SUBMITTAL PACKAGE FOR

FINAL PLANNED UNIT DEVELOPMENT APPROVAL – PHASE 3

Applicant
State of Washington
Department of General Administration
March 11, 2008
CCC/UWB Co-located Campus – Bothell, Washington
Submittal Package for Phase 3 Preliminary and Final Planned Unit Development

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PUD Preliminary and Final

This intake checklist identifies minimum application elements necessary for the City to accept the application for further processing. Should any of the following minimum items not be provided, the application will not be accepted at the counter. Acceptance of an application DOES NOT guarantee completeness. The City will take up to 28 days to make a completeness determination.

Applicant: Check each box under the Applicant heading on this checklist to confirm items are included in your submittal. A Permit Technician will check off each box under Staff when the item is confirmed to be included in the submittal package. If you think an item is not applicable to your project, you must contact the appropriate department prior to your intake appointment to have the items initialed as not required.

The required number of plan sets (10 for Preliminary Planned Unit Developments; 8 for Final Planned Unit Developments) includes one set of 11” x 17” half-size plans. If applying for multiple permits concurrently, submit the highest number of required plan sets. Submittal plans, when less than 15 sheets, shall be folded. Plans over 15 sheets may be rolled.

Development Services permit application requirements per BMC 11.06.002, 12.30.050 and 12.30.080

All items noted with an “L” next to the Applicant box must be labeled by the applicant, for file identification.

General Requirements per BMC 11.06.002 (one copy of each item required):

Applicant

[X] A completed & signed Permit Application form

L [X] Copy(s) of the recorded legal descriptions of the existing property(s) boundary(s) and dimensions of property and/or legal description of the site for all applications, as required by the applicable development regulations.

[X] Intake fee (Fire Dept. Land Use Review fee, see form A) and a completed Development Review Billing Form (form D)

L [ ] Evidence of adequate water and sewer availability as required by RCW 19.27.097 (Water and Sewer Certificate of Availability). If the City of Bothell is your provider, submit an application for Water and Sewer Certificate of Availability. You must receive your certificate prior to submitting this application, please allow 2 weeks for this review. If your provider is Alderwood, Northshore or Woodinville, please contact them for information regarding receiving certification for water and sewer availability and provide this with your application.

L [X] Information on the capacity of existing storm water conveyance and control facilities and a downstream storm water study, which analyzes capacity of existing storm water conveyance and control facilities.

L [ ] Designation by name, street and mailing address, telephone number, and relationship to the applicant, of the person to receive all determinations and notices required by BMC Chapter 11.06.

L [X] An application for a concurrency encumbrance letter (BMC 17.03.014) unless the permit is specifically exempted by BMC 17.03.003. NOTE: If a concurrency encumbrance letter has been issued, submit the letter in lieu of concurrency application.

Staff

[ ]
**PUD Preliminary and Final**

**Application requirements per 12.30.050, Preliminary PUDs (10 copies of each item required):**

These application requirements are in addition to the minimum application requirements as set forth in BMC 11.06.002.

**Staff**

L A map of the subject property and surrounding area determined by the Community Development and Public Works director to be relevant for comprehensive planning, environmental assessment or zoning review purposes, which map shall depict comprehensive plan designations, zoning classifications and existing land uses, including streets;

L A proposed site plan for the subject property depicting the following:

- Topography at two-foot contours for slopes 15 percent or less and five-foot contours for slopes over 15 percent;
- Individual trees over eight inches in trunk diameter measured four feet above the base of the trunk in areas to be developed or otherwise disturbed;
- Designated placement, location, and principal dimensions of lots, buildings, streets, parking areas, recreation areas and other open space, landscaping areas and utilities;

L If the developer owns or otherwise controls property adjacent to the proposed development, a conceptual plan for such property demonstrating that it can be developed in a compatible manner with the proposed development;

L Drawing and/or text showing scale, bulk and architectural character of proposed structures

L For single-family PUDs, a conceptual drawing depicting the number and location of lots which would be allowed if no regulations were modified;

L Special features including but not limited to critical areas and sites or structures of historic significance

L A text describing conditions or features which cannot be adequately displayed on maps or drawings

L A narrative stating how the proposed development complies with the goals and policies of the Imagine Bothell

L Comprehensive Plan, including level of service standards and guidelines, and with the development regulations contained in this and other titles;

L Draft conditions, covenants and restrictions and other documents relating to operation and maintenance of the development, including all of its open areas and recreational facilities.

L Other information may be required by the Community Development and Public Works Director, or by any other section of the Bothell Municipal Code including BMC 12.56.140, Open Space – Plans Required, governing development in the North Creek Valley special district.

L The applicant may submit to the Community Development and Public Works Director proposed development standards, which, if approved by the city council, shall become a part of the preliminary plan in lieu of the requirement of BMC 12.30.050(A)(2) for specifying placement, location and principal dimensions of buildings, streets, and parking areas. This alternative process is intended to accommodate the need for flexibility in large-scale non-single-family developments, while insuring that sufficient information as to the nature of the development is available upon which to base a decision concerning the preliminary development plan. Proposed development standards shall specifically set forth parameters for location, dimensions and design of buildings, streets and parking areas.

**Other Preliminary PUD Submittal Requirements (10 copies of each item required):**

** Applicant**

L Vicinity map

L Tree retention and landscaping plan consistent with BMC 12.18.

L Transportation Impact analysis per BMC 17.04010 (2 copies only: file, traf)

L Notes and determinations from the pre-application conference

**Note:** The applicant is responsible for all notification (posting, mailing and other methods) as required by Title 11, Administration of Development Regulations. Applications found to contain material errors shall not be deemed complete until such material errors are corrected. The Community Development and Public Works Director may waive specific submittal requirements determined to be unnecessary for review of the application.

Permit Services, Dawson Building, 9654 NE 182nd Street, phone (425) 486-8152, FAX (425) 486-2489. For more information, please contact a Permit Technician. Permit intake and issuance hours are Monday through Friday, 9:00 am - 4:00 pm. Appointments are required for most intakes.

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Updated 3/06
Application requirements per 12.30.080, Final PUDs (eight copies of each item required):
These application requirements are in addition to the minimum application requirements as set forth in BMC 11.06.002.
Within 12 months following the approval of the preliminary PUD, the applicant shall file with the Community Development Director a final PUD conforming to the approved preliminary PUD. In the case of a PUD, which includes a subdivision, the final PUD shall be submitted within five years of receiving preliminary approval.

All items noted with an “L” next to the Applicant box must be labeled by the applicant, for file identification.

The information required for the final PUD shall include the following:

- A survey of the property, showing for all areas to be developed or disturbed existing features, including topography at two-foot contours for slopes 15 percent or less and five-foot contours for slopes over 15 percent, buildings, structures, trees over eight inches in trunk diameter measured four feet above the base of the trunk, streets, utility easements, rights-of-way, and existing land uses;
- Elevation and perspective drawings of project structures and improvements;
- Proposed final conditions, covenants and restrictions (CC&Rs) and other documents relating to operation and maintenance of the development, including all of its open areas and recreational facilities, which CC&Rs and other documents shall be recorded upon final PUD approval;
- Proposed final agreements which may have been required as conditions of preliminary PUD approval;
- A development schedule, if development may extend over more than a two-year period.

The following plans and diagrams:

- An off-street parking plan;
- A circulation diagram indicating the proposed movement of vehicles and pedestrians within the planned unit development, and to and from existing and programmed thoroughfares; any special engineering features and traffic regulating devices needed to facilitate or insure the safety of this circulation pattern must be shown;
- Landscaping and tree planting plan, including site grading;
- A topographic map or model of the site and surrounding vicinity;
- (For non-single family projects) In the event that development standards were submitted and approved as part of the preliminary development plan pursuant to BMC 12.30.050(B), development standards shall be made binding upon all future developers of the property in a manner acceptable to the city, and may be submitted in lieu of elevation and perspective drawings of project structures and improvements.

Other Submittal Requirements (eight copies of each item required):

If any changes to utilities or roadways are proposed, the following information is required:

- Site contours (maximum 5 foot contour interval) showing existing natural grade and proposed finished grades;
- Proposed public improvements, including proposed public rights-of-way, sidewalks, curb and gutter, planter strips, street trees, utilities to include, sanitary sewer, storm drainage facilities, domestic water lines;
- Road width and turning radii;
- Proposed sanitary, storm water and water systems plan(s) with points of connection, grades and sizes indicated;
If critical Areas are located on or adjacent to the area to be altered the following information is required:

- A wetlands delineation and categorization report (if wetlands present on or adjacent to the subject property)
- A Stream Delineation and Assessment Study (if streams located on or adjacent to the subject property)
- A Geological Hazards Report (Soils Report) (if steep slopes present on subject property)
- An Aquifer recharge special report prepared by a Geologist (if aquifer recharge occurs on the adjacent to the subject property)
- A special flood report prepared by a licensed engineer, (If the site within a Frequently flooded area)
- A Wildlife Inventory/Study (if site contains endangered, threatened, or sensitive species)
- A Title Report prepared by a licensed Title Insurance Agency
- Any other information required by the Community Development and Public Works Director for the purposes of ascertaining ownership and the existence of easements or covenants affecting the subject property.

Applications found to contain material errors shall not be deemed complete until such material errors are corrected.

The Community Development and Public Works Director may waive specific submittal requirements determined to be unnecessary for review of the application.

NOTE: Other items may be required to be submitted for PUD Preliminary & Final Applications to be consistent with the Bothell Municipal Code.
Contractor: TBD

Mailing address: __________________________________________
City ___________________________ State __________ Zip ______

Phone ( _______ ) __________________ Fax ( _______ ) __________ E-Mail: __________________________

State Lic. ___________________________ Exp. Date: ____________ Contractor's City Business License #: ______

State Laws require verification of current Contractor's License — City Business license required by Bothell Municipal Code Title 2.

For projects costing more than $5,000, Interim Construction Loan Lender or Payment Bond Issuer, if any (BMC 20.02.110.B.2):

Name: ________________ FUND BY THE STATE OF WA ________________ Phone ( _______ ) __________________

Address: __________________________________________
City ___________________________ State __________ Zip ______

Description of proposed use and permit(s) sought, please be as descriptive as possible (attach separate sheet if necessary, if no description application will not be accepted or found complete).

NEW 54,300 SQ. ACADEMIC + FACULTY/STAFF OFFICE BUILDING
WITH MULTIPURPOSE SPACE + STAGE AND OUTDOOR PLAZA

It is the applicant's responsibility to know the code requirements and provide all necessary information required for project review.

Applications for which no permit is issued within one year following the date of application shall expire by limitation, and plans and other data submitted for review may thereafter be returned to the applicant or destroyed by the building official. Plan review fees and the Building Official may extend the time limitation for a period not to exceed 180 days upon written request from the applicant prior to the one-year expiration. In order to renew action on an application after expiration, the applicant shall resubmit plans and pay a new plan review fee. (BMC 20.02.120)

The following work can be commenced prior to the issuance of development permits, provided written notice is provided to the city prior to commencing such work:

Work necessary for land use submittals, such as surveys, soil logs, percolation tests, and other related activities, where such activities do not require construction of new roads or significant amounts of excavation. In every case, impacts shall be the minimum necessary and disturbed areas shall be immediately restored.

I hereby certify that the information provided on this application is true and correct and that the applicable requirements of the City of Bothell will be met. I certify that I am the owner of the subject property or that I have been given express permission by the owner of the subject property to submit this application for permit.

By signing below, applicant acknowledges the above statements.

Applicant: __________________________________________ Date: 08.13.07

I hereby authorize City representatives, to inspect my property Monday-Friday between the hours of 8 a.m. and 5 p.m. during this permit application process for purposes of verifying site conditions.
Project name/Name of business (if applicable): CASCADIA COMMUNITY COLLEGE CENTER FOR GLOBAL LEARNING

Subject property address: 18428 110th Ave NE Suite No. (if applicable): 105

Address assignment procedure: Proposed new structures must be assigned an address by Community Development prior to application submittal. See "Application for Assignment of Address" form. Allow at least 1 day for assignment.

Parcel No. SEE ATTACHED LEGAL DESCRIPTION.

Plat name: Lot no.: Size of Property: 128

Water provider: CITY OF BOTHELL Sewer provider: CITY OF BOTHELL

Comp Plan designation: OP Zoning: R2, O.P. Subarea: NORTH CREEK

Applicant: MILLER HULL; MARGARET SPRUG

Mailing address: 71 COLUMBIA 6TH FL CIty SEATTLE, State WA Zip 98104

Phone: (206) 154 2029 FAX: (206) 684 5600 E-Mail: msprug@millerhull.com

Property Owner: CASCADIA COMMUNITY COLLEGE: DEE SLINEN

This information is required to be completed. The owner will receive copies of all communications, correspondence, determinations, and notices required by applicable development regulations.

Mailing address: CCC-Z, 13345 CAMBUS Way NE City: BOTHELL State: WA Zip:

Phone: (206) 157 6269 FAX: E-Mail: DELURGE@CASCADIA.CC.EDU

Engineer:

Mailing address: City: State: Zip: Phone: ( ) FAX: ( ) E-Mail:

Contact Person: MARGARET SPRUG O/A MILLER HULL

This person is designated to receive all communications, correspondence, determinations, and notices required by applicable development regulations.

Relationship to the Applicant: OWNER ARCHITECT

Mailing address: 71 COLUMBIA CIty: SEATTLE State WA Zip 98104

Phone: (206) 254 2097 FAX: (206) 689 5692 E-Mail: msprug@millerhull.com

Permit Services, Dawson Building, 5434 NE 182nd Street, phone (425) 484-8132, FAX (425) 484-2489. For more information, please contact Permits Technician. Permit intake and issuances are Monday through Friday, 9:00 am - 4:00 pm.
**Application for Fire Flow & Water/Sewer Certificate of Availability**
--- Bothell Service Area ---

**Permit Number** ___________________________  **Due date** ___________________________

**Applicant name** University of Washington, Dept. of General Administration  
**Mailing address** 206 General Administration Building, Olympia St, WA 98504-1012

**Phone** (360) 902-7271  **FAX** (____)  **E-mail Address** ___________________________

**Relation of applicant to property/project (check one)**  
- [ ] owner  
- [ ] contractor  
- [ ] other ___________________________

**Subject Property Parcel Number** 052605-9057  **Property Location/Address** 18225 NE Campus PKWY, 98011

**Property within City limits?**  
- [ ] Yes  
- [ ] No  
If no, has notice of intent to annex been submitted?  
- [ ] Yes  
- [ ] No

**Note:** Application for water/sewer service for properties outside the City limits are subject to the provisions of Resolution 544 as amended.

**Proposed development is / has:**
- [ ] New Development  
- [ ] Multifamily w/ #_____________ units  
- [ ] Failing Well  
- [ ] Plat w/ #_____________ lots  
- [ ] Existing Development  
- [ ] Failing Septic  
- [ ] Addition  
- [ ] Commercial (describe use below)  
- [ ] Other (describe below)

**Type of construction:**  
- [ ] I  
- [ ] II  
- [ ] III  
- [ ] IV  
- [ ] V  
- [ ] A  
- [ ] B  
**Occupy______# Stories/Floors:** ___________________________

**Sq. Ft. per Floor below ground:**  
- [ ] 1st  
- [ ] 2nd  

**Sq. Ft. per Floor above ground:**  
- [ ] 1st  
- [ ] 2nd  
- [ ] 3rd  
- [ ] 4th  
- [ ] 5th  
- [ ] 6th  
- [ ] 7th  
- [ ] 8th  
- [ ] 9th  
- [ ] 10th

**Sprinklered?**  
- [ ] Yes  
- [ ] No

This application is for (check all that apply):

**WATER**  
- [ ] Connection to existing main/line  
- [ ] Connection to existing service  
- [ ] System extension/improvement

**SEWER**  
- [ ] Connection to existing main  
- [ ] Connection to existing service  
- [ ] System extension/improvement

**FIRE FLOW**  
- [ ] Check for fire flow availability

**Three copies of the following information must accompany this application, with the applicable fee:**
- [ ] Site plan showing the address / location map of property.  
- [ ] Preliminary site plan to scale with dimensions showing location of utilities and buildings or,  
- [ ] For extensions or improvements, a preliminary site plan showing node (contour) elevations, main sizes, length and location  
- [ ] Signed notice of intent to annex, if property is outside City limits

**Applicant Signature** ___________________________  **Date** ___________________________

**Return required attachments and completed form with applicable fees to Permit Services.**

**THIS SECTION TO BE COMPLETED BY CITY OF BOTHELL:**

Per Fire Marshal, Development will require a fire flow of ________ gpm with ________ psi residual for a duration of ________ hours.

**Signed** ___________________________  **Date** ___________________________
City of Bothell Utility
Fixture Units and Water Meter Calculation Table
(for commercial and multi-family applications only)

Applicant’s Name: MARGARET SPRING COLLEGE

Service Address: 18345 CAMPUS WAY NE

Legal Description: SEE ATTACH

Tax ID #: 05260592059

Fire Sprinklers required by Fire Marshall? [ ] Yes [ ] No

Fire Sprinklers are provided (If yes, water meter sizing to be verified by Fire Protection System Engineer and provided to City of Bothell)

Distance between water meter and building: Length (L) = 60+ feet

Difference in elevation between the water meter and the highest point of service in building (H)

Height (H) = 30+ feet

Column “A” from 2000 Uniform Plumbing Code, Table 6-4

<table>
<thead>
<tr>
<th>Individual Count</th>
<th>“A” Units</th>
<th>“B” # of Units</th>
<th>“C” = “A” x “B”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bar Sink</td>
<td>1.0 General Use</td>
<td>2.0 Heavy Use</td>
<td></td>
</tr>
<tr>
<td>Bathtub or Combination Bath/Shower</td>
<td>3.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bidet</td>
<td>0.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinic Sink</td>
<td>2.5 General Use</td>
<td>4.0 Heavy Use</td>
<td></td>
</tr>
<tr>
<td>Clotheswasher</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dishwasher</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drinking Fountain or Watercooler</td>
<td>0.5 General Use</td>
<td>0.75 Heavy Use</td>
<td>3 15</td>
</tr>
<tr>
<td>Hose Bibb</td>
<td>2.5 General Use</td>
<td>2.5 Heavy Use</td>
<td>1 2.5</td>
</tr>
<tr>
<td>Hose Bibb, each additional</td>
<td>1.0</td>
<td></td>
<td>10 60</td>
</tr>
<tr>
<td>Kitchen Sink</td>
<td>1.0</td>
<td></td>
<td>7 10.5</td>
</tr>
<tr>
<td>Laundry Sink</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lavatory</td>
<td>0.5 General Use</td>
<td>1.0 Heavy Use</td>
<td>16 16</td>
</tr>
<tr>
<td>Lawn Sprinkler, each head</td>
<td>1.0</td>
<td></td>
<td>3 9</td>
</tr>
<tr>
<td>Service Sink or Mop Basin</td>
<td>2.0</td>
<td></td>
<td>2 4</td>
</tr>
<tr>
<td>Shower</td>
<td>5.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Cont. next page -
## Water Meter Sizing
### Commercial or Multi-Family

**Column “A” from 2000 Uniform Plumbing Code, Table 6-4**

<table>
<thead>
<tr>
<th>Individual Count</th>
<th>“A” Unit</th>
<th>“B” # of Units</th>
<th>“C” # “A” x “B”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urinal, 1.0 GPF</td>
<td>4.0</td>
<td>5.0</td>
<td>4</td>
</tr>
<tr>
<td>Urinal, greater than 1.0 GPF</td>
<td>5.0</td>
<td>6.0</td>
<td>30</td>
</tr>
<tr>
<td>Urinal, flush tank</td>
<td>3.0</td>
<td>4.0</td>
<td>12</td>
</tr>
<tr>
<td>Washfountain, circular spray</td>
<td>4.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Washup Sink, each set of facets</td>
<td>2.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Closet, 1.6 GPF Gravity Tank</td>
<td>2.5</td>
<td>2.5</td>
<td>5.3</td>
</tr>
<tr>
<td>Water Closet, 1.6 GPF Flushometer Tank</td>
<td>2.5</td>
<td>2.5</td>
<td>5.3</td>
</tr>
<tr>
<td>Water Closet, 1.6 GPF Flushometer Valve</td>
<td>5.0</td>
<td>5.0</td>
<td>25</td>
</tr>
<tr>
<td>Water Closet, 3.5 GPF Gravity Tank</td>
<td>3.0</td>
<td>5.5</td>
<td>16.5</td>
</tr>
<tr>
<td>Water Closet, 3.5 GPF Flushometer Valve</td>
<td>7.0</td>
<td>8.0</td>
<td>56</td>
</tr>
<tr>
<td>Whirlpool Bath or Combo Bath/Show</td>
<td>4.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**165.5 Total Fixture Units**

I, the undersigned, hereby declare under penalty of perjury of the laws of the State of Washington that the preceding information is true and correct to the best of my knowledge.

Applicant/Owner’s Signature

08-14-07 Date

**Instructions:**

Column “A” to the left shows the assigned value of each fixture in a single-family residence.

Column “B” is where the number of fixtures is written down.

Column “C” is determined by multiplying Column “A” times the number of fixtures in Column “B”.

Static Pressure at Meter: (PM) = _____ psi

Available Pressure at Highest Point: Meter Size ______

Ph = (PM - 0.433H) = _____ psi

Supply Line Length (L) = _____ foot

To Table 6-5 for meter size

Application Received By __________________________ Date ___________ Account # __________________________
# Non-Residential Sewer Use Certification

(To be completed for all new sewer connections, reconnections or change of use of existing connections.
This form does not apply to repairs or replacements of existing sewer connections.)

Pursuant to King County Ordinance No. 11034, all sewer customers who establish a new service which uses metropolitan sewage facilities after February 1, 1990 shall be subject to a capacity charge. The amount of the charge is established annually by the King County Council but is limited by state law to $10.50 per month per residential customer or residential customer equivalent for a period of fifteen years. The purpose of the charge is to recover costs of providing sewage treatment capacity for new sewer customers. The charge is collected semi-annually. All future billings can be prepaid at a discounted amount.

Questions regarding the capacity charge or this form should be referred to King County’s Wastewater Treatment Division at 864-1740.

(Please print or type)

State of Wash. /

Owner's Name: **CASCADIA COMM. COLLEGE**

Property Legal Address:

Subdivision Name:

Lot #:

Subdiv. #:

Block #:

Property Street:

Address: **18345 CAMPUS WAY NE**

City, State, Zip: **BOULDER, WA 98011**

Owner's Phone Number: **(425) 352-8269**

Owner's Mailing Address: (If different from above)

Property Tax ID #: **0526059007**

Building Name (if applicable): **CCC GLA**

Party to be Billed (If different from owner):

Party's Mailing Address: (If different from property address)

City or Sewer District:

Date of Connection:

Side Sewer Permit #:

## A. Fixture Units

<table>
<thead>
<tr>
<th>Kind of Fixture</th>
<th>Fixture Units</th>
<th>No. of Fixtures</th>
<th>Total Fixture Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bathubs and/or shower</td>
<td>4 Public</td>
<td>2 Private</td>
<td>6</td>
</tr>
<tr>
<td>Dental units or lavatory</td>
<td>1 Public</td>
<td>1 Private</td>
<td>2</td>
</tr>
<tr>
<td>Dishwasher</td>
<td>4 Public</td>
<td>2 Private</td>
<td>6</td>
</tr>
<tr>
<td>Drinking fountain (each head)</td>
<td>1 Public</td>
<td>1 Private</td>
<td>2</td>
</tr>
<tr>
<td>Hose bibb or sill cock</td>
<td>5 Public</td>
<td>3 Private</td>
<td>8</td>
</tr>
<tr>
<td>Laundry tub or clotheswasher</td>
<td>4 Public</td>
<td>2 Private</td>
<td>6</td>
</tr>
<tr>
<td>Sink, bar or lavatory</td>
<td>2 Public</td>
<td>1 Private</td>
<td>3</td>
</tr>
<tr>
<td>Sink, clinic, flushing</td>
<td>10 Public</td>
<td>10 Private</td>
<td>20</td>
</tr>
<tr>
<td>Sink, kitchen</td>
<td>4 Public</td>
<td>2 Private</td>
<td>6</td>
</tr>
<tr>
<td>Sink, other</td>
<td>4 Public</td>
<td>2 Private</td>
<td>6</td>
</tr>
<tr>
<td>Sink wash, circle spray</td>
<td>4 Public</td>
<td>4 Private</td>
<td>8</td>
</tr>
<tr>
<td>Urinal, flush tank</td>
<td>3 Public</td>
<td>3 Private</td>
<td>6</td>
</tr>
<tr>
<td>Urinal, pedestal</td>
<td>10 Public</td>
<td>10 Private</td>
<td>20</td>
</tr>
<tr>
<td>Urinal, wall or stall</td>
<td>5 Public</td>
<td>5 Private</td>
<td>10</td>
</tr>
<tr>
<td>Water closet tank</td>
<td>3 Public</td>
<td>3 Private</td>
<td>6</td>
</tr>
<tr>
<td>Water closet, flush valve</td>
<td>10 Public</td>
<td>6 Private</td>
<td>16</td>
</tr>
</tbody>
</table>

Total Fixture Units: **346**

Residential Customer Equivalents (RCE):

20 fixture units equal 1.0 RCE

Total No. of Fixture Units = **17.3** RCE

## B. Other Wastewater Flow

(In addition to Fixture Units identified in Section A)

Type of Facility/Process:

---

Estimated Wastewater Discharge:

---

Gallons/day

Residential Customer Equivalents (RCE):

187 gallons per day equals 1.0 RCE

Total Discharge (gal/day) = **187** RCE

## C. Total Residential Customer Equivalents:

(add A & B)

A

B

= 17.3 RCE

I certify that the information given is correct. I understand that the capacity charge levied will be based on this information and any deviation will require resubmission of corrected data for determination of a revised capacity charge.

Signature of Owner/Representative: **[Signature]**

Print Name of Owner/Representative: **TOKTA PHENGSAVATH/OTAK**

Date: **08/09/07**
Concurrence Application

FOR STAFF USE ONLY

PROJECT NAME ________________________________ CON # _____________

RELATED PERMITS ____________________________________________ RECEIPT # _____________

Applicant: Miller-Hull Partnership (Margaret Sprug)

Mailing address 71 Columbia St, 6th flr City Seattle State WA Zip 98102

Phone (206) 254-2039 FAX (206) 682-5692 E-Mail: msprug@millerhull.com

Property Owner: Cascadia Community College (Dee Sliney, Director of Auxiliary Services)

Mailing address 18345 Campus Wy NE City Bothell State WA Zip 98011

Phone (425) 352-8269 FAX (_______) ____________ E-Mail: dsliney@cascadia.edu

Are you categorically exempt from a Traffic Concurrency review? ☐ Yes ☑ No

If YES, sign this form without completing the remainder of the form. If NO, continue completing this form. See Information Sheet for exemptions. Applicant may be required to provide proof of exemption.

