EAGLEMONT PHASE III-C

LAND CLEARING PERMIT
CITY OF MOUNT VERNON, WASHINGTON

A PORTION OF THE SE QUARTER OF SECTION 27, TOWNSHIP 34 NORTH, RANGE 4 EAST, W.M.

RECEIVED
CITY OF MOUNT VERNON
MAR 15 2018
C.E.D. DEPARTMENT
BY _____
18-054

SITE BENCHMARK
FOUND CONCRETE MONUMENT WITH BRASS CAP BURIED 1.3' BELOW THE SURFACE AT THE NORTHWEST CORNER OF SECTION 27 PER BOOK 496, PAGE 35 OF SKAGIT COUNTY RECORDS.

BASIS OF BEARINGS
ASSUMED NORTH 0° 16' 48" EAST BETWEEN THE WEST QUARTER CORNER AND THE NORTHWEST CORNER OF SECTION 27.

HORIZONTAL DATUM
WASHINGTON STATE COORDINATE SYSTEM
NORTH ZONE
NAD 83-91

VERTICAL DATUM
NGVD29

LEGAL DESCRIPTION
PARCEL#: P133779

THAT PORTION OF LOT 67 OF THE PLAT OF EAGLEMONT, PHASE 1A, RECORDED UNDER AF#9401250031, RECORDS OF SKAGIT COUNTY, WASHINGTON, DESCRIBED AS FOLLOWS:

COMMENCING AT A COMMON ANGLE POINT IN THE BOUNDARY OF LOT 67 AND 68 AND ON THE SOUTHERLY MARGIN OF EAGLEMONT DRIVE AND THAT 60 FOOT ACCESS AND UTILITY EASEMENT THE LOCATION OF WHICH IS AS SHOWN ON SHEET 16 OF 17 OF SAID PLAT OF EAGLEMONT PHASE 1A;

THENCE NORTH 80-58-56 WEST, ALONG SAID SOUTHERLY MARGIN OF EAGLEMONT DRIVE AND THAT 60 FOOT ACCESS AND UTILITY EASEMENT, 97.86 FEET;
THENCE CONTINUING ALONG SAID MARGIN THE FOLLOWING COURSES;
THENCE ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 355.00 FEET THROUGH A CENTRAL ANGLE OF 38-25-56 AN ARC DISTANCE OF 238.12 FEET;
THENCE ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 480.00 FEET THROUGH A CENTRAL ANGLE OF 19-00-54 AN ARC DISTANCE OF 159.30 FEET TO THE TRUE POINT OF BEGINNING;
THENCE LEAVING SAID RIGHT OF WAY SOUTH 68-12-27 WEST 117.70 FEET;
THENCE ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 270.00 FEET THROUGH A CENTRAL ANGLE OF 70-40-35 AN ARC DISTANCE OF 333.05 FEET;
THENCE NORTH 41-06-58 WEST 21.42 FEET;
THENCE SOUTH 48-53-02 WEST 124.65 FEET;
THENCE NORTH 41-06-58 WEST 92.08 FEET;
THENCE NORTH 27-35-43 WEST 138.85 FEET;
THENCE NORTH 38-50-22 WEST 167.30 FEET;
THENCE NORTH 26-03-22 WEST 274.17 FEET;
THENCE NORTH 63-36-01 EAST 133.35 FEET;
THENCE SOUTH 30-07-51 EAST 143.79 FEET;
THENCE SOUTHEASTERLY ALONG A NON-TANGENT CURVE CONCAVE TO THE SOUTHWEST WHOSE RADIUS POINT BEARS SOUTH 20-16-50 EAST A DISTANCE OF 50.00 FEET THROUGH A CENTRAL ANGLE OF 105-31-08 AN ARC DISTANCE OF 92.08 FEET;
THENCE SOUTH 68-28-33 EAST 106.45 FEET;
THENCE SOUTH 41-06-58 EAST 225.00 FEET;
THENCE SOUTH 24-04-59 EAST 86.44 FEET;
THENCE SOUTH 45-06-08 WEST 83.54 FEET;
THENCE SOUTH 41-06-58 EAST 21.42 FEET;
THENCE ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 220.00 FEET THROUGH A CENTRAL ANGLE OF 70-40-35 AN ARC DISTANCE OF 271.38 FEET; THENCE NORTH 68-12-27 EAST 118.78 FEET TO THE SOUTHWESTERLY MARGIN OF SAID EAGLEMONT DRIVE;
THENCE SOUTHEASTERLY ALONG A NON-TANGENT CURVE CONCAVE TO THE NORTHEAST WHOSE RADIUS POINT BEARS NORTH 72-26-15 EAST A DISTANCE OF 480.00 FEET THROUGH A CENTRAL ANGLE OF 5-58-21 AND HAVING AN ARC DISTANCE OF 50.03 FEET TO THE TRUE POINT OF BEGINNING.

DRAWING INDEX

SHEET CL-1	COVER SHEET
SHEET CL-2	EXISTING CONDITIONS
SHEET CL-3	CLEARING PLANS
SHEET CL-4	CLEARING DETAILS

PROJECT NARRATIVE

PROJECT OVERVIEW

POLYIELD SUMMIT, LLC IS PROPOSING TO CLEAR THE SUBJECT PARCEL IN PREPARATION FOR THE FUTURE CONSTRUCTION OF 20 SINGLE-FAMILY (SENIOR RESTRICTED) DWELLING UNITS, A PUBLIC ACCESS ROAD AND INSTALLATION OF THE ASSOCIATED UTILITIES REQUIRED FOR RESIDENTIAL DEVELOPMENT. THE PROJECT SITE ENCOMPASSES 3.72 ACRES.

LAND USE PERMITS

THIS SPECIFIC APPLICATION IS IN PURSUIT OF A LAND CLEARING PERMIT FOR THE EAGLEMONT PHASE III-C DEVELOPMENT.

ZONING

THE COMPREHENSIVE PLAN DESIGNATION FOR THE PROPERTY IS SINGLE-FAMILY MEDIUM DENSITY (SF-MED).

CURRENT USE AND EXISTING CONDITIONS

CURRENTLY, THE PROJECT SITE FOR PHASE III-C IS MOSTLY UNDEVELOPED. A GOLF COURSE EXISTS SURROUNDING THE PROPOSED DEVELOPMENT. PAVED ACCESS EXTENDING 250-FEET WEST FROM EAGLEMONT DRIVE EXISTS ON SITE AS IT WAS PREVIOUSLY CONSTRUCTED AS PART OF THE EAGLEMONT GOLF COURSE PARKING LOT JUST SOUTH OF THE PROJECT SITE. THE EXISTING GOLF COURSE SURROUNDS THE PROPOSED DEVELOPMENT.

THIS SITE CONTAINS NO WETLANDS, WATER BODIES OR OTHER CRITICAL AREAS. SOILS ON SITE ARE COMPRISED OF DYSTRIC XEROCHREPTS-ROCK OUTCROP COMPLEX AND TOKUL GRAVELLY MEDIAL LOAM ACCORDING TO THE NRCS SOILS MAPS. A CREST IS LOCATED ALONG THE CENTER OF THE PARCEL AND STORMWATER GENERATED ON SITE CURRENTLY SHEET FLOWS TOWARD THE SURROUNDING GOLF COURSE AND NATIVE AREAS FROM ALL SIDES OF THE PROPERTY.

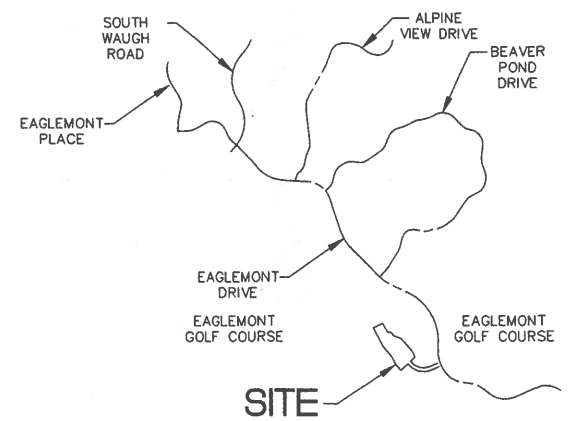
SITE ACCESS

ACCESS TO THE SITE WILL BE PROVIDED VIA PUBLIC ACCESS ROAD CONNECTING TO EAGLEMONT DRIVE SOUTHEAST OF THE FUTURE DEVELOPMENT. A PORTION OF THE ACCESS ROAD EXTENDING 250-FEET WEST FROM EAGLEMONT DRIVE HAS ALREADY BEEN CONSTRUCTED. THE RIGHT-OF-WAY SHALL ENCOMPASS 45,973 SQUARE FEET OF THE SUBJECT PARCEL. THE ACCESS ROAD WILL HAVE A 50-FT RIGHT-OF-WAY UNTIL REACHING THE PROPOSED LOTS WHERE THE RIGHT-OF-WAY WILL BE REDUCED TO 40-FT. THE ACCESS ROAD IS APPROXIMATELY 900-FT LONG AND WILL END IN A CUL-DE-SAC WITH 50-FT RADIUS.

PROPOSED CLEARING ACTIVITY

POLYIELD SUMMIT, LLC IS PROPOSING TO CLEAR ALL TREES WITHIN THE LIMITS DEPICTED ON THE CLEARING SITE PLAN INCLUDED WITH THIS SUBMITTAL. NO GRADING ACTIVITIES ARE PROPOSED AT THIS TIME HOWEVER, SILT FENCING WILL BE INSTALLED AROUND THE PERIMETER OF THE AREA TO BE CLEARED. UPON COMPLETION OF CLEARING, THE SITE SHALL BE MULCHED AND SEEDED TO ENSURE PROTECTION AGAINST EROSION.

CLEARING ACTIVITIES ARE PROPOSED TO TAKE PLACE DURING THE DRY SEASON OF THIS YEAR. SITE MOBILIZATION AND CLEARING WILL BEGIN AFTER MAY 1ST, 2018. CLEARING AND SITE STABILIZATION WILL REACH COMPLETION BY SEPTEMBER 30TH, 2018.



VICINITY MAP
NOT TO SCALE

SITE INFORMATION
PHYSICAL ADDRESS:
4800 EAGLEMONT DRIVE
MOUNT VERNON, WA 98273

PARCEL AREA: 3.72 AC. 162,043 SQ.FT
CLEARING AREA: 3.07 AC. 133,584 SQ.FT

PARCEL NUMBER
P133779

ZONING
SINGLE FAMILY MEDIUM DENSITY (SF-MED)

ACREAGE
3.72 AC

FLOOD ZONE
ZONE C

CONTACT INFO

OWNER
POLYIELD SUMMIT, LLC
4800 EAGLEMONT DRIVE
MOUNT VERNON, WA 98274
CONTACT: ED YOUNG
EMAIL: EDPOLYIELDSUMMITLLC@GMAIL.COM

PROJECT ENGINEER
DAVID EVANS & ASSOCIATES, INC
1620 W. MARINE VIEW DRIVE
SUITE 200
EVERETT, WA 98201
CONTACT: JOHN SMITH, PE
PHONE: 425-405-1509
EMAIL: JNS@DEAINC.COM

CITY OF MOUNT VERNON
CITY OF MOUNT VERNON DEVELOPMENT SERVICES
ENGINEERING DIVISION
910 CLEVELAND AVENUE
MOUNT VERNON, WA 98273
CONTACT: ALAN DANFORTH
PHONE: 360-336-6214
EMAIL: ALAND@MOUNTVERNONWA.GOV

City of MOUNT VERNON

LAND CLEARING APPROVAL
MOUNT VERNON MUNICIPAL CODE (MVMC)
CHAPTER 15.18

This plan sheet is approved for land clearing activities in accordance with MVMC Chapter 15.18 only.

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Compliance with all applicable laws is the responsibility of the professional whose name appears on this sheet, the landowner, and the developer completing this work. The City is not responsible for and does not authorize work that is required to comply with other portions of the MVMC, Federal, State, County or other local laws, permits or mandates.

This approval will expire two consecutive years from the date noted on the permit that is received for this work.

