocols are selected based on objectives specified in the mitigation plan, and evaluation of current site conditions. Quantitative data collection techniques presently in use are based on standard ecological and biostatistical methods described in Bonham (1989), Elzinga et al. (1998), Krebs (1999), Zar (1999), and other sources. Current monitoring methods include the key concepts of objective-based monitoring, adaptive management, and statistical rigor. Quantitative monitoring methods employed involve sample size analyses and may include the point-line, point-frame, quadrat, and line-intercept methods as defined by the works cited above.

Formal and informal monitoring of the mitigation site will occur over the 10-year monitoring period. Table 3 lists the monitoring schedule for the on-site mitigation areas. Successful mitigation will be measured by attainment of the performance standards described in this mitigation plan document. Monitoring and establishment/contingency activities will cease as soon as all success standards have been attained.

Table 3. Monitoring Schedule

Monitoring Year	*Type of Monitoring*	
	Formal	*Informal*
1	Yes	quarterly site visits
2	No	quarterly site visits
3	Yes	quarterly site visits
4	No	quarterly site visits
5	Yes	quarterly site visits
7	Yes	quarterly site visits
10	Yes	quarterly site visits

Table 4. Monitoring report recipients.

Permitting Agency or Organization	Contact Name and Address
City of La Center Planning Services	305 NW Pacific Highway La Center, WA 98629

Contingency Plan

Mitigation goals will be accomplished with the construction and installation of the mitigation design as shown on the final mitigation/enhancement planting plans. Contingency actions, however, may be needed to correct unforeseen problems. Contingency revisions typically require coordination with the permitting agencies.

As necessary, contingency measures (such as adaptive management options 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

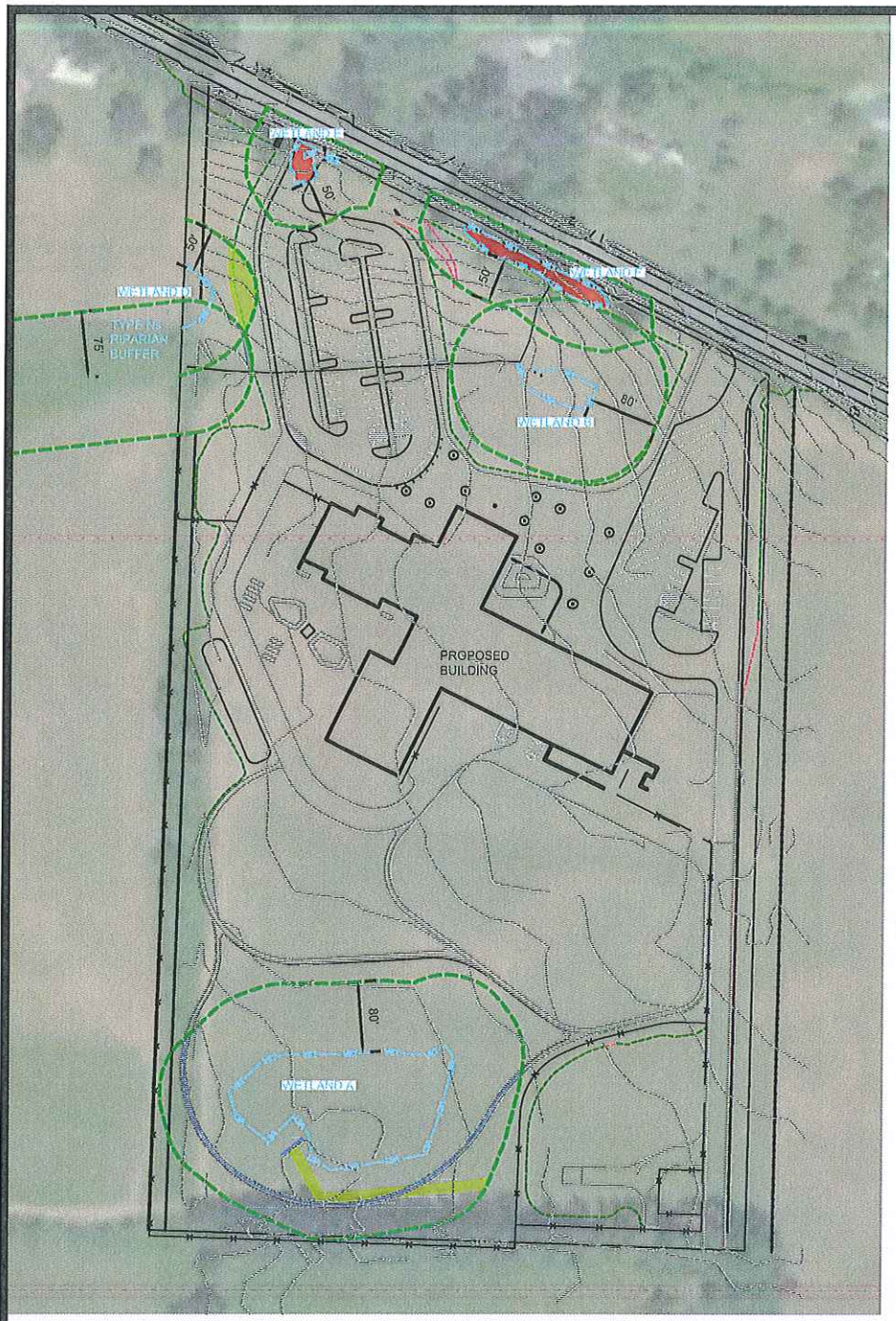
Problems related to vegetation may include plant mortality, and poor growth resulting in low plant cover. These problems could be the result of insufficient site management, particularly watering in the first few growing seasons, animal browse, competition from invasive species, incorrect plant selection,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