Traffic Engineer: Robert Bernstein, P.E.

contact Robert Bernstein

Mailing address 507 – 18th Ave E City Seattle State WA Zip 98112

Phone (206) 325-4320 FAX (_______) ____________ E-Mail: RBernstein.CE76@GTalumni.org

Property Information:

site address 18345 Campus Wy NE; Bothell, WA assessor parcel number(s) 0526059057

plat name/lot # __________________ size of property 128 Ac

legal description (attach separate sheet if necessary) __________________________________________________________

comprehensive plan sub-area NC-1

Is this an update to an active concurrency application? ☐ Yes ☑ No

Has property previously been reviewed for concurrency? ☐ Yes ☑ No

If yes, date of original application ___________ Concurrency permit number CON _____________

Is this application made in conjunction with a land-use permit or construction permit application? ☐ yes ☐ no

If yes, type of permit ____________________ Permit number ____________________________

Existing use of property (attach separate sheet if necessary) _________________________________________________________________

Univ of Washington-Bothell/Cascadia Comm Coll co-located campus
Transportation Impact Analysis

Existing number of PM peak hour trips: 0
Proposed use(s): 50,400 GSF academic building

Number of new PM peak hour trips: 285

**Phasing Information:**
- Will project be phased? ☐ yes ☒ no

<table>
<thead>
<tr>
<th>Phase</th>
<th>Use</th>
<th>Size</th>
<th>PM Trips</th>
<th>Date</th>
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**Reservation Capacity:**
- Will applicant seek to obtain a building permit during the encumbrance period? ☒ Yes ☐ No
- Will applicant seek to reserve capacity during the encumbrance period? ☐ Yes ☒ No

Proposed length of reservation: ☐ Up to 2 years ☐ Up to 3 years ☐ Up to 5 years

**Permit Submittal:** The following items are required for all applications:

- ☐ Completed & signed Concurrency Application (page 1)
- ☐ Written consent of the property owner(s), if different from the applicant
- ☐ Legal Description of property
- ☐ Hearing Examiner’s decision, SEPA determination, Concomitant Agreement, or any other previous land use determinations which apply to the subject property. (Does not apply to all applications.)
- ☐ Transportation Impact Analysis Checklist (attached, completed and stamped)
- ☐ Traffic Study (3 copies -- one, unbound)
- ☐ Site Plan with Vicinity Map (2 sets)
- ☐ Completed Safe Walk form (applicable for residential short plats and subdivisions only).
- ☐ Completed Snohomish County Traffic Mitigation Offer & Traffic Worksheet (2 copies)
- ☐ Concurrency Surcharge Fee:
  - ☐ $769.00 (project generates 3-19 peak hour trips)
  - ☐ $1,538.00 (project generates 20-50 peak hour trips)
  - ☐ $2,563.00 (project generates more than 50 peak hour trips)

It is the applicant’s responsibility to know Code requirements and provide all necessary information required for project review.

Applicant / Owner or Applicant / Non-Owner (circle one) Signature

Date

I hereby authorize City representative(s) to inspect my property Monday-Friday between the hours of 8 a.m. and 5 p.m. during this permit application process for purposes of verifying site conditions.
Transportation Impact Analysis

This intake checklist identifies minimum application elements necessary for the City of Dothell to accept the application. Should any of the following minimum items not be provided, the application will not be accepted at the counter. Acceptance of an application indicates a complete application.

Applicant: You will need an intake appointment for this submittal, please contact a Permit Technician to schedule your appointment. This checklist is to be completed by a licensed engineer familiar with the traffic analysis submittal. Check each box under the Applicant heading on this checklist to confirm items are included in your submittal. A Permit Technician will check off each box under Staff when the item is confirmed to be included in the submittal package. If you think an item is not applicable to your project, you must contact the City Traffic Engineer prior to your intake appointment to have the item(s) initialed as not required.

Three (3) copies of all pertinent traffic related information for the submittal, including a minimum of one unbound copy of traffic study, are required.

Applicant

Project Description
[X] Project type and size
[X] Project location, with vicinity map
[X] Proposed site access, with site plan (reduced size, ok)
[X] Horizon planning year

Existing Conditions
[X] Existing traffic volumes, daily and peak hour turning movement
[X] All counts completed within one year prior to the application date
[X] Roadway network, including traffic control
[X] Level of service calculations at impacted corridors and site entrances
[X] Parking supply [addressed in UW-B/CCC Campus PUD]

Accident/Safety Conditions
[X] Sight distance analysis at intersections and access points [addressed in UW-B/CCC Campus PUD]
[X] Clear zone analysis [addressed in UW-B/CCC Campus PUD]

Trip Generation and Distribution
[X] Trip generation using the latest ITE Generation Manual or other approval method
[X] Trip distribution map showing turning movements assigned to roadway network
[X] Parking generation analysis using the latest ITE Parking Generation Manual or other [addressed in UW-B/CCC Campus PUD]

Public Transit and Non-Motorized Facilities
[X] Identification of existing transit service [addressed in UW-B/CCC Campus PUD]
[X] Identification of existing trails, bicycle lanes, and other non-motorized facilities [addressed in UW-B/CCC Campus PUD]
Transportation Impact Analysis

Applicant

Future Conditions

☐ Annual growth rate determined by actual data or other approved source.................................

☐ Future conditions, with and without the project, with commentary on compliance with concurrency requirements as needed.

☐ Level of Service calculations sheets at all impacted corridors and site access points, with and without the proposed project.

☐ Parking demand analysis [addressed in UW-B/CCC Campus PUD]

☐ Effect of proposed development on public transit and non-motorized facilities ..................

☐ Any transportation facilities proposed by the Comprehensive Plan which may effect the development or study area.

Mitigation Measures

☐ All developments are subject to the City’s Traffic Mitigation Ordinance and mitigation payments are calculated accordingly. [addressed in UW-B/CCC Campus PUD]

☐ Proposed mitigation to correct any deficiencies not addressed through the Traffic Mitigation Ordinance, consistent with provisions in the Bothell Municipal Code, in particular but not limited to, Title 14 (Environment), Title 15 (Subdivision), Title 17 (Transportation) and Title 21 (Development Impacts). [addressed in UW-B/CCC Campus PUD]

☐ Dedication of right-of-way and associated frontage improvements ...........................................

☐ Evaluation of change in accident potential with proposals to correct safety deficiencies ..........

☐ Offer of traffic impact fees to Snohomish County per the Interlocal Agreement.

Other

☐ Analysis of internal site circulation for vehicles, transit, handicap access and other evaluations determined at project scoping. [addressed in UW-B/CCC Campus PUD]

☐ Safe Walk Route Assessment—applicable to residential short plat and subdivisions only ...........

More detailed requirements for the preparation of the study provided by Transportation Impact Analysis, form V.

To the best of my knowledge, the enclosed traffic study includes the before mentioned items. I understand that failure to include all areas of discussion as described herein, will result in an application being determined inconsistent with Bothell Code and may result in delays of the subject application.

Place professional stamp here

Signature

4 February 2008

Date

Permit Services, Dawson Building, 9654 NE 182nd Street, phone (425) 486-8152, FAX (425) 486-2430. For more information, please contact a Permit Technician. Permit intake and issuance hours are Monday through Friday, 9:00am - 4:00pm.

Page 4 of 4

Updated 12/07
Snohomish County Traffic Worksheet and Traffic Study Requirements for Developments in the City of Bothell

Snohomish County government, through an interlocal agreement (ILA) with the City of Bothell, may request traffic mitigation measures from any new development in the city that impacts roads in the unincorporated county. The City will impose the requested mitigation to the extent that the City determines that the mitigation is reasonably related to the impacts of the development. To determine the impacts, and to determine reasonable mitigation measures, the City of Bothell requires a traffic study from any development in the city that may have impacts on county roads. This 'traffic study' may be as simple as completing sections one and two of the county traffic worksheet below, or having a professional traffic engineer conduct a formal traffic study consistent with the requirements in section three below.

• If a development generates less than fifty peak-hour trips and the applicant chooses Option A for mitigation payment (standard payment by percent of county impact fee), then the applicant will generally only have to fill out the first two sections of this traffic worksheet and complete a mitigation offer (see section four).
• However, if a development generates more than fifty peak-hour trips, or if the applicant chooses Option B for mitigation payment (comprehensive impact analysis), then the applicant will have to fill out the first section of this worksheet, complete a separate traffic study consistent with the requirements in section three, and complete a mitigation offer (see Section Four).
• Applicants should submit all documents to the City as part of their initial submittal.
• Traffic study requirements for impacts on county roads are based on the County's traffic mitigation ordinance (Chapter 30.68B) and the city/county ILA. At the end of this document find references to the county contacts and county web site (sources for may of the documents related to traffic mitigation).
• Following review of the documents submitted, the County may request supplemental information and analysis as necessary to determine the impacts of the development in accordance with the city/county ILA. The City will require the proposed development to submit the supplemental information and analysis to the extent that the City determines that it is necessary to determine the impacts of the development.

Section One (1) Worksheet General Information
1. Name of Proposed Development: Cascadia CC Global Center for Learning & The Arts

City Development File Number (if known),

2. Name, Address and Phone Number of Applicant: Margaret Sprug, Miller-Hull Partnership

71 Columbia St, 6th flr; Seattle, WA 98102

(206) 254-2039

3. Development Site Address: 18345 Campus Wy NE; Bothell, WA

4. Is it a residential or commercial development? Institutional (College)

5. Description of Development (size and specific type): 3-story, 50,400 GSF academic building (accommodates 900 FTE students)

6. How many new vehicle trips are expected to be generated by the proposed development? (For many common types of developments this information can be provided by the city or the county. For more complex developments trip generation may have to be determined under section three below)

270 AM Peak Hour 285 PM Peak Hour 870 Average Daily Trips (ADT)

7. Proportionate Share Impact Mitigation: All applicants have two options in determining the amount of their traffic mitigation payment:

   X For determining the amount based on a percentage of the county fee go to section two.

   For determining the amount based on a comprehensive traffic study go to section three.
Section Two (2) Proportionate Share Determined by Percentage of County Impact Fee

2(a) Calculation of Payment Amount

1. Standard default estimated percentage of trips impacting the City streets based on subareas
   (See below) **10 %**

2. Other Percentage: (Note: See author’s qualifications in section three below.) Estimated percentage of trips impacting county roads from attached trip distribution: **0 %**

Table One: Descriptions of City Subareas

<table>
<thead>
<tr>
<th>Sub-Area ID#</th>
<th>Descriptions</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>City Area 1</td>
<td>South of SR 524, North/East of I-405, North of 233rd St SE</td>
<td>40%</td>
</tr>
<tr>
<td>City Area 2</td>
<td>South/West of I-405, North of County Line</td>
<td>20%</td>
</tr>
<tr>
<td>City Area 3</td>
<td>East of I-405, South of 233rd St SE, North of SR 522</td>
<td>25%</td>
</tr>
<tr>
<td>City Area 4</td>
<td>West of I-405, West of 124th Ave NE (to the south of SR 522), South of County Line</td>
<td>10%</td>
</tr>
</tbody>
</table>

3. Development New Average Daily Trip Generation (ADT) **870**

4. Type of Development (Residential or Commercial), **Institutional (College)**

5. County Commercial Fee Rate $**196**
6. County Residential Fee Rate $

(Note: Consistent with county code and the ILA, developments pay the rate in effect at the time of their submittal. As of 2/1/06 the rates were $196 for commercial developments and $230 for residential developments. Through ordinance, the County Council can change these rates at any time, so consult with the County or look at Snohomish County Code 30.66B.330 to find the latest fee rates.)

7. Calculation of Proportionate Share Impact Mitigation

\[
\frac{10\%}{\text{#1 or #2 above: \% of trips}} \times \frac{870}{\text{#3 above: ADT}} \times \frac{196}{\text{#5 or #6 above: Fee Rate}} = \$17,052
\]

proportionate share mitigating payment
2(b) Determining whether or not an additional traffic study is necessary

Will the development generate more than 50 peak-hour trips or are there other impacts that need to be addressed (e.g., level of service, safety, or access and circulation)

X No. Skip section three and go to section four.

Yes. Read the introduction to section three and skip to section 3(b).

Section Three (3) Traffic Study Requirements

Introduction: This section outlines requirements for traffic studies for impacts on County roads. If an applicant chooses (or is required) to complete a traffic study, then it should be submitted along with this worksheet and a mitigation offer. (Note on Author's Qualifications: A traffic study under this section must be conducted by an engineer licensed to practice in the state of Washington with special training and experience in traffic engineering and, preferably, membership in the institute of transportation engineers. For individuals/firms not on the City's approved list, the developer will provide, with the traffic study, the credentials of the individual or firm performing the traffic study certifying compliance with these qualifications.)

3(a) Proportionate share impact mitigation based on comprehensive traffic study

1. Development's Trip Generation and Distribution. Determine the PM peak-hour trip generation and distribution for the development consistent with Section 3(b) below.

2. Impacted Improvements. Determine which of the road sections with planned improvements in the county's impact fee cost basis (Transportation Needs Report Appendix D) are impacted by three or more development-generated directional PM peak hour trips (PM PHT).

3. Current Counts. For each impacted improvement, provide current traffic counts to determine the PM PHT.

4. Reserve Capacity. Determine "reserve capacity" for each impacted improvement by subtracting the current PM PHT from the maximum service volume (MSV) for the existing facility. Reserve capacity is set to zero if current PM PHT exceeds the MSV. For MSVs see County DPW Rule 4224.

5. New Capacity. New capacity is the incremental increase in PHT that could be accommodated with the planned improvement. Determine the new capacity of each impacted improvement by subtracting the current MSV from the future MSV after the improvement.

6. Chargeable Capacity. For each impacted improvement, add the reserve capacity to the new capacity.

7. Final Adjusted Cost. Find the cost of each impacted improvement and make any adjustments used by the County for tax credits (see Transportation Needs Report Appendix D).

8. Capacity Cost per Peak-Hour Trip. For each impacted improvement, determine the capacity cost per PM PHT by dividing the final adjusted improvement cost by the chargeable capacity.

9. Traffic Impacts. From step one above, take the total number of PM PHT (in both directions) impacting each planned improvement.

10. Proportionate Share. For each impacted improvement, determine the proportionate share impact mitigation by multiplying the capacity cost per peak-hour trip by the number of PM PHT impacting the improvement.

3(b) Trip Generation and AM and PM Peak Hour Trip Distribution and Assignment

Calculate AM, PM and Daily trip generation consistent with the ITE Trip Generation Handbook and Snohomish County Public Works Rule 4220. Determine the trip distribution and assignments consistent with the County's document titled "Format for Trip Distributions" (available as County web site, see below).

- Within the developments transportation service area (TSA) the distributions will be carried out to each key intersection at which the approach or departure volumes on any leg have three (3) or more peak hour trips. Get the most current list of key intersections on the web site described below. Trips should be distributed onto the road system as it is expected to be in six years.

- The distribution should be a schematic map showing the broad distributions of trips in terms of percentages on different roads. Show all City boundaries.

- The assignment should be a schematic map with the impacted key intersections identified by ID# and turning movements for each shown in separate diagrams on the same page or on different pages. The assignment should also be presented in tabular form listing each intersection by intersection ID#, and the number of trips at each movement.

Page 3 of 6, County Traffic Workshop for Development of Bullet
3(c) Additional Analysis for Developments Generating More Than Fifty (50) Peak Hour Trips

For large developments (i.e., those generating more than 50 peak-hour trips), the County may request mitigation for impacts on the level of service of County roads, documented safety locations (the County calls such locations “inadequate road conditions” or “IRCs”), and access or circulation. The traffic study requirements below are intended to disclose impacts. Based on this information the County may request through the City that the applicant provide additional information showing possible mitigation measures. If any off-site improvements were needed for mitigation the County would work with the applicant to determine requirements for right-of-way, construction plans, right-of-way use permits, construction/maintenance bonds, and other issues.

**Impacts on Level of Service (LOS) of County Arterials**

Contact Snohomish County Public Works for the most current list of arterial units in arrears and critical arterial units. Identify any arterial units in arrears or critical arterial units impacted by three or more directional peak-hour trips.

**Impacts on Inadequate Road Conditions**

Contact Snohomish County Public Works for a list of the current IRCs. Identify any IRCs impacted by three or more peak-hour trips. Note: Unlike LOS impacts in which at least three or more peak hour trips have to be added in one direction to require disclosure (e.g., 3 westbound), for IRCs, any three peak hour trips added to IRC locations are considered an impact for which disclosure is necessary (e.g., 2 westbound plus 1 eastbound).

**Impacts on Access or Circulation**

The County may request improvements to existing roads to provide safe and efficient access and/or circulation. In some instances, the County may request provisions for future County roads identified in the Comprehensive Plan or in Small Area Transportation Studies. If so, the County will request specific additional information through the City.

---

**Section Four (4) Traffic Mitigation Offer to Snohomish County**

The applicant should complete a traffic mitigation offer to Snohomish County that summarizes the mitigation identified in the county traffic worksheet and any additional traffic study. This will facilitate timely review of the development and processing of the application. The form to use for the mitigation offer is titled “Traffic Mitigation Offer to Snohomish County.” This form is typically provided to all applicants along with this traffic study checklist. In addition, copies are available from the county contacts or the Snohomish County web site shown below.

**Additional Information**

**County Web Site**

Snohomish County Public Works has a web site with many documents related to traffic studies and mitigation requirements for developers. From the Snohomish County Home Page go to:

Departments/Public Works/Divisions/TES/ProgramPlanning/3066B

**County Contacts**

- Deb Werdal, Snohomish County DPW Traffic, 3000 Rockefeller M/S 607, Everett WA 98201, (425) 388-3184, debra.werdal@co.snohomish.wa.us

- John Davis, Snohomish County DPW Program Planning, 3000 Rockefeller M/S 607, Everett WA 98201, (425) 388-3488 extension 4507, john.davis@co.snohomish.wa.us
Traffic Mitigation Offer to Snohomish County

The applicant completes part one and submits it to the city with a completed county traffic worksheet. The city completes part two and sends it to the county. The county completes part three and sends it back to the city.

Part One to be completed by Applicant

Basic Development Information

Name of City in which development is located: Bothell
Name of Proposed Development: Cascadia Comm Coll Global Center for Learning & The Arts
City Project File Number (if known):
Name of Applicant: Margaret Sprug, Miller-Hull Partnership
Address of Applicant: 71 Columbia St, 6th flr; Seattle, WA 98102

Proportionate Share Calculation: Choose Option A or B

[X] Option A: Based on a percentage of the County's adopted impact fee (Attach traffic worksheet.)

1. The applicable percentage of the County's fee: 10%
3. The adopted County impact fee for this development: 196 $/ADT
4. Total Proportionate Share Amount: $ 17,052

☐ Option B: Based on a comprehensive traffic study (Attach traffic worksheet and traffic study)

☐ No road improvements are impacted. Hence, proportionate share amount is zero.
☐ The following road improvements are impacted. The calculation of proportionate shares is summarized below.

List by Names/Description the Impacted County Projects (attach other pages if necessary)

<table>
<thead>
<tr>
<th>County Project</th>
<th>PHTs Impacted</th>
<th>Capacity Cost per PHT</th>
<th>Proportionate Share Obligation per Impacted Project</th>
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</table>
4. Total Proportionate Share Amount (sum of obligations for each impacted project) $ _______________

☐ Trip Distribution and Assignment if Required

If required, attach AM and PM peak-hour trip distribution and assignment. (Attach traffic worksheet showing whether or not it is required and traffic study).

☐ Mitigation of Other Impacts if Required for Developments Generating More Than 50 Peak-Hour Trips

Mitigation of Impacts on Level of Service

[X] No impact or not applicable ☐ Mitigation as described in attached traffic study.

Mitigation of Impacts on Inadequate Road Conditions

[X] No impact or not applicable ☐ Mitigation as described in attached traffic study.

Mitigation for Impacts on Access or Circulation

[X] No impact or not applicable ☐ Mitigation as described in attached traffic study.

☐ Written Offer

The Applicant hereby voluntarily agrees to pay the total proportionate share amount shown above for impacts of the proposed development on the capacity of Snohomish County roads and provide mitigation of all other impacts as indicated above and described in attached documents.

BY: ____________________________ Date __________

Signature by Authorized Official of Applicant or Authorized Representative

Print Name and Title ____________________________

Instructions to Applicant: Submit this offer, a completed county traffic worksheet, and any other attachments to the city with your initial application or send directly to Deb Werdal, Snohomish Co. DPW Traffic, 3000 Rockefeller M/S 607, Everett WA 98201.
### Part Two: To be completed by the City

**Receipt of Written Offer and Attachments by City and Routing to County**

Name of Proposed Development  
City Project File Number  
Date Received  
City Staffer Assigned to Project  
Address  
Phone  

**Instructions to City:** Send this offer and all attachments to Deb Werdal, Snohomish Co. DPW Traffic Operations, 3000 Rockefeller M/S 607, Everett WA 98201. Send copy to staffer shown above.

**BY:**

| Date | Initiated by City Staffer | Print Name and Title |

### Part Three: To be completed by Snohomish County

**Receipt of Offer and Attachments by Snohomish County and Routing Back to City**

Name of Proposed Development  
City Project File Number

**Received by:**

| Date | Initiated by County Staffer | Print Name and Title |

**Snohomish County Mitigation Request to City**

Snohomish County has reviewed the traffic study worksheet and mitigation offer submitted by the applicant and has determined as follows:

- [ ] Snohomish County requests that the City impose the mitigation offered above as a condition of approval for the Development. Snohomish County agrees to accept changes in the mitigation payment amount shown above resulting from TDM or lot-yield adjustments approved by the City.

- [ ] Snohomish County requests that the City require additional supplemental information to adequately evaluate the proposed development's impacts. The information requested is shown in the notes below.

**BY:**

| Date | Signature by Authorized County Staffer | Print Name and Title |

**Routing Back to City**

**Instructions to County:** Send this offer and all attachments to the City Staffer shown in Part Two above.

**Sent by:**

| Date | Initiated by City Staffer | Print Name and Title |

**Notes**
Notes from the Pre-application Conference
The project being proposed is a building to house the Global Learning and Arts center. The new building will be located 18345 Campus Way.

Specific case comments

1) The civil engineering drawings must conform to section 1-9 PLAN REVIEW, as outlined in the Bothell Standards.

2) Please provide the property’s address with your permit submittal.

3) All details used must be consistent with the Bothell Standards. All details referenced in the plans must show in the plans.

4) Sanitary sewer and water availability letters are required to apply for a commercial building. Contact the City of Bothell for the sanitary sewer and potable water availability letter.

5) Documentation must be provided showing how the new building was included in the initial storm drainage design for the total site. If this building site was not included in the master plan for the total site, additional storm water systems will be required. The new Storm water detention and water quality facilities must comply with the City of Bothell Surface Water Design Manual. All runoff must be conveyed to the natural location. All storm water facilities must be located outside any sensitive area or its associated buffer.

6) No frontage improvements are required.

7) All structures must be at least 12.5 feet from the centerline of all water mains on site. It appears that there is an encroachment within 12.5 feet of water main located in the Promenade walkway by the seating walls.
8) All water meters, fire backflow vaults and reduced pressure backflow assembly units need to be shown in the plan set submitted.

Applicable Permits

The permits needed for the proposal are: (highlight box and double click on it to check the applicable boxes)

☐ Grading
☐ Utility
☐ Right of Way
☐ Building (Rockery over 4' in height or in a fill area)
☐ Other ____________________________
The following work can be commenced prior to the issuance of development permits, provided written notice is provided to the city prior to commencing such work:

Work necessary for land use submittals, such as surveys, soil logs, percolation tests, and other related activities, where such activities do not require construction of new roads or significant amounts of excavation. In every case, impacts shall be the minimum necessary and disturbed areas shall be immediately restored.

### Applicable Codes and Development Standards

Codes that will apply to the proposal:

- 2000 City of Bothell Design and Construction Standards and Specifications
- King Co Surface Water Design Manual
- 2000 WSDOT Standard Specifications for Road, Bridge and Municipal Construction
- King County DOH for Sewage Works Design Criteria
- The Manual on Uniform Traffic Control Devices (MUTCD)
- "Imagine Bothell" Comprehensive Plan

**BMC Title 17 - Transportation (incl. but not limited to the following subsections)**
- 17.02 - Adoption of Bothell Standards
- 17.05 - Streets
- 17.06 - Driveways
- 17.07 - Dedication of Right-of-Way
- 17.08 - Construction
- 17.09 - Frontage Improvements

**BMC Title 18 - Utilities Infrastructure (incl. but not limited to the following subsections)**
- 18.02 - Adoption of Bothell Standards
- 18.04 - Stormwater and Drainage Control
- 18.03 - Sanitary Sewer
- 18.06 - Potable Water

**End of comments.**
CITY OF BOTHELL
CONSISTENCY REPORT

FIRE MARSHAL'S OFFICE

PRE Application No: PRE2007-00005
Name of project: Cascadia Community College
Date of pre-application meeting: 3/2/2007
Reviewing staff, title: Lt. Randy Parkhurst
Telephone number: 425-489-4873
E-mail address: randy.parkhurst@ci.bothell.wa.us

Summary of Proposal:
Proposed is a 3 story, 60,400 sq ft building.

Specific case comments
The following items are important for the applicant/proponent to consider in preparing the application:

General requirements and information:

1. The fire alarm remote annunciator or fire alarm panel, exterior bell/strobe, Knox key box, sprinkler system FDC, sprinkler system PIV or OS&Y, and sprinkler riser room should all be located close to one another in a location acceptable to the Fire Marshal.
2. Fire extinguishers rated 2A10BC shall be provided throughout the occupancy for light hazard occupancies, with a maximum of 75 feet of travel distance to any extinguisher. Higher hazard occupancies will require more or higher-rated extinguishers.
3. In all commercial structures two stories or greater all required exits, on floors above ground level, will be ADA accessible.

Fire Department Access

4. All portions of the first floor of the occupancy must be within 150 feet of fire apparatus access, as measured by an approved route around the exterior of the facility.
5. Approved access and level areas shall be provided for ground ladders at all rescue openings. Exterior doors and openings required by the IFC or the IBC shall be maintained readily accessible for emergency access by the fire department. An approved access walkway leading from the fire apparatus access roads to the exterior openings shall be provided. Access shall be approved by the Fire Marshal.
6. Access roads shall not exceed 15% grade.
7. If a dead end access roadway is in excess of 150 feet in length, an approved fire apparatus turn around shall be provided. Maximum length allowed is 450 feet, per BMC Title 17.
8. The access shall support the weight of the fire apparatus (35 tons) and point load of 75 psi for aerial downriggers.

9. Roadways and lanes on site shall provide a minimum 20-foot wide unobstructed path of travel for fire apparatus.

10. Turns must provide a 30-foot inside turning radius. Height vary.

11. Overhead clearance must be at least 13 feet 6 inches.

12. Areas in front of fire hydrants and FDC’s, or where parking could interfere with required fire apparatus access shall have the curb painted red, and have “NO PARKING - FIRE LANE” marked in white 18” high letters on the pavement, or indicated by signs readable from either direction.

13. Landscaping or obstructions shall not block visibility of or access to required fire systems or signage.

14. All access roads shall be installed and operational prior to the start of combustible construction, without exception. ATB or the first lift of asphalt is acceptable.