Land Use No.: _____ Approved By: _____

Forest Tax Reporting Acct. No.: _____ _____

Date Signed: _____ _____

DAVID EVANS AND ASSOCIATES INC.
1620 W. Marine View Dr. Suite 200
Everett Washington 98201
Phone: 425.259.4099

LAND CLEARING PERMIT - COVER SHEET

POLYIELD SUMMIT, LLC
EAGLEMONT-PHASE III-C
CITY OF MOUNT VERNON WASHINGTON

NO.	DATE	REVISION	BY	CK

REVIEWED BY: DATE: DESIGNED: CADD:

3/13/2018
JOHN N. SMITH
STATE OF WASHINGTON
37234
REGISTERED PROFESSIONAL ENGINEER

STAMP NOT VALID UNLESS SIGNED AND DATED

FIRST SUBMITTAL DATE:
SCALE: HORZ.:1"=50' VERT.:

PROJECT NO.
SEA V0000-0016

SHEET NO.
CL-1
OF 4

Plot Date: 3/9/2018 2:01 PM By: Dominic Zaccardi
Save Date: 3/9/2018 1:54 PM By: DRZ File: P:\SIS\SEA\V0000\0016\0400CAD\ECI\PREL-PLAT\SHEETS\ECI-LCP-001-SEAV0016_2-22-2018.dwg

NORTH

0 25 50 100

SCALE: 1" = 50

City of MOUNT VERNON

LAND CLEARING APPROVAL
MOUNT VERNON MUNICIPAL CODE (MVMC)
CHAPTER 15.18

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This approval will expire two consecutive years from the date noted on the permit that is received for this work.

Land Use No.: Approved By:

Forest Tax Reporting Acct. No.:

Date Signed:

DAVID EVANS AND ASSOCIATES INC.
1620 W. Marine View Dr. Suite 200
Everett Washington 98201
Phone: 425.259.4099

LAND CLEARING PERMIT - EXISTING CONDITIONS

POLYFIELD SUMMIT, LLC

EAGLEMONT-PHASE III-C

CITY OF MOUNT VERNON WASHINGTON

NO.	DATE	REVISION	DESIGNED:	DRAWN BY:	CHK:

3/13/2018
JOHN N. SALTER
STATE OF WASHINGTON
37234
REGISTERED PROFESSIONAL ENGINEER

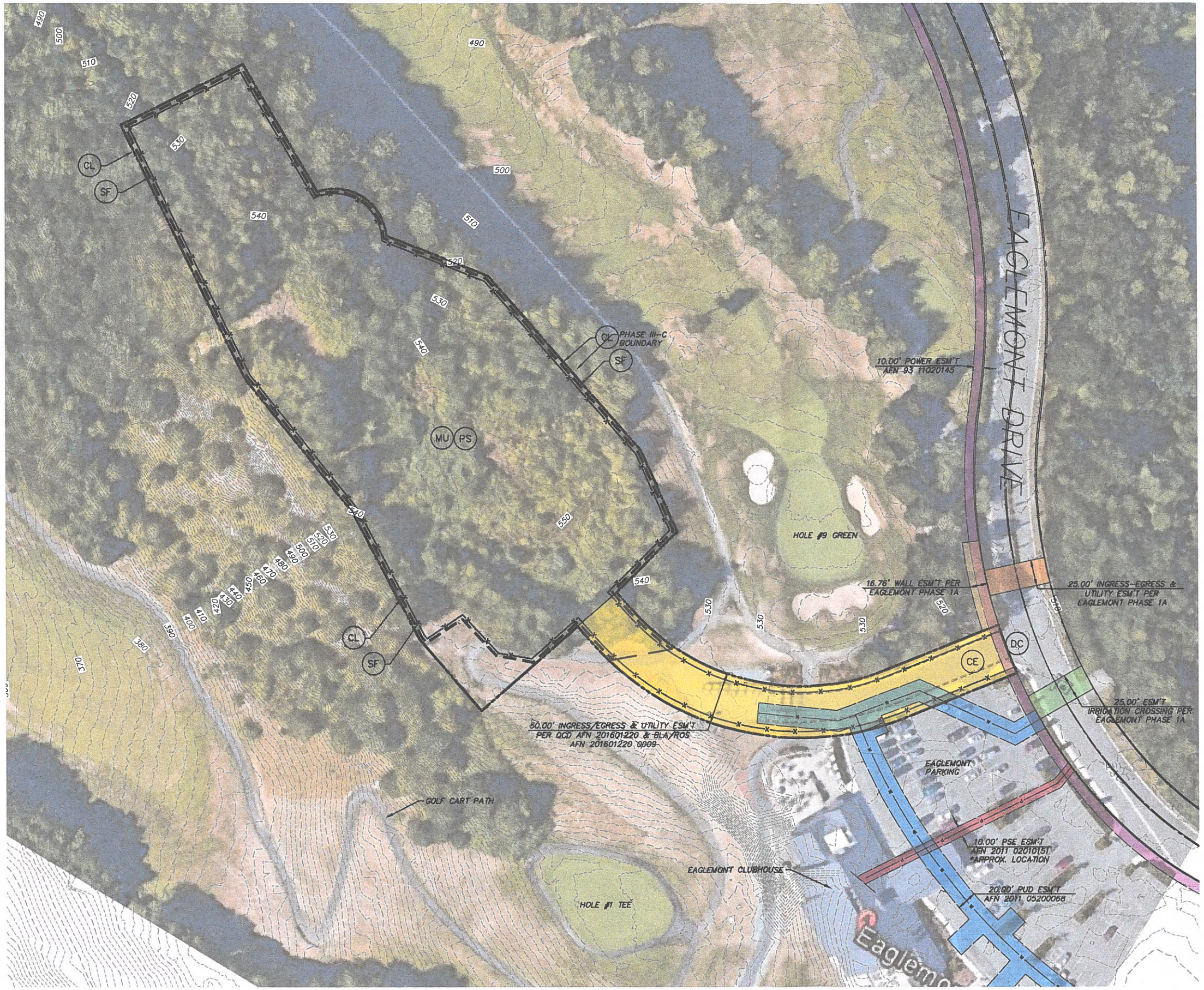
STAMP NOT VALID UNLESS SIGNED AND DATED

FIRST SUBMITTAL DATE:
SCALE: HORZ.: 1"=50' VERT.:

PROJECT NO.
SEAV0000-0016

SHEET NO.
CL-2
OF 4

Plot Date: 3/6/2018 2:00 PM By: Dominic Zaccardi
Save Date: 3/6/2018 1:54 PM By: DRZ File: P:\SDSEAV0000\0016\400\CAD\CV\PREL-PLATS\SHEETS\EC-LCP-001-SEAV0016_2-22-2018.dwg



NORTH

0 25 50 100

SCALE: 1" = 50

SITE CLEARING

AREA TO BE CLEARED = 133,854 SF (3.07 ACRES)

10 MARKETABLE TREES= 4,521 B.F.

STANDARD PRACTICE CODING SYSTEM

CONTRACTOR TO INSTALL AND MAINTAIN ALL EROSION CONTROL BMP'S AS SHOWN ON THIS PLAN IN ACCORDANCE WITH DEPARTMENT OF ECOLOGY STORMWATER POLLUTION PREVENTION REQUIREMENTS SUMMARIZED ON SHEET C4. IF BMP INSTALLATION AND MAINTENANCE IS INADEQUATE TO MEET THESE REQUIREMENTS CONTRACTOR TO PROVIDE ADDITIONAL BMP'S AT NO ADDITIONAL COST TO OWNER.

CODE	BMPs
CE	STABILIZED CONSTRUCTION ENTRANCE/EXIT (D.O.E. BMP C105)
CL	CLEARING LIMITS & HIGH VISIBILITY FENCE (D.O.E. BMP C103)
DC	DUST CONTROL (D.O.E. BMP C140)
MU	MULCH (D.O.E. BMP C121)
PS	TEMPORARY & PERMANENT SEEDING (D.O.E. BMP C120)
SF	TEMPORARY SILT FENCE (D.O.E. BMP C233)
VEG	PRESERVING NATURAL VEGETATION (D.O.E. BMP C101)

City of MOUNT VERNON

LAND CLEARING APPROVAL
MOUNT VERNON MUNICIPAL CODE (MVMC)
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Land Use No.: Approved By:

Forest Tax Reporting Acct. No.:

Date Signed:

DAVID EVANS AND ASSOCIATES INC.
1620 W. Marine View Dr. Suite 200
Everett Washington 98201
Phone: 425.259.4099

LAND CLEARING PERMIT - CLEARING LIMITS

POLYFIELD SUMMIT, LLC

EAGLEMONT-PHASE III-C

CITY OF MOUNT VERNON WASHINGTON

REVISED BY:		DATE:	BY	CK
NO.	DATE	REVISION		

DESIGNED: CADD:

3/13/2018
JOHN N. SMITH
STATE OF WASHINGTON
37234
REGISTERED PROFESSIONAL ENGINEER

STAMP NOT VALID UNLESS SIGNED AND DATED

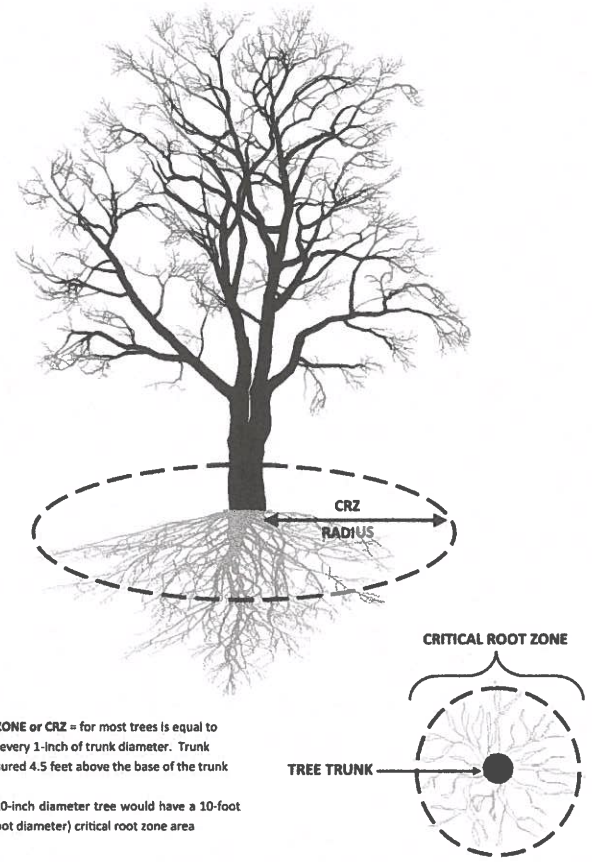
FIRST SUBMITTAL DATE:

SCALE: HORZ.: 1"=50' VERT.:

PROJECT NO. SEAV0000-0016

SHEET NO. CL-3 OF 4

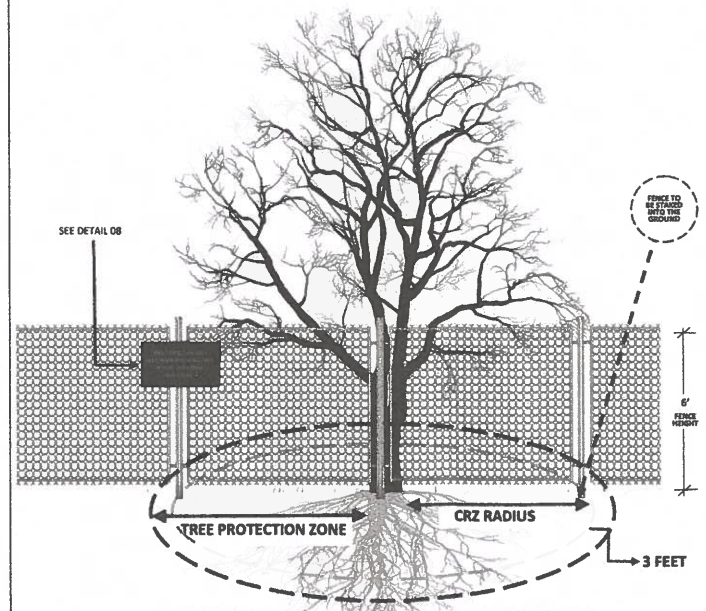
Plot Date: 3/9/2018 1:59 PM By: Dominic Zaccardi
Save Date: 3/9/2018 1:54 PM By: DRZ File: P:\SSEAV0000016\040\CAD\EC\PREL-PLAT\SHEETS\EC-LCP-001-SEAV0016_2-22-2018.dwg