- Plant replacement – Additional planting may be required to meet plant survival and plant cover requirements. Plant species will be evaluated in relation to site conditions to determine if plant substitutions will be required.
- Weed control – Control of non-native invasive species may 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.
- Vandalism – To prevent vegetation disturbance from vandalism, fence installation and sensitive area signage may be installed.
- Review and revise performance criteria with permitting agency agreement.

Site Review and Establishment

Site management and establishment activities will include plant replacement, vegetation management (including noxious and nuisance weed control), and may include mulching, fertilizing, supplemental watering, repairing damage from vandals, correcting erosion or sedimentation problems, and litter pickup.

APPENDIX A – CRTICAL AREA IMPACT SUMMARY



WASHINGTON

LEGEND	
Wetland Boundary	
Wetland Buffer	
Existing Contours	
Cut/Fill Limits	
Proposed Pavement	
Proposed Fence	
Overhead Power Line	
Property Line	

IMPACTS LEGEND	
Resource	**Symbol**
Permanent Wetland Impacts	
Temporary Wetland Buffer Impacts	
Temporary Riparian Buffer Impacts	

SCALE: 1" = 200'

0 1,000' 200' 400'

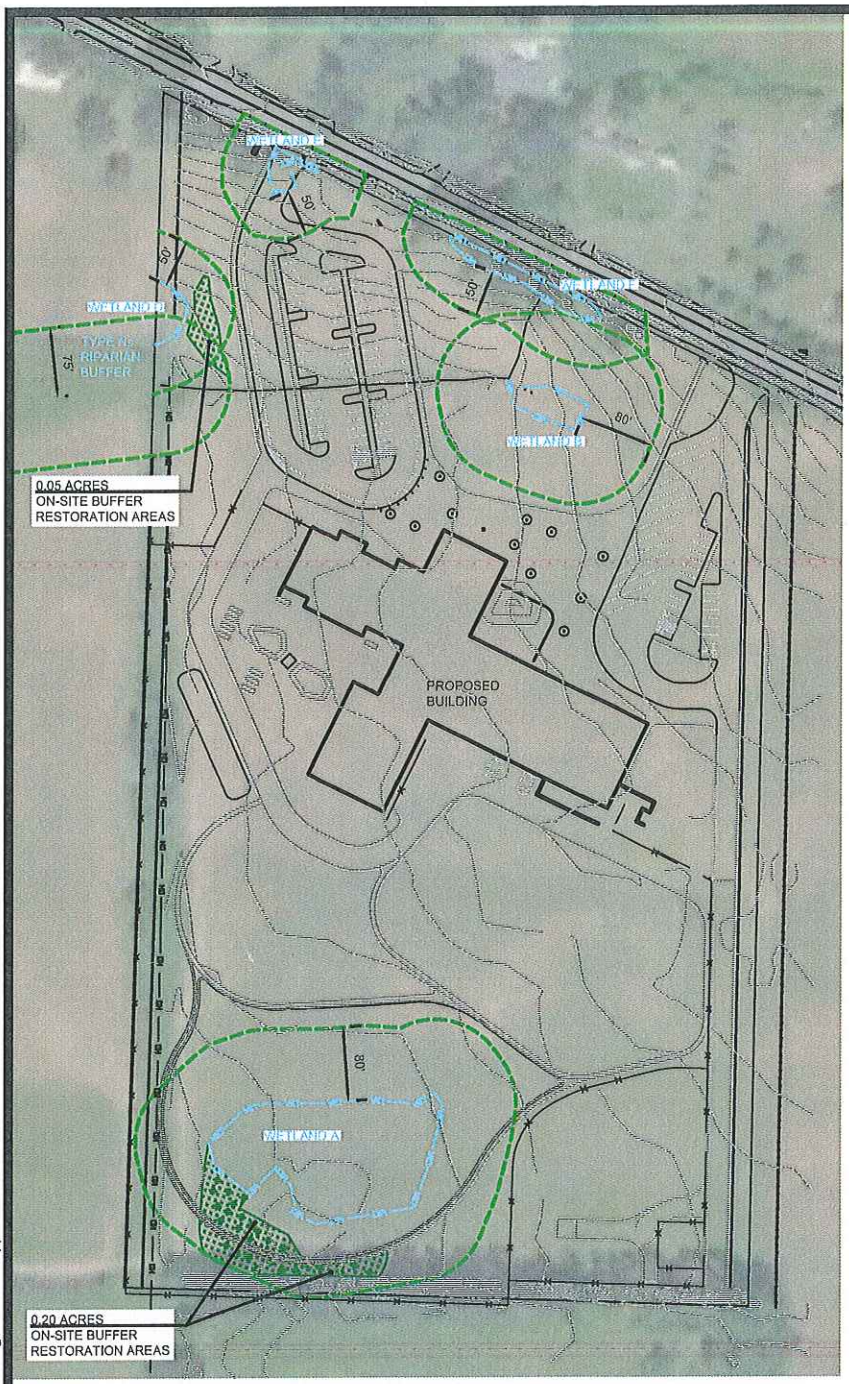
CRITICAL AREA	WETLANDS CLASSIFICATION								IMPACT AREA (SF/ACRE)			
Resource	**Cowardin**	**HGM**	**Water Quality Score**	**Hydrologic Score**	**Habitat Score**	**ECY**	**Size**	**Buffer Width (feet)**	**Wetland Permanent (sf/acre)**	**Wetland Temporary (sf/acre)**	**Buffer Permanent (sf/acre)**	**Buffer Temporary (sf/acre)**
Wetland A	PEM	Depressional	6	5	5	III	0.57	80	N/A	N/A	3,050/0.07	1,470/0.04
Wetland B	PEM	Slope	6	5	5	III	0.05	80	N/A	N/A	N/A	N/A
Wetland D	PEM	Slope	6	3	5	IV	>0.03	50	N/A	N/A	N/A	2017/0.05
Wetland E	PSS	Slope	6	3	4	IV	0.02	50	1048/0.02	N/A	N/A	N/A
Wetland F	PSS	Slope	6	4	4	IV	0.06	50	2647/0.06	N/A	N/A	N/A
Riparian	Type Ns	N/A	N/A	N/A	N/A	N/A	N/A	75	N/A	N/A	N/A	300/0.01