15. All buildings having fire protection systems shall be provided with a Knox key box for emergency access. Contact the Fire Department to order the Knox box.

Water Supply and Fire Hydrants

16. Submit a site plan, showing property lines, the building location and square footage, construction type, and planned occupancy usage. The Fire Department will review this and determine the required fire flow.


18. Prior to issuance of the building permit, the developer must provide information from the water purveyor showing that the required fire flow is available to the site.

19. In buildings requiring greater than 3000 GPM, hydrants shall be placed on all sides, spaced 300 feet on center as measured 50 feet from the building, with Fire department vehicle access on all sides.

20. Fire hydrants shall be located a minimum of 40 feet from the structure where possible.

21. See Bothell Municipal Code 20.32 or the water purveyor, or contact the Fire Department for hydrant specifications, number and placement of hydrants.

22. All water mains and fire hydrants shall be installed and operational prior to the start of combustible construction, without exception.

23. The existing fire hydrants shall be up-graded with 4” storz adapters.

Signage

24. The building address shall be posted on all driving-accessible sides of the building and be clearly readable from the roadway in front of the property.

25. Rooms containing or exterior man doors adjacent to fire alarm panels and sprinkler risers shall have signage indicating “Fire Alarm Panel” and “Sprinkler Riser” or “Sprinkler Room”.

26. building addres.
Sprinklers  (see also Permits and Inspections)
26. An approved fire sprinkler system meeting NFPA13 standards is required.
28. Buildings three stories or greater are required by BMC 20.04 to have standpipes.
29. Systems with greater than 25 sprinklers shall be monitored by a UL-listed, state-licensed central station.
30. Exterior exit corridors and porches shall be provided with sprinkler protection.
31. The sprinkler system fire department connection (FDC) for each building should be located by the fire system control room. The FDC shall be permanently labeled with a metal sign indicating its purpose and area supplied, using a stamped plate or collar on the FDC.
32. Post-indicating valves shall be located at least 40 feet from the structure where possible.
33. Sprinklers installed as part of new construction shall be subject to a hydrostatic test and inspection by the Fire Department.
34. Plans and manufacturer’s specifications and listings must be submitted for review and approval for all fire suppression system work.
35. Upon completion of sprinkler system underground and aboveground installation, provide the Fire Department with a Contractor’s Material and Test Certificate in accordance with NFPA 13. The state license stamp must be on the certificate.

Fire Alarm Systems  (see also Permits and Inspections)
36. An approved fire detection system conforming to NFPA 72 shall be installed which are not protected by an approved automatic fire extinguishing system. Detection is not required for spaces protected with an approved automatic fire extinguishing system.
37. This building shall have fire alarm audible and visible notification conforming to NFPA 72.
38. Monitored fire alarm systems must transmit separate alarms for general fire, waterflow, tamper and trouble.
39. The monitoring medium for the fire alarm system shall be multiplex or scan alert. Digital communicators are not allowed by the City of Bothell.
40. Remote alarm annunciator panels will be required if the control panel is not visible and clearly readable from outside the building.
41. All alarm systems shall have a 10” bell/strobe installed on the exterior of the building in a location acceptable to the Fire Marshal, with a sign reading “When alarm sounds, call Fire Department”.
42. Fire alarm control panels and annunciators shall be located such that the top of the panel is no higher than 5 feet above the floor.
43. Panels may not be silenced when a water flow condition exists until the water stops flowing.
44. Concealed fire detection devices shall have remote LED indicators provided in a visible location. This includes devices in HVAC units.
45. Pull stations are required at all exits.
46. Plans and manufacturer’s specifications and listings must be submitted for review and approval for all fire alarm work.
47. Upon completion of fire alarm system installation, provide the Fire Department with a completed City of Bothell Contractor’s Material and Test Certificate for Fire Alarm and Fire Detector Systems. Contact the Fire Department to obtain a blank form.
48. Fire alarm systems require semi-annual servicing.

Permits, Inspections

49. Deferred submittals for Fire Department permits are required for installation or modification to fire suppression and fire alarm systems. For fee information please contact our office.
50. A flush and hydrostatic test of underground fire lines is required and shall be witnessed by the Fire Department.
51. A hydrostatic test of aboveground sprinkler piping is required and shall be witnessed by the Fire Department.
52. A Fire Department inspection of sprinkler piping and bracing and above-ceiling fire detectors and wiring is required prior to installation of ceiling cover.
53. A final Fire Department inspection is required prior to issuance of the Certificate of Occupancy.

Elevators

54. The elevators shall comply with state requirements for construction, and the car enclosure materials must meet the requirements of ASME A17.1, Safety Code for Elevators and Escalators.
55. Fire detection shall be provided for both the hoistway and machine room.
CITY OF BOTHELL
PRE-APPLICATION REPORT

Forms are available online at www.ci.bothell.wa.us or from the permit technician.

### Applicable Codes and Development Standards

**General Codes and Standards.** Projects must comply with the following codes and standards:

- Bothell Municipal Code, Chapter 20 - Buildings and Construction
- City of Bothell Fire Alarm Policy
- NFPA 72 standard on fire alarm systems
- NFPA 13, 13D, 13R standards on sprinkler systems
- Other applicable NFPA standards

**Telephone:** 425/489-4873  
**Fax:** 425/481-4335

**Address:** Fire & Hazard Prevention Bureau  
9654 NE 182nd St.  
Bothell, WA 98011

**E-mail**  
Fire Marshal Denny Wright – denny.wright@ci.bothell.wa.us  
Fire Plans Examiner Randy Parkhurst- randy.parkhurst@ci.bothell.wa.us  
Sr. Admin Assistant Lori Lord – lori.lord@ci.bothell.wa.us

### Applicable Permits

The permits needed for the proposal are:

- [ ] Fire suppression systems  
- [ ] Underground fire line  
- [ ] Fire detection & alarm systems  
- [ ] Alarm monitoring  
- [ ] Standpipe (spec sys)  
- [ ] Range hood (spec sys)  
- [ ] Flam/comb liquid tank install  
- [ ] Flam/comb liquid tank removal  
- [ ] Propane tank install  
- [ ] Hazardous materials  
- [ ] High piled combustible materials  
- [ ] Asbestos removal  
- [ ] Battery systems  
- [ ] Spraying or Dipping  
- [ ] Refrigeration equipment  
- [ ] Other______________
CITY OF BOTHELL
PRE-APPLICATION REPORT

TRANSPORTATION ENGINEERING DIVISION

Pre-Application No.          PRE2007-00005;     PRJ Not Known
Name of project:             Cascadia Community College
Date of pre-application meeting: March 27, 2007, 10:00 am
Reviewing staff, title:      Wasim Khan, P.E
                            Transportation Engineer
Telephone number:            425-486-2768
E-mail address:              wasim.khan@ci.bothell.wa.us

Summary of Proposal:
Pre-application meeting to discuss the proposal of constructing 60,000 sft new building.

Specific case comments:
The following items are important for the applicant/proponent to consider in preparing the application:

TRAFFIC REVIEW

1) The project is subject to Transportation Impact Fees per Bothell Municipal Code
   17.045. The fees shown in the fee schedule are used as the basis for estimating the
   traffic fees for the project. The actual fees are determined at time of building permit
   issuance and are subject to change up until that time.

2) A Transportation Impact Analysis (TIA) shall be required. The TIA must adhere to
   Bothell Transportation Impact Analysis Guidelines (see form Q). The concurrency and
   Transportation Impact Analysis must be completed and submitted for review of SEPA.
   SEPA will not be issued until the traffic study is accepted as final and reviewed for
   consistency by the City.

3) The project is subject to Concurrency per Bothell Municipal Code Title 17.03 (see
   form Q) if any intersection(s) from the City’s concurrency intersection lists, is affected
   by ten PM peak hour trips as a minimum. The concept of concurrency is based on the
   maintenance of specific level of service (LOS) with respect to intersections. Concurrency
   is a multi-step process and it is the responsibility of the applicant to submit
appropriate information in a timely manner consistent with the concurrency provisions. The applicant must receive a **Concurrency Encumbrance Letter** prior to the City’s issuance of any development permit.

4) Level of service (LOS) shall be calculated using the latest version of Trafficware’s **Synchro Software** or other methodology approved by the City Transportation Engineer.

5) Include applicable pipeline traffic (background traffic volumes). The City will provide applicable traffic upon request by the traffic consultant. The applicant should be aware that traffic studies are time sensitive, and **it is important to use the most recent information available**. For this reason, the City only provides background data upon request by the traffic consultant and the information provided is subject to change. The applicant’s consultant should closely coordinate their preparation of the traffic study with City staff to ensure that a reasonable and accurate analysis is submitted with the application.

6) The analysis must include a calculation of **traffic impact fees**, project compliance to concurrency, and contributions on a pro-rata basis to improvements in the City’s adopted 6-yr. Transportation Improvement Program (TIP) project list affected by site generated traffic.

7) The project may be subject to additional mitigation obligations as determined by traffic analysis and consistent with BMC Title 17. See in particular BMC Chapter 17.04.

8) Currently, the interlocal agreement between the City and the Snohomish County is in effect. The developer must pay traffic impact fee to the County per this agreement.

**TRANSPORTATION IMPACT ANALYSIS - SITE SPECIFIC COMMENTS**

1. Applicant must consult the City’s Civil Engineer assigned to the project for specific requirements related to **fronage improvements and pedestrian facilities within and outside the project site**.

2. The interior circulation plan within the project site shall be resubmitted to the City for review and approval prior to Concurrency application filing.

3. Transportation professional shall verify that the proposed access road meets the **City of Bothell Sight Distance and AASHTO** standards for entering sight distance (see City of Bothell year 2000 Design and Construction Standards and Specifications, Drawing 337).

<table>
<thead>
<tr>
<th>Applicable Permits</th>
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</thead>
<tbody>
<tr>
<td>The permits needed for the proposal are: (hand check applicable boxes after printing)</td>
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`\CH2\SYS\APPS\PRMSYS\CSDOC\DOC\200703\PRE20070.000\5\TRAFF1.DOC`
☐ Right of Way
☐ Building (Rockery over 4' in height or in a fill area)
☐ Other ____________________

Applicable Codes and Development Standards

Codes that will apply to the proposal:

2000 City of Bothell Design and Construction Standards and Specifications

2002 WSDOT Standard Specifications for Road, Bridge and Municipal Construction


2000 Highway Capacity Manual (HCM)

The Manual on Uniform Traffic Control Devices (MUTCD)

"Imagine Bothell" Comprehensive Plan

BMC Title 17 - Transportation (incl. but not limited to the following subsections)
   17.02 - Adoption of Bothell Standards
   17.05 - Streets
   17.06 - Driveways
   17.07 - Dedication of Right-of-Way
   17.08 - Construction
   17.09 - Frontage Improvements

End of comments.
Parcel Data

Parcel Name: 052605-9057
Site Address: 18225 NE CAMPUS PKWY 98011
Geo Area: 85-20
Block: Lot C

Present Use: School (Public)
Zoning: R-AC, OP, CB, LI
Jurisdiction: BOTHELL
Property Type Code: Lot

Legal Description: LOT A BOTHELL BLA #BL2000-00008 REC #20040825900002 SD BLA BEING POR SE 5-26-5 LY SWLY OF ST HWY & SELY OF BEARDSLEY BLVD TOW POR NE 8-26-5 LY NWLY OF ST HWY TOW POR SE 1/4 OF SD NE 1/4 LY SELY OF ST HWY & NLY OF SAMMAMISH RIVER TOW LOT 36 QUADRANT BUSINESS PARK - BOTHELL LESS POR FOR HWY PER REC# 20061204000292

Land Data

Land Sq Ft: 5,386,629
Acres: 123.66
Water: WATER DISTRICT
Sewer/Septic: PUBLIC

Use Exemption: No
Environmental: No
Topography: No
Traffic: No

Views

Rainier: No
Olympics: No
Cascade: No
Territorial: No
Seattle: No

Sound: No
Lk Wash: No
Lk Samm: No
Lk/Riv/Crk: No
Other: No

Waterfront

Location: No
Bank: No
Tide/Shore: No
Restricted: No

Footage: 0
Access Rights: No
Prox. Influence: No
Poor Quality: No

Building / Improvement

Gross Sq Ft: 601,001
Net Sq Ft: 601,001

Building Nbr: 1) NORTH PARKING STRUCTURE
Year Built: 2001
Effective Yr: 2001

Gross Sq Ft: 50,400
Net Sq Ft: 50,400
Construction: REINFORCED CONCRETE
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Internet Resources

Summary Report for your area:

Visit Property Tax Information System to access your tax bill:
http://www.metrokc.gov/finance/treasury/kctaxinfo/

Visit Records Office's web site to view Excise Tax Affidavits:
http://146.129.54.93:8193/localization/menu.asp

Visit GIS Parcel Viewer for the map of the parcel:
http://www5.metrokc.gov/parcelviewer/?PIN=0526059057

Glossary of Terms
http://www.metrokc.gov/Assessor/eRealProperty/GlossaryTerms.html
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LEGAL DESCRIPTION:
LOT A BOTHELL BLA #BLA2003-00008 REC #20040825900002 SD BLA BEING POR SE 5-26-5 LY SWLY OF ST HWY & SELY OF BEARDSLEY BLVD TGW POR NE 8-26-5 LY NWLY OF ST HWY TGW POR SE 1/4 OF SD NE 1/4 LY SELY OF ST HWY & NLY OF SAMMAMISH RIVER TGW LOT 36 QUADRANT BUSINESS PARK - BOTHELL LESS POR FOR HWY PER REC# 20061204000292
Title/Boundary Line Adjustment Documentation
GUARANTEE

Issued by

First American Title Insurance Company

2101 Fourth Avenue, Suite 800, Seattle, WA 98121
Title Officer: Mike Cooper
Phone: (206)728-0400
FAX: (206)448-6348
First American Title Insurance Company
National Commercial Services
2101 Fourth Avenue, Suite 800, Seattle, WA 98121
(206)728-0400 - FAX (206)448-6348

SUBDIVISION GUARANTEE

LIABILITY $ 3,000.00 ORDER NO.: NCS-341495-WA1
FEE $ 500.00 TAX $ 44.50 YOUR REF.: Global Learning and Arts Building

First American Title Insurance Company
a Corporation, herein called the Company

Subject to the Liability Exclusions and Limitations set forth below and in Schedule A.

GUARANTEES

Otak

herein called the Assured, against loss not exceeding the liability amount stated above which the Assured shall sustain by reason of any incorrectness in the assurances set forth in Schedule A.

LIABILITY EXCLUSIONS AND LIMITATIONS

1. No guarantee is given nor liability assumed with respect to the validity, legal effect or priority of any matter shown therein.

2. The Company's liability hereunder shall be limited to the amount of actual loss sustained by the Assured because of reliance upon the assurance herein set forth, but in no event shall the Company's liability exceed the liability amount set forth above.

3. This Guarantee is restricted to the use of the Assured for the purpose of providing title evidence as may be required when subdividing land pursuant to the provisions of Chapter 58.17, R.C.W., and the local regulations and ordinances adopted pursuant to said statute. It is not to be used as a basis for closing any transaction affecting title to said property.

Dated: February 21, 2008 at 7:30 A.M.
SCHEDULE A

The assurances referred to on the face page are:

A. Title is vested in:

   The Board of Regents of the University of Washington, an agency of the State of Washington, and the State of Washington, State Board for Community and Technical Colleges, and Cascadia Community College District No. 30, as tenants in common, as to portion of said premises and Higher Education Coordination Board, as to remainder of said premises.

B. That according to the Company's title plant records relative to the following described real property (including those records maintained and indexed by name), there are no other documents affecting title to said real property or any portion thereof, other than those shown below under Record Matters.

The following matters are excluded from the coverage of this Guarantee:

1. Unpatented Mining Claims, reservations or exceptions in patents or in acts authorizing the issuance thereof.

2. Water rights, claims or title to water.


4. Documents pertaining to mineral estates.

DESCRIPTION:

LOT A OF CITY OF BOTHELL BOUNDARY LINE ADJUSTMENT NO. BL2003-00008 RECORDED AUGUST 25, 2004 UNDER RECORDING NO. 20040825900002, IN KING COUNTY, WASHINGTON;

EXCEPT THAT PORTION CONVEYED TO STATE OF WASHINGTON, DEPARTMENT OF TRANSPORTATION FOR STATE HIGHWAY BY DEED RECORDED DECEMBER 4, 2006 UNDER RECORDING NO. 20061204000292.

APN: 052605-9057-03
RECORD MATTERS:

1. Liability, if any, for pro-rata portion of Real Property taxes which are carried on the King County Tax Rolls, as tax account no. 052605-9057-03, are exempt.

   We note Special Charges for the year 2008 in the amount of $23,065.89, of which $0.00 has been paid. Balance due: $23,065.89.

2. Liability, if any, for pro-rata portion of Real Property taxes which are carried on the King County Tax Rolls, as tax account no. 052605-9057-03, are exempt.

   We note Special Charges for the year 2007 are delinquent in the amount of $23,070.67, plus penalty and interest, of which $0.00 has been paid. Balance due: $23,070.67.

3. Liability, if any, for pro-rata portion of Real Property taxes which are carried on the King County Tax Rolls, as tax account no. 052605-9057-03, are exempt.

   We note Special Charges for the year 2006 are delinquent in the amount of $22,393.28, plus penalty and interest, of which $0.00 has been paid. Balance due: $22,393.28.

4. Liability, if any, for pro-rata portion of Real Property taxes which are carried on the King County Tax Rolls, as tax account no. 052605-9057-03, are exempt.

   We note Special Charges for the year 2005 are delinquent in the amount of $21,715.61, plus penalty and interest, of which $0.00 has been paid. Balance due: $21,715.61.

5. Liability, if any, for pro-rata portion of Real Property taxes which are carried on the King County Tax Rolls, as tax account no. 052605-9057-03, are exempt.

   We note Special Charges for the year 2004 are delinquent in the amount of $21,327.94, plus penalty and interest, of which $0.00 has been paid. Balance due: $21,327.94.

6. Liability, if any, for pro-rata portion of Real Property taxes which are carried on the King County Tax Rolls, as tax account no. 052605-9057-03, are exempt.

   We note Special Charges for the year 2003 are delinquent in the amount of $20,950.83, plus penalty and interest, of which $0.00 has been paid. Balance due: $20,950.83.

7. Liability, if any, for pro-rata portion of Real Property taxes which are carried on the King County Tax Rolls, as tax account no. 052605-9057-03, are exempt.

   We note Special Charges for the year 2002 are delinquent in the amount of $15,435.69, plus penalty and interest, of which $0.00 has been paid. Balance due: $15,435.69.

---

First American Title Insurance Company
8. Liability, if any, for pro-rata portion of Real Property taxes which are carried on the King County Tax Rolls, as tax account no. 052605-9057-03, are exempt.

We note Special Charges for the year 2001 are delinquent in the amount of $5.00, plus penalty and interest, of which $0.00 has been paid. Balance due: $5.00.


10. Easement, including terms and provisions contained therein:
   Recording Information: September 5, 1945 under Recording No. 3498277
   For: Pipe line
   Affects: as described therein

11. Relinquishment of all existing and future rights to light, view and air, together with the rights of access to and from the State Highway constructed on lands conveyed by document in favor of the State of Washington:
   Recorded: August 30, 1957 and August 18, 1959
   Recording Nos.: 4829134 and 5069551

12. Relinquishment of all existing and future rights to light, view and air, together with the rights of access to and from the State Highway constructed on lands conveyed by document in favor of the State of Washington:
   Recorded: June 10, 1958
   Recording No.: 4909788

13. Relinquishment of all existing and future rights to light, view and air, together with the rights of access to and from the State Highway constructed on lands conveyed by document in favor of the State of Washington:
   Recorded: June 23, 1958
   Recording No.: 4914244

14. Relinquishment of all existing and future rights to light, view and air, together with the rights of access to and from the State Highway constructed on lands conveyed by document in favor of the State of Washington:
   Recorded: June 23, 1958
   Recording No.: 4914245

15. Relinquishment of all existing and future rights to light, view and air, together with the rights of access to and from the State Highway constructed on lands conveyed by document in favor of the State of Washington:
   Recorded: June 23, 1958
   Recording No.: 4914246
16. Relinquishment of all existing and future rights to light, view and air, together with the rights of access to and from the State Highway constructed on lands conveyed by document in favor of the State of Washington:
   Recorded: July 14, 1958
   Recording No.: 4921246

17. Easement, including terms and provisions contained therein:
   Recording Information: April 28, 1960 under Recording No. 5155997
   In Favor of: W.V. Lindquist and Elva R. Lindquist, his wife
   For: Sewer and water purposes
   Affects: as described therein

18. Easement, including terms and provisions contained therein:
   Recording Information: April 28, 1960 under Recording No. 5155998
   In Favor of: W.V. Lindquist and Elva R. Lindquist, his wife
   For: Sewer and water purposes
   Affects: as described therein

19. Easement, including terms and provisions contained therein:
   Recording Information: January 2, 1961 under Recording No. 5370063
   In Favor of: Puget Sound Power & Light Company
   For: Electric distribution line
   Affects: as described therein

20. Easement, including terms and provisions contained therein:
   Recording Information: January 2, 1961 under Recording No. 5370064
   In Favor of: Puget Sound Power and Light Company
   For: Electrical distribution line
   Affects: as described therein

21. Easement, including terms and provisions contained therein:
   Recording Information: December 12, 1962 under Recording No. 5518562
   In Favor of: King County, a legal subdivision of the state of Washington
   For: Bank protection and/or other flood control works
   Affects: as described therein

22. Easement, including terms and provisions contained therein:
   Recording Information: December 12, 1962 under Recording No. 5518563
   In Favor of: King County, a legal subdivision of the state of Washington
   For: Bank protection and/or other flood control works
   Affects: as described therein

23. Easement, including terms and provisions contained therein:
   Recording Information: December 12, 1962 under Recording No. 5518564
   In Favor of: King County, a legal subdivision of the state of Washington
   For: Bank protection and/or other flood control works
   Affects: as described therein

First American Title Insurance Company
24. Easement, including terms and provisions contained therein:
   Recording Information: December 12, 1962 under Recording No. 5518565
   In Favor of: King County, a legal subdivision of the state of Washington
   For: Bank protection and/or other flood control works
   Affects: as described therein

25. Easement, including terms and provisions contained therein:
   Recording Information: December 12, 1962 under Recording No. 5518566
   In Favor of: King County, a legal subdivision of the state of Washington
   For: Bank protection and/or other flood control works
   Affects: as described therein


27. Easement, including terms and provisions contained therein:
   Recording Information: December 20, 1962 under Recording No. 5522168
   In Favor of: King County, a legal subdivision of the state of Washington
   For: Bank protection and/or other flood control works
   Affects: as described therein


29. Easement, including terms and provisions contained therein:
   Recording Information: May 2, 1963 under Recording No. 5578069
   In Favor of: King County
   For: Bank protection and/or other flood control works
   Affects: as described therein


31. The terms and provisions contained in the document entitled Indemnity Agreement, executed by and between Alice L. Lockwood, a widow; and King County, Washington, recorded May 2, 1963 as Instrument No. 5578072 of Official Records.

32. The terms, provisions and easement(s) contained in the document entitled "Easement and Agreement" recorded November 19, 1963 as Recording No. 5666563 of Official Records.

33. Easement, including terms and provisions contained therein:
   Recording Information: August 31, 1965 under Recording No. 5922359
   In Favor of: King County
   For: Channel improvement works
   Affects: as described therein
34. An easement and the terms and conditions thereof, including, but not limited to, the following:
   Purpose: River channel improvements and easements
   In Favor of: The United States of America
   Disclosed by: King County Superior Court Cause No. 5912
   Affects: as described therein

35. An easement affecting the portion of said premises and for the purposes stated therein, including, but not limited to, the following:
   Purpose: Clearing out and improving of North Creek
   In Favor of: King County Boom Company
   Disclosed by: King County Superior Court Cause No. 21967
   Affects: as described therein

36. Condemnation in King County Superior Court by the State of Washington, of rights of access to state highway and of light, view and air by decree entered undisclosed, Cause No. 527453.

37. Condemnation in King County Superior Court by the State of Washington, of rights of access to state highway and of light, view and air by decree entered undisclosed, Cause No. 665372.

38. Condemnation in King County Superior Court by the State of Washington, of rights of access to state highway and of light, view and air by decree entered April 25, 1967, Cause No. 665374.

39. Condemnation in King County Superior Court by the State of Washington, of rights of access to state highway and of light, view and air by decree entered September 13, 1968, Cause No. 667064.

40. An easement and the terms and conditions thereof, including, but not limited to, the following:
   Purpose: Sewer easement, access rights and tunnel easement
   In favor of: The Municipality of Metropolitan Seattle
   Disclosed by: King County Superior Court Cause No. 708515
   Affects: as described therein

Document(s) declaring modifications thereof recorded August 24, 1972 as Recording No. 7208240558 of Official Records.
41. An easement and the terms and conditions thereof, including, but not limited to, the following:
   Purpose: Sewer line and appurtenant facilities
   In Favor of: Municipality of Metropolitan Seattle
   Disclosed by: King County Superior Court Cause No. 732262
   Affects: as described therein

42. Easement, including terms and provisions contained therein:
   Recording Information: June 5, 1969 under Recording No. 6520201
   In Favor of: City of Bothell
   For: Sewer pipelines
   Affects: as described therein

43. Easement, including terms and provisions contained therein:
   Recording Information: January 22, 1970 under Recording No. 6706498
   In Favor of: Municipality of Metropolitan Seattle
   For: Sewer trunk line with all connections
   Affects: as described therein

44. Condemnation in King County Superior Court by the State of Washington, of rights of access to state highway and of light, view and air by decree entered February 7, 1973, Cause No. 741685.

45. An easement and the terms and conditions thereof, including, but not limited to, the following:
   Purpose: Sanitary sewer line
   In Favor of: City of Bothell
   Disclosed by: King County Superior Court Cause No. 81-2-04443-3
   Affects: as described therein

46. Conditions, notes, easements, provisions contained and/or delineated on the face of the Survey recorded March 19, 1980 under Recording No. 8003199003 in Volume 22 of surveys, at Page 296, in King County, Washington.

47. Covenants, conditions, restrictions and/or easements:
   Recorded: September 16, 1983
   Recording No.: 8309160894


49. The terms and provisions contained in the document entitled Concomitant Zoning Agreement for Interchange Property, executed by and between City of Bothell; and Quadrant Corporation, a Washington corporation, recorded January 19, 1984, as Instrument No. 8401190507 of Official Records.
50. The terms and provisions contained in the document entitled Concomitant Zoning Agreement for Lockwood Property, executed by and between City of Bothell; and Quadrant Corporation, a Washington corporation, recorded January 19, 1984, as Instrument No. 8401190508 of Official Records.