CRITICAL ROOT ZONE or CRZ = for most trees is equal to 1-foot radius for every 1-inch of trunk diameter. Trunk diameter is measured 4.5 feet above the base of the trunk

For example, a 10-inch diameter tree would have a 10-foot radius (or a 20-foot diameter) critical root zone area

City of MOUNT VERNON	LAND CLEARING PERMIT CRITICAL ROOT ZONE	DETAIL NO.	06
		SCALE	NA
		REVISION DATE	03/2017



TREE PROTECTION ZONE = CRITICAL ROOT ZONE PLUS 3 FEET

1. MINIMUM SIX (6) FOOT HIGH TEMPORARY CHAIN LINK FENCE SHALL BE PLACED AT THE OUTER EDGE OF THE DESIGNATED TREE PROTECTION ZONE (SHOWN ABOVE). THE CHAIN LINK FENCE SHALL BE STAKED INTO THE GROUND. AVOID PLACING POSTS OR STAKES INTO MAJOR ROOTS.
2. NO NAILS, ROPE, CABLE, SIGNS, OR FENCING SHALL BE ATTACHED TO ANY TREE WITHIN THE TREE PROTECTION ZONE.
3. ALL OF THE FOLLOWING ITEMS, MATERIALS, AND ACTIVITIES ARE PROHIBITED WITHIN THE TREE PROTECTION ZONE (LOCATED ON THE TREE SIDE OF THE FENCE): VEHICLES, CONSTRUCTION MATERIALS, ANY TYPE OF IMPERVIOUS SURFACE, FUEL, CLEARING, GRADING, FILLING, AND LAND DISTURBING. ADDITIONALLY, THE GRADE WITHIN THE TREE PROTECTION AREA SHALL NOT BE ALTERED.
4. SIGNAGE ON THE CHAINLINK FENCE SHALL BE PLACED EVERY 50 FEET ALONG THE FENCE.
5. THE CHAINLINK FENCE SHALL REMAIN IN PLACE UNTIL THE CITY SPECIFICALLY AUTHORIZES ITS REMOVAL.

City of MOUNT VERNON	LAND CLEARING PERMIT TREE PROTECTION ZONE FENCING	DETAIL NO.	07
		SCALE	NA
		REVISION DATE	06/2017

TREE PROTECTION AREA
NO CONSTRUCTION ALLOWED
REPORT VIOLATIONS:
(360) 336-6214

1. EXAMPLE SIGN WORDING SHOWN HEREON. CITY WILL PROVIDE WORDING TO BE PLACED ON SIGNS THROUGH THE PERMIT APPROVAL PROCESS. MONETARY FINES BASED ON THE APPRAISED DOLLAR VALUE OF THE RETAINED TREES MAY ALSO BE REQUIRED TO BE PLACED ON THESE SIGNS.
2. APPLICANT IS RESPONSIBLE FOR ORDERING AND INSTALLING ALL SIGNAGE.
3. SIGN SIZE SHALL BE A MINIMUM OF 18-INCHES BY 24-INCHES BUT COULD BE REQUIRED TO BE LARGER DEPENDING ON SITE SPECIFIC CIRCUMSTANCES.

City of MOUNT VERNON	LAND CLEARING PERMIT TREE PROTECTION ZONE SIGNAGE	DETAIL NO.	08
		SCALE	NA
		REVISION DATE	06/2017

LAND CLEARING PERMIT STANDARD NOTES

1. ALL CLEARING AND TREE REMOVAL ACTIVITIES SHALL CONFORM TO APPLICABLE REGULATIONS OF THE MOUNT VERNON MUNICIPAL CODE.
2. ALL CLEARING ACTIVITIES SHALL BE CONDUCTED SO AS TO MINIMIZE IMPACTS TO FORESTED AREAS, SURFACE WATERS, CRITICAL AREAS, GROUNDWATER RECHARGE, ADJACENT PROPERTIES, AND NATURAL FEATURES.
3. ALL DEBRIS STORAGE AND HANDLING RESULTING FROM CLEARING SHALL OCCUR WITHIN THE RIGHT-OF-WAY SO AS TO AVOID DAMAGE TO THE ADJACENT LAND. NO DEBRIS SHALL BE STORED FOR MORE THAN ONE YEAR FROM THE TIME OF COMPLETION OF THE CLEARING ACTIVITY.
4. SLASH FROM CLEARING SHALL BE CHIPPED AND USED IN NATIVE VEGETATION AREAS ON THE SITE WITHIN ONE YEAR OF THE CLEARING ACTIVITY.
5. PRIOR TO INITIATING ANY CLEARING ACTIVITIES ON THE SITE, TREES TO BE PROTECTED AND PRESERVED SHALL BE PROTECTED FROM POTENTIALLY DAMAGING ACTIVITIES AS FOLLOWS UNLESS OTHERWISE SPECIFICALLY APPROVED, IN WRITING, BY THE CITY OF MOUNT VERNON:
   a. TREE PROTECTION ZONE SHOWN IN DETAIL NOS. 6 AND 7 SHALL BE IDENTIFIED AND STAKED. THE APPLICANT SHALL CALL THE CITY TO INSPECT THE TREE PROTECTION ZONE AREA.
   b. PRIOR TO THE START OF ANY CLEARING ACTIVITIES, THREE INCHES OF COMPOSTED WOOD CHIPS SHALL BE PLACED OVER THE CRITICAL ROOT ZONE OF THE TREES TO BE RETAINED. THE PURPOSE OF THIS IS TO RETAIN MOISTURE, INCREASE ORGANIC MATTER, AND VISUALLY ESTABLISH THE CRITICAL ROOT ZONE.
   c. A PROTECTIVE FENCE AS SHOWN IN DETAIL NO. 07 SHALL BE PLACED AROUND THE TREE PROTECTION AREAS. THE APPLICANT SHALL CALL FOR AN INSPECTION OF THE FENCE ONCE IT IS INSTALLED.
6. UTILITY TRENCHES SHALL BE LOCATED OUTSIDE OF THE TREE PROTECTION AREA. BORING OR TUNNELING UNDER THE CRITICAL ROOT ZONE MAY BE CONSIDERED AN ALTERNATIVE BUT SHALL REQUIRE ADVANCED WRITTEN APPROVAL FROM THE CITY.
7. SILT FENCES INSTALLED WITHIN THE CRITICAL ROOT ZONE OF A TREE TO BE RETAINED SHALL BE FOLDED OVER AND PLACED FLAT ON THE GROUND VERSUS BURIED IN A TRENCH. THE FLAT PORTION OF THE SILT FENCE SHALL BE COVERED WITH GRAVEL OR SOIL OR ANCHORAGE.
8. PROJECTS SHALL BE PHASED TO THE MAXIMUM DEGREE PRACTICAL TO ACCOUNT FOR SEASONAL LIMITATIONS, TO REDUCE AREAS OF EXPOSED SOILS, AND TO AID IN THE STABILIZATION OF DISTURBED AREAS.
9. DUST FROM CLEARING ACTIVITIES SHALL BE MINIMIZED AT ALL TIMES. IMPERVIOUS SURFACES ON OR NEAR THE CONSTRUCTION AREA SHALL BE SWEPT, VACUUMED, OR OTHERWISE MAINTAINED TO SUPPRESS DUST ENTRAINMENT. ANY DUST SUPPRESSANTS USED SHALL BE APPROVED BY THE DIRECTOR OR DESIGNEE. PETROCHEMICAL DUST SUPPRESSANTS ARE PROHIBITED. WATERING THE SITE TO SUPPRESS DUST IS ALSO PROHIBITED UNLESS IT CAN BE DONE IN A WAY THAT KEEPS SEDIMENT OUT OF DRAINAGE SYSTEM(S).
10. NATIVE SOIL (DUFF AND TOPSOIL) SHALL BE STOCKPILED AND REAPPLIED TO CLEARED AREAS.
11. NO LAND CLEARING SHALL BE CONDUCTED IN A CRITICAL AREA OR ASSOCIATED BUFFER.
12. AERIAL APPLICATION OF CHEMICALS IS PROHIBITED WITHIN THE CITY OF MOUNT VERNON.
13. ALL CLEARING ACTIVITIES SHALL BE CONDUCTED IN A MANNER SO AS TO MINIMIZE POTENTIAL FOR ADVERSE EFFECTS ON ADJACENT PROPERTIES.

City of MOUNT VERNON

LAND CLEARING APPROVAL
MOUNT VERNON MUNICIPAL CODE (MVMC)
CHAPTER 15.18

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Land Use No.: Approved By:

Forest Tax Reporting Acct. No.:

Date Signed:

DAVID EVANS AND ASSOCIATES INC.
1620 W. Marine View Dr. Suite 200
Everett Washington 98201
Phone: 425.259.4099

LAND CLEARING PERMIT - CLEARING DETAILS

POLYFIELD SUMMIT, LLC
EAGLEMONT-PHASE III-C
CITY OF MOUNT VERNON WASHINGTON

NO.	DATE	REVISION	BY	CK

REVIEWED BY: DATE: CADD:
DESIGNED:

3/13/2018
JOHN N. SMITH
STATE OF WASHINGTON
37234
REGISTERED PROFESSIONAL ENGINEER

STAMP NOT VALID UNLESS SIGNED AND DATED

FIRST SUBMITTAL DATE:
SCALE: HORIZ.: 1"=50' VERT.:

PROJECT NO.
SEAV0000-0016

SHEET NO.
CL-4
OF 4

Plot Date: 3/9/2018 2:00 PM By: Dominic Zoccardi
Save Date: 3/9/2018 2:54 PM By: DRZ File: P:\SI\SEAV0000\0016\0400CAD\EC\PREL-PLAT\SHEETS\EC-LCP-001-SEAV0016_2-22-2018.dwg

STORMWATER SITE PLAN
EAGLEMONT-PHASE III-C LAND CLEARING
MOUNT VERNON, WA

Prepared for:
Polyield Summit, LLC
4800 Eaglemont Drive,
Mount Vernon, WA 98274
Contact: Ed Young

3/13/2018

Prepared by:
David Evans & Associates, Inc.
1620 W Marine View Drive, Suite 200
Everett, WA 98201
425-405-1509

SEAV0000-0016

Prepared:
March, 2018

Revised:

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Figure 4: Downstream Flow Path 7