PBS

LA CENTER MIDDLE SCHOOL
CRITICAL AREA IMPACT SUMMARY

Scale: 1"=200'	**Date:** OCT 2018	**Drawing:** 71282_WL_Mitigation
Job #: 71282	**Reference:**	

APPENDIX B – BUFFER MITIGATION/ENHANCEMENT PLAN



WASHINGTON

ON-SITE BUFFER RESTORATION AREA PLANT LIST				
QTY	COMMON NAME	PERCENT OF MIX	SIZE	SPACING
15	*Populus tremuloides* Quaking Aspen	N/A	1 gallon container	10' O.C.
40	*Pseudotsuga menziesii* Douglas Fir	N/A	1 gallon container	10' O.C.
30	*Fraxinus latifolia* Oregon Ash	N/A	18"+ bare root	10' O.C.
25	*Thuja plicata* Western Red Cedar	N/A	1 gallon container	10' O.C.
70	*Acer circinatum* Vine Maple	5%	18"+ bare root	3' O.C.
140	*Cornus stolonifera* Red Osier Dogwood	10%	18"+ bare root	3' O.C.
140	*Corylus cornata* Beaked Hazelnut	10%	18"+ bare root	3' O.C.
70	*Holodiscus discolor* Oceanspray	5%	18"+ bare root	3' O.C.
70	*Mahonia aquifolium* Oregon Grape	5%	1 gallon container	3' O.C.
70	*Oemleria cerasiformis* Indian Plum	5%	18"+ bare root	3' O.C.
140	*Rosa nutkana* Nootka Rose	10%	18"+ bare root	3' O.C.
140	*Rubus spectabilis* Salmonberry	10%	18"+ bare root	3' O.C.
560	*Symphoricarpos albus* Snowberry	40%	18"+ bare root	3' O.C.

SCALE: 1" = 200'

0 1,000' 200' 400'

*** ISOLATED TEMPORARY BUFFER IMPACTS THAT ARE MINIMAL IN SIZE AND PROVIDE LITTLE FUNCTIONAL VALUE WILL BE RESEEDED WITH NATIVE GRASS MIX TO PROVIDE PERMANENT EROSION CONTROL COVER AND NATIVE SPECIES INPUT.

LEGEND	
Wetland Boundary	
Wetland Buffer	VST
Existing Contours	
Cut/Fill Limits	
Proposed Pavement	
Proposed Fence	
Overhead Power Line	
Property Line	

PBS

LA CENTER MIDDLE SCHOOL
BUFFER MITIGATION/ENHANCEMENT PLAN

Scale: N/A	**Date:** OCT 2018	**Drawing:** 71282_WL_Mitigation
Job #: 71282	**Reference:**	

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