51. Covcations, conditions, restrictions and/or easements:
   Recorded: February 15, 1984
   Recording No.: 8402150495

52. Covcations, conditions, restrictions and/or easements:
   Recorded: May 31, 1984
   Recording No.: 8405311034

53. Easement, including terms and provisions contained therein:
   Recording Information: June 1, 1984 under Recording No. 8406010673
   In Favor of: Jeff Truly and Carol Truly
   For: Mobile home and associated belongings
   Affects: as described therein

54. Easement, including terms and provisions contained therein:
   Recording Information: August 7, 1984 under Recording No. 8408070540
   In Favor of: Puget Sound Power & Light Company, a Washington corporation
   For: Underground electric transmission and/or distribution system
   Affects: as described therein

55. The terms and provisions contained in the document entitled Declaration of Agreement to Waive Protest to LID for Quadrant Business Park-Bothell regarding off-site street improvement obligations, executed by and between The Quadrant Corporation, a Washington corporation; and City of Bothell, recorded August 6, 1985, as Instrument No. 8508061032 of Official Records.

56. Easement, including terms and provisions contained therein:
   Recording Information: July 30, 1985 under Recording No. 8507300819
   In Favor of: Puget Sound Power & Light Company, a Washington corporation
   For: An underground electric distribution system
   Affects: as described therein

57. Easement, including terms and provisions contained therein:
   Recording Information: July 19, 1985 under Recording No. 8507191030
   In Favor of: Municipality of Metropolitan Seattle, its successors and assigns
   For: Sewer interceptor
   Affects: as described therein

58. Restrictions, conditions, dedications, notes, easements and provisions, if any, as contained and/or delineated on the face of the plat of Quadrant Business Park-Bothell recorded in Volume 131 of Plats, Pages 87 through 91, in King County, Washington.
59. Terms, covenants, conditions and restrictions as contained in recorded Lot Line Adjustment (Boundary Line Revision):
   Recorded: November 12, 1987
   Recording Information: 8711120906

60. The terms, provisions and easement(s) contained in the document entitled "Commercial Easement and Right of Entry Agreement" recorded March 24, 1988 as Recording No. 8803240927 of Official Records.


63. Easement, including terms and provisions contained therein:
   Recording Information: May 26, 1988 under Recording No. 8805260947
   For: Utilities
   Affects: as described therein

64. The terms and provisions contained in the document entitled Addendum to Pre-Annexation Agreement dated November 16, 1984, executed by and between Richard and Beverly Truly and The City of Bothell, recorded August 23, 1988, as Instrument No. 8808230682 of Official Records.


66. The terms and provisions contained in the document entitled Assessment Reimbursement Agreement, executed by and between City of Bothell, a municipal corporation; The Quadrant Corporation, a Washington corporation; and Northcreek Associates, a California general partnership, recorded May 1, 1991, as Instrument No. 9105011652 of Official Records.

67. Deed of Trust and the terms and conditions thereof.
   Grantor/Trustor: Richard H. Truly, JR., an unmarried man, individually and as personal representative of the Estate of Beverly Boone Truly
   Grantee/Beneficiary: Gordon, Thomas, Honeywell, Malanca, Peterson & Daheim
   Trustee: Old Republic Title, Ltd.
   Amount: undisclosed
   Recorded: April 19, 1993
   Recording Information: 9304191021

Affects portion of said premises
68. Deed of Trust and the terms and conditions thereof.
   Grantor/Trustor: Richard H. Truly, an unmarried man, individually and as
   personal representative of the Estate of Beverly Boone Truly
   Grantee/Beneficiary: Brian E. Lawler, Esq.
   Trustee: Northwestern Title Company, a corporation
   Amount: $undisclosed
   Recorded: May 12, 1994
   Recording Information: 9405121726

   Affects portion of said premises

69. Deed of Trust and the terms and conditions thereof.
   Grantor/Trustor: Jack A. Johnson, as his separate estate
   Grantee/Beneficiary: Melton and Associates
   Trustee: Commonwealth Land Title Ins., Co.
   Amount: $12,599.30
   Recorded: June 28, 1994
   Recording No.: 9406281049

   Affects portion of said premises

70. Deed of Trust and the terms and conditions thereof.
   Grantor/Trustor: Richard H. Truly, a/k/a Richard H. Truly, JR., and Richard H.
   Truly, as executor of the Estate of Beverly Boone Truly
   Grantee/Beneficiary: State of Washington, Higher Education Coordinating Board
   acting through the Department of General Administration
   Trustee: Chicago Title Insurance Company
   Amount: $8,600,000.00
   Recorded: August 19, 1994
   Recording No.: 9408190553

   Affects portion of said premises

71. The terms and provisions contained in the document entitled Notice of Permit, executed by and
   between The State of Washington, Regents of University of Washington, and the State of Board
   for Community, recorded December 6, 1996, as Instrument No. 9612060607 of Official Records.

   Said instrument has been corrected by instrument recorded February 5, 1997 under Recording
   No. 9702061000.

72. Conditions, notes, easements, provisions contained and/or delineated on the face of the Survey
   recorded March 11, 1998 under Recording No. 9803119005, recorded in Volume 120 of surveys,
   at Page 176, in King County, Washington.
73. Easement, including terms and provisions contained therein:
Recording Information: October 21, 1998 under Recording No. 9810212213
In Favor of: Municipality of Metropolitan Seattle, its successors and assigns
For: Sewer tunnel
Affects: as described therein

74. Easement, including terms and provisions contained therein:
Recording Information: October 1, 1999 under Recording No. 19991001000524
In Favor of: Puget Sound Energy, Inc., a Washington corporation
For: Transmission, distribution and sale of gas and electricity
Affects: as described therein

75. The terms and provisions contained in the document entitled "Ordinance No. 1737"
recorded August 9, 2000 as Recording No. 20000809000930 of Official Records.

76. Easement, including terms and provisions contained therein:
Recording Information: November 5, 2001 under Recording No. 20011105000370
In Favor of: City of Bothell, a municipal corporation
For: Underground conduits, cables, pipelines, wires
Affects: as described therein

77. Easement, including terms and provisions contained therein:
Recording Information: November 5, 2001 under Recording No. 20011105000371
In Favor of: City of Bothell, a municipal corporation
For: Underground conduits, cables, pipelines, wires and other utility facilities
Affects: as described therein

78. Easement, including terms and provisions contained therein:
Recording Information: December 4, 2006 under Recording No. 20061204000293
In Favor of: State of Washington, Department of Transportation
For: Subterranean tiebacks
Affects: as described therein

79. Any question that may arise due to the shifting and/or changing in the course of North Creek.

80. Rights of the general public to the unrestricted use of all the waters of a navigable body of water not only for the primary purpose of navigation, but also for corollary purposes; including (but not limited to) fishing, boating, bathing, swimming, water skiing and other related recreational purposes, as those waters may affect the tidelands, shorelands or adjoining uplands and whether the level of the water has been raised naturally or artificially to a maintained or fluctuating level, all as further defined by the decisional law of this state. (Affects all of the premises subject to such submergence)

81. Matters that may be disclosed upon recordation of final subdivision.
INFORMATIONAL NOTES

A. Any sketch attached hereto is done so as a courtesy only and is not part of any title commitment or policy. It is furnished solely for the purpose of assisting in locating the premises and First American expressly disclaims any liability which may result from reliance made upon it.

B. If this preliminary report/commitment was prepared based upon an application for a policy of title insurance that identified land by street address or assessor's parcel number only, it is the responsibility of the applicant to determine whether the land referred to herein is in fact the land that is to be described in the policy or policies to be issued.
SCHEDULE OF EXCLUSIONS FROM COVERAGE OF THIS GUARANTEE

1. Except to the extent that specific assurance are provided in Schedule A of this Guarantee, the Company assumes no liability for loss or damage by reason of the following:
   (a) Defects, liens, encumbrances, adverse claims or other matters against the title, whether or not shown by the public records.
   (b) (1) Taxes or assessments of any taxing authority that levies taxes or assessments on real property; or, (2) proceedings by a public agency which may result in taxes or assessments, or notices of such matters proceeding, whether or not the matters excluded under (1) or (2) are shown by the records of the taxing authority or by the public records.
   (c) (1) Unpatented mining claims; (2) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (3) water rights, claims or title to water, whether or not the matters excluded under (1), (2) or (3) are shown by the public records.
   (d) Notwithstanding any specific assurances which are provided in Schedule A of this Guarantee, the Company assumes no liability for loss or damage by reason of the following:
      (a) Defects, liens, encumbrances, adverse claims or other matters affecting the title to any property beyond the lines of the land expressly described in the description set forth in Schedule (A), (C) or in Part 2 of this Guarantee, or title to streets, roads, avenues, lanes, ways or waterways to which such land abuts, or the right to maintain therein vaults, tunnels, ramps, or any structure or improvements; or any rights or easements therein, unless such property, rights or easements are expressly and specifically set forth in said description.
      (b) Defects, liens, encumbrances, adverse claims or other matters, whether or not shown by the public records; (1) which are created, suffered, assumed or agreed to by one or more of the Assureds; (2) which result in no loss to the Assured; or (3) which do not result in the invalidity or potential invalidity of any judicial or non-judicial proceeding which is within the scope and purpose of the assurances provided.
      (c) The identity of any party shown or referred to in Schedule A.
      (d) The validity, legal effect or priority of any matter shown or referred to in this Guarantee.

GUARANTEE CONDITIONS AND STIPULATIONS

1. Definition of Terms.
The following terms when used in the Guarantee mean:
   (a) the "Assured": the party or parties named as the Assured in this Guarantee, or on a supplemental writing executed by the Company.
   (b) "land": the land described or referred to in Schedule (A) (C) or in Part 2, and improvements affixed thereto which by law constitute real property. The term "land" does not include any property beyond the lines of the area described or referred to in Schedule (A) (C) or in Part 2, nor any right, title, interest, estate or easement in abutting streets, roads, avenues, alleys, lanes, ways or waterways.
   (c) "mortgage": mortgage, deed of trust, trust deed, or other security instrument.
   (d) "public records": records established under state statutes at Date of Guarantee for the purpose of imparting constructive notice of matters relating to real estate to purchasers for value and without knowledge.
   (e) "date": the effective date.

2. Notice of Claim to be Given by Assured Claimant.
An Assured shall notify the Company promptly in writing in case knowledge shall come to an Assured hereunder of any claim of title or interest which is adverse to the title to the estate or interest, as stated herein, and which might cause loss or damage for which the Company may be liable by virtue of this Guarantee. If prompt notice shall not be given to the Company, then all liability of the Company shall terminate with regard to the matter or matters for which prompt notice is required; provided, however, that failure to notify the Company shall in no case prejudice the rights of any Assured under this Guarantee unless the Company shall be prejudiced by the failure and then only to the extent of the prejudice.

3. No Duty to Defend or Prosecute.
The Company shall have no duty to defend or prosecute any action or proceeding to which the Assured is a party, notwithstanding the nature of any allegation in such action or proceeding.

4. Company's Option to Defend or Prosecute Actions; Duty of Assured Claimant to Cooperate.
Even though the Company has no duty to defend or prosecute as set forth in Paragraph 3 above:
   (a) The Company shall have the right, at its sole option and cost, to institute and prosecute any action or proceeding, interpose a defense, as limited in (b), or to do any other act which in its opinion may be necessary or desirable to establish the title to the estate or interest as stated herein, or to establish the lien rights of the Assured, or to prevent or reduce loss or damage to the Assured. The Company may take any appropriate action under the terms of this Guarantee, whether or not it shall be liable hereunder, and shall not thereby concede liability or waive any provision of this Guarantee. If the Company shall exercise its rights under this paragraph, it shall do so diligently.
   (b) If the Company elects to exercise its options as stated in Paragraph 4(a) the Company shall have the right to select counsel of its choice (subject to the right of such Assured to object for reasonable cause) to represent the Assured and shall not be liable for and will not pay the fees of any other counsel, nor will the Company pay any fees, costs or expenses incurred by an Assured in the defense of those causes of action which relate matters not covered by this Guarantee.
   (c) Whenever the Company shall have brought an action or interposed a defense as permitted by the provisions of this Guarantee, the Company may pursue any litigation to final determination by a court of competent jurisdiction and expressly reserves the right, in its sole discretion, to appeal from an adverse judgment or order.
   (d) In all cases where this Guarantee permits the Company to prosecute or provide for the defense of any action or proceeding, an Assured shall secure to the Company the right to so prosecute or provide for the defense of any action or proceeding, and all appeals therein, and permit the Company to use, at its option, the name of such Assured for this purpose. Whenever requested by the Company, an Assured, at the Company's expense, shall give the Company all reasonable aid in any action or proceeding, securing evidence, obtaining witnesses, prosecuting or defending the action or lawful act which in the opinion of the Company may be necessary or desirable to establish the title to the estate or interest as stated herein, or to establish the lien rights of the Assured. If the Company is prejudiced by the failure of the Assured to furnish the required cooperation, the Company's obligations to the Assured under the Guarantee shall terminate.

5. Proof of Loss or Damage.
In addition to and after the notices required under Section 2 of these Conditions and Stipulations have been provided to the Company, a proof of loss or damage signed and sworn to by the Assured shall be furnished to the Company within ninety (90) days after the Assured shall ascertain the facts giving rise to the loss or damage. The proof of loss or damage shall describe the matters covered by this Guarantee which constitute the basis of loss or damage and shall state, to the extent possible, the basis of calculating the amount of the loss or damage. If the Company is prejudiced by the failure of the Assured to provide the required proof of loss or damage, the Company's obligation to such Assured under the Guarantee shall terminate. In addition, the Assured may reasonably be required to submit to examination under oath by any authorized representative of the Company and shall produce for examination, inspection and copying, at such reasonable times and places as may be designated by any authorized representative of the Company, all records, books, ledgers, checks, correspondence and memoranda in the custody or control of a third party, which reasonably pertain to the Loss or Damage. All information designated as confidential by the Assured provided to the Company, pursuant to this Section shall not be disclosed to others unless, in the reasonable judgment of the Company, it is necessary in the administration of the claim. Failure of the Assured to submit for examination under oath, produce other reasonably requested information or grant permission to secure reasonably necessary information from third parties as required in the above paragraph, unless prohibited by law or governmental regulation, shall terminate any liability of the Company under this Guarantee to the Assured for that claim.

First American Title Insurance Company

Form No. 1282 (Rev. 12/15/95)

Guarantee No.: NCS-341405-WA1
Page No.: 14
6. Options to Pay or Otherwise Settle Claims: Termination of Liability.
In case of a claim under this Guarantee, the Company shall have the following additional options:

(a) To Pay or Tender Payment of the Amount of Liability or to Purchase the Indebtedness.
The Company shall have the option to pay or settle or compromise for or in the name of the Assured any claim which could result in loss to the Assured within the coverage of this Guarantee, or to pay the full amount of this Guarantee or, if this Guarantee is issued for the benefit of a holder of a mortgage or a lienholder, the Company shall have the option to purchase the indebtedness secured by said mortgage or said lien for the amount owing thereon, together with any costs, reasonable attorneys' fees and expenses incurred by the Assured claimant which were authorized by the Company up to the time of purchase.

Such purchase, payment or tender of payment of the full amount of the Guarantee shall terminate all liability of the Company hereunder. In the event after notice of claim has been given to the Company by the Assured, the Company offers to purchase said indebtedness, the owner of such indebtedness shall transfer and assign said indebtedness, together with any collateral security, to the Company upon payment of the purchase price.

Upon the exercise by the Company of the option provided for in Paragraph (a) the Company's obligation to the Assured under this Guarantee for the claimed loss or damage, other than to make the payment required in that paragraph, shall terminate, including any obligation to continue the defense or prosecution of any litigation for which the Company has exercised its options under Paragraph 4, and the Guarantee shall be surrendered to the Company for cancellation.

(b) To Pay or Otherwise Settle With Parties Other Than the Assured or With the Assured Claimant.
To pay or otherwise settle with other parties for or in the name of an Assured claimant any claim Assured against under this Guarantee, together with any costs, attorneys' fees and expenses incurred by the Assured claimant which were authorized by the Company up to the time of payment and which the Company is obligated to pay.

Upon the exercise by the Company of the option provided for in Paragraph (b) the Company's obligation to the Assured under this Guarantee for the claimed loss or damage, other than to make the payment required in that paragraph, shall terminate, including any obligation to continue the defense or prosecution of any litigation for which the Company has exercised its options under Paragraph 4.

7. Determination and Extent of Liability.
This Guarantee is a contract of Indemnity against actual monetary loss or damage sustained or incurred by the Assured claimant who has suffered loss or damage by reason of reliance upon the assurances set forth in this Guarantee and only to the extent herein described, and subject to the Exclusions From Coverage of This Guarantee.

The Liability of the Company under this Guarantee to the Assured shall not exceed the least of:

(a) the amount of liability stated in Schedule A or in Part 2;

(b) the amount of the unpaid principal indebtedness secured by the mortgage of an Assured mortgagee, as limited or provided under Section 6 of these Conditions and Stipulations or as reduced under Section 9 of these Conditions and Stipulations, at the time the loss or damage Assured against by this Guarantee occurs, together with interest thereon; or

(c) the difference between the value of the estate or interest covered hereby as stated herein and the value of the estate or interest subject to any defect, lien or encumbrance Assured against by this Guarantee.

8. Limitation of Liability.

(a) If the Company establishes the title, or removes the alleged defect, lien or encumbrance, or cures any other matter Assured against by this Guarantee in a reasonably diligent manner by any method, including litigation and the completion of any appeals therefrom, it shall have fully performed its obligations with respect to that matter and shall not be liable for any loss or damage caused thereby.

(b) In the event of any litigation by the Company or with the Company's consent, the Company shall have no liability for loss or damage until there has been a final determination by a court of competent jurisdiction, and disposition of all appeals therefrom, adverse to the title, as stated herein.

(c) The Company shall not be liable for loss or damage to any Assured for liability voluntarily assumed by the Assured in settling any claim or suit without the prior written consent of the Company.

9. Reduction of Liability or Termination of Liability.
All payments under this Guarantee, except payments made for costs, attorneys' fees and expenses pursuant to Paragraph 4 shall reduce the amount of liability pro rata.


(a) No payment shall be made without producing this Guarantee for endorsement of the payment unless the Guarantee has been lost or destroyed, in which case proof of loss or destruction shall be furnished to the satisfaction of the Company.

(b) When liability and the extent of loss or damage has been definitely fixed in accordance with these Conditions and Stipulations, the loss or damage shall be payable within thirty (30) days thereafter.

11. Subrogation Upon Payment or Settlement.
Whenever the Company shall have settled and paid a claim under this Guarantee, all right of subrogation shall vest in the Company unaffected by any act of the Assured claimant.

The Company shall be subrogated to and be entitled to all rights and remedies which the Assured would have had against any person or property in respect to the claim had this Guarantee not been issued. If requested by the Company, the Assured shall transfer to the Company all rights and remedies against any person or property necessary in order to perfect this right of subrogation. The Assured shall permit the Company to sue, compromise or settle in the name of the Assured and to use the name of the Assured in any transaction or litigation involving these rights or remedies. If a payment on account of a claim does not fully cover the loss of the Assured the Company shall be subrogated to all rights and remedies of the Assured after the Assured shall have recovered its principal, interest, and costs of collection.

Unless prohibited by applicable law, either the Company or the Assured may demand arbitration pursuant to the Title Insurance Arbitration Rules of the American Arbitration Association. Arbitrable matters may include, but are not limited to, any controversy or claim between the Company and the Assured arising out of or relating to this Guarantee, any service of the Company in connection with its issuance or the breach of a Guarantee provision or other obligation. All arbitrable matters when the Amount of Liability is $1,000,000 or less shall be arbitrated at the option of either the Company or the Assured. All arbitrable matters when the amount of liability is in excess of $1,000,000 shall be arbitrated only when agreed to by both the Company and the Assured. The Rules in effect at Date of Guarantee shall be binding upon the parties.

The award may include attorneys' fees only if the laws of the state in which the land is located permits a court to award attorneys' fees to a prevailing party. Judgment upon the award rendered by the Arbitrator(s) may be entered in any court having jurisdiction thereof.

The law of the situs of the land shall apply to an arbitration under the Title Insurance Arbitration Rules.

A copy of the Rules may be obtained from the Company upon request.

13. Liability Limited to This Guarantee; Guarantee Entire Contract.

(a) This Guarantee together with all endorsements, if any, attached hereto by the Company is the entire Guarantee and contract between the Assured and the Company. In interpreting any provision of this Guarantee, this Guarantee shall be construed as a whole.

(b) Any claim of loss or damage, whether or not based on negligence, or any action asserting such claim, shall be restricted to this Guarantee.

(c) No amendment of or endorsement to this Guarantee can be made except by a writing endorsed hereon or attached hereto signed by either the President, a Vice President, the Secretary, an Assistant Secretary, or validating officer or authorized signatory of the Company.

All notices required to be given the Company and any statement in writing required to be furnished the Company shall include the number of this Guarantee and shall be addressed to the Company at 2 First American Way, Bldg. 2, Santa Ana, CA. 92707.

Form No. 1282 (Rev. 12/15/95)
After recording return document to

State of Washington
Department of Transportation
Real Estate Services Office
P O Box 47338
Olympia, WA 98504-7338

Document Title Warranty Deed
Reference Number of Related Document N/A
Grantor(s) The Board of Regents of the University of Washington, The State of Washington,
State Board for Community and Technical Colleges and Cascadia Community College District
No 30
Grantee State of Washington, Department of Transportation
Legal Description Ptn Lot A, City of Bothell Lot Line Adjustment No BLA2003-00008,
recorded under Recording No 20040825900002
Additional Legal Description is on Page(s) 1 of Document
Assessor's Tax Parcel Number(s) 052605-9057-03

WARRANTY DEED

The Grantors, THE BOARD OF REGENTS OF THE UNIVERSITY OF WASHINGTON, an agency of the State of Washington, and THE STATE OF WASHINGTON, State Board for Community and Technical Colleges, and Cascadia Community College District No 30, for and in consideration of a condition set forth in letter dated January 9, 2006 from U.S. Department of Transportation, Federal Highway Administration, hereby convey and warrant to the State of Washington, Department of Transportation, the following described real property situated in King County, State of Washington

For legal description and additional conditions,
see Exhibit A attached hereto and made a part hereof

Also, the Grantors request the Assessor and Treasurer of said County to set over to the remainder of the hereinafter described PARCEL "A", the lien of all unpaid taxes, if any, affecting the real estate herein conveyed, as provided for by RCW 84.60.070

RES-302
Revised 09/05
Page 1 of 4 pages

F A. No. F-522 ( )
Project No A52219A
Tax Parcel No 052605-9057-03
WARRANTY DEED

It is understood and agreed that delivery of this deed is hereby tendered and that the terms and obligations hereof shall not become binding upon the State of Washington unless and until accepted and approved hereon in writing for the State of Washington, Department of Transportation, by the Director of Real Estate Services. Said acceptance must be dated within 30 days of the last Grantor signature, otherwise, this document becomes null and void.

Date October 2, 2006

THE STATE OF WASHINGTON,
State Board for Community and Technical Colleges,
Cascadia Community College District No. 30, and
THE BOARD OF REGENTS OF THE
UNIVERSITY OF WASHINGTON

By THE BOARD OF REGENTS OF THE UNIVERSITY OF WASHINGTON

By [Signature] Jeanette L. Henderson, Director of Real Estate

Accepted and Approved
State of Washington, Department
of Transportation

By [Signature] Gerald L. Gallinger
Director, Real Estate Services
Date Nov 30, 2006

APPROVED AS TO FORM

By [Signature] Assistant Attorney General

Cascadia Community College District No. 30

By [Signature] William Christopher, President

RES-302 Page 2 of 4 pages Tax Parcel No 052605-9057-03
WARRANTY DEED

STATE OF WASHINGTON
COUNTY OF KING

On this 26th day of October, 2006, before me personally appeared Jeanette L. Henderson, to me known as the Director of Real Estate of the University of Washington, who on oath stated that she was authorized to execute this instrument and acknowledged it to be the free and voluntary act and deed of said University of Washington as approved by the BOARD OF REGENTS OF THE UNIVERSITY OF WASHINGTON for the uses and purposes mentioned in the instrument.

Signature: [Signature]
Printed Name: [Name]
Notary Public in and for the State of Washington
Residing at [Address]
My Commission expires on 3-10-07

STATE OF WASHINGTON
COUNTY OF KING

On this 1st day of November, 2006, before me personally appeared William Christopher, to me known as the President of Cascadia Community College District No. 30, who on oath stated that he was authorized to execute this instrument and acknowledged it to be the free and voluntary act and deed of said Cascadia Community College as approved by the Cascadia Community College for the uses and purposes mentioned in the instrument.

Signature: [Signature]
Printed Name: [Name]
Notary Public in and for the State of Washington
Residing at [Address]
My Commission expires on 4-13-10
WARRANTY DEED

EXHIBIT A

All that portion of the hereinafter described PARCEL "A" lying within a tract of land beginning at a point opposite Highway Engineer's Station (hereinafter referred to as HES) C 16+46.97 on the C line survey of SR 405, N.E. 145th St. Vic. to Snohomish County Line, and 44 feet northerly therefrom, thence northeasterly parallel with said C line survey to a point opposite HES C 19+94.56 thereon, thence northeasterly parallel with said C line survey to a point opposite HES C 20+80 thereon; thence southeasterly to a point opposite said HES C 20+80 and 50 feet southeasterly therefrom, thence southerly parallel with said C line survey to a point opposite HES C 19+94.56 thereon, thence southerly parallel with said C line survey to a point opposite HES C 19+06.50 thereon, said point being on the northwesterly margin of SR 522 at a point opposite HES SR 522 162+03.43 on the SR 522 line survey of said Highway and 110 feet northwesterly therefrom, thence northwesterly parallel with said SR 522 line survey to a point opposite HES SR 522 160+00 thereon, thence northwesterly to the point of beginning.

PARCEL "A"

Lot A, City of Bothell Lot Line Adjustment Number BLA2003-00008, recorded under Recording Number 20040825900002, said Lot Line Adjustment being a portion of the southeast quarter of Section 5, Township 26 North, Range 5 East, W.M., in King County, Washington, a portion of the northeast quarter of Section 8, Township 26 North, Range 5 East, W.M., in King County, Washington, and Lot 36, Quadrant Business Park-Bothell, according to the plat thereof recorded in Volume 131 of Plats, pages 87 through 91, inclusive, in King County, Washington.

The specific details concerning all of which are to be found in that certain map of definite location now of record and on file in the office of the Secretary of Transportation at Olympia, and bearing date of approval March 25, 2005, revised March 3, 2006.

Granter's Initials

RES-302  Page 4 of 4 pages  Tax Parcel No 052605-9057-03
Statutory Warranty Deed

THE GRANTOR RICHARD H. TRULY, JR., individually and as the Personal Representative of the Estate of Beverly Boone Truly, deceased

for and in consideration of TEN DOLLARS AND OTHER GOOD AND VALUABLE CONSIDERATION

in hand paid, convey and warrants to STATE OF WASHINGTON, REECE OF UNIVERSITY OF WASHINGTON, and THE STATE BOARD FOR COMMUNITY VOCATIONAL EDUCATION, CASCADIA COMMUNITY COLLEGE, as tenants in common

the following described real estate, situated in the County of KING, State of Washington:

See Exhibit "A" attached hereto and incorporated herein by this reference.