1.0 Site Information

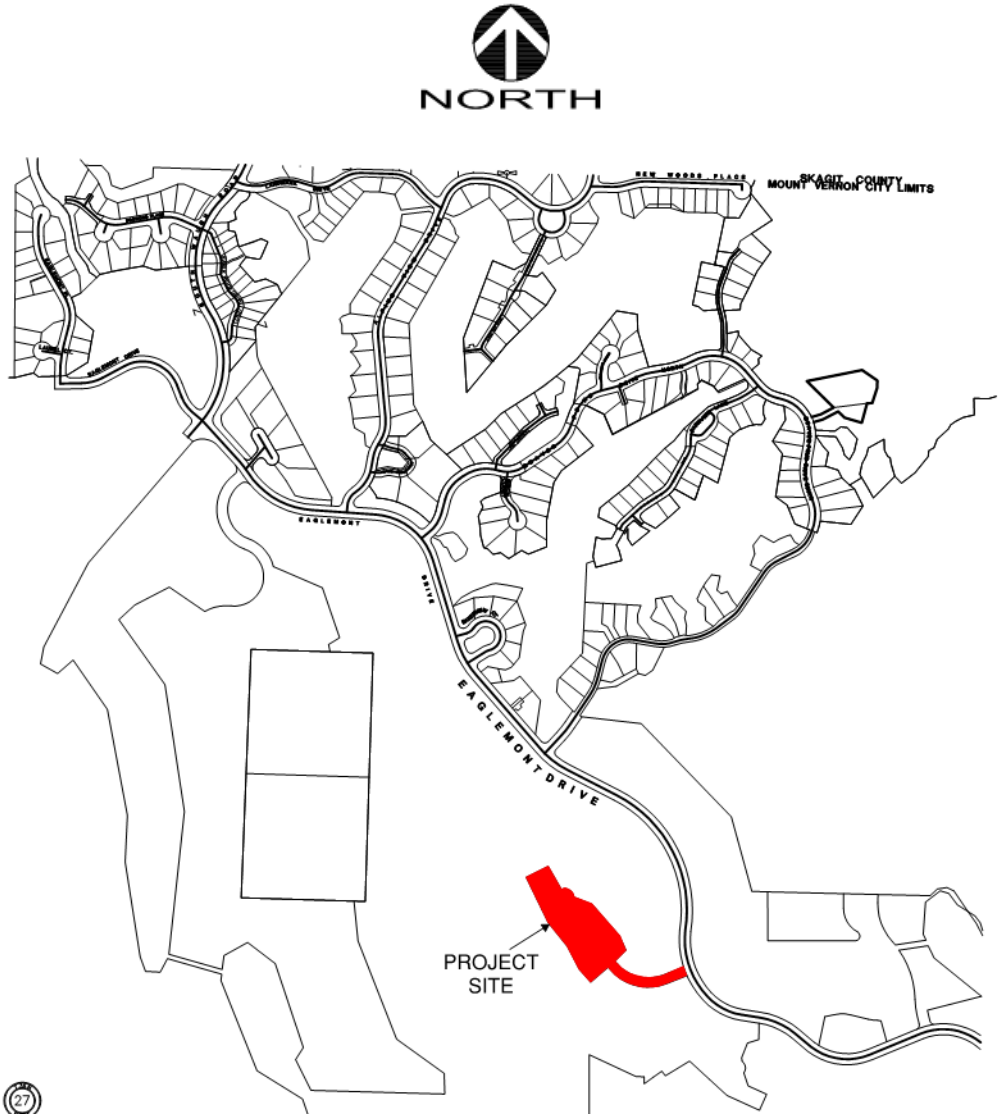


Figure 1: Vicinity Map - Not To Scale

1.1 - Executive Summary

Polyield Summit, LLC is proposing to clear 3.07 acres of a 3.72 acre parcel located at approximately 4800 Eaglemont Derive in Mount Vernon, WA 98273, tax parcel number P133779. The parcel is bordered on all sides by Eaglemont Golf Course which is owned and operated by Eaglemont Operating Partners USA, LLC. To the south is the Eaglemont Clubhouse and parking lot. To the east is Eaglemont Drive which runs relatively north south. The project site is accessible via public drive existing from the previously constructed clubhouse parking lot.

Project location is in southeast Mount Vernon, WA approximately 1.7 to the northwest of Big Lake. As stated before the parcel is surrounded by golf course property, but beyond the golf course property to the south, east, and west are wooded areas, with intermittent single family developments to the north toward Mount Vernon.

This project proposes the clearing of all trees and vegetation within the limits depicted on the clearing site plans. No grading activities are proposed at this time however, silt fencing will be installed around the perimeter of the area to be cleared in order to prevent any sediment from leaving the site. Upon completion of clearing, the site shall be mulched and seeded to ensure protection against erosion.

Existing stormwater runoff on site currently sheet flows away from the center of the site in all directions. Where pavement currently exists at the access point to/from Eaglemont Drive, stormwater runoff sheet flows along the gutter and into the existing storm conveyance system that was constructed with the Eaglemont Golf Course Clubhouse. Storm drainage from portions of the site not tributary to the existing conveyance system sheet flow through native vegetation before reaching the golf course.

1.2 – Minimum Requirements

This report provides stormwater requirements and design calculations for the proposed improvements. The project will result in more than 7,000 square feet of disturbing land activity and will convert more than 2.5 acres of native vegetation to pasture; Therefore, in accordance with Figure 2.4.2 in Volume I of the 2012 SMMWW, all Minimum Requirements will apply to the converted pervious surfaces.

Minimum Requirement #1: Preparation of Stormwater Site Plans

A Stormwater Site Plan has been prepared for the project. Full size clearing plans have been included with this submittal and a reduced size copy is included in within the appendix of this report. The USDA Soil Conservation Service has classified the soils as Dystric Xerochrepts-Rock outcrop complex slopes and Tokul gravelly medial loam. Per table 2.3.1 of volume III in the DOE manual, both soils are considered to be within Hydrologic Soil Group B.

This report and accompanying plans constitute the Stormwater Site Plan.

Minimum Requirement #2: Stormwater Pollution Prevention Plan

A SWPPP has been prepared for this project. Erosion control best management practices (BMPs) which fulfill the minimum erosion control requirements outlined by the Department of Ecology will be installed and maintained during the clearing. The thirteen elements of the SWPPP are summarized in Section 6 of this report.

Minimum Requirement #3: Source Control of Pollution

All applicable source control BMPs have been considered for use on the project site. All applicable maintenance BMPs will be included in ongoing use of the site.

Minimum Requirement #4: Preservation of Natural Drainage Systems and Outfalls

Existing drainage patterns on-site include sheet flow in all directions as a high point is located near the center of the project site. Existing drainage flowing easterly toward the paved access road is tributary to the existing stormwater conveyance system of the Eaglemont Clubhouse and parking lot. Storm drainage from all other areas sheet flow away from the property through natively vegetated areas and are dispersed toward the surrounding golf course. Drainage within this Basin is tributary to the Skagit River. Stormwater runoff after the site clearing has been completed will assume the same pre-developed flow path as described above.

Minimum Requirement #5: On-Site Stormwater Management

In accordance with Table 2.4.1, Volume I, all minimum requirements shall apply to the converted vegetation area on site.

Minimum Requirement #6: Runoff Treatment

As the proposed clearing of this site creates no new pollution-generating surfaces, this project is not required to implement runoff treatment.

Minimum Requirement #7: Flow Control

Although this project converts more than 2.5 acres of native vegetation to pasture, the proposed clearing causes less than a 0.15 cfs increase in flow within each drainage basin on site. Therefore, this project is not required to achieve the standard flow rate requirement.

Minimum Requirement #8: Wetlands Protection

A critical areas evaluation was performed by Wetland Resources, Inc and confirmed that no wetlands lay within the proximity of this project. Therefore, this requirement does not apply to this project.

Minimum Requirement #9: Operations and Maintenance

As this project proposes no improvements that would require operation or maintenance, no operations and maintenance manual is required.

2.0 Existing Site Conditions

The 3.72-acre property is currently almost completely encompassed by pervious native vegetation. There is an existing road that enters through the south end of the parcel and connects into the main arterial Eaglemont Drive. This existing impervious pavement is already included in drainage control systems as part of the Eaglemont golf course parking lot.

The site slopes down from the center in all directions with slopes ranging from 2-50%. As a high point exists near the center of the site, drainage from the site currently sheet flows away from the center of the site in all direction. Stormwater sheet flows over native vegetation where it is fully dispersed towards the surrounding golf course.

The USDA Soil Conservation Service has classified the soils as Dystric Xerochrepts-Rock outcrop complex and Tokul gravelly medial loam. Per table 2.3.1 of volume III in the DOE manual, both soils are considered to be within Hydrologic Soil Group B.

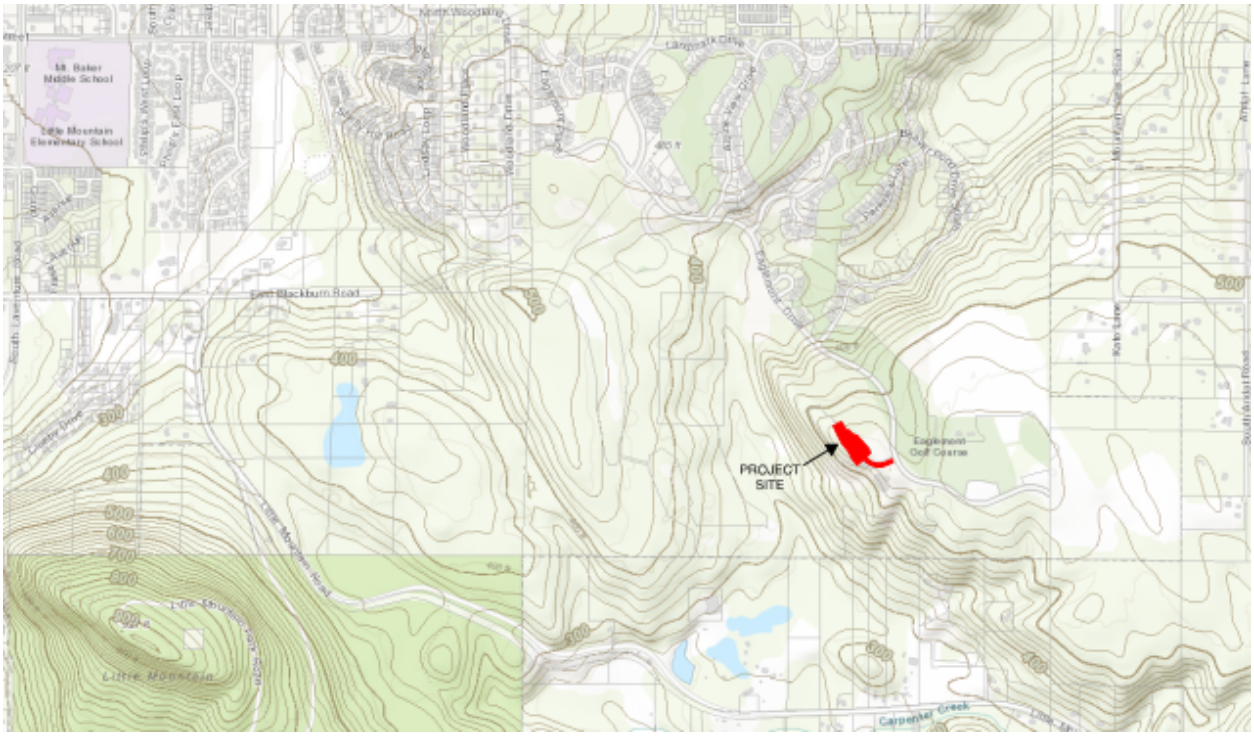


Figure 2: Existing Topography

3.0 Developed Site Conditions

An approximately 3 acre clearing project is proposed where there is currently vegetation and a small existing paved access road with connection to Eaglemont Drive. The completed project will consist of the site being cleared of trees within clearing limits and seeding the site where soil has been disturbed in order to prevent erosion.

Where soils are disturbed by clearing activities, BMP T5.13 for Post-Construction Soil Quality and Depth shall be implemented. The existing site top soil will be retained on site and shall meet the depth and organic matter quality standards upon completion of the clearing activities on site.

Storm drainage resulting from the converted pervious surfacing is tributary to four separate drainage basins as shown in the figure below. The conversion from forested area to pasture within each basin results in less than 0.15 cfs increase in flow and therefore no flow control is required for the proposed project. The existing and cleared conditions of each basin have been modeled using a 15-minute timestep in WWHM2012. Please refer to the appendix for modeling results.

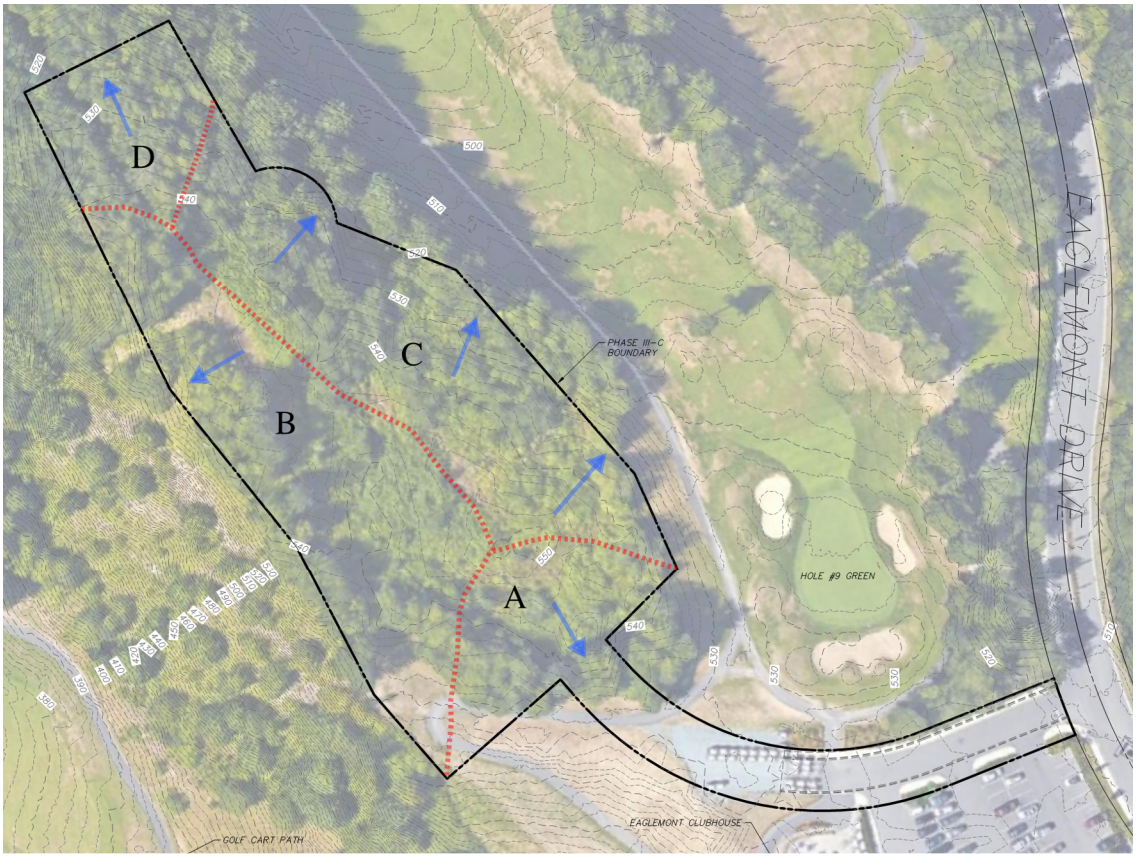


Figure 3: On Site Drainage Basins

4.0 Off-Site Analysis

This section evaluates the upstream and downstream drainage system. The intent of this section is to identify any existing or potential drainage impacts created or exacerbated by the proposed project and drainage facilities.