SUBJECT TO: Preliminary estimated assessments levied by City of Bothell for Overpass, District no. 952

AND SUBJECT TO: covenants, conditions, restrictions, reservations, easements and agreements of record, if any.

AND SUBJECT TO: Terms, covenants and conditions contained in Application for Current Use Classification, entered in to pursuant to RCW 84.34 (including potential liability for future applicable taxes, any special benefit assessments levied by local governments, penalties and interest upon breach of, or withdrawal from, said classification);

notice recorded December 1, 1992 under auditor file no. 9212011628

AND SUBJECT TO: Those matters discussed in the Stewart Title Company Preliminary Commitment Order No. 297125 dated July 11, 1996

Dated this 13th day of July, 1996

By RICHARD H. TRULY\nBy RICHARD H. TRULY, personal representative of the estate of Beverly Boone Truly, deceased

By STATE OF Washington
COUNTY OF Thurston

I certify that I know or have satisfactory evidence that RICHARD H. TRULY, JR.

[Signature]

[Stamp]

[Notary Public in the State of Washington]

[Stamp]

[Seal]
STATE OF WASHINGTON
COUNTY OF ____________

I certify that I know or have satisfactory evidence that __________________, the person who appeared before me, and said person __________________ acknowledged that he/she signed this instrument, that said person was authorized to execute the instrument and acknowledged it on PERSONAL REPRESENTATION of the Executor of __________________, deceased, to be the free and voluntary act of each party for the use and purpose mentioned in this instrument.

Date: _______ /____ /1996

[Signature]

Notary Public in and for the State of Washington
Residing in ________________________________
My commission expires: _______ /____ /____
EXHIBIT "A"

The land referred to is situated in the County of King, State of Washington, and described as follows:

PARCEL 1:
The east half of the southeast quarter of Section 5, Township 26 North, Range 5 East, W.N., in King County, Washington;
EXCEPT the east 453.5 feet thereof;
AND EXCEPT P.H. Frease County Road No. 2142 (Boardsley Boulevard);
AND EXCEPT that portion thereof condemned for Primary State Highway No. 1 under Superior Court Cause No. 857064;
AND EXCEPT that portion thereof lying easterly of said Primary State Highway;
ALSO that portion of the east half of the southeast quarter of the southeast quarter of Section 5, Township 26 North, Range 5 East, W.N., in King County, Washington, lying southeasterly of P.H. Frease County Road No. 2142 (Boardsley Boulevard).

PARCEL 2:
The northeast quarter of the northeast quarter of Section 8, Township 26 North, Range 5 East, W.N., in King County, Washington;
EXCEPT the east 485 feet thereof;
AND EXCEPT that portion thereof condemned for Primary State Highway No. 1 in King County Superior Court Cause No. 857064;
AND EXCEPT that portion thereof condemned for Primary State Highway No. 2, Bothell to Woodinville, as condemned in King County Superior Court Cause No. 527453.

PARCEL 3:
That portion of the southeast quarter of the northeast quarter of Section 8, Township 26 North, Range 5 East, W.N., in King County, Washington, lying easterly of County Road (now 113th Avenue Northeast), and northerly and westerly of Primary State Highway No. 2, Bothell to Woodinville, as condemned in King County Superior Court Cause No. 527453, and northerly and westerly of Primary State Highway No. 1, as condemned in King County Superior Court Cause No. 857064.

(continued)
EXHIBIT "A"
Page 2

PARCEL 4:

A parcel of land in the southeast quarter of the northeast quarter of Section 8, Township 26 North, Range 5 East, W.N. in King County, Washington, lying southeasterly and easterly of Primary State Highway Nos. 1 and 2, described as follows:

Beginning on the centerline of the Sammamish River at Engineer's Station 246+21.0 P.C.;

thence north 03°55'28" east 95.0 feet to the TRUE POINT OF BEGINNING;

thence north 08°54'32" west parallel to said centerline 243.28 feet;

thence along the arc of a curve to the left having a radius of 206.0 feet, a distance of 57.71 feet to the southeasterly margin of Primary State Highway No. 2;

thence northwesterly along said margin, 345.76 feet to a point which bears north 03°50'30" west from the TRUE POINT OF BEGINNING;

thence south 05°41'30" east 140.52 feet;

thence northwesterly along the arc of a curve having a radius of 287.0 feet and concentric with said centerline, a distance of 5.97 feet to the TRUE POINT OF BEGINNING.

PARCEL 5:

That portion of the north half of the northeast quarter of Section 8, Township 26 North, Range 5 East, W.N. in King County, Washington, described as follows:

Beginning at a point on the north line of said north half of the northeast quarter, which point is 495 feet east of the northwest corner of the northeast quarter of said section;

thence west along said line 1,110.3 feet, more or less, to a line parallel with and 660 feet east of the west line of said northeast quarter, which line is the east line of the Nerley Tract;

thence south along said parallel line to a point which is 334 feet north of the east and west centerline of the northeast quarter of said Section 8;

thence easterly 338.85 feet to a point on a line parallel with and 330 feet north of the east and west centerline of said northeast quarter of said Section 8;

thence east along said parallel line to a point which is 495 feet east of the north and south centerline of the northeast quarter of said Section 8 and 330 feet north of the east and west centerline of the northeast quarter of Section 8;

thence north to the point of beginning.

(continued)
PARCEL 6:

That portion of the northeast quarter of the northeast quarter of
Section 8, Township 26 North, Range 5 East, W.M., in King County,
Washington, described as follows:

Beginning at a point on the south line of said northeast quarter of
the northeast quarter, 660 feet east of the southeast corner
thereof, said point being the southeast corner of Bothell Cemetery;
thence north, along the east line of Bothell Cemetery, 334 feet;
thence easterly 338.66 feet to a point which is 330 feet north of
the south line of said northeast quarter of the northeast quarter;
and 364 feet west of the east line of said northeast quarter of the
northeast quarter:
thence south 67°02'23" west 104.23 feet;
thence south 2°12'02" west, parallel with the east line of said
northeast quarter of the northeast quarter, 251.98 feet to the south
line of said northeast quarter of the southeast quarter:
thence north 67°57'37" west to the point of beginning.

PARCEL 7:

That portion of the northeast quarter of the northeast quarter of
Section 8, Township 26 North, Range 5 East, W.M., in King County,
Washington, described as follows:

Beginning at the southeast corner of the northeast quarter of the
northeast quarter of Section 8, Township 26 North, Range 5 East,
W.M., in King County, Washington
thence north 330 feet;
thence west 364 feet;
thence south 330 feet;
thence east 364 feet to the point of beginning.

PARCEL 8:

That portion of the northeast quarter of the northeast quarter of
Section 8, Township 26 North, Range 5 East, W.M., in King County,
Washington, described as follows:

Beginning at the southeast corner of said subdivision;
thence north 67°57'37" west along the south line thereof, 264.00
feet to the TRUE POINT OF BEGINNING;
thence west 67°12'42" east, parallel to the east line of said
subdivision, 330.00 feet;
thence south 67°02'23" west 104.23 feet;
thence south 2°12'02" west 251.98 feet;
thence south 67°57'37" east 167.00 feet to the TRUE POINT OF
BEGINNING.

End of Exhibit "A"
Statutory Warranty Deed

THE GRANTOR QUADRANT BUSINESS PARK ASSOCIATES, a Washington joint venture

THIS DEED IS GIVEN UNDER THE THREAT OF AND IN LIEU OF
for and in consideration of

EMINENT DOMAIN

in hand paid, conveys and warrants to

the STATE BOARD FOR COMMUNITY AND VOCATIONAL EDUCATION, CASCADIA COMMUNITY COLLEGE, as tenants in common

the following described real estate, situated in the County of

King, State of Washington:

Lot 36, QUADRANT BUSINESS PARK-BOTHELL, according to the Plat thereof recorded

in Volume 131 of Plats, pages 87 through 91, inclusive, in King County,

Washington.

SUBJECT TO: covenants, conditions, restrictions, reservations, easements and
agreements of record, if any.

SUBJECT TO Preliminary Estimated Assessment levied by the City of Bothell for
the 1995th overpass, District No. 952, in the estimated amount of $36,217.00

Dated this 30th day of July, 1996

By QUADRANT BUSINESS PARK ASSOCIATES

By The Quadrant Corporation, Its General Partner

By

AUTHORIZED SIGNATORY
STATE OF WASHINGTON  
COUNTY OF KING  

On this day personally appeared before me GEORGE P. SMITH, Jr., to me known to be the Vice President of THE QUADRANT CORPORATION, the General Partner of QUADRANT BUSINESS PARK ASSOCIATES, the joint venture that executed the within and foregoing instrument, and acknowledged the instrument to be the free and voluntary act and deed of said joint venture for the uses and purposes therein mentioned, and on oath stated that he was duly authorized to execute said instrument on behalf of the joint venture.

IN WITNESS WHEREOF, I have hereunto set my hand and seal this 20th day of July, 1996.

[Signature]

MADELINE C. FERRO
NOTARY PUBLIC
State of Washington, residing at Seattle.
My commission expires: 2-28-97
Filed for Record as Request of
Thurston County Title Company
AFTER RECORDING MAIL TO:

Name: STATE OF WASHINGTON
Address: P.O. BOX 51011
City, State, Zip: OLYMPIA, WA 98504-1015

Escrow number: N0179

Statutory Warranty Deed

THE GRANTOR JOHN BEAHN and LAURA LEE BEAHN, husband and wife, and SHIRLEY N. COTTER, as her separate estate

for and in consideration of TEN DOLLARS AND OTHER GOOD AND VALUABLE CONSIDERATION

in hand paid, conveys and warrants to STATE OF WASHINGTON REGENTS OF UNIVERSITY OF WASHINGTON and
the STATE BOARD FOR COMMUNITY AND VOCATIONAL EDUCATION, CASCADIA COMMUNITY COLLEGE, as
tenants in common
the following described real estate, situated in the County of KING

The South 110 feet of the North 330 feet of the following described tract: That
portion of the West 160 feet of the East 390 feet of the Southwest quarter of
the Northeast quarter of Section 8, Township 26 North, Range 5 East, W.N., in
King County, Washington, lying North of the Bothell-Woodinville Highway and
South of the North 10 acres of said Southwest quarter of the Northeast quarter.

SUBJECT TO: covenants, conditions, restrictions, reservations, easements and
agreements of record, if any.

Dated this 30th day of JUN 92

By JOHNE BEAHN

By LAURA LEE BEAHN

By SHIRLEY N. COTTER

STATE OF Washington
COUNTY OF KING

I certify that I know or have satisfactory evidence that John Beahn and Laura Lee Beahn
are the persons who appeared before me, and said person, acknowledged that
they signed this instrument and acknowledged it to be their free and voluntary act for the uses and purposes
mentioned in this instrument.

Dated: 7/19/92

Notary Public in and for the State of Washington.
Residing at RICHESTER C.V.
My appointment expires: 7/29/97.

[Signature]

21455083 08/02/94 .00 97000.001FB-4
STATE OF Washington
COUNTY OF _________

I certify that I know or have satisfactory evidence that Shirley M. Cotter

_________ is the person who appeared before me, and said person acknowledged that
she signed this instrument and acknowledged it to be her free and voluntary act for the uses and purposes
mentioned in the instrument.

Date: 1-30-99

Lisa Toler
Notary Public in and for the State of Washington
Residing at 22057 184th Ave
My appointment expires: 11-99
Statutory Warranty Deed

I, THE GRANTOR BARBARA L. HEGGIE OR DON K. MARSHBANKS, TRUSTEES OF THE ALICE MARSHBANKS FAMILY TRUST,

for and in consideration of TEN DOLLARS AND OTHER GOOD AND VALUABLE CONSIDERATION

in hand paid, conveyed and warranted to STATE OF WASHINGTON REGENTS OF UNIVERSITY OF WASHINGTON.

and the STATE BOARD FOR COMMUNITY AND VOCATIONAL EDUCATION, CASCADIA COMMUNITY COLLEGE, as tenants in common

the following described real estate, situated in the County of KING, State of Washington:

See Exhibit "A" attached hereto and incorporated herein by this reference.

SUBJECT TO: covenants, conditions, restrictions, reservations, easements and agreements of record, if any.

Dated this 29th day of July, 1996.

By ALICE MARSHBANKS FAMILY TRUST

By DON K. MARSHBANKS, Trustee

By BARBARA L. HEGGIE, Trustee

STATE OF WASHINGTON
COUNTY OF KING

I certify that I know or have satisfactory evidence that Barbara L. Heggie and Don K.

Marshbanks, the person(s) who appeared before me, and said person(s) acknowledged the

instrument, oath stated that ____________ authorized to execute the instrument and acknowledged it as the

Trustees of the ALICE MARSHBANKS FAMILY TRUST to be the true and voluntary act of such

party for the uses and purposes mentioned in this instrument.

Dated: 7-29-96

CLAUDIA RADOLO
NOTARY PUBLIC
STATE OF WASHINGTON
My Comm. Exp. Feb. 1, 1999

CLAUDIA RADOLO
NOTARY PUBLIC
STATE OF WASHINGTON
My Comm. Exp. Feb. 1, 1999
Exhibit A

The land referred to in this commitment is situated in the county of King, state of Washington, and described as follows:

PARCEL A:
North 110 feet of that portion of the west 160 feet of the east 390 feet of the southwest quarter of the northeast quarter, lying south of the north 10 acres of said subdivision, Section 8, Township 26 North, Range 5 East, W.M., in King County, Washington;

PARCEL B:
That portion of the southwest quarter of the northeast quarter of Section 8, Township 26 North, Range 5 East, W.M., in King County, Washington, described as follows:

Beginning at the southeast corner of the north 10 acres of said subdivision;
thence south along the east line of said subdivision to an intersection with the northerly margin of Primary State Highway No. 2, Bothell to Woodinville, as shown in Volume 1 of State Highway Maps, on page 86, records of King County;
thence southwesterly along said northerly margin to an intersection with a line 230.00 feet westerly of and parallel to the east line of the southwest quarter of the northeast quarter of said Section 8;
thence north along said parallel line to the south line of the north 10 acres of said subdivision;
thence east along said south line to the point of beginning;

TOGETHER WITH an easement for road, sewer and water purposes, over the west 60 feet of the east 350 feet of the north 10 acres of the southwest quarter of the northeast quarter of Section 8, Township 26 North, Range 5 East, W.M., in King County, Washington;
EXCEPT the north 30 feet thereof;

AND TOGETHER WITH an easement for road, sewer and water purposes over the north 20 feet of the west 120 feet of the east 350 feet of that portion of the southwest quarter of the northeast quarter of Section 8, Township 26 North, Range 5 East, W.M., in King County, Washington, lying south of the north 10 acres of said southwest quarter of the northeast quarter.
Statutory Warranty Deed

THE GRANTOR ROBERT L. JAMES, a single person

for and in consideration of TEN DOLLARS AND OTHER GOOD AND VALUABLE CONSIDERATION

in hand paid, conveys and warrants to STATE OF WASHINGTON REGENTS OF UNIVERSITY OF WASHINGTON and the STATE BOARD FOR COMMUNITY AND VOCATIONAL EDUCATION, CASCADIA COMMUNITY COLLEGE, tenants in common the following described real estate, situated in the County of KING, State of Washington:

See Exhibit "A" attached hereto and incorporated herein by this reference.

SUBJECT TO: covenants, conditions, restrictions, reservations, easements and agreements of record, if any.

Dated the 7-31-94 day of

By ROBERT L. JAMES

STATE OF Washington
COUNTY OF ________________

I certify that I know or have satisfactory evidence that Robert L. James _________________________ is the person who appeared before me, and said person acknowledged that he ______ signed this instrument and acknowledged it to be his free and voluntary act for the uses and purposes mentioned in this instrument.

Dated: July 31, 1994

Notary Public in and for the State of Washington
Residing at ________________

My appointment expires: _________________________

Recorded: ________________

______ 8/05/96 

DD. 380200 00
EXHIBIT "A"

PARCEL A:

Beginning at a point 30 feet south of the northwest corner of the
southeast quarter of the northeast quarter of Section 8, Township 26
North, Range 5 East, W.M., in King County, Washington;
thence south 826.52 feet;
thence east 117.27 feet;
thence north 417.42 feet;
thence east 53.71 feet;
thence north 02° 12' 46" east 118 feet;
thence south 07° 57' 01" east 155 feet;
thence north 02° 12' 46" east 100.75 feet;
thence west 219.71 feet;
thence north 190.35 feet;
thence west to the point of beginning;
EXCEPT Primary State Highway Number 2.

PARCEL B:

The south 80 feet and the west 90 feet of the following:

Beginning 1,174.8 feet west and 1,105.42 feet north of the east
quarter corner of Section 8, Township 26 North, Range 5 East, W.M.,
in King County, Washington;
thence east 219.75 feet;
thence north 05° 02' 00" west 191.15 feet;
thence west 202.95 feet;
thence south 190.35 feet to the point of beginning.

All situate in the County of King, State of Washington.

End of Exhibit "A"
Statutory Warranty Deed

THE GRANTOR: ARANCO CONSTRUCTION CO., PROFIT SHARING TRUST

for and in consideration of TEN DOLLARS AND OTHER GOOD AND VALUABLE CONSIDERATION

in hand paid, conveyed and warrants to STATE OF WASHINGTON REGENTS OF UNIVERSITY OF WASHINGTON and the STATE BOARD FOR COMMUNITY AND VOCATIONAL EDUCATION, CASCADIA COMMUNITY COLLEGE, as tenants in common

the following described real estate, situated in the County of KING, State of Washington:

SEE EXHIBIT "A" ATTACHED HERETO AND BY THIS REFERENCE MADE A PART HEREOF.

SUBJECT TO: covenants, conditions, restrictions, reservations, easements and agreements of record, if any.

Dated this 07 day of August, 1996

By ARANCO CONST. CO., Profit Sharing, By

By J.A. Aranoco, Trustee

----------------------------------
STATE OF WASHINGTON
COUNTY OF THURSTON

I certify that I know or have satisfactory evidence that J.A. ARANOCO

is the person who appeared before me, and said person acknowledged that
he signed the instrument, on oath stated that he is authorized to execute the instrument and acknowledged it as the TRUSTEE

of ARANCO CONSTRUCTION CO., PROFIT SHARING TRUST to be the true and voluntary act of such party for the uses and purposes mentioned in this instrument.

Dated: Aug. 12, 1996

[Notary Public]

[Stamp]

[Address]

[Appointment expires: 5/10/95]
The land referred to in this commitment is situated in the county of
King, state of Washington, and described as follows:

That portion of the southeast quarter of the northeast quarter of
Section 8, Township 26 North, Range 5 East, W.M., in King County,
Washington, described as follows:

Beginning at a point which is 1,174.60 feet west and 677.96 feet
north of the east quarter corner of said section;
thence east 226.97 feet to the west line of the county road;
thence north 5°02' west along said road line 269.51 feet;
thence west 208.71 feet;
thence south 208.71 feet to the point of beginning;
EXCEPT portion conveyed to King County for Primary State Highway
No. 2, Bothell to Woodinville, by deed recorded under Recording
Number 4914245.

END OF SCHEDULE A
Filed for Record at Request of
Thurston County Title Company
AFTER RECORDING MAIL TO:

Name ______________________________
Address ____________________________
City, State, Zip OLYMPIA, WA 98504-1011
Escrow number: W9178

Statutory Warranty Deed

THE GRANTOR BOTHELL VILLAGE JOINT VENTURE

for and in consideration of TEN DOLLARS AND OTHER GOOD AND VALUABLE CONSIDERATION
in hand paid, conveys and warrants to STATE OF WASHINGTON REGENTS OF UNIVERSITY OF WASHINGTON and
the STATE BOARD FOR COMMUNITY AND VOCATIONAL EDUCATION, CASCADIA COMMUNITY COLLEGE, as
tenants in common
the following described real estate, situate in the County of KING
State of Washington:
See Exhibit "A" attached hereto and incorporated herein by this reference.

SUBJECT TO: covenants, conditions, restrictions, reservations, easements and
agreements of record, if any.

Dated this 18 day of September 1996

By BOTHELL VILLAGE JOINT VENTURE __________________________

By Key Development Corporation __________________________

STATE OF ____________________________ 
COUNTY OF ____________________________ 

I certify that I know or have satisfactory evidence that

__________________________ is the person who appeared before me, and said person acknowledged that

_________________________________ signed this instrument, on oath stated that ________________________________ authorized to execute the instrument and acknowl-

edged it as the ________________________________ to be the true and voluntary act of such

party for the uses and purposes mentioned in this instrument.

Dated: ________________________________

Notary Public in and for the State of ____________________________
Residing at ____________________________
My appointment expires: ____________________________

E1506533 09/23/96 00 1037000.2614
STATE OF Washington
COUNTY OF Snohomish

I certify that I know or have satisfactory evidence that

Patrick T. Echelberger

acknowledged that he, as the President of The Echelberger Company, to be the free and voluntary act of each party for the uses and purposes mentioned in this instrument.

Dated: 9/13/96

Karen M. Schroeder
Notary Public in and for the State of Washington
Residing at Lynnwood
My appointment expires: 11/11/99

STATE OF Washington
COUNTY OF Snohomish

I certify that I know or have satisfactory evidence that

Jack A. Johnson

acknowledged that he, as the President of Key Development Corporation, to be the free and voluntary act of each party for the uses and purposes mentioned in this instrument.

Dated: 9/13/96

Karen M. Schroeder
Notary Public in and for the State of Washington
Residing at Lynnwood
My appointment expires: 11/11/99

STATE OF Washington
COUNTY OF Snohomish

I certify that I know or have satisfactory evidence that

Jurgen P. Sauøerland

acknowledged that he, as the President of Inawal Sauøerland & Associates, to be the free and voluntary act of each party for the uses and purposes mentioned in this instrument.

Dated: 9/13/96

Karen M. Schroeder
Notary Public in and for the State of Washington
Residing at Lynnwood
My appointment expires: 11/11/99
The land referred to in this commitment is situated in the county of King, state of Washington, and described as follows:

PARCEL A:

The east 9.25 acres of the north 10 acres of the southwest quarter of the northeast quarter of Section 8, Township 26 North, Range 5 East, W.M., in King County, Washington; EXCEPT the west 561 feet thereof; EXCEPT the north 30 feet thereof as conveyed to King County for Northeast 180th Street (Julius Lang Road No. 71); AND EXCEPT that portion thereof lying within Sylvan Cirque No. 2, according to the plat thereof recorded in Volume 54 of Plats, page 47, in King County, Washington.

PARCEL B:

The west 100 feet of the east 490 feet of that portion of the southwest quarter of the northeast quarter of Section 8, Township 26 North, Range 5 East, W.M., in King County, Washington, lying northerly of Primary State Highway No. 2, Bothell to Woodinville; EXCEPT the north 330 feet thereof;

TOGETHER WITH an easement for ingress and egress recorded under Recording Numbers 5666563 and 5518942.

PARCEL C:

The south 110 feet of the north 220 feet of the following described tract:

That portion of the west 160 feet of the east 390 feet of the southwest quarter of the northeast quarter of Section 8, Township 26 North, Range 5 East, W.M., in King County, Washington, lying north of the Bothell-Woodinville highway and south of the north 10 acres of said southwest quarter of the northeast quarter;

TOGETHER WITH an easement, for ingress, egress and utilities as recorded under Recording Number 5666563.

(legal description, continued)
A.L.T.A. COMMITMENT
SCHEDULE A
Page 3

LEGAL DESCRIPTION, continued:

PARCEL D:

The west 160 feet of the east 390 feet of that portion of the southwest quarter of the northeast quarter of Section 8, Township 26 North, Range 5 East, W.M., in King County, Washington, lying south of the north 10 acres of said subdivision and northerly of Primary State Highway Number 2 as established under Superior Court Cause Number 665372;
EXCEPT the north 330 feet thereof.

END OF SCHEDULE A
Statutory Warranty Deed

JIM L. GOLL, who acquired title as
THE GRANTOR JIM GOLL and SHIRLEY A. GOLL, as tenants in common

for and in consideration of Ten Dollars and other good and valuable consideration,
in hand paid, convey and warrants to STATE OF WASHINGTON REGENTS OF UNIVERSITY OF WASHINGTON and
the STATE BOARD FOR COMMUNITY AND VOCATIONAL EDUCATION,CASCADE COMMUNITY COLLEGE, as
tenants in common
the following described real estate, situate in the County of KING
States of Washington
See Exhibit "A" attached hereto and incorporated herein by this reference.

SUBJECT TO: covenants, conditions, restrictions, reservations, easements and
agreements of record, if any.

Dated this day of

By JIM GOLL

By SHIRLEY A. GOLL

STATE OF Washington
COUNTY OF

I certify that I know or have satisfactory evidence that

MORGAN BRINKMANN

Notary Public in and for the State of Washington
Residing at

This space reserved for recorder's use.
STATE OF Washington
COUNTY OF Thurston

I certify that I know or have satisfactory evidence that Jim Coll

________________________

is the person who appeared before me, and said person acknowledged that
he signed this instrument and acknowledged it to be his free and voluntary act for the uses and purposes
mentioned in this instrument.

Dated: 8/30/96.

__________________________________________
D. Scott Elwood
Secretary Public Trustee for the State of Washington
Residing at Olympia.
My appointment expires: 02/21/19.
EXHIBIT "A"

Commonly known as 11250 N.E. 80th, Bothell, Washington

Legally described as the South 330 feet of the West 495 feet of the Northeast quarter of the Northeast quarter, Section 8, Township 26 North, Range 5 East, W.M., King County, Washington
Statutory Warranty Deed

THE GRANTOR KAREN V. JUNG, as Personal Representative of the Estate of Brian Jung, deceased

for and in consideration of TEN DOLLARS AND OTHER GOOD AND VALUABLE CONSIDERATION

is hereby, conveys and warrants to STATE OF WASHINGTON REGENTS OF UNIVERSITY OF WASHINGTON and the STATE BOARD FOR COMMUNITY AND VOCATIONAL EDUCATION, CASCADIA COMMUNITY COLLEGE, as tenants in common

the following described real estate, situated in the County of KING, State of Washington:

See Schedule A attached hereto and incorporated herein by this reference.

"THIS DEED IS GIVEN UNDER THE THREAT OF AND IN LIEU OF EXECUTION DOMAIN"

SUBJECT TO: covenants, conditions, restrictions, reservations, easements and agreements of record, if any.

Dated this 9th day of December, 1996

By BRIAN JUNG ESTATE

By

By Karen V. Jung, P.R.

STATE OF Washington

COUNTY OF King

I certify that I know or have satisfactory evidence that Karen V. Jung

as the person who appeared before me, and said person acknowledged that she signed this instrument, on oath stated that she is authorized to execute the instrument and acknowledged it as the Personal Representative of The Estate for Brian Jung, deceased, to be the true and voluntary act of such party for the uses and purposes mentioned in this instrument.