Aerial imagery, City of Mount Vernon maps, Skagit County maps and surveyed topography of the site form the basis of this analysis.

4.1 Upstream Analysis

As the project site contains a ridgeline running along the center of the site, there is no upstream drainage tributary to this project.

4.2 Downstream Analysis

Based on existing site topography, the on-site storm drainage naturally sheet flows away from the center of the site in all directions.

Existing Drainage Basin A sheet flows in the southeasterly direction and is tributary to the existing storm conveyance system that was constructed as part of the Eaglemont Golf Course Clubhouse project. This drainage continues within the conveyance system along Eaglemont Drive until reaching the detention pond north of the project site. This pond was oversized during Eaglemont Phase 1A to compensate for developed drainage flows resulting from the future Eaglemont Phase III-C residential development. This pond outlets to a stream tributary to Nookachamps Creek.

Existing Drainage Basin B sheet flows in the southwesterly direction through approximately 200 lineal feet of native vegetation before reaching the fairway for Hole #1 on the Eaglemont Golf Course. Drainage from the site will continue to sheet flow across the golf course before sheet flowing through more native vegetation. The drainage will eventually flow into a stream tributary to Carpentar Creek just under a quarter mile downstream from the project site.

Existing Drainage Basin C sheet flows in the northeasterly direction through approximately 50 lineal feet of native vegetation before reaching the fairway for Hole #9 on the Eaglemont Golf Course. Drainage from the site will continue to sheet flow along the golf course before flowing into a pond approximately a quarter mile downstream from the project site. This pond outlets to a stream tributary to Nookachamps Creek.

Existing Drainage Basin D sheet flows offsite in the northwesterly direction through native vegetation. Existing topography indicates that the drainage begins to flow westerly for a short distance and then southwesterly, continuing through native vegetation. Drainage from the site sheet flows into a stream tributary to Carpenter Creek approximately a quarter of a mile downstream from the project site.

As soils surrounding the site are classified as Type A and Type B soils with moderate to high infiltration rates, it is likely that much of the drainage from the site will infiltrate prior to discharging into the pond or stream.

Please refer to Figure 4 below to see the downstream drainage path of each existing drainage basin.

Figure 4: Downstream Flow Path

5.0 Stormwater Control Plan

Developed Site Hydrology

Drainage from the site flows away from the center of the parcel in all directions and is tributary to four separate basins, A-D. The pre-developed flow rates were modeled as 100% pervious, forested area. Post-clearing flow rates were modeled as pasture area as the project shall comply with Post Construction Quality and Depth standards. The following table summarizes existing and post-clearing flow rates within each basin:

Table 1: Drainage Basin Flow Rates

Basin	Area	Existing 100-yr Flow Rate	Post-Clearing 100-yr Flow Rate	Change in 100-yr Flow Rates
A	0.42 AC	0.05 cfs	0.10 cfs	0.05 cfs
B	1.07 AC	0.14 cfs	0.26 cfs	0.12 cfs
C	1.26 AC	0.16 cfs	0.30 cfs	0.14 cfs
D	0.32 AC	0.014 cfs	0.07 cfs	0.03 cfs

As the change in the 100-year flow rate within each basin is less than 0.15 cfs (modeled using 15-minute time step), no flow control is required for the proposed project.

Please see the Appendix for the WWHM modeling results.

Low Impact Development Features

This project proposes to implement BMP T5.13 for Post-Construcion Soil Quality and Depth. Existing top soil on site will be retained and shall meet depth and organic matter quality standards upon completion of clearing. Compaction will be prevented to the maximum extent feasible and where compaction is unavoidable, soils shall be amended prior to seeding.

6.0 Stormwater Pollution Prevention Plan (SWPPP)

In order to protect the downstream conditions from sediments, several erosion control Best Management Practices (BMPs) from the DOE manual will be utilized. A temporary gravel construction entrance shall be used between the road and development area, as necessary to knock mud off of tires on vehicles exiting the site. Additionally, limiting earthwork and utility construction activities to dry weather conditions, minimizing area and duration of soil exposure, storm drain inlet protection, and stockpiling and sheathing of strippings, will further reduce the potential for silt-laden runoff. Interim measures to be employed during construction will include the installation of silt fences along the low side of areas to be cleared and graded. Stockpiles will be covered with polyethylene sheathing.

1. **Factors expected to create an erosion risk when developed:**
   - Exposure of soils during clearing

2. **Location relative to critical areas:**
   - No critical areas on-site

3. **Soil types:**
   - Dystric Xerochrepts-Rock outcrop complex

   - Tokul gravelly medial loam

4. **Potential for slides or other ground movement:**
   - None anticipated

5. **Sources of water for erosion:**
   - Rainfall

6. **Measures proposed to minimize and prevent erosion to the greatest extent possible for the development:**
   - Preparation and implementation of an erosion and sedimentation plan which is sensitive to the soils, slopes, and construction season
   - Silt fencing
   - Catch basin protection
   - Gravel construction entrance

A SWPPP will be prepared as a separate document for use during construction. The following section provides a detailed description of the BMPs to be implemented based on the 13 required elements of the SWPPP. For additional information reference the project TESC plans and SWPPP.

Element #1 – Mark Clearing Limits
To protect adjacent properties and to reduce the area of soil exposed to construction, the limits of construction will be clearly marked before land-disturbing activities begin. Clearing limits will be delineated by silt fence and high visibility fence. The following relevant BMPs for this project include:

BMP C103: High Visibility Plastic or Metal Fence
BMP C233: Silt Fence

Element #2 – Establish Construction Access
Construction access or activities occurring on unpaved areas shall be minimized, yet where necessary, access points shall be stabilized to minimize the tracking of sediment onto public roads, street sweeping and street cleaning shall be employed to prevent sediment from entering state waters. The following relevant BMPs for this project include:

BMP C105: Stabilized Construction Entrance/Exit

Element #3 – Control Flow Rates
In order to protect the properties and waterways downstream of the project site, stormwater discharges from the site will be controlled. As stormwater generated from the cleared site will not result in a significant increase in flows from that of the existing site, no additional flow control is proposed.

Element #4 – Install Sediment Controls
All stormwater runoff from disturbed areas shall pass through an appropriate sediment removal BMP before entering a receiving water body. The following relevant BMPs for this project include:

BMP C220: Storm Drain Inlet Protection
BMP C233: Silt Fence

Element #5 – Stabilize Soils
Exposed and unworked soils shall be stabilized with the application of effective BMPs to prevent erosion throughout the life of the project. The following relevant BMPs for this project include:

BMP C140: Dust Control

In general, soils shall be stabilized if they are to remain unworked for a certain period of time depending on the season. The site will be periodically sprinkled with water until the surface is wet in order to prevent dust in the air and sediment on the roadways.

Element #6 – Protect Slopes
Stormwater run-off shall be minimal as construction of the proposed improvements are to commence and be completed during the dry season. The following relevant BMPs for this project include:

BMP C120: Temporary and Permanent Seeding
BMP C121: Mulching

Element #7 – Protect Permanent Drain Inlets
All existing storm drain inlets and culverts made operable during construction that may receive stormwater on and downstream of the site shall be protected to prevent unfiltered or untreated water from entering the drainage conveyance system. The following relevant BMPs for this project include:

BMP C220: Storm Drain Inlet Protection

Element #8 – Stabilize Channels and Outlets
As no channels or outlets are proposed as part of this project, no BMPs for stabilization of channels and outlets are proposed.

Element #9 – Control Pollutants
All pollutants, including waste materials and demolition debris, that occur during construction shall be handled and disposed of in a manner that does not cause contamination of stormwater. Good housekeeping and preventative measures will be taken to ensure that the site will be kept clean, well-organized, and free of debris. If required, BMPs to be implemented to control specific sources of pollutants are discussed below.

Vehicles, construction equipment, and/or petroleum product storage/dispensing:

- All vehicles, equipment, and petroleum product storage/dispensing areas will be inspected regularly to detect any leaks or spills, and to identify maintenance needs to prevent leaks or spills.

- Spill prevention measures, such as drip pans, will be used when conducting maintenance and repair of vehicles or equipment.

- Contaminated surfaces shall be cleaned immediately following any discharge or spill incident.

Concrete and grout: Process water and slurry resulting from concrete work will be prevented from entering the waters of the State by implementing Concrete Handling measures (BMP C151).

In order to prevent, reduce, or eliminate the discharge of pollutants from material delivery and storage to the stormwater system, Material Delivery and Storage Contamination (BMP C153) shall be implemented.

Sanitary wastewater: Portable sanitation facilities will be firmly secured, regularly maintained, and emptied when necessary.

Solid Waste: Solid waste will be stored in secure, clearly marked containers.

Element #10 – Control Dewatering
Dewatering is not anticipated as no excavation or grading is proposed as part of this project.

Element #11 – Maintain BMPs
All temporary and permanent erosion and sediment control BMPs shall be maintained and repaired as needed to assure continued performance of their intended function. Maintenance and repair shall be conducted in accordance with each particular BMP's specifications. Visual monitoring of the BMPs will be conducted at least once every calendar week and within 24 hours of any rainfall event that causes a discharge from the site. If the site becomes inactive, and is temporarily stabilized, the inspection frequency will be reduced to once every month.

All temporary erosion and sediment control BMPs shall be removed within 30 days after the final site stabilization is achieved or after the temporary BMPs are no longer needed. Trapped sediment shall be removed or stabilized on site. Disturbed soil resulting from removal of BMPs or vegetation shall be permanently stabilized.

Element #12 – Manage the Project
Erosion and sediment control BMPs for this project have been designed based on the following principles:

- Design the project to fit the existing topography, soils, and drainage patterns.
- Emphasize erosion control rather than sediment control.
- Minimize the extent and duration of the area exposed.
- Keep runoff velocities low.
- Retain sediment on site.
- Thoroughly monitor site and maintain all ESC measures.
- Schedule major earthwork during the dry season.

In addition, project management will incorporate the key components listed below:

As this project site is located west of the Cascade Mountain Crest, the project will be managed according to the following key project components:

Inspection and Monitoring

- All BMPs shall be inspected, maintained, and repaired as needed to assure continued performance of their intended function. Site inspections shall be conducted by a person who is knowledgeable in the principles and practices of erosion and sediment control at least once every calendar week and within 24 hours of any major rainfall event. This person has the necessary skills to:
  - Assess the site conditions and construction activities that could impact the quality of stormwater, and
  - Assess the effectiveness of erosion and sediment control measures used to control the quality of stormwater discharges.
- A Certified Erosion and Sediment Control Lead shall be on-site or on-call at all times.
- Whenever inspection and/or monitoring reveals that the BMPs identified in this SWPPP are inadequate, due to the actual discharge of or potential to discharge a significant amount of any pollutant, appropriate BMPs or design changes shall be implemented as soon as possible.