Dated

Notary Public in and for the State of Washington

Residing at

My appointment expires: 1-10-98
STATE OF WASHINGTON
COUNTY OF KING

I certify that I know or have satisfactory evidence that BARRY V. JUDD

is the person who appeared before me, and said person acknowledged that
she signed this instrument, on oath stated that she is authorized to execute the instrument and acknowl-
edged it as the PERSONAL REPRESENTATIVE
of the ESTATE OF RYAN JUDD, deceased to be the free and voluntary act of such
party for the use and purposes mentioned in said instrument.
Dated: 11-27-96

WILLIAM K. NESBIT
Notary Public in and for the State of WASHINGTON
Residing at SEATTLE
My appointment expires: 01/10/98
SCHEDULE A

The land referred to in this commitment is situated in the county of King, state of Washington, and described as follows:

Beginning at a point 1174.8 feet west of and 1105.42 feet north of the quarter section corner on the east boundary of Section 8, Township 26 North, Range 5 East, W.M., in King County, Washington; thence east 219.75 feet; thence north 5°02' west 191.15 feet; thence west 202.95 feet; thence south 150.35 feet to the place of beginning; EXCEPT south 80 feet; AND EXCEPT west 90 feet thereof.

END OF SCHEDULE A
Statutory Warranty Deed

Grantor(s): ESTELLE L. SHAW and JOHN W. SHAW

Grantee(s): State of Washington

Filed for Record at Request of
Thurston County Title Company
Deed Book Number: 00523

Abbreviated Legal Portion of SE quarter of NE quarter of Section 8, 5
Township 26 North, Range 5 East. W.M.
Full Legal Description on Page 2
Assessor's Tax Parcel Number(s): 082605-9321-00

THE GRANTOR JOHN W. SHAW and ESTELLE L. SHAW, husband and wife,

for and in consideration of Ten Dollars and other good and valuable consideration

in hand paid, conveys and warrants to STATE OF WASHINGTON REGENTS OF UNIVERSITY OF
WASHINGTON and the STATE BOARD FOR COMMUNITY AND VOCATIONAL EDUCATION,
CAScadIA COMMUNITY COLLEGE, as tenants in common

the following described real estate, situated in the County of KING

STATE OF Washington
COUNTY OF

I certify that I know or have satisfactory evidence that John W. Shaw

the person who appeared before me, and said person acknowledged that he
signed this instrument and acknowledge it to be his free and voluntary act for the uses and
purposes mentioned in this instrument.

Notary Public in and for the State of Washington
Residing at
My appointment expires:

Page 1
LP3-1098
STATE OF WASHINGTON
COUNTY OF King

I certify that I know or have satisfactory evidence that ESTELLE L. SHAY

is the person who appeared before me, and said person acknowledged that she signed this instrument and acknowledged it to be her free and voluntary act for the uses and purposes mentioned in this instrument.

Dated: 11/23/97

[Signature]

Notary Public in and for the State of WASHINGTON

Residing at BURLINGTON

My appointment expires: 11/23/97
EXHIBIT "A"

The land referred to in this commitment is situated in the county of King, state of Washington, and described as follows:

That portion of the southeast quarter of the northeast quarter of Section 8, Township 26 North, Range 5 East, W.M., in King County, Washington, described as follows:

Beginning at the northwest corner of said subdivision;
thence south 2°12'46" west along the west line of said subdivision 30.00 feet to the south margin of Julius Lang Road No. 71;
thence south 87°57'41" east parallel to the north line of said subdivision 106.27 feet;
thence south 2°12'46" west 190.35 feet;
thence south 87°57'41" east 219.71 feet;
thence south 2°12'46" west 100.75 feet to the TRUE POINT OF BEGINNING;
thence continuing south 2°12'46" west 110.00 feet;
thence north 87°57'41" west 155.00 feet;
thence north 2°12'46" east 110.00 feet;
thence south 87°57'41" east 155.00 feet to the TRUE POINT OF BEGINNING.

SUBJECT TO: covenants, conditions, restrictions, reservations, easements and agreements of record, if any.

This deed is given under the threat of and in lieu of Eminent Domain.
QUITCLAIM DEED

Reference numbers of relating documents: 9467300840, 9668021010, 9668021153, 9668022184, 9668050675, 9668211456, 966921129, 9610017068, 9612181037, and 9610078371.

Grantors: THE BOARD OF REGENTS OF THE UNIVERSITY OF WASHINGTON, an agency of the State of Washington, and THE STATE OF WASHINGTON, State Board for Community and Technical Colleges, and Cascadia Community College District No. 30, AS TENANTS IN COMMON, having acquired title by deeds erroneously describing said Grantor as:

STATE OF WASHINGTON REGENTS OF UNIVERSITY OF WASHINGTON and the STATE BOARD FOR COMMUNITY AND VOCATIONAL EDUCATION, CASCADIA COMMUNITY COLLEGE, as tenants in common, and as

STATE OF WASHINGTON REGENTS OF UNIVERSITY OF WASHINGTON & the STATE BOARD FOR COMMUNITY AND VOCATIONAL EDUCATION, CASCADIA COMMUNITY COLLEGE, as tenants in common, and as

STATE OF WASHINGTON, REGENTS OF UNIVERSITY OF WASHINGTON, and THE STATE BOARD FOR COMMUNITY VOCATIONAL EDUCATION, CASCADIA COMMUNITY COLLEGE, as tenants in common.

Grantors: THE BOARD OF REGENTS OF THE UNIVERSITY OF WASHINGTON, an agency of the State of Washington, and THE STATE OF WASHINGTON, State Board for Community and Technical Colleges, and Cascadia Community College District No. 30, AS TENANTS IN COMMON.

Legal Description: (1) Portions of Sections 5 and 8, Township 26 North, Range 5 East, W.M., and Lot 36, Quadrant Business Park; (2) See complete legal description on Exhibit "A", hereto attached.

Assessor's Property Account Numbers:


RETURN TO:
Department of General Administration
Property Development
P.O. Box 41015
Olympia, Washington 98504-1015
ATTN: A&D Section

RECEIVED THIS DAY
Jan 30 12:16 PM '97

BY THE CLERK OF
RECORD & RECORDS
KING COUNTY

QUITCLAIM DEED

EXCISE TAX NOT REQUIRED
King Co. Recovery Division
By /s/ Deputy
For and in consideration of conveying those certain Warranty Deeds identified under the reference numbers set forth on page 1 hereof, the Grantor hereby conveys and quiet claims to the Grantee those certain parcels of real estate described in Exhibit "A", hereto attached.

This conveyance is given for the purpose correcting a Scrivener's error in the Warrant Deeds identified by the Auditor's File Numbers set forth on page 1 hereof as the reference numbers of related documents wherein the names of subject grantees were not correctly set forth.

Dated this 29th day of January, 1997.

APPROVED AS TO FORM:

Date: Jan 28, 1997
By: [Signature]
Assistant Attorney General

STATE OF WASHINGTON, Department of General Administration, acting for the Higher Education Coordinating Board

By: [Signature]
Robert Bippert, Assistant Director
Division of Property Development

STATE OF WASHINGTON

County of Thurston

I, the undersigned, a Notary Public, do hereby certify that on this 19 day of personally appeared before me ROBERT A. BIPPERT, Assistant Director, Division of Property Development, Department of General Administration, State of Washington, to me known to be the individual described in and who executed the within instrument, and acknowledged that he signed and sealed the same as the free and voluntary act and deed of the Department, for the purposes and uses therein mentioned, and on oath stated that he was duly authorized to execute said document.

In Witness Whereof I have hereunto set my hand and affixed my official seal the day and year first above written.

Notary Public in and for the State of Washington, Residing at

My commission expires 9-23-97
EXHIBIT "A"

Page 1

The same refers to is situated in the County of King, State of Washington, and described as follows:

PARCEL 1:
The east half of the southeast quarter of Section 8, Township 26 North, Range 5 East, J.M., in King County, Washington;
EXCEPT the east 465 feet thereof;
AND EXCEPT P.N. Frease County Road No. 2142 (Boardley Boulevard); AND EXCEPT that portion thereof condemned for Primary State Highway No. 1 under Superior Court Cause No. 557084;
AND EXCEPT that portion thereof lying easterly of said Primary State Highway;
ALSO that portion of the east half of the southwest quarter of the southeast quarter of Section 8, Township 26 North, Range 5 East, J.M., in King County, Washington, lying southeasterly of P.N. Frease County Road No. 2142 (Boardley Boulevard).

PARCEL 2:
The northeast quarter of the northeast quarter of Section 8, Township 26 North, Range 5 East, J.M., in King County, Washington;
EXCEPT the east 465 feet thereof;
AND EXCEPT that portion thereof condemned for Primary State Highway No. 1 in King County Superior Court Cause No. 557084;
AND EXCEPT that portion thereof condemned for Primary State Highway No. 1, Bethel to Woodinville, as condemned in King County Superior Court Cause No. 527452.

PARCEL 3:
That portion of the southeast quarter of the northeast quarter of Section 8, Township 26 North, Range 5 East, J.M., in King County, Washington, lying easterly of County Road (now 113th Avenue Northwest), and northerly and westerly of Primary State Highway No. 1, Bethel to Woodinville, as condemned in King County Superior Court Cause No. 527453, and northerly and westerly of Primary State Highway No. 1, as condemned in King County Superior Court Cause No. 557084.

(continued)
EXHIBIT "A"

Parcel 1:

A parcel of land in the southeast quarter of the northeast quarter of Section 8, Township 26 North, Range 5 East, 4th PM, in King County, Washington, lying southerly and westerly of Primary State Highway Nos. 1 and 2, described as follows:

Beginning on the centerline of the Sumas River at Engineer's Station 240+04.0 P.C.;
then north 03°01'22" east 95.0 feet to the TRUE POINT OF BEGINNING;
then north 08°54'32" west parallel to said centerline 241.20 feet;
then along the arc of a curve to the left having a radius of 210.1 feet, a distance of 37.71 feet to the southeasterly margin of Primary State Highway No. 2;
then northerly along said margin 169.73 feet to a point which bears north 03°50'13" west from the TRUE POINT OF BEGINNING;
then southerly along the arc of a curve having a radius of 287.2 feet and concentric with said centerline, a distance of 5.67 feet to the TRUE POINT OF BEGINNING.

Parcel 2:

That portion of the north half of the northeast quarter of Section 8, Township 26 North, Range 5 East, 4th PM, in King County, Washington, described as follows:

Beginning at a point on the north line of said north half of the northeast quarter, which point is 495 feet east of the northeast corner of the northeast quarter of said section;
then west along said line 710.2 feet, more or less, to a line parallel with and 360 feet east of the west line of said northeast quarter, which line is the east line of the roadway east;
then south along said parallel line to a point which is 334 feet north of the east and west centerline of the northeast quarter of said Section 8;
then northwesterly 338.95 feet to a point on a line parallel with and 330 feet north of the east and west centerline of said northeast quarter of said Section 8;
then east along said parallel line to a point which is 495 feet east of the north and south centerline of the northeast quarter of said Section 8 and 330 feet north of the east and west centerline of the northeast quarter of said Section 8;
then north to the point of beginning.

(continued)
EXHIBIT "A"
Page 3

PARCEL 6:

That portion of the northwest quarter of the northeast quarter of Section 8, Township 26 North, Range 5 East, T.M. in King County, Washington, described as follows:

Beginning at a point on the south line of said northwest quarter of the northeast quarter, 560 feet east of the southwest corner thereof, said point being the southeast corner of Bothell Cemetery; thence north, along the east line of Bothell Cemetery, 294 feet; thence easterly 338.63 feet to a point which is 325 feet north of the south line of said northwest quarter of the northeast quarter and 294 feet west of the east line of said northwest quarter of the northeast quarter; thence south 57°02'37" west 194.22 feet; thence south 2°12'42" west, parallel with the east line of said northwest quarter of the northeast quarter, 251.08 feet to the south line of said northwest quarter of the northeast quarter; thence north 87°37'37" west to the point of beginning.

PARCEL 7:

That portion of the northwest quarter of the northeast quarter of Section 8, Township 26 North, Range 5 East, T.M. in King County, Washington, described as follows:

Beginning at the southeast corner of the northeast quarter of the northeast quarter of Section 8, Township 26 North, Range 5 East, T.M. in King County, Washington; thence north 330 feet; thence west 264 feet; thence south 330 feet; thence east 264 feet to the point of beginning.

PARCEL 8:

That portion of the northwest quarter of the northeast quarter of Section 8, Township 26 North, Range 5 East, T.M. in King County, Washington, described as follows:

Beginning at the southeast corner of said subdivision; thence north 87°57'17" west along the south line thereof, 294.00 feet to the TRUE POINT OF BEGINNING; thence north 29°12'42" east, parallel to the east line of said subdivision, 338.00 feet; thence south 87°52'23" west, 184.21 feet; thence south 2°12'42" west, 251.08 feet; thence south 87°57'17" east, 184.21 feet to the TRUE POINT OF BEGINNING.

(continued)
EXHIBIT A

Page 5

TOGETHER WITH an easement for road, sewer and water purposes of the west 10 feet of the east 30 feet of the north 10 acres of the southwest quarter of the northeast quarter of Section 4, Township 20 North, Range 1 East, M.W., in King County, Washington.

EXCEPT the north 10 feet thereof;

AND TOGETHER WITH an easement for road, sewer and water purposes over the north 10 feet of the west 100 feet of the east 300 feet of said portion of the southwest quarter of the northeast quarter of Section 4, Township 20 North, Range 1 East, M.W., in King County, Washington, lying south of the north 10 acres of said southwest quarter of the northeast quarter.

PART 1:

Beginning at a point 10 feet south of the northwest corner of the southeast quarter of the northeast quarter of Section 4, Township 20 North, Range 1 East, M.W., in King County, Washington;

thence north 89° 31' 15" east 10 feet;

thence east 10 feet;

thence north 89° 31' 45" east 100 feet;

thence south 89° 27' 15" east 110 feet;

thence north 89° 31' 45" east 111.17 feet;

thence west 111.17 feet;

thence north 10.16 feet;

thence west to the point of beginning.

EXCEPT Primary State Highway Number 1.

PART 2:

The south 30 feet and the east 30 feet of the following:

Beginning 114.56 feet west and 111.17 feet north of the east quarter corner of Section 4, Township 20 North, Range 1 East, M.W., in King County, Washington;

thence east 114.56 feet;

thence north 111.17 feet;

thence west 111.17 feet;

thence south 111.17 feet to the point of beginning.
EXHIBIT "A"
Page 6

PARCEL 1:
That portion of the southwest quarter of the northeast quarter of Section 1, Township 14 North Range 1 East, in King County, Washington described as follows:

Beginning at a point which is 161.74 feet west and 207.32 feet north of the east quarter corner of said section;

Thence east 124.8 feet to the west line of the Trump road;

Thence north 3760 feet west along said road Line 129.37 feet;

Thence west 338.68 feet;

Thence south 203.17 feet to the point of beginning.

EXCEPT portion conveyed to King County for Primary State Highway No. 1. Broche, 40 acres, recorded as deed recorded under Recording Number 69-49866.

PARCEL 10:
The east 33.35 acres of the north 33.35 acres of the southwest quarter of the northeast quarter of Section 1, Township 14 North Range 1 East, in King County, Washington.

EXCEPT the west 25 feet thereof.

EXCEPT the north 33.35 feet thereof as conveyed to King County for Primary State Highway No. 1.

AND EXCEPT that portion thereof lying within an unincorporated area, according to the plat thereof recorded in Volume 14 of Plats, page 470, in King County, Washington.

PARCEL 11:
The west 33.35 feet of the east 33.35 feet of that portion of the southwest quarter of the northeast quarter of Section 1, Township 14 North Range 1 East, in King County, Washington.

EXCEPT the north 33.35 feet thereof.

TOGETHER WITH an easement for ingress and egress recorded under Recording Number 101931 and 101942.

PARCEL 12:
The south 33.35 feet of the north 33.35 feet of the following described tract:

That portion of the west 100 feet of the east 100 feet of the southwest quarter of the northeast quarter of Section 1, Township 14 North Range 1 East, in King County, Washington, lying north of the 24th Avenue North Highway and south of the north 100 feet of said southwest quarter in the northeast quarter.

TOGETHER WITH an easement for ingress, egress, access and utilities as recorded under Recording Number 101942.
EXHIBIT "V"

PAGE 1

EXHIBIT 30:

The west 161 feet of the east 192 feet of that portion of the
southeast quarter of the northeast quarter of Section 1, Township 26 North, Range 9 East, W.M., in King County, Washington, lying south
of the north 12 acres of said subdivision and northeasterly of State Highway Number 4 as established under Superior Court Case
Number 64579;

EXCEPT the north 330 feet thereof.

EXHIBIT 31:

Legal description as the south 330 feet of the west 195 feet
of the northeast quarter of the northeast quarter, Section 1,
Township 26 North, Range 9 East, W.M., King County, Washington.

EXHIBIT 32:

Beginning at a point 1174.8 feet west of and 1135.62 feet north
of the quarter section corner on the east boundary of Section 8,
Township 26 North, Range 9 East, W.M., in King County, Washington,
thence east 219.76 feet;
thence north 77.02 feet west 191.15 feet.
thence west 202.58 feet;
thence south 180.72 feet to the place of beginning;
EXCEPT south 80 feet;
AND EXCEPT west 70 feet thereof.

EXHIBIT 33:

That portion of the southeast quarter of the northeast quarter of
Section 1, Township 26 North, Range 9 East, W.M., in King County,
Washington, described as follows:

Beginning at the northwest corner of said subdivision;
thence south 2°12'46" west along the west line of said subdivision
30.00 feet to the north margin of Fallon Lane Road, No. 11;
thence south 87°57'41" east parallel to the north line of said
subdivision 104.75 feet;
thence south 2°12'46" west 190.15 feet;
thence south 87°57'41" east 229.71 feet;
thence south 2°12'46" west 129.78 feet to the TRUE POINT OF
BEGINNING;

thence continuing south 2°12'46" west 118.47 feet;
thence north 87°57'41" west 115.73 feet;
thence north 2°12'46" east 118.47 feet;
thence north 87°57'41" east 120.47 feet to the TRUE POINT OF
BEGINNING.

END OF EXHIBIT "V"
Part 4 – Phase 3 Summary

Existing Conditions

The University of Washington-Bothell/Cascadia Community College (UWB/CCC) campus is approximately 127 acres. The site is located at the northwest corner of the SR 522 and I-405 interchange, within the City of Bothell’s jurisdiction, and is situated entirely within the King County portion of Bothell. Beardslee Boulevard borders the northern portion of the site near the NE 195th Street interchange. The site is located in portions of the NE ¼ of Section 9, SW ¼ of Section 4, and the SE ¼ of Section 5, Township 26 North, Range 5 East. (Refer to the legal descriptions provided in Part 3 of this submittal).

This application is submitted as Phase Three of the ultimate campus build out. At the time of filing the site is now one parcel for development purposes. The western portion of the site consists of moderately sloping, wooded upland area. The central portion of this site contains moderate to steep east facing slopes that are part of a north-south trending ridge. A broad, flat-floored valley occupies the eastern and northern areas of the site. North Creek bisects the lowland portion of the site, flowing from north to south. Site elevations range from 20 to 156 feet above sea level. North Creek has been restored through wetland mitigation into a more natural meandering stream. As required by the wetland mitigation plan (December 2007) the site is continuously monitored for standards.

Existing land uses currently adjacent to the campus site are varied. Single family residential properties and the Bothell Cemetery are located adjacent to the southwest and west portions of the site. The Franciscan Care Center, a retirement home, is located directly west off of 185th Street. The Beardslee Cove apartments are located to the northwest edge of the site, with lower density single family development across Beardslee Boulevard to the northwest of the site. The Knoll North Creek and Quadrant Business Parks are located across I-405 to the east. Mixed residential development is located across SR 522 to the south of the site. Construction of Phase 1 improvements began in July of 1998. Phase 1 and Phase 2 are now complete.

Lowlands
A new primary and secondary stream channel have been constructed. Logs, root wads and woody debris have been placed and planting of riparian vegetation has been completed. This wetland is in conformance with monitoring standards as outlined in the wetland mitigation plan and is complete.

Uplands
The Truly Cottage has been restored and remains unoccupied. Infrastructure is in place and the stormwater conveyance system has been installed within all roadway areas. The existing groundwater interceptor system installed during Phase 1 will be partially retained and modified to allow the new Global Arts building construction. The structures are served with installed power, communication
and gas utilities. The site includes UWB classrooms, Library and the CC buildings, North Parking Structure, Physical Plant, and the South Parking Garage.
Part 4 – Phase 3 Summary

Continued

<table>
<thead>
<tr>
<th>Plan Component</th>
<th>Approved and Completed Phase 1 &amp; 2</th>
<th>Proposed Phase 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Institutional Program</strong></td>
<td>• Total of 3,000 full-time equivalents (FTEs)</td>
<td>• 800 additional full time equivalents (FTEs) for a total of 3,800</td>
</tr>
<tr>
<td></td>
<td>• Completed and opened 2001</td>
<td>• Scheduled to open January 2010</td>
</tr>
<tr>
<td><strong>Upland Campus Layout and Character</strong></td>
<td>• Seven total campus buildings, two parking structures and surface parking spaces providing a minimum of 1,950 stalls, pedestrian promenade and informal path system linking the parking areas with the campus buildings</td>
<td>• Established access via Campus Way NE adjacent to the bus stop</td>
</tr>
<tr>
<td></td>
<td>• Vehicular access via Campus Way NE and the new SR 522 off-ramp</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• West access off of 110th Avenue NE via Campus Way NE via Beardslee Boulevard</td>
<td></td>
</tr>
<tr>
<td><strong>Proposed Buildings</strong></td>
<td>Approx. Sq.Ft. Approx.% of Build-out</td>
<td>Proposed Phase 3 Approx SF % of Build-out</td>
</tr>
<tr>
<td>Completed UWB</td>
<td>177,500                                           16%</td>
<td>Global Arts Building 54,300 5%</td>
</tr>
<tr>
<td>CCC Building</td>
<td>110,000                                            10%</td>
<td>• Due to the grade change, a majority of the existing buildings are three to four stories above grade. Phase 3 Building will be two to three stories above grade.</td>
</tr>
<tr>
<td>Library</td>
<td>123,500                                            1%</td>
<td></td>
</tr>
<tr>
<td>Bookstore</td>
<td>10,000                                             1%</td>
<td></td>
</tr>
<tr>
<td>Central/Physical Plant</td>
<td>11,000                                             1%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>432,000                                            38%</td>
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</tr>
<tr>
<td><strong>Parking</strong></td>
<td>• 1,950 total parking spaces located throughout the campus</td>
<td>• Existing parking on the site is adequate for the addition of Phase 3. However, two additional van-sized ADA stalls are provided for convenience to this building.</td>
</tr>
<tr>
<td></td>
<td>• 1,223 structured parking spaces located in two parking garages (North and South)</td>
<td></td>
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<td>• 725 surface parking spaces</td>
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<td></td>
<td>• 22 parallel parking spaces on lower Campus Way NE</td>
<td></td>
</tr>
</tbody>
</table>
### Comparative Summary Table

<table>
<thead>
<tr>
<th>Plan Component</th>
<th>Approved and Completed Phase 1 &amp; 2</th>
<th>Proposed Phase 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>including four barrier-free van spaces</td>
<td>• Building – 24,406 SF</td>
</tr>
<tr>
<td></td>
<td>26 ADA spaces provided in the parking structures</td>
<td>• Plaza/path/load zone/sidewalk – 19,400 SF</td>
</tr>
<tr>
<td>Impervious Surface</td>
<td>• Approximately 18.8 acres of impervious surface; approximately 15% of total site area</td>
<td>• Phase 3 Total – 1.0 acres</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Overall Campus Total – 19.8 acres</td>
</tr>
<tr>
<td>Building Architecture</td>
<td>• Building design to express the high quality of education offered on campus and identity of each institution.</td>
<td></td>
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<tr>
<td></td>
<td>• Building materials which suggest sustainability and dignity</td>
<td>• Phase 3 is constructed using the same brick and metal siding used on the existing structures.</td>
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<tr>
<td></td>
<td>• Roof design is sloping roofs in general</td>
<td>• Phase 3 will have both sloped roofs with overhangs and flat roofs incorporating a vegetative roofing system.</td>
</tr>
<tr>
<td>Upland Tree Preservation and Landscape Architectural Concept</td>
<td>• Master plan designed to preserve site’s woodland character</td>
<td>• Location for the Phase 3 building has shifted slightly to the southeast to help preserve more trees than the previous Master Plan had shown along 110th Street.</td>
</tr>
<tr>
<td></td>
<td>• Trees preserved to the maximum extent possible within a large, centrally located cluster shaped like a hook, between buildings and parking areas, at the site perimeter, and adjacent to circulation routes.</td>
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<tr>
<td></td>
<td>• Hierarchy of open spaces proposed: primary spaces located along the main promenade and secondary spaces located between buildings, openings in the evergreen forest, and at primary site access points.</td>
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<tr>
<td></td>
<td>• Primarily native species or plants adapted to the Pacific Northwest, arranged informally. Formal arrangements may be used to frame, emphasize, enhance, or screen architectural structures, building entries, parking lots,</td>
<td></td>
</tr>
</tbody>
</table>
## Comparative Summary Table

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<th>Proposed Phase 3</th>
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<tbody>
<tr>
<td></td>
<td>promenades, walkways and other elements on campus.</td>
<td></td>
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<tr>
<td></td>
<td>• Landscaped buffers to provide separation between campus and adjacent residential areas; buffers to contain preserved trees, supplemental trees and landscaping, and perimeter fencing in key locations.</td>
<td></td>
</tr>
<tr>
<td>Lowlands Restoration</td>
<td>• The “Lowlands” or “Wetland Restoration Area” of the site includes North Creek and is located within the FEMA floodway and floodplain. The initial (Phase 1) development of the Campus site included the relocation of North Creek and resulted in modifications to the floodway and floodplain. These changes were all documented/approved with a Conditional Letter of Map Revision (CLOMR) and a Final Letter of Map Revision (LOMR). The current Phase 3 development does not impact the “Lowlands” or “Wetland Restoration Area” of the site and no further study/reporting or documentation is needed. &lt;br&gt;• The site is currently at 75% of established goals for the wetland mitigation according to Year 5 (2007) Compliance Report for the North Creek Ecosystem Restoration, Snohomish County, Washington.</td>
<td>• The 58 acres of lowlands have been restored and are being monitored.  &lt;br&gt;• Further monitoring of wetlands for years 7 through 10 will continue to meet the overall goals of the site mitigation.</td>
</tr>
<tr>
<td>Vehicular Circulation</td>
<td>• Primary vehicular access to the site via Beardslee Boulevard.  &lt;br&gt;• NE 185th Street would be limited to emergency vehicles, pedestrian and bicycles; no transit.</td>
<td>• The proposed off ramp from SR 520 is under construction.</td>
</tr>
</tbody>
</table>
## Comparative Summary Table

<table>
<thead>
<tr>
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<tbody>
<tr>
<td></td>
<td>• NE 180th Street limited to emergency vehicles, pedestrians and bicycles.</td>
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<td>• Access road provides two 14-foot travel lanes through campus, widening to three lanes at Beardslee and 180th Street. No median.</td>
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<td></td>
<td>• Secondary access road provides two 14-foot travel lanes along upper campus. No median.</td>
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<tr>
<td>Transit</td>
<td>• Primary transit access to the site via Beardslee Boulevard</td>
<td>• No changes proposed</td>
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<td></td>
<td>• Bus stop/shelter at Library-Student Services-Bookstore space for two articulated buses at southbound station and two articulated buses at northbound stop</td>
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<td></td>
<td>• Bus stop/shelter/turnaround/layover at intersection of campus drive and 185th Street; space for two articulated buses</td>
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<tr>
<td></td>
<td>• Bus stop/shelter/turnaround/layover at intersection of campus drive and 180th Street via the Chase House; space for several articulated buses. Bus traffic is separate from autos</td>
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<tr>
<td>Bicycle and Pedestrian Circulation</td>
<td>Regional Trail</td>
<td>• No changes proposed</td>
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<tr>
<td></td>
<td>• Connection between the Sammamish River Trail and the North Creek Trail</td>
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<td></td>
<td>• Connection to the Sammamish River trail that passes under existing SR 522 Bridge</td>
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<td>• Connection to the North Creek Trail to I-405 via the</td>
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<tr>
<td><strong>Pre-Design</strong></td>
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<tr>
<td><strong>Design</strong></td>
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<tr>
<td><strong>Permit</strong></td>
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<tr>
<td><strong>Construction</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Site prep 5/28-7/08</td>
<td></td>
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</tr>
<tr>
<td>Site utility civil work 5/28-7/08</td>
<td></td>
<td></td>
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<tr>
<td>Retaining wall 6/18-8/30</td>
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<tr>
<td>Concrete superstructure 6/6-10/18</td>
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<tr>
<td>Steel superstructure 9/28-10/19</td>
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<tr>
<td>Skin 11/18-1/09</td>
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<td></td>
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<tr>
<td>Interior 1/19-7/20</td>
<td></td>
<td></td>
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<tr>
<td>Landscape 3/09-7/20</td>
<td></td>
<td></td>
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<tr>
<td>Substantial Completion 11/09</td>
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<tr>
<td><strong>Occupancy</strong></td>
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</tr>
</tbody>
</table>

Part 4 – Phase 3 Summary

Continued

Architecture

Phase 3 Design Considerations
Phase 3 consists of Cascadia’s third building, The Center for Global Learning and the Arts and its associated site development, and will be the first phase of construction since the original campus construction was completed in 2001. It will accommodate 800 FTE. This will bring the campus FTE to 3,800 of the 10,000 FTE planned for the campus. The strong character of the existing buildings is complemented by the new building design without replicating their exact form. The same brick and metal panel wall systems are incorporated.