Maintaining an Updated Construction SWPPP

- This SWPPP shall be retained near the construction activities or within reasonable access.
- The SWPPP shall be modified whenever there is a change in the design, construction, operation, or maintenance at the construction site that has, or could have, a significant effect on the discharge of pollutants to waters of the state.
- The SWPPP shall be modified if, during inspections or investigations conducted by the owner/operator, or the applicable local or state regulatory authority, it is determined that the SWPPP is ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site. The SWPPP shall be modified as necessary to include additional or modified

BMPs designed to correct problems identified. Revisions to the SWPPP shall be completed within seven (7) days following the inspection.

Element #13 – Protect Low Impact Development BMP's

The low impact development BMPs proposed for this project are required to be protected. The project shall meet requirements for Post-Construction Quality and Depth and therefore soil compaction shall be prevented to the maximum extent feasible. Limits shall be delineated in order to keep heavy equipment away from areas that soils could be unnecessarily compacted. The following relevant BMPs for this project include:

BMP C103: High Visibility Fence

7.0 Appendix

Included in the Appendix:

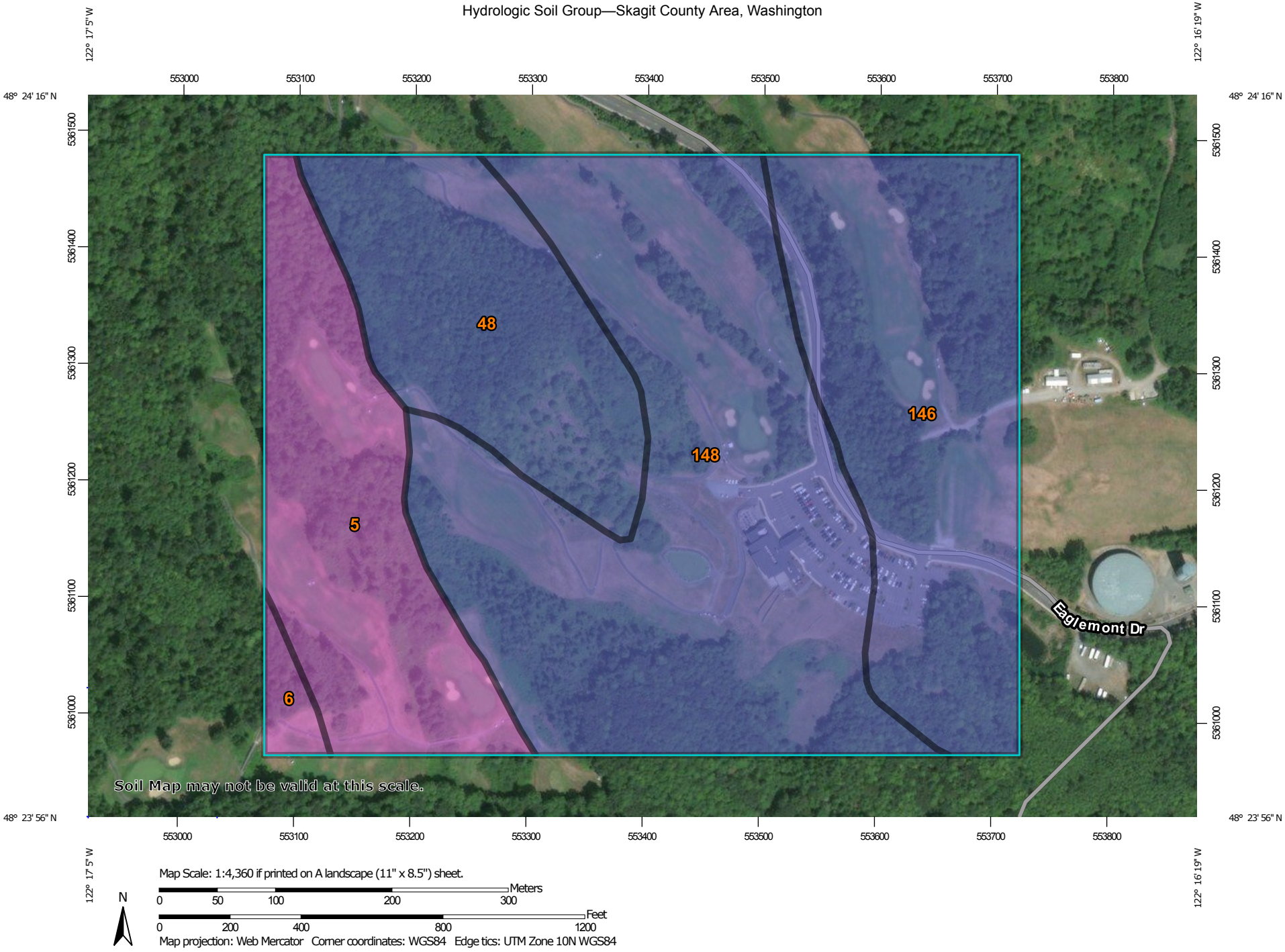
A. Clearing Plans

B. WWHM2012 Modeling Results

APPENDIX A

Site Clearing Plans

Hydrologic Soil Group—Skagit County Area, Washington



Map Scale: 1:4,360 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Skagit County Area, Washington
Survey Area Data: Version 15, Nov 22, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 29, 2016—Oct 10, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
5	Barneston gravelly ashy loam, 0 to 8 percent slopes	A	14.4	17.3%
6	Barneston gravelly ashy loam, 8 to 30 percent slopes	A	1.1	1.3%
48	Dystric Xerochrepts-Rock outcrop complex, 65 to 90 percent slopes	B	13.4	16.2%
146	Tokul gravelly medial loam, 0 to 8 percent slopes	B	20.4	24.5%
148	Tokul gravelly medial loam, 15 to 30 percent slopes	B	33.8	40.6%
Totals for Area of Interest			**83.1**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

APPENDIX B

WWHM2012 Modeling Results

NORTH

0 25 50 100

SCALE: 1" = 50

BASIN AREAS:

BASIN A = 0.42 AC
BASIN B = 1.07 AC
BASIN C = 1.26 AC
BASIN D = 0.32 AC

EXISTING FLOW RATES (100-YR)

BASIN A = 0.05 cfs
BASIN B = 0.14 cfs
BASIN C = 0.16 cfs
BASIN D = 0.04 cfs

POST-CLEARING FLOW RATES (100-YR)

BASIN A = 0.10 cfs
BASIN B = 0.26 cfs
BASIN C = 0.30 cfs
BASIN D = 0.07 cfs

CHANGE IN FLOW RATES (15-MIN TIMESTEP)

BASIN A = 0.05 cfs
BASIN B = 0.12 cfs
BASIN C = 0.14 cfs
BASIN D = 0.03 cfs

DAVID EVANS AND ASSOCIATES INC.
1620 W. Marine View Dr. Suite 200
Everett Washington 98201
Phone: 425.259.4099

DRAINAGE BASINS EXHIBIT

POLYIELD SUMMIT, LLC

EAGLEMONT-PHASE III-C

CITY OF MOUNT VERNON WASHINGTON

NO.	DATE	REVISION	BY	CK

REVIEWED BY: DATE: CADD: DESIGNED:

STAMP NOT VALID UNLESS SIGNED AND DATED

FIRST SUBMITTAL DATE:
SCALE: HORIZ.: 1"=50' VERT.:

PROJECT NO.
SEAV0000-0016

SHEET NO.
1
OF 1

Plot Date: 3/12/2018 8:01 AM By: April Coleman
Save Date: 2/21/2018 4:39 PM By: Apdc - File:P:\S\SEAV0000\0016\0400\CAD\EC\PREL-PLAT\SHEETS\EC-LCP-001-SEAV0016.dwg

WWHM2012
PROJECT REPORT

Project Name: WWHM-BASIN A
Site Name:
Site Address:
City :
Report Date: 3/12/2018
Gage : Burlington
Data Start : 1948/10/01 00:00
Data End : 2009/09/30 00:00
Precip Scale: 1.00
Version Date: 2017/04/14
Version : 4.2.13

Low Flow Threshold for POC 1 : 50 Percent of the 2 Year

High Flow Threshold for POC 1: 50 year

PREDEVELOPED LAND USE

Name : Basin 1
Bypass: No

GroundWater: No

Pervious Land Use	acre
C, Forest, Mod	.42
Pervious Total	0.42

Impervious Land Use	acre
Impervious Total	0
Basin Total	0.42

Element Flows To:

Surface	Interflow	Groundwater

MITIGATED LAND USE

Name : Basin 1
Bypass: No

GroundWater: No

Pervious Land Use	acre
C, Pasture, Mod	.42
Pervious Total	0.42

Impervious Land Use	acre
Impervious Total	0
Basin Total	0.42

Element Flows To:

Surface	Interflow	Groundwater

ANALYSIS RESULTS

Stream Protection Duration

Predeveloped Landuse Totals for POC #1
Total Pervious Area:0.42
Total Impervious Area:0

Mitigated Landuse Totals for POC #1
Total Pervious Area:0.42
Total Impervious Area:0

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	0.009427
5 year	0.017808
10 year	0.024832
25 year	0.035399
50 year	0.04451
100 year	0.054693

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	0.013943
5 year	0.027621
10 year	0.040088
25 year	0.060333
50 year	0.079076
100 year	0.101298

Stream Protection Duration
Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1949	0.026	0.054
1950	0.015	0.017
1951	0.026	0.048
1952	0.012	0.015
1953	0.011	0.029
1954	0.013	0.027
1955	0.009	0.010
1956	0.007	0.008
1957	0.013	0.031
1958	0.009	0.015
1959	0.013	0.014
1960	0.009	0.014
1961	0.006	0.011
1962	0.001	0.002
1963	0.007	0.012
1964	0.006	0.008
1965	0.012	0.013
1966	0.006	0.008
1967	0.008	0.010
1968	0.016	0.019
1969	0.006	0.012
1970	0.004	0.013
1971	0.016	0.028
1972	0.008	0.009
1973	0.009	0.011
1974	0.015	0.019
1975	0.052	0.079
1976	0.006	0.042
1977	0.007	0.011
1978	0.010	0.015
1979	0.006	0.011
1980	0.013	0.020
1981	0.008	0.010
1982	0.019	0.023
1983	0.011	0.018
1984	0.025	0.037
1985	0.004	0.006
1986	0.011	0.012
1987	0.010	0.014
1988	0.020	0.038
1989	0.005	0.006
1990	0.014	0.021
1991	0.020	0.026
1992	0.009	0.011
1993	0.009	0.010
1994	0.002	0.003
1995	0.004	0.005
1996	0.025	0.046
1997	0.105	0.162
1998	0.010	0.014
1999	0.006	0.007
2000	0.004	0.006
2001	0.001	0.002
2002	0.007	0.009

2003	0.006	0.007
2004	0.010	0.014
2005	0.006	0.008
2006	0.016	0.022
2007	0.010	0.015
2008	0.024	0.033
2009	0.006	0.010

Stream Protection Duration
Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	0.1054	0.1620
2	0.0516	0.0789
3	0.0263	0.0535
4	0.0262	0.0484
5	0.0249	0.0463
6	0.0249	0.0418
7	0.0238	0.0381
8	0.0200	0.0366
9	0.0197	0.0329
10	0.0186	0.0309
11	0.0162	0.0287
12	0.0161	0.0278
13	0.0158	0.0274
14	0.0151	0.0256
15	0.0150	0.0226
16	0.0137	0.0221
17	0.0133	0.0207
18	0.0132	0.0201
19	0.0132	0.0194
20	0.0131	0.0187
21	0.0120	0.0177
22	0.0118	0.0173
23	0.0113	0.0152
24	0.0111	0.0151
25	0.0107	0.0149
26	0.0104	0.0148
27	0.0103	0.0145
28	0.0103	0.0143
29	0.0103	0.0139
30	0.0101	0.0136
31	0.0094	0.0136
32	0.0091	0.0134
33	0.0090	0.0133
34	0.0089	0.0124
35	0.0088	0.0123
36	0.0086	0.0120
37	0.0078	0.0113
38	0.0076	0.0111
39	0.0076	0.0111
40	0.0072	0.0106
41	0.0068	0.0105
42	0.0066	0.0105
43	0.0065	0.0102
44	0.0064	0.0101
45	0.0063	0.0098

46	0.0063	0.0095
47	0.0062	0.0090
48	0.0062	0.0086
49	0.0058	0.0080
50	0.0056	0.0077
51	0.0056	0.0077
52	0.0056	0.0075
53	0.0056	0.0070
54	0.0049	0.0066
55	0.0038	0.0060
56	0.0038	0.0060
57	0.0036	0.0057
58	0.0036	0.0053
59	0.0022	0.0034
60	0.0014	0.0023
61	0.0011	0.0018

The development has an increase in flow durations from 1/2 Predeveloped 2 year flow to the 2 year flow or more than a 10% increase from the 2 year to the 50 year flow.
The development has an increase in flow durations for more than 50% of the flows for the range of the duration analysis.

Water Quality BMP Flow and Volume for POC #1
On-line facility volume: 0 **acre-feet**
On-line facility target flow: 0 **cfs.**
Adjusted for 15 min: 0 **cfs.**
Off-line facility target flow: 0 **cfs.**
Adjusted for 15 min: 0 **cfs.**

LID Report

LID Technique	Used for Treatment?	Total Volumn Needs Treatment (ac-ft)	Volumn Through Facility (ac-ft)	Infiltration Volumn (ac-ft.)	Cumulative Volumn Infiltration Credit	Percent Volumn Infiltrated	Water Quality Percent Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00	0.00	0.00	0%	No Treat. Credit

Compliance with LID Standard 8
Duration Analysis Result = Failed

Perlnd and Implnd Changes

No changes have been made.

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WWHM2012
PROJECT REPORT

Project Name: WWHM-BASIN B
Site Name:
Site Address:
City :
Report Date: 3/12/2018
Gage : Burlington
Data Start : 1948/10/01 00:00
Data End : 2009/09/30 00:00
Precip Scale: 1.00
Version Date: 2017/04/14
Version : 4.2.13

Low Flow Threshold for POC 1 : 50 Percent of the 2 Year

High Flow Threshold for POC 1: 50 year

PREDEVELOPED LAND USE

Name : Basin 1
Bypass: No

GroundWater: No

Pervious Land Use	acre
C, Forest, Mod	1.07
Pervious Total	1.07

Impervious Land Use	acre
Impervious Total	0
Basin Total	1.07

Element Flows To:

Surface	Interflow	Groundwater

MITIGATED LAND USE

Name : Basin 1
Bypass: No

GroundWater: No

Pervious Land Use	acre
C, Pasture, Mod	1.07
Pervious Total	1.07

Impervious Land Use	acre
Impervious Total	0
Basin Total	1.07

Element Flows To:

Surface	Interflow	Groundwater

ANALYSIS RESULTS

Stream Protection Duration

Predeveloped Landuse Totals for POC #1
Total Pervious Area:1.07
Total Impervious Area:0

Mitigated Landuse Totals for POC #1
Total Pervious Area:1.07
Total Impervious Area:0

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	0.024017
5 year	0.045368
10 year	0.063262
25 year	0.090183
50 year	0.113395
100 year	0.139336

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	0.035522
5 year	0.070369
10 year	0.102129
25 year	0.153706
50 year	0.201455
100 year	0.258069

Stream Protection Duration
Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1949	0.067	0.136
1950	0.039	0.044
1951	0.067	0.123
1952	0.030	0.039
1953	0.027	0.073
1954	0.034	0.070
1955	0.022	0.026
1956	0.017	0.020
1957	0.033	0.079
1958	0.023	0.038
1959	0.034	0.037
1960	0.024	0.036
1961	0.016	0.028
1962	0.004	0.006
1963	0.017	0.031
1964	0.016	0.019
1965	0.031	0.034
1966	0.016	0.020
1967	0.020	0.024
1968	0.041	0.049
1969	0.014	0.030
1970	0.009	0.034
1971	0.040	0.071
1972	0.019	0.022
1973	0.023	0.028
1974	0.038	0.048
1975	0.131	0.201
1976	0.015	0.107
1977	0.017	0.029
1978	0.026	0.038
1979	0.014	0.027
1980	0.034	0.051
1981	0.019	0.025
1982	0.047	0.058
1983	0.028	0.045
1984	0.064	0.093
1985	0.010	0.015
1986	0.029	0.032
1987	0.026	0.035
1988	0.051	0.097
1989	0.012	0.015
1990	0.035	0.053
1991	0.050	0.065
1992	0.023	0.027
1993	0.022	0.027
1994	0.006	0.009
1995	0.009	0.014
1996	0.063	0.118
1997	0.268	0.413
1998	0.026	0.035
1999	0.014	0.017
2000	0.010	0.015
2001	0.003	0.005
2002	0.018	0.023

2003	0.014	0.018
2004	0.026	0.035
2005	0.016	0.020
2006	0.041	0.056
2007	0.026	0.038
2008	0.061	0.084
2009	0.016	0.026

Stream Protection Duration
Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	0.2685	0.4128
2	0.1314	0.2011
3	0.0669	0.1363
4	0.0667	0.1232
5	0.0635	0.1180
6	0.0634	0.1065
7	0.0607	0.0971
8	0.0508	0.0933
9	0.0502	0.0839
10	0.0473	0.0786
11	0.0412	0.0731
12	0.0409	0.0709
13	0.0402	0.0699
14	0.0385	0.0651
15	0.0382	0.0576
16	0.0349	0.0564
17	0.0338	0.0527
18	0.0336	0.0513
19	0.0335	0.0493
20	0.0334	0.0475
21	0.0306	0.0452
22	0.0300	0.0441
23	0.0287	0.0388
24	0.0282	0.0385
25	0.0272	0.0380
26	0.0264	0.0378
27	0.0264	0.0369
28	0.0263	0.0365
29	0.0261	0.0353
30	0.0257	0.0347
31	0.0240	0.0346
32	0.0232	0.0341
33	0.0229	0.0340
34	0.0226	0.0317
35	0.0223	0.0315
36	0.0220	0.0304
37	0.0198	0.0287
38	0.0194	0.0284
39	0.0193	0.0283
40	0.0183	0.0271
41	0.0173	0.0268
42	0.0168	0.0267
43	0.0166	0.0260
44	0.0164	0.0258
45	0.0160	0.0250

46	0.0160	0.0242
47	0.0159	0.0230
48	0.0157	0.0218
49	0.0149	0.0203
50	0.0143	0.0197
51	0.0142	0.0196
52	0.0142	0.0192
53	0.0142	0.0178
54	0.0124	0.0169
55	0.0096	0.0154
56	0.0096	0.0152
57	0.0092	0.0146
58	0.0092	0.0135
59	0.0056	0.0086
60	0.0036	0.0058
61	0.0028	0.0045

The development has an increase in flow durations from 1/2 Predeveloped 2 year flow to the 2 year flow or more than a 10% increase from the 2 year to the 50 year flow.
The development has an increase in flow durations for more than 50% of the flows for the range of the duration analysis.

Water Quality BMP Flow and Volume for POC #1
On-line facility volume: 0 **acre-feet**
On-line facility target flow: 0 **cfs.**
Adjusted for 15 min: 0 **cfs.**
Off-line facility target flow: 0 **cfs.**
Adjusted for 15 min: 0 **cfs.**

LID Report

LID Technique	Used for Treatment?	Total Volumn Needs Treatment (ac-ft)	Volumn Through Facility (ac-ft)	Infiltration Volumn (ac-ft.)	Cumulative Volumn Infiltration Credit	Percent Volumn Infiltrated	Water Quality Percent Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00	0.00	0.00	0%	No Treat. Credit

Compliance with LID Standard 8
Duration Analysis Result = Failed

Perlnd and Implnd Changes

No changes have been made.

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WWHM2012
PROJECT REPORT

Project Name: WWHM-BASIN C
Site Name:
Site Address:
City :
Report Date: 3/12/2018
Gage : Burlington
Data Start : 1948/10/01
Data End : 2009/09/30
Precip Scale: 1.00
Version Date: 2017/04/14
Version : 4.2.13

Low Flow Threshold for POC 1 : 50 Percent of the 2 Year

High Flow Threshold for POC 1: 50 year

PREDEVELOPED LAND USE

Name : Basin 1
Bypass: No

GroundWater: No

Pervious Land Use	acre
C, Forest, Mod	1.26
Pervious Total	1.26

Impervious Land Use	acre
Impervious Total	0
Basin Total	1.26

Element Flows To:

Surface	Interflow	Groundwater

MITIGATED LAND USE

Name : Basin 1
Bypass: No

GroundWater: No

Pervious Land Use	acre
C, Pasture, Mod	1.26
Pervious Total	1.26

Impervious Land Use	acre
Impervious Total	0
Basin Total	1.26

Element Flows To:

Surface	Interflow	Groundwater

ANALYSIS RESULTS

Stream Protection Duration

Predeveloped Landuse Totals for POC #1
Total Pervious Area:1.26
Total Impervious Area:0

Mitigated Landuse Totals for POC #1
Total Pervious Area:1.26
Total Impervious Area:0

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	0.028281
5 year	0.053424
10 year	0.074495
25 year	0.106196
50 year	0.13353
100 year	0.164078

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	0.04183
5 year	0.082864
10 year	0.120264
25 year	0.181
50 year	0.237227
100 year	0.303895

Stream Protection Duration
Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1949	0.079	0.161
1950	0.045	0.052
1951	0.079	0.145
1952	0.035	0.046
1953	0.032	0.086
1954	0.040	0.082
1955	0.026	0.031
1956	0.020	0.023
1957	0.039	0.093
1958	0.027	0.045
1959	0.039	0.043
1960	0.028	0.043
1961	0.019	0.033
1962	0.004	0.007
1963	0.020	0.037
1964	0.019	0.023
1965	0.036	0.040
1966	0.018	0.024
1967	0.023	0.029
1968	0.048	0.058
1969	0.017	0.036
1970	0.011	0.040
1971	0.047	0.084
1972	0.023	0.026
1973	0.027	0.033
1974	0.045	0.056
1975	0.155	0.237
1976	0.018	0.125
1977	0.020	0.034
1978	0.031	0.044
1979	0.017	0.032
1980	0.040	0.060
1981	0.023	0.029
1982	0.056	0.068
1983	0.033	0.053
1984	0.075	0.110
1985	0.011	0.018
1986	0.034	0.037
1987	0.031	0.042
1988	0.060	0.114
1989	0.015	0.017
1990	0.041	0.062
1991	0.059	0.077
1992	0.027	0.032
1993	0.026	0.031
1994	0.007	0.010
1995	0.011	0.016
1996	0.075	0.139
1997	0.316	0.486
1998	0.031	0.041
1999	0.017	0.020
2000	0.011	0.018
2001	0.003	0.005
2002	0.022	0.027

2003	0.017	0.021
2004	0.030	0.041
2005	0.019	0.023
2006	0.049	0.066
2007	0.031	0.045
2008	0.071	0.099
2009	0.019	0.030

Stream Protection Duration
Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	0.3162	0.4861
2	0.1547	0.2368
3	0.0788	0.1605
4	0.0785	0.1451
5	0.0748	0.1390
6	0.0747	0.1254
7	0.0715	0.1144
8	0.0599	0.1099
9	0.0591	0.0987
10	0.0557	0.0926
11	0.0486	0.0861
12	0.0482	0.0835
13	0.0473	0.0823
14	0.0453	0.0767
15	0.0450	0.0678
16	0.0411	0.0664
17	0.0398	0.0620
18	0.0396	0.0604
19	0.0395	0.0581
20	0.0394	0.0560
21	0.0361	0.0532
22	0.0354	0.0519
23	0.0338	0.0457
24	0.0332	0.0453
25	0.0321	0.0448
26	0.0311	0.0445
27	0.0310	0.0435
28	0.0310	0.0429
29	0.0308	0.0416
30	0.0302	0.0409
31	0.0282	0.0407
32	0.0273	0.0402
33	0.0270	0.0400
34	0.0266	0.0373
35	0.0263	0.0370
36	0.0259	0.0359
37	0.0233	0.0338
38	0.0229	0.0334
39	0.0227	0.0334
40	0.0216	0.0319
41	0.0204	0.0315
42	0.0198	0.0315
43	0.0196	0.0306
44	0.0193	0.0304
45	0.0189	0.0295

46	0.0188	0.0286
47	0.0187	0.0270
48	0.0185	0.0257
49	0.0175	0.0239
50	0.0168	0.0232
51	0.0167	0.0231
52	0.0167	0.0226
53	0.0167	0.0210
54	0.0147	0.0199
55	0.0113	0.0181
56	0.0113	0.0179
57	0.0108	0.0172
58	0.0108	0.0159
59	0.0065	0.0101
60	0.0042	0.0069
61	0.0033	0.0054

The development has an increase in flow durations from 1/2 Predeveloped 2 year flow to the 2 year flow or more than a 10% increase from the 2 year to the 50 year flow.
The development has an increase in flow durations for more than 50% of the flows for the range of the duration analysis.