The site chosen for the Global Learning and the Arts building follows the master plan and will be the first development in a new string of buildings that will occupy the upland portion of the site to the west of the existing structures. It will begin to define the north end of campus, setting up a gateway from that end. The building will create the edge of a public plaza and open green space.

The building consists of an on-grade three-story classroom and faculty office wing and a single story, double-height multi-purpose room with a stage, a lobby and gallery. The multipurpose room connects to a plaza that will become the primary large gathering space for the north end of campus.

Cascadia Community College made a decision that new teaching units of Performing and Visual Art, Global Studies and World Languages would be housed within the new building. Common spaces for students and faculty are incorporated, providing space for students to meet, study, and display student work.

The programming methodology began with a review of current facilities and other institutions that offer this type of curriculum as well as current faculty and student populations. Existing space models were studied to see how this new program could be introduced to the Campus.

The process included in-depth interviews with faculty, administrators, and industry experts to define requirements for the new building. Following the compilation of the information gathered during those interviews, four workshops were conducted to identify desired adjacencies between and within units. Throughout the interview/workshop process, drafts of the project program were presented to the Core Group for review. Initial estimates of space requirements were based on the consultant team’s experience and comparisons to similar facilities. The estimates on program space have been refined throughout the programming process as a result of discussions and communication with faculty, administrators and the Core Group.
Part 4 – Phase 3 Summary

Continued

Classrooms
As recommended by the Washington State Board for Community and Technical Colleges, interactive classrooms provide for the physical and technical design considerations to ensure effective use by faculty and students. The classroom space considers the number of students as well as layout of instructor’s material, access for the disabled, and integration of audio-visual equipment. The set up is also flexible enough to accommodate changing curriculum requirements and alternate furniture layouts.

Computer Classrooms
The proposed Classroom size for the Global Learning and the Arts building at Cascadia Community College was derived by analyzing the equipment, viewing distances and circulation space required for the teaching functions.

Offices/Common Areas
The proposed functional areas for office areas for the Global Learning and the Arts building are based on a campus standard.

Shared Instructional Areas
Many of the planned functions and curricula rely on shared flexible spaces that any of the World Language, Performing and Visual Arts and Global Studies classes can utilize as well as the Open Computer lab space for the entire college.

Summary
A brief summary of the overall space types is as follows:

<table>
<thead>
<tr>
<th>Space Type</th>
<th>Net Square Feet</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructional Space</td>
<td>21,380 NSF</td>
<td>63%</td>
</tr>
<tr>
<td>Instructional Support</td>
<td>4,412</td>
<td>13%</td>
</tr>
<tr>
<td>Assignable Storage</td>
<td>3,733</td>
<td>11%</td>
</tr>
<tr>
<td>Offices</td>
<td>4,412</td>
<td>13%</td>
</tr>
<tr>
<td>Total NSF</td>
<td>33,938 NSF</td>
<td></td>
</tr>
<tr>
<td>Projected Efficiency</td>
<td>62.5 %</td>
<td></td>
</tr>
<tr>
<td>Proposed GSF</td>
<td>54,300 GSF</td>
<td></td>
</tr>
</tbody>
</table>

Amenities
- Casual meeting/interaction spaces for short duration interaction.
- Outdoor gathering spaces should be highly visible and inviting.
- Display/announcement boards serve as gathering places for informal contact.
Part 4 – Phase 3 Summary

Continued

• Connections to other campus facilities will facilitate interaction with students and staff in nearby buildings.

ADA Planning Concerns
Providing accessibility for persons with disabilities requires special design consideration for this site on the upland portion of campus. Part of the character of the campus comes from its pedestrian orientation that keeps cars on the outer loop. A challenge was to design the accessible route that negotiates the change in grade that is the primary means of access for everyone coming to the site. It was also important to keep the grade 1:20 or less for ease of approaching the building.

• All parts of the building are accessible by persons with disabilities.
• Accessible work stations are provided based on code requirements.
• Aisle widths and clearances adequate for maneuvers of wheelchair bound individuals. Aisles 5'-0" wide are recommended with turnaround areas.
• Two ADA van stalls are provided.

Parking
The PUD requires a range of 4,200-6,600 stalls upon full build out at 10,000 FTE (or a utilization rate of .42-.66 stalls per FTE). Currently the campus has 1,950 stalls for its 3,000 FTE (.65 stalls per FTE). The campus has conducted numerous informal studies on parking utilization and has found that the campus currently has more parking stalls than it uses.

With the construction of Phase 3 and the addition of 800 FTE and two parking stalls, the new utilization rate will be .51 per FTE, still within the range outlined in the PUD. Parking expansion will continue to be carefully considered. With the new South Access under construction, traffic patterns and utilization rates will be studied and updated with the next phase of campus development.

Civil Systems

Demolition
Demolition includes the removal, rerouting and/or abandonment of existing facilities to accommodate Phase 3 construction. This includes such items as storm lines, rockeries, and curb and gutter.

Demolition work will follow the City of Bothell Design and Construction Standards and Specifications and
Part 4 – Phase 3 Summary

Continued

the City of Bothell Conditions of Approval for the UWB/CCC Phase 3 project. Unless otherwise noted, all existing materials will be removed and hauled from the site and disposed of at an approved waste site by the Contractor.

Temporary Erosion and Sedimentation Control (TESC)

TESC measure for Phase 3 construction shall include: interceptor ditches, silt fences, catch basin inlet protections, stabilized construction entrance, soil cover measures (i.e., hydroseed, straw, or mulch), and source control. Local protection measures and source control will be critical in Phase 3 to protect the permanent, in-place facilities. Local protection measures may include sediment traps, strawbale reinforced silt fence, and similar facilities to control, treat, and dissipate runoff from active construction areas prior to release to downstream portions of the site. All construction runoff from Phase 3 work areas shall be controlled and treated in accordance with applicable City of Bothell and Washington State Department of Ecology standards prior to being discharged to the downstream systems.

Clearing limits shall be minimized to those necessary to complete the work items for the project and limited to the extent shown in the TESC Plan. Protective measures (BMPs) for Phase 3 clearing limits include silt fence and, in areas requiring emphases for protection, high visibility plastic construction fencing. Straw bale reinforcement shall also be added at silt fencing immediately upstream of sensitive or existing hardscape work areas. Trees or groups of trees within protected non-clearing areas and/or identified to remain on the plans shall be marked and protected during construction. The minimum BMPs required and some of the sequencing for the Phase 3 clearing limits and proposed BMPs are provided in the TESC plans.

Riprap stabilized construction entrances and/or paved wheel wash facilities will be provided at all construction access points where they exit to finished paved areas. These entrances shall be maintained and cleaned periodically to prevent mud, dust, and other construction debris from being tracked onto offsite roadways.

Interceptor ditches in the mid-reaches of the upland area will collect surface runoff from undisturbed areas upstream of the construction area and discharge it to the permanent Phase 1 and Phase 2A storm drainage facilities.

Construction Sequencing

Phase 3 Improvements

- Establish and maintain TESC measures
- Clearing and grubbing
- Rough grading of loading zone and temporary access road
Part 4 – Phase 3 Summary

Continued

- Excavation of building pads
- Construct utilities – water, sewer, and storm drainage
- Building construction
- Construct curb/gutter, sidewalk, hardscape, and landscape

Grading

Building and Pedestrian Promenade

The Phase 3 building is situated between the existing roadway (110th Avenue NE on the west) and the existing pedestrian promenade (on the east side) and just south of the bus turn-around. The building has been configured so that the lower level of the building will be approximately nine feet above the pedestrian promenade. A combination of walls and stairs will be used to handle the transition between the east side of the building and the promenade. Along the pedestrian promenade, side slopes of 3:1 or flatter will be provided to match existing ground. On the west side of the building, low-level retaining walls will be provided to minimize disturbance of existing ground and to maintain existing trees.

Storm Drainage

The Phase 3 storm drainage system is an expansion of the system established with Phase 1 and Phase 2A. The proposed storm drainage system for the project consists of both surface feature and conventional pipe collection and conveyance facilities. Stormwater collected by the system will be routed through a water quality system providing oil water separation, sediment removal, and limited biological treatment prior to discharge. Ultimately, stormwater runoff from both the upland and lowland areas discharges to North Creek.

Phase 3 water quality treatment will be provided by the facilities installed with Phase 1 (additional treatment is also being provided for the loading zone with the installation of floatable material separator per City of Bothell Standard Plan 431). The greatest area of impervious, paved area requiring water quality treatment is planned to occur with Phase 1 conditions. As subsequent phases develop, including Phase 3, the amount of paved surface being collected and conveyed to the water quality system is to be reduced with the addition of garage structures. The water quality facilities were designed for Phase 1 site conditions in accordance with the project’s master planning documents. The storm drainage conveyance facilities, however, will have capacity for all contributing areas through build-out conditions. This approach is intended to provide a conservative performance for the project’s drainage system. The water quality treatment system is three-tiered, providing oil/water separation, sedimentation and biological reduction, and biofiltration. Stormwater runoff from paved areas passes through a coalescing plate (CP) oil-water separator before entering a water quality wet vault. There it mixes with the runoff from onsite landscaped areas and is discharged to a biofiltration facility before being dispersed to the wetlands in the
Part 4 – Phase 3 Summary

Continued

lowland area of the site where it ultimately enters North Creek.

A separate groundwater drainage system was constructed for the project as part of Phase 1 development. The purpose of the system is to both reduce the overall quantity of water entering the water quality facilities and to keep “clean” water from mixing with that requiring treatment, thus maintaining a practical size and ensuring proper performance of the water quality facilities. The bypass system includes collection and conveyance of runoff from building roofs and foundation drains. Discharge from the bypass system is dispersed in the transition zone between upland and lowland upstream of North Creek. Minor modification to the alignment and extension of this system in the uplands will be required to accommodate service to the Phase 3 building.

Peak rate control (i.e., detention) is not provided with the onsite stormwater system due to the close proximity of its discharge to the Sammamish River, a receiving water listed in the City of Bothell Surface Water Design Manual (BSWDM) - Core Requirement #3: Runoff Control as being exempt from onsite peak rate control. Since flooding in the lower reach of North Creek is essentially controlled by the level of flow in the Sammamish River, it would be counterproductive to provide detention in this portion of the North Creek Basin. The peak flooding condition for the site will be much earlier than the peak flood condition for either North Creek or the Sammamish River. Detention of onsite surface water runoff would delay site peak flows leaving the site, which would decrease the separation between the basin and site peaks, an undesirable condition.

The design of the stormwater system, and the materials and methods of construction used for the system, shall be in accordance with the latest editions of the City of Bothell Design and Construction Standards and Specifications and the City of Bothell Surface Water Design Manual (BSWDM). The storm drainage conveyance system will consist primarily of 12- to 36-inch diameter corrugated high density polyethylene pipe (CPEP) with smooth interior walls (AASHTO M294 type S and ASTM D1248 type 111, category 5, grade P34, class C). Storm drainage structures for Phase 3 will include Type 1 and 2 catch basins. Phase 3 construction will require connection to existing storm drainage facilities.

Sanitary Sewer

Only one side sewer connection will be provided to serve the Phase 3 building. The side sewer connection will be tapped to the existing eight-inch sewer main in 110th Avenue NE.

The design of the sanitary sewer system and sanitary sewer system materials will be in accordance with the City of Bothell Design and Construction Standards and Specifications. The sanitary sewer system will consist of six-inch diameter PVC pipe (ASTM D-3034, SDR-35) and cleanouts.

Water System
Part 4 – Phase 3 Summary

Continued

No extension or modifications to the existing water main system is proposed for the Phase 3 improvements.

Water system improvements for Phase 3 will consist of installing one fire service system with DCVA, FDC and PIV; installing one three-inch water service system; removing and replacing one existing fire hydrant; and adjusting one existing fire hydrant to finished grade.

The design of the water system and water system materials will be in accordance with the City of Bothell Design and Construction Standards and Specifications. The water line will consist of 4- to 12-inch diameter, ductile iron, Class 52 pipe (AWWA C-150 and C-151), and associated fittings.

Offsite Improvements – SR 522

WSDOT is constructing a new south entrance to the UW Bothell and Cascadia Community College campus on SR 522 with a signal and an exclusive exit lane to the campus at the southbound I-405 to westbound SR 522 off-ramp and a new bridge for the I-405 off-ramps constructed over the campus access street.

The construction is required by Bothell city ordinance, UW Bothell and Cascadia Community College to allow for expansion from 3,000 full-time students to 10,000 full-time students. The addition will also relieve congestion at the north entrance by taking more vehicles off city streets and access to the south campus from I-405 and SR 522 eases transit ability to reach the north campus station, thus improving transit reliability.

The construction will begin in spring 2008 and be completed approximately by winter 2010.

Structural Systems

Foundations
The site encompasses various soils conditions including hard glacial till in the upland area. The siting of Phase 3 takes advantage of the better soils and therefore the design of foundations can be supported on conventional spread footings and slab-on-grade. Some soils in the project area are expected to be wet with some pockets of materials requiring removal and will need to be replaced with controlled density fill. There is no basement proposed for this project.

Excavation Shoring
Part 4 – Phase 3 Summary

Continued

The building is located well within property limits. The building excavations should be not more
than ten feet deep at the southwest corner and be open cut or temporarily shored with a tie back
shoring wall. Otherwise, excavation will be minimal. Due to the proximity to trees that need to be
protected, some shoring may be required at the south end of the building.

Building Superstructure
The initial evaluation during the pre-design phase has identified two preferred systems for
consideration. These are either cast-in-place (non post-tensioned) or pre-cast concrete systems.
Concrete solutions for the structural system are desirable due to the diverse uses and occupancies of
the building. The superior acoustical and vibration isolation properties of the concrete solutions
provide the best option for minimizing the potential for disturbances of one space due to activities
in an adjacent space.

- First Floor
  The first floor of this facility would typically be constructed with a four-inch thick concrete slab-
on-grade. The slab would be reinforced with a light welded wire fabric. Typically, the slab would
be placed over a vapor barrier and a four-inch deep capillary water barrier.

- Second and Third Floor
  The second and third floor framing will be a combination of cast-in-place concrete and steel
frame. Large mechanical units should be placed on a concrete floor system or concrete-topped
steel decking using base isolators to minimize vibration transmission into the structure.

- Roof Structure
  The upper and lower roof framing will be light framed steel structure. For low roof areas not
adjacent to the penthouse structure, two options are presented.

- Exterior Walls
  Exterior walls will be either non-load bearing metal stud intill or load bearing cast-in-place
concrete walls. Either system accommodates a masonry veneer cladding.

- Lateral Force Resisting System
  Lateral loads for the structure would typically be transferred to the lateral load resisting system
by the roof and floor decks, which act as rigid horizontal diaphragms. The diaphragms would
transfer loads to collector elements that deliver loads to interior and/or exterior concrete shear
walls or steel braced frames. The shear walls or braced frames, in turn, transfer the lateral loads
to the building foundation and into the ground.
Design Criteria

The currently adopted building code for the State of Washington is the 2006 International Building Code (IBC).

Floor Live Loads:
- Classrooms: 50 psf + 20 psf partitions (future flexibility)
- Administration and Offices: 50 psf + 20 psf partitions
- Corridors and Exit Facilities: 100 psf

Snow Load:
- Roof Snow Load: 25 psf

Wind Loads:
- Basic Wind Speed: 100 mph
- Exposure: B
- Importance Factor: I = 1.15

Seismic Loads:
- Seismic Zone: 3
- Importance Factor: 1.25
- Building Ductility Factor (R): 5.5 (6) Conc. S.W.’s (Steel Braced Frames)
- Soil Profile Type: SD (Assumed)
- Over-strength Factor (Ωo): 2.5 (2) conc. S.W.’s (Steel Braced Frames)
- Short Period Response Acceleration: SDS = 0.84g
- 1-Sec Period Response Acceleration: SD1 = 0.46g

Mechanical Systems

HVAC

The entire building will be heated, ventilated and air conditioned with a central air handling system. Heating will be accomplished by the combination of heating coils in the central air handling system and heating in the fan powered terminal boxes. Cooling will be accomplished by a cooling coil in the central air handling systems. Campus chilled water will be used as the energy source for mechanical cooling. Natural gas will be used as the energy source for heating.

- Codes and Standards:
  - International Mechanical Code
  - International Building Code
  - NFPA 90A, Installation of Air Conditioning and Ventilation Systems
Part 4 – Phase 3 Summary

Continued

Washington State Energy Code

- **Design Parameters:**
  
  Outdoor Design Conditions, General:
  - Summer: 83°F dry bulb, 66°F wet bulb, 7.5 mph wind velocity
  - Winter: 17°F dry bulb, 15 mph wind velocity

  Indoor Design Conditions, General:
  - Summer: 75°F dry bulb, 62°F wet bulb
  - Winter: 68°F dry bulb

- **Building Envelope:**
  
  General: Components of the building envelope will be insulated to meet or exceed requirements of the Washington State Energy Code, “Building Design by Components Performance Approach”.

- **HVAC System Descriptions:**
  
  The HVAC systems in the building will be overhead air system. The Central Air Handling Unit serving the overhead supply air system will be approximately 50,000 cfm and shall consist of the following:

  Air Handling Units:
  - Fans – Supply and Return
  - Coils – Heating and Chilled Water Cooling
  - Filters – Pre-filter and Final Filter
  - 100% Outdoor Air Economizer Cycle
  - Overhead Duct Distribution with Ceiling Return Plenum; series-type fan terminal boxes with hot water heating coils for perimeter zones, supply 60°F air for cooling or 85°F air for heating.
  - Variable air volume controls for supply fans

  Temperature Zones:
  
  The building will be divided into temperature control zones based upon location, expected usage, similarities, and flexibility. All zones will include temperature control devises that stand alone and are responsive no matter time of day or demand. Local control will be available to override system if noise or airflow effects space requirements.

- **Mechanical and Electrical Rooms:**
  
  There will be two mechanical rooms serving this building. The first is located on the second floor and will serve the multi-purpose room. The main mechanical room will be located on the
third floor. Within this mechanical room will be all the air handling equipment, the heating water boilers, the pumps and the domestic water heater. The pumps and fans will be mounted on springs to limit noise and vibrations to the structure. Ductwork will be routed from the air handling units to the spaces through shafts or through the ceiling space.

- **Localized Equipment Rooms:**
  If equipment rooms require localized cooling, separate fan coil units will be provided to serve these spaces. This will allow for 24 hours per day air conditioning and influence the use and demands on the main building units. These rooms and the associated cooling equipment may be required to be on emergency power.

- **Hydronic Systems:**
  **Chilled Water Cooling Systems:**
  Chilled water will be provided by the campus chilled water system. It is anticipated the load will be approximately 230 tons and 550 gpm of flow. The point of connection will be near the northwest corner of Building CCC 2A where existing ten-inch valves end the current campus distribution. A set of six-inch mains will be provided and routed to the Center for Global Learning and the Arts building's mechanical room.

  Chilled water distribution flow is modulated to meet cooling system demand by variation of motor rpm through variable frequency controllers, thus reducing pumping energy requirements. Controls are provided to start and stop chillers based upon surplus and deficit distribution water flow, thus resulting in minimum chiller energy consumption.

  **Hot Water Heating System:**
  Natural gas fired heating water boilers will provide the hot water. Distribution pumps will be provided with differential pressure bypass valves to circulate the heating water to all air handling unit sand terminal units. Boilers will be sole-sourced from Aerco to match the current campus standard.

**Plumbing**
General: Design will be generally based upon University of Washington design standards.

- **Codes and Standards:**
  Uniform Plumbing Code
  International Building Code

- **Domestic Water System:**
Domestic Cold Water: A new water service will be brought to the building and distributed to plumbing fixtures throughout the building.

Domestic Hot Water: A new gas fired water heater will be provided with distribution piping to plumbing fixtures throughout the building.

Distribution: Domestic water piping will be routed in vertical shafts and above ceilings from the mechanical room to all areas.

• Sanitary Waste System:
  Waste and vent piping will be provided for plumbing fixtures throughout the building. Trap primers will be provided for floor drains.

• Storm Drainage System:
  Roof drain outlets will be collected by multiple rainleaders within the building, which will terminate at points of connection to the site storm drain system. Overflow roof drains will be collected by a separate overflow rainleader system, which will connect to the roof drain rainleaders outside the building exterior wall line.

Communication
The initial evaluation during the pre-design phase has identified two preferred systems for consideration. These are either cast-in-place (non post-tensioned) or pre-cast concrete systems. Concrete solutions for the structural system are desirable due to the diverse uses and occupancies of the building. The superior acoustical and vibration isolation properties of the concrete solutions provide the best option for minimizing the potential for disturbances of one space due to activities in an adjacent space.

Fire Protection
General: A compete wet pipe fire protection sprinkler system will be provided for the building. A dry pipe system will be provided for all overhangs and areas where freezing may happen. A pre-action wet pipe system will be provided in the server room.


• Codes and Regulations:
  International Fire Code
  NFPA-13, Installation of Sprinkler Systems
  NFPA-90A, Installation of Air Conditioning and Ventilation Systems
Part 4 – Phase 3 Summary

Continued

NFPA-14, Installation of Standpipe and Hose Systems
Factory Mutual Loss Prevention Data Sheets
Factory Mutual Approval Guide

• Water Supply:
  General: Fire main(s) will be connected to the campus water main; see utilities.
  Demand: To be determined.

• Fire Department Connection:
  Four inch connections to the sprinkler systems will be provided through which the fire
  department can pump water as an auxiliary supply; the inlet connections will be provided at the
  exterior of the building at locations suitable for fire truck access.

  Backflow Prevention: A detector check valve assembly will be provided for the fire main outside
  of the building under the Civil Site Work.

• Automatic Sprinkler Systems, General:
  Occupancy Classification: Light Hazard
  Dry Pipe System: Will consist of a dry alarm valve, air compressor, sprinkler heads and piping.
  This will be used in areas where freezing may occur.
  Pre-Action System: Will consist of smoke detectors or heat detectors, pre-action valve and
  control system, inhibit switch, heads and piping.

• Central Air Handling Systems:
  Smoke detectors in return air and supply air ductwork will automatically shut down air handling
  systems in the event of a fire. In addition, manual operation of each fan and outside air/exhaust
  air automatic damper will be provided at a central fire control room, for use by fire department
  personnel for emergency smoke removal.

  The initial evaluation during the pre-design phase has identified two preferred systems for
  consideration.

  First Floor

Environmental Control Systems
Temperature and flow controls for central Hydronic and air handling systems will be direct digital
type (DDC) through a Building Automation System (BAS); local zone thermostat control loops will
also be DDC. This system shall be sole-sourced to Johnson Control Systems to be compatible with
the existing campus system and updated to the latest edition of Johnson Control HVAC software.

- **Building Occupancy:**
  
  Depending upon modes of occupancy and demand for ventilation, heating or cooling, various air handling systems will be shut down or have room temperatures reset to conserve energy. The HVAC controls will be separate from lighting controls.

**Energy Conservation/Sustainability**

Energy conservation and sustainability are important values associated with Cascadia Community College and thus concepts, rainwater collection for gray water flushing, building orientation and shaping, and demand ventilation have been considered and incorporated.

**Landscape Architecture**

**Entry Plaza:**

This plaza is sited at the entry to the building lobby. The Entry Plaza elevation is aligned with the finished floor elevation of the Lobby and appears to be an extension of the Lobby's interior floor. The Entry Plaza is configured to be used as a standing/seating area for outdoor speeches, performances, or banquets, with guests seated at tables, in rows, on the western seating wall or informally standing in groups.

A set of stairs line the eastern edge of the plaza to provides additional access to the main N/S path and a place for students, faculty and visitors to congregate. Each step feathers into the grade as the main N/S path slopes up to meet the plaza ramp entrance.

The main N/S path intersects the main E/W path, which connects the current CCC1 exit to the new landscape. Both the N/S and E/W path are continuously sloped at less than 5% and smoothly paved to provide generous, ADA-compliant pathways. Both paths are edged by retaining walls which follow the sculpted grade and provide additional seating.

The stairs and paths are paved in a high quality material with custom metal railings.

**Woodland Plantings:**

The general appearance of the Woodland Plantings would be that of a native forest understory. Occasional, non-native yet vernacular highlights may be included, such as Rhododendrons. In particularly wet areas, the plant mix is amended with native, inundation-tolerant plants that harmonize with the larger expanse of Woodland Plantings. Plants through all zones are of a consistent height (well below eye-level) for ease of maintenance and campus safety. Planted on newly sculpted ground, this robust texture of groundcover, shrubs and trees unifies the landscape, slows stormwater/erosion, and strongly identifies the
Part 4 – Phase 3 Summary

Continued

Campus landscape aesthetic. The plant mix is dominated by large-textured, evergreen, and drought-tolerant native plants, such as Polystichum munitum, Mahonia aquifolium, and Gaultheria shallon. Native deciduous and seedling evergreen trees are planted in the new landscape to link it to the existing Campus. These trees include Acer macrophyllum, and Thuja plicata, sited per soil moisture.