Water Quality BMP Flow and Volume for POC #1
On-line facility volume: 0 **acre-feet**
On-line facility target flow: 0 **cfs.**
Adjusted for 15 min: 0 **cfs.**
Off-line facility target flow: 0 **cfs.**
Adjusted for 15 min: 0 **cfs.**

LID Report

LID Technique	Used for Treatment?	Total Volumn Needs Treatment (ac-ft)	Volumn Through Facility (ac-ft)	Infiltration Volumn (ac-ft.)	Cumulative Volumn Infiltration Credit	Percent Volumn Infiltrated	Water Quality Percent Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00	0.00	0.00	0%	No Treat. Credit

Compliance with LID Standard 8
Duration Analysis Result = Failed

Perlnd and Implnd Changes

No changes have been made.

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WWHM2012
PROJECT REPORT

Project Name: WWHM-BASIN D
Site Name:
Site Address:
City :
Report Date: 3/12/2018
Gage : Burlington
Data Start : 1948/10/01 00:00
Data End : 2009/09/30 00:00
Precip Scale: 1.00
Version Date: 2017/04/14
Version : 4.2.13

Low Flow Threshold for POC 1 : 50 Percent of the 2 Year

High Flow Threshold for POC 1: 50 year

PREDEVELOPED LAND USE

Name : Basin 1
Bypass: No

GroundWater: No

Pervious Land Use	acre
C, Forest, Mod	.32
Pervious Total	0.32

Impervious Land Use	acre
Impervious Total	0
Basin Total	0.32

Element Flows To:

Surface	Interflow	Groundwater

MITIGATED LAND USE

Name : Basin 1
Bypass: No

GroundWater: No

Pervious Land Use	acre
C, Pasture, Mod	.32
Pervious Total	0.32

Impervious Land Use	acre
Impervious Total	0
Basin Total	0.32

Element Flows To:

Surface	Interflow	Groundwater

ANALYSIS RESULTS

Stream Protection Duration

Predeveloped Landuse Totals for POC #1
Total Pervious Area:0.32
Total Impervious Area:0

Mitigated Landuse Totals for POC #1
Total Pervious Area:0.32
Total Impervious Area:0

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	0.007183
5 year	0.013568
10 year	0.018919
25 year	0.026971
50 year	0.033912
100 year	0.041671

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	0.010623
5 year	0.021045
10 year	0.030543
25 year	0.045968
50 year	0.060248
100 year	0.07718

Stream Protection Duration
Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1949	0.020	0.041
1950	0.012	0.013
1951	0.020	0.037
1952	0.009	0.012
1953	0.008	0.022
1954	0.010	0.021
1955	0.007	0.008
1956	0.005	0.006
1957	0.010	0.024
1958	0.007	0.012
1959	0.010	0.011
1960	0.007	0.011
1961	0.005	0.008
1962	0.001	0.002
1963	0.005	0.009
1964	0.005	0.006
1965	0.009	0.010
1966	0.005	0.006
1967	0.006	0.007
1968	0.012	0.015
1969	0.004	0.009
1970	0.003	0.010
1971	0.012	0.021
1972	0.006	0.007
1973	0.007	0.008
1974	0.011	0.014
1975	0.039	0.060
1976	0.004	0.032
1977	0.005	0.009
1978	0.008	0.011
1979	0.004	0.008
1980	0.010	0.015
1981	0.006	0.007
1982	0.014	0.017
1983	0.008	0.014
1984	0.019	0.028
1985	0.003	0.005
1986	0.009	0.009
1987	0.008	0.011
1988	0.015	0.029
1989	0.004	0.004
1990	0.010	0.016
1991	0.015	0.019
1992	0.007	0.008
1993	0.007	0.008
1994	0.002	0.003
1995	0.003	0.004
1996	0.019	0.035
1997	0.080	0.123
1998	0.008	0.010
1999	0.004	0.005
2000	0.003	0.005
2001	0.001	0.001
2002	0.005	0.007

2003	0.004	0.005
2004	0.008	0.010
2005	0.005	0.006
2006	0.012	0.017
2007	0.008	0.011
2008	0.018	0.025
2009	0.005	0.008

Stream Protection Duration
Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	0.0803	0.1235
2	0.0393	0.0601
3	0.0200	0.0408
4	0.0199	0.0368
5	0.0190	0.0353
6	0.0190	0.0319
7	0.0181	0.0290
8	0.0152	0.0279
9	0.0150	0.0251
10	0.0141	0.0235
11	0.0123	0.0219
12	0.0122	0.0212
13	0.0120	0.0209
14	0.0115	0.0195
15	0.0114	0.0172
16	0.0104	0.0169
17	0.0101	0.0158
18	0.0100	0.0154
19	0.0100	0.0148
20	0.0100	0.0142
21	0.0092	0.0135
22	0.0090	0.0132
23	0.0086	0.0116
24	0.0084	0.0115
25	0.0081	0.0114
26	0.0079	0.0113
27	0.0079	0.0110
28	0.0079	0.0109
29	0.0078	0.0106
30	0.0077	0.0104
31	0.0072	0.0103
32	0.0069	0.0102
33	0.0068	0.0102
34	0.0068	0.0095
35	0.0067	0.0094
36	0.0066	0.0091
37	0.0059	0.0086
38	0.0058	0.0085
39	0.0058	0.0085
40	0.0055	0.0081
41	0.0052	0.0080
42	0.0050	0.0080
43	0.0050	0.0078
44	0.0049	0.0077
45	0.0048	0.0075

46	0.0048	0.0073
47	0.0047	0.0069
48	0.0047	0.0065
49	0.0045	0.0061
50	0.0043	0.0059
51	0.0042	0.0059
52	0.0042	0.0057
53	0.0042	0.0053
54	0.0037	0.0051
55	0.0029	0.0046
56	0.0029	0.0045
57	0.0027	0.0044
58	0.0027	0.0040
59	0.0017	0.0026
60	0.0011	0.0017
61	0.0008	0.0014

The development has an increase in flow durations from 1/2 Predeveloped 2 year flow to the 2 year flow or more than a 10% increase from the 2 year to the 50 year flow.
The development has an increase in flow durations for more than 50% of the flows for the range of the duration analysis.

Water Quality BMP Flow and Volume for POC #1
On-line facility volume: 0 **acre-feet**
On-line facility target flow: 0 **cfs.**
Adjusted for 15 min: 0 **cfs.**
Off-line facility target flow: 0 **cfs.**
Adjusted for 15 min: 0 **cfs.**

LID Report

LID Technique	Used for Treatment?	Total Volumn Needs Treatment (ac-ft)	Volumn Through Facility (ac-ft)	Infiltration Volumn (ac-ft.)	Cumulative Volumn Infiltration Credit	Percent Volumn Infiltrated	Water Quality Percent Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00	0.00	0.00	0%	No Treat. Credit

Compliance with LID Standard 8
Duration Analysis Result = Failed

Perlnd and Implnd Changes

No changes have been made.

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Gravel Borrow over filter fabric in accordance with the City of Mount Vernon Engineering Standards.

8.7 Slope Stability

We conclude that the slopes on Phase III-C and Phase III-D are suitable for the planned development provided the recommendations presented below are followed. Further, we conclude that the fill slope on Phase III-A must be monitored closely by MTC if development proceeds on the soil stockpile. Unconventional footings, extensive re-grading, and/or slope remediation may be necessary in order to develop in this area. MTC should be consulted regarding site-specific foundation alternatives during the design and construction phase. Since debris on Phase III-B makes the site inaccessible at this time, we recommend that MTC conduct test pits, and possibly a slope evaluation, as development proceeds on Phase III-E. The requirements for slope set-back outlined in the Mount Vernon Municipal Code as well as the drainage and vegetation mitigation measures presented below should be followed. The following sections address geohazard mitigation as required by the City of Mount Vernon Municipal Code on sites with slopes over 15 percent (MVMC 15.40.160), including setbacks, buffers and erosion control.

We also recommend that further study be conducted on the bedrock slope located on Phase III-C. This may include additional test pits, rock borings, and field investigation to determine suitable foundations for the proposed condominiums.

8.7.1 Geohazards Mitigation

A. Geohazard Buffers and Setbacks

Several buffers and setback are required by the City of Mount Vernon. *This report addresses buffers and setbacks for geohazard mitigation only.* We recommend that the following setback and buffers be followed in accordance with the MVMC:

1. A setback of "at least 25 feet from the top, toe, and sides" of slopes greater than or equal to 40 percent.
2. A building line setback of 10 feet from the edge of all critical area buffers during and after construction.
3. Exceptions should be allowed where foundations are engineered specifically to encroach into these setbacks.

B. Erosion and Mass Wasting

The following paragraphs on erosion and mass wasting are meant to address concerns raised by development on slopes over 15 percent (MVMC 15.40.160), as well as planned alteration of other slopes on the property (MVMC 15.40.150).

1. It should be noted that slope erosion and mass wasting may be accelerated by human activity such as:
   - Adding side-cast debris to the slope
   - Increasing the surface water runoff and groundwater flow on the slope
   - Removal of the vegetation on the slope
   - Heavy construction equipment traffic on the slope
   - Placing excavated soil near the slope crests
2. Minimizing the volume and velocity of water that travels down the slope face will decrease the likelihood of slope failures.

3. Prior to construction a silt fence, continuous line of straw bales, or other best management practice should be placed upland of the slope crests and downhill of clearing limits to minimize migration of eroded soils. Heavy construction equipment, construction materials, or native and imported soils should not be placed behind the erosion control devices.
4. At the end of the project, all disturbed vegetation should be repaired and maintained until it is established. Concentrated surface water should not be allowed to traverse the slope during or after the construction phase of the project. Roof downspouts and footing drains should be routed into closed pipes which outfall into appropriate drainages. Outlets for these pipes should be protected from erosion through the use of rip-rap or some other energy dissipating device. Similarly, concentrated drainages should be captured in closed pipe systems and routed down slope to outfall into appropriate drainages. In no case should drainage be allowed to outfall onto slope faces.
5. Existing stream banks may be protected from further erosion by installing rip-rap to protect cut banks.
6. Existing vegetation should be maintained where possible to enhance site stability. Vegetation provides stability to the loose top soil and minimizes the effects of down-slope water movement. Where logging occurs, the re-vegetation requirements outlined in the logging permit should be adhered to.
7. Grading or excavation of soils outside of setbacks during construction should be accompanied by grass reseeding and revegetation. To maximize water uptake and minimize down-slope movement of colluvium, vegetation should be planted in a buffer zone from the crest for a distance of 10 feet where space is available. According to "Vegetation Management: A Guide for Puget Sound Bluff Property Owners" (Manashe, 1993) the following types of vegetation provide good to excellent erosion control and would be suitable for planting in these areas.

Common Name	Botanical Name	Deciduous/Evergreen	Mature Height (ft)
Vine Maple	Acer cricinatum	Deciduous	10+
Oceanspray	Holodiscus discolor	Deciduous	10+
Willow	Salix spp.	Deciduous	10+
Snowberry	Symphoricarpos albus	Deciduous	3+
Rose	Rose spp.	Deciduous	2-10
Salmonberry	Rubus spectabilis	Deciduous	To 12
Salal	Gaultheria shallon	Evergreen	To 4
Oregon grape	Mahonia spp.	Evergreen	To 6
Red huckleberry	Vaccinium parvifolium	Deciduous	To 12
Evergreen	Vaccinium ovatum	Evergreen	To 8
Serviceberry	Amelanchier alnifolia	Deciduous	12+
Bigleaf maple	Acer macrophyllum	Deciduous	60
Pacific madrone	Arbutus mesnziesii	Evergreen	70
Douglas fir	Pseudotsuga menziesii	Evergreen	200+