Existing evergreen trees are preserved wherever possible by careful siting, tree protection and sensitive construction practices, such as limited grade disturbance, hand digging, and pier construction.

Eco-turf:

The eco-turf is a gently sloped turf area, sited adjacent to the plaza. The perimeter of the eco-turf is edged with low, stone retaining walls. These low walls serve as informal benches and offer clear edges to delineate contrasting zones of landscape maintenance. The relatively flat surface of the eco-turf is created by a balanced cut-and-fill alteration of the existing, gently sloped grade.

Campus Connections:

Paved vehicular access, including a turn-around area, two Accessible parking spaces, a loading dock, and a pick-up/drop off area, is provided on the western side of the CCC GLA building. A back entry plaza connects the new building to extensions of the existing sidewalk circulation. A network of smaller, gravel pedestrian trails can be incorporated into the area of Native Forest Restoration to ensure a variety of pedestrian routes and experiences around the CCC GLA building and to allow for maintenance access.

Soils:

Native soils should retained and amended to ensure adequate (50-60% by volume) organic matter levels. Where possible, native woodland soil will be left undisturbed. This soil may be amended if necessary with additional organic matter. Where disturbance is necessary, the site’s native soil should be preserved and stockpiled for reinstallation and amendment with organic matter. Quick-draining sandy soil amended with approximately 5% S.O.M. is used for the topsoil of the Eco-turf.

Irrigation:

The Eco-turf and Woodland planting areas will be fully drip irrigated for the first three years, or until established, with an automatic irrigation controller. The irrigation system should be of a make and model that campus facilities have approved. The remainder of the plantings, which are selected for seasonal drought-tolerance, shall be hand-watered in drought periods for a time of 1 – 3 years, or until established.
Comprehensive Plan Compliance

This application is for an approximately 54,300 square foot Global Learning and Arts building to be constructed on the University of Washington Bothell/Cascadia Community College campus (UWB/CCC). The property is located at 18225 NE Campus Parkway, Bothell, Washington 98011.

The proposed Phase 3 of the PUD is in compliance with the Bothell Comprehensive Plan as follows:

Comprehensive Plan Subarea
The site lies within the North Creek/195th Subarea according to the Comprehensive Plan.

Capital Facilities Element
The location of the UWB/CCC is consistent with the capital facilities element in that the site is easily accessible via SR 522 and SR 405. This regional education facility serves not only as an educational institution, but also as a gathering place for multiple community activities.

Community Services Element
HS-P3: To promote life-long learning opportunities within the community.
HS-P9: Work with the Northshore School District, the University of Washington, and Cascadia Community College and private educational institutions to further educational objectives, consistent with community values.
HS-P10: Encourage expanded community use of local public and private school facilities.

Economic Development Element
NE-G1: To achieve a harmonious relationship between the built and natural environments.
NE-G2: To promote community wide stewardship of the natural environment for future generations through identification, protection, preservation/conservation, and enhancement of those natural environment features which are most sensitive to human activities and which are critical to fish and wildlife survival and proliferation.
NE-G3: To preserve open space corridors to pride lands that are useful for recreation, wildlife habitat, trails and connections of crucial areas.

Historic Preservation Element
The Chase home has been registered on the National Historic Landmarks and the Washington Heritage Register.
Part 4 – Phase 3 Summary

Continued

Natural Environment Element

NE-P8: Preserve, protect, restore and enhance the Sammamish River and North Creek and their tributaries as fish and wildlife habitat by implementing the goals and policies as contained in this element, the Parks and Recreation element, the Shoreline Master Program Element, the Land Use element, best available science, and the following special objectives:

- For North Creek and its tributaries: Provide unimpeded access to all potential natural spawning and rearing habitats for all life stages of salmon.
- Protect existing stream channel complexity and floodplain and longitudinal connectivity and restore channel and floodplain connectivity where necessary.
- Protect and restore a more natural hydrologic regime.
- Reduce runoff and fine sediments.
- Reduce runoff and fine sediments.
- Reduce accelerated streambank erosion.
- Maintain and restore a more natural temperature regime.
- Protect and restore riparian habitats.
- Reduce nutrient and chemical pollutant loading and reduce impacts on salmon.

NE-P14: Strive to improve water quality, fisheries habitat and wildlife resources consistent with adopted state and federal standards.

Native Vegetation

NE-P30: Encourage restoration of degraded riparian buffers and deforested areas and removal of impervious surfaces.

NE-P31: Preserve trees within streams, wetlands and their associated buffers.

NE-P32: Encourage the planting of suitable native trees and native vegetation within degraded streams, wetlands and buffers. Encourage the planting of suitable native trees and native vegetation on steep slopes.

Monitoring, Updating and Enforcement

NE-P40: Apply adaptive management to critical area regulations to monitor and evaluate their effectiveness and update regulations that do not achieve the level of protection prescribed in the regulations.
Conditions of Approval Final PUD – PUD1999-0001
CONDITIONS OF APPROVAL FINAL PUD, PUD1999-0001

The following Conditions of Final Approval were developed as part of the Phase 2A PUD application process. These Conditions of Preliminary Approval relate to the Phase 1 and Phase 2A phases of development for the UW-B/CCC collocated campus. As part of the Phase 3 PUD Application, the current status of each of the Conditions of Final Phase 2A Approval has been noted at the end of each condition below (in italics.)

General Conditions

1. All final construction drawings shall be accomplished in AUTO CAD (Version 14 or later) at a minimum scale of 1"=20' (unless another scale is specifically approved) in accordance with Department of Community Development and Public Works design standards and approved prior to construction. Specific approval for each phase must also be obtained from the City of Bothell Fire Marshal, as coordinated by the Community Development and Public Works Department.

   The plans contained in Exhibit 101 constitute the approved Phase 2A Final PUD plans.

   Phase 3 Comment – Condition 1 has been complied with.

2. At the time of each Construction Plan Submittal, the Permittee shall submit five sets of construction plans and specifications for on-site and off-site street and utility improvements to the City Engineer for review and approval with revisions made as required. Construction plans shall meet or exceed City standards.

   Phase 3 Comment – Condition 2 has been complied with.

3. Upon notification by the Community Development and Public Works Director, the Permittee shall post $85,000 with the City Engineering Trust Fund for engineering plan review and inspection. Prior to the start of any grading or construction activities, any additions and/or adjustments required for the Engineering Trust shall be posted as required by the City Community Development and Public Works Director. This fund shall be replenished as required by the City. Any funds remaining after completion of the project shall be returned to the Permittee.

   Phase 3 Comment – Condition 3 has been complied with.

4. A wetland and stream buffer width of a minimum of 75 feet and an average of 100 feet shall be provided from all building facades, parking lots and other site improvements, except for the pedestrian trails, boardwalks, stream crossings and overlooks, and for the library expansion and north parking garage which shall maintain a minimum buffer of 35 feet. All wetland buffers shall fully comply with the requirements of the ICAO, BMC, 20.10. Where existing vegetation is insufficient or disturbed by construction activity, the buffer will be re-vegetated with a planting of riparian/wetland plant materials as reviewed and approved by the Department of
Community Development and Public Works. In order to recreate a natural system consistent with state and federal approvals, minor exceptions to the minimum buffer width of 75 feet may be authorized by the City staff as an interim condition, provided the average of 100 feet is maintained.

*Phase 3 Comment – Condition 4 has been complied with.*

5. A monitoring system shall be established as delineated in the ICAO to ensure that the function, performance and quality of the wetlands is not adversely affected by the development.

*Phase 3 Comment – Condition 5 has been complied with. The Permittee is performing formal maintenance and monitoring as further described in the Phase 3 Application.*

6. Appropriate site and structural design will be required to mitigate impacts on soil stability. The recommendations, procedures, and methodologies contained in a draft project-related soils report shall be incorporated into the final design, considered a part of the development, and implemented by the Permittee. The draft soils report shall be finalized and submitted to the City with building permit applications. The applicant shall submit grading, drainage and erosion control plans to the Department of Community Development and Public Works in compliance with all applicable City ordinances. These plans shall be approved by the Department of Public Works prior to issuance of construction or building permits for site construction.

A report prepared by a professional geotechnical engineer prior to the issuance of a temporary certificate of occupancy for each phase must be submitted to the City of Bothell documenting the Permittee's compliance with the approved soils report listed above.

*Phase 3 Comment – Condition 6 has been complied with.*

7. Grading shall take place during the dry summer and autumn months and shall include erosion/sedimentation control methods, including the use of special materials as may be recommended by the geotechnical engineer and as reviewed and approved by the Director of Community Development and Public Works.

*Phase 3 Comment – Condition 7 has been complied with.*

8. The Permittee proposes to grade approximately 185,000 cubic yards of cut and 200,000 cubic yards of fill. The Permittee shall design and implement erosion control measures to prevent surface water erosion flows into the surrounding wetlands and North Creek. The Permittee shall install and maintain erosion control measures as approved and monitored by the Community Development and Public Works Director throughout the construction process.

*Phase 3 Comment – Condition 8 has been complied with.*
9. All water mains shall be constructed, flushed and tested in accordance with City and State of Washington Department of Health standards and requirements.  
   *Phase 3 Comment – Condition 9 has been complied with.*

10. All water mains, hydrants, valves and other requested facilities shall be deeded to the City. Additionally, a minimum 15-foot wide unobstructed easement with the wording for the easement approved by the City, shall be dedicated to the City. These easements shall include all facilities to be owned and operated by the City, including fire hydrants and service lines up to and including the meters. The line from the meters to the buildings shall remain the property of the UW-B/CCC.  
   *Phase 3 Comment – Condition 10 has been complied with.*

11. Fire lines shall remain the property of the UW-B/CCC and State approved fire detector check assemblies shall be placed within 50 feet of the main line connection in accordance with City standards. An alternate location for the DDCV (double detector check valve) assembly, such as inside a building, must receive specific approval of the Community Development and Public Works Director. The entire fire line from the point of connection to the main up to the DDCV assembly shall be constructed, flushed, and tested in accordance with main line standards. This construction shall be included in the Public Improvement Plan submitted to and approved by the Department of Community Development and Public Works.  
   *Phase 3 Comment – Condition 11 has been complied with.*

12. All sewer mains, manholes and other required sewer facilities shall be deeded to the City. A minimum 15-foot wide unobstructed easement, with the wording for the easement approved by the City, shall be dedicated to the City. Side sewer lines shall remain the property of the Permittee and shall be operated and maintained by the Permittee.  
   *Phase 3 Comment – Condition 12 has been complied with.*

13. In addition to City fees and charges, the Permittee shall pay any connection fees and charges required by King County Metro. All sanitary sewer design shall be reviewed and approved by King County.  
   *Phase 3 Comment – Condition 13 has been complied with.*

14. The storm system including on-site mains, catch basins, manholes, structures and treatment facilities shall remain the property of the UW-B/CCC. The Permittee shall submit construction plans and an Operations and Maintenance Plan to the City for approval. The plan shall meet the requirements of the City. The Operations and Maintenance Plan shall require inspection twice yearly and submittal to the City of a yearly certification of compliance.

   At a minimum, the Operations and Maintenance Plan shall provide for the following:
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a. Sweeping of all parking and roadway areas on an agreed frequency;
b. Yearly pumping of all CBs= wet vaults and other facilities that accumulate silt and debris;
c. Yearly inspection and certification that the system is performing in accordance with the design;
d. Yearly maintenance of ditches, slopes, etc. as required;
e. Maintenance of coalescing plate oil/water separators, etc. at a frequency recommended by the manufacturer of the equipment; and
f. Maintenance of other features as required.
Phase 3 Comment – Condition 14 (a, b, c, d, e, and f) has been complied with. Maintenance and inspection activities are on-going.

15. In the event any portion of the development is within the one hundred year floodplain, as it may exist following the proposed relocation of North Creek and wetlands enhancement and restoration, at the time that building permits are requested to be issued, the Permittee shall be required to comply with the floodway/floodplain development regulations contained in Chapter 20.10 of the Bothell Municipal Code, including regulations relating to compensatory flood storage, building flood-proofing, etc. and shall obtain such additional Substantial Development Permits and Shoreline Conditional Use Permits as required under the Shoreline Management Act (SMA) and the Bothell Shoreline Master Program (BSMP) in order to comply with the above-referenced flood regulations as well as the requirements of the SMA and the BSMP.
Phase 3 Comment – Condition 15 has been complied with.

16. All Fire Department emergency access traffic control signals which will be installed or modified by the Campus development (including the proposed emergency access at the west Campus boundary at NE 180th Street) shall incorporate the 500 series 3M opticom equipment, which shall be compatible with current Fire Department standards.
Phase 3 Comment – Condition 16 has been complied with.

17. The minimum standards for fire lanes are as follows:
a. No less than 20 feet in width of approved all weather surface capable of supporting emergency vehicles;
b. Inside turning radii for access roads shall be no less than 30 feet when the roadway is less than 24 feet in width and 35 feet when the roadway is wider than 24 feet;
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c. Roadway grades shall not exceed 15 percent;
d. Vertical clearance shall be no less than 13 feet, 6 inches;
e. A Fire Department approved turn around shall be provided on any dead end road that exceeds 150 feet in length; and
f. Loading requirements.
Phase 3 Comment – Condition 17 (a, b, c, d, e, and f) has been complied with.

18. All buildings, except for the parking structures to the extent that they comply with the provisions of City code, shall be provided with a complete fire sprinkler system meeting all the requirements of NFPA 13, 231 and 231C. Plans shall be submitted to the Fire Department for review of the building permit application. The fire sprinkler design density will be determined when information has been submitted to the Fire Department as to storage height, type of commodity and the quantity that will be stored in these buildings.
Phase 3 Comment – Condition 18 has been complied with.

19. All of the requirements of the Bothell Municipal Codes 15.04, 15.08, 15.10 and 15.32 shall be met. These ordinances address the Uniform Codes, Bothell Sprinkler and Fire Alarm Ordinance, and fire flow/fire hydrant issues.
Phase 3 Comment – Condition 19 has been complied with.

20. Fire Department access and fire lanes to the parking garages are to be provided with each building. The Fire Marshal shall verify the final access and fire protection requirements, based upon the codes in effect at the time of permit issuance. The Permittee does not propose to sprinkler the open parking garages.
Phase 3 Comment – Condition 20 has been complied with.

21. The geotechnical engineer's recommendation for construction of the parking structures includes dewatering and installation of sub-grade drainage systems to intercept sub-surface flows. The drainage design for these structures shall include provisions for the dewatering system, including temporary erosion control, conveyance and discharge to North Creek of runoff treated by the temporary erosion control system.
Phase 3 Comment – Condition 21 has been complied with.

22. All existing utilities shall be relocated and undergrounded in their final locations to accommodate the final road geometry for Beardslee Boulevard. The cost of undergrounding the utilities shall be governed by existing franchise agreements, or Utility and Rate Commission regulations where a franchise agreement is not in place. The City requires the utility relocation work to be treated as a City project under the
franchise agreements. Due to the phasing of roadway improvements, the utility relocation work shall be started with Phase 1 and completed with Phase 2A construction.

Phase 3 Comment – Condition 22 has been complied with.

23. At the discretion of the Community Development and Public Works Director, the Permittee may be allowed to construct temporary curbs with Phase 1, instead of cement concrete curb and gutter, in areas where Phase 2A road widening improvements would require demolition and relocation of the curbs in their final location.

Phase 3 Comment – Condition 23 has been complied with, all permanent curbs and curb and gutter have been completed.

24. The Permittee shall reserve additional road right-of-way along project frontages for future dedication sufficient to accommodate final road widening, as determined by the Director of Community Development and Public Works. A 10-foot wide easement for utility providers shall be granted adjacent to the new right-of-way on the Campus side of Beardslee Boulevard.

Phase 3 Comment – Condition 24 has been complied with. Note that portions of the easement area may be subject to environmental restrictions by other State or Federal agencies due to proximity to the wetland restoration area.

25. Immediately following approval of the FPUD for Phase 2A, the City shall initiate the work plan as set forth in Appendix D of the project Traffic Report, dated May 28, 1999. The Permittee shall fund data collection, design reports, technical analyses, environmental document preparation, consultants, and community meeting preparation as necessary to develop and arrive at recommended long-term strategies and/or improvements to the NE 195th Street/I-405 Interchange including location of a Class 1 trail crossing. The Permittee's maximum amount to be expended toward preparation of the above mentioned technical analyses shall be $100,000.00 Funds expended for this effort shall be credited towards any identified solution required to be funded in whole or in part by subsequent phases of the Campus.

Phase 3 Comment – Condition 25 has been complied with. The Permittee has contributed $100,000.00 for study of the Interchange. However, the City has not completed the Interchange Study which limits the Permittee's ability to comply with several related PUD Conditions. See additional comments and proposed Amendments to PUD Conditions.

26. Phase 2A shall include construction of a new 8-inch minimum diameter water main along the new Upper Campus Road, with connections to the new NE 185th Street main and the new main at the intersection of NE 185th Street and Main Campus Drive. Domestic water services, meters, hydrants, and fire protection services shall be provided to each Phase 2A building consistent with Community Development and Public Works and Fire Department requirements. Locations of hydrants and fire protection systems shall be subject to approval of the Fire Marshal. Locations of
meters, valves and related water distribution improvements are subject to the 
approval of the Community Development and Public Works Director. The 
Permittee shall submit building information to the Fire Marshal to verify the 
available fire flow is adequate to serve the new buildings. The Fire Marshal shall 
determine whether fire sprinkler systems are required for the north and south 
parking garages, based upon applicable City codes. The Fire Marshal will determine 
the access locations and fire service requirements for each building, and the 
Permittee shall revise the engineering plans, as necessary, to comply with the Fire 
Marshal's written requirements.

Phase 3 Comment – Condition 26 has been complied with.

27. The final configuration of NE 180th Street shall be designed to meet the imposed 
weight of emergency vehicles and with an opticom controlled emergency gate at the 
Campus boundary.

Phase 3 Comment – Condition 27 has been complied with.

28. Obstructions that could impede the response of Fire Department vehicles will not be 
permitted.

Phase 3 Comment – Condition 28 has been complied with.

29. The Permittee shall submit a final landscape plan that generally identifies types, sizes, 
quantities, and locations of all plant materials to be installed. To mitigate the visual 
impacts on adjacent uses and to provide for a pleasing aesthetic effect, the following 
special landscape mitigation measures shall be incorporated into the landscape plan.

a. An evergreen landscape buffer a minimum of thirty feet in width shall be 
installed and/or maintained along the western periphery of the upland 
portion of the Campus. The landscape buffer shall consist of a mix of 
coniferous and deciduous trees, shrubs and ground cover. The buffer shall 
contain one tree for each 150 square feet of land area. Within the buffer, all 
coniferous trees shall have a minimum height of eight feet at time of planting 
and at least thirty percent of the deciduous trees shall have a minimum 
caliper size of three inches at time of planting. All existing healthy conifer 
trees within this buffer area shall be retained, unless no practical alternative 
to grading or utility installation necessitates removal of the fewest possible 
number of such existing conifer trees. Hazardous trees may be removed 
with replacement planting of new trees;

b. The Permittee shall install landscaping to visually soften the large building 
facades of the proposed Campus structures at strategically selected points 
along the building walls. This landscaping shall consist of groupings and/or 
individual deciduous and/or coniferous trees, shrubs and ground covers. To 
provide for an immediate softening of these facades, fifty percent of the 
deciduous trees used in this landscaping shall have a minimum caliper of
three inches at time of planting and all coniferous trees shall have a minimum height of eight feet at time of planting. The landscape buffer adjacent to the parking structures in the southwest portion of the Campus shall have sufficient landscape planting to provide a complete visual screen from the cemetery and adjoining existing single family residences to the west, with this portion of the landscape buffer established as part of Phase 1 of the Campus. The Permittee shall install supplementary landscaping within the eastern margin of the cemetery, if determined by the Bothell Landmark Preservation Board to be necessary to create an effective buffer. In locations where it is not possible to install plant materials immediately adjacent to the building wall, other landscape elements, such as parking lot perimeter landscaping, or interior parking lot landscaping, shall be upgraded to achieve a visual softening of the building;

c. Interior parking lot landscaping shall be planted in accordance with BMC 17.36.060(D);

d. To reduce the demands of irrigation, drought tolerant plants shall be incorporated into the landscaping planting plan to the maximum extent possible. Large grass areas shall be limited to recreation areas or high pedestrian use areas. A planting scheme incorporating trees, shrubs and ground covers shall be installed in lieu of turf. Native grasses that are not irrigated may be used within the vicinity of drainage facilities, roadways and natural open space areas;

e. The laydown area shall avoid all tree retention areas and shall be operated so as to protect tree retention areas from activities within it.

f. A re-vegetation plan for all areas disturbed by construction activity shall be submitted to the Department of Community Development and Public Works for review and approval prior to the issuance of any construction or building permits. The plan shall show type, size and quantities of planting materials to be used. All disturbed areas, including areas for the installation of utilities shall be re-vegetated immediately following cessation of construction activities; and

g. The landscape plan shall restrict the placement of trees and/or large shrubs within public utility easements. The landscape plan shall also comply with sight distance triangle restrictions near all vehicle intersections, driveway entrances, and pedestrian crossings. The site lighting plan shall take into consideration locations and heights of existing and new trees in determining placement of site lighting fixtures.  

Phase 3 Comment – Condition 29 (a, b, c, d, e, f, and g) has been complied with.
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30. The south Campus transit loop shall include a minimum 3-foot wide pedestrian refuge area approved by the City to maintain safe separation from auto traffic for transit drivers accessing the buses. The south transit loop shall be designed for adequate turning radii and coordinated with the transit agencies for acceptance of bus maneuverability.
   Phase 3 Comment – Condition 30 has been complied with.

31. Following operation of Campus internal roadways by Phase 1 activities, the Permittee shall review system performance with the City Traffic Engineer and implement any signing and striping changes that would improve safety or operations at Permittee’s expense prior to occupancy of Phase 2A instructional buildings. The City will take into consideration comments provided by transit agencies in implementing any measures.
   Phase 3 Comment – Condition 31 has been complied with. No significant signing and striping changes have been made other than additional signage at crosswalks.

Prior to the Issuance of any Construction Permits for Phase 2A:

32. Detailed construction plans for all on-site improvements for Phase 2A shall be submitted with the building permit application for Phase 2A. The Permittee shall coordinate with the transit agencies on the design elements relative to transit considerations prior to submittal to the City.
   Phase 3 Comment – Condition 32 has been complied with.

33. Detailed construction plans for all off-site improvements for Phase 2A need not be submitted with the building permit application for Phase 2. However, they shall be submitted in adequate time to allow for plan review, approval and construction prior to occupancy of any building in Phase 2A, except for the North and South Parking Garages, which shall be constructed prior to occupancy of Phase 1 buildings.
   Phase 3 Comment – Condition 33 has been complied with.

34. All fees and charges shall be paid as set forth in the current City ordinances and codes prior to issuance of the Phase 2A final building permit. Additionally the Permittee shall pay for all plan reviews, inspections, etc. as related to the project.
   Phase 3 Comment – Condition 34 has been complied with.

35. The Permittee shall:

   a. Pay all storm, water and sanitary facility charges for the subject site; and

   b. Obtain all required City, State and Federal permits for the particular activity and pay all fees and charges.

   Phase 3 Comment – Condition 35 (a and b) has been complied with.
36. The Permitee shall mitigate Phase 2A development off-site traffic impacts by payment of the following fees:

<table>
<thead>
<tr>
<th>Project ref. no.</th>
<th>Project name</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>R3</td>
<td>SR 522/527</td>
<td>$20,240.00</td>
</tr>
<tr>
<td>R4</td>
<td>228th Ave.</td>
<td>34,850.00</td>
</tr>
<tr>
<td>R7</td>
<td>39th Ave. Ext.*</td>
<td>62,826.00*</td>
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<tr>
<td>TC-17</td>
<td>Beardslee/Main</td>
<td>94,500.00</td>
</tr>
<tr>
<td></td>
<td>SR 527/I-405 Agreement</td>
<td>2320.00</td>
</tr>
<tr>
<td><strong>TOTAL PHASE 2A</strong></td>
<td></td>
<td><strong>$214,736.00</strong></td>
</tr>
</tbody>
</table>

*or identified alternative roadway link

*Phase 3 Comment – Condition 36 has been complied with.*

37. Construction drawings shall demonstrate compliance with fire flow requirements in accordance with Bothell Municipal Code (BMC) Chapters 15.08 and 15.32. The required fire flow for the proposed structures will be determined during the building plan review process.

*Phase 3 Comment – Condition 37 has been complied with.*

38. If hazardous materials are going to be used during construction, as indicated in the PUD, a hazardous materials management plan and inventory statement shall be provided with construction permit application.

*Phase 3 Comment – Condition 38 has been complied with.*

39. Phase 2A construction plans shall include a specific evaluation of fire flow and fire access conditions and standards related to all buildings, paths and roadways proposed within Phase 2A, consistent with Uniform Fire Code and BMC requirements.

*Phase 3 Comment – Condition 39 has been complied with.*

40. The Permitee shall submit plans demonstrating fire hydrant spacing no greater than 300 feet on center around the building perimeter. The fire hydrants shall be located at least 50 feet from the buildings. Hydrant locations shall be approved by the Bothell Fire Marshal.

*Phase 3 Comment – Condition 40 has been complied with.*

41. Prior to issuance of the building permit for the north parking structure, the Permitee shall submit to the City written comments from Metro (Sewer) before approving the final location of the northeast corner of the north parking garage. Construction plans and structural evaluations for this parking garage shall address the potential for pile foundation construction to affect the sanitary sewer line.
Phase 3 Comment – Condition 41 has been complied with.

42. The Permittee shall submit updated Phase 1/Phase 2A construction plans, calculations, and a drainage Technical Information Report to the City for approval for on-site and off-site improvements, including verifying the size of two Phase 2A water quality vaults prior to submittal for structural permits. The storm system, including on-site mains, catch basins, manholes, structures and treatment facilities, shall remain the property of the UW-B/CCC. The Permittee shall submit construction plans and an Operations and Maintenance Plan to the City for approval. The plans shall meet the requirements of the City. The Operations and Maintenance Plan shall require inspection twice yearly and submittal to the City of a yearly certification of compliance.

At a minimum, the Operations and Maintenance Plan shall provide for the following:

a. Sweeping of all parking and roadway areas on an agreed upon frequency;

b. Yearly pumping of all CBs wet vaults and other facilities that accumulate silt and debris;

c. Yearly inspection and certification that the system is performing in accordance with the design;

d. Yearly maintenance of ditches, slopes, etc. as required;

e. Maintenance of coalescing-plate oil/water separators, etc. at a frequency recommended by the manufacturer of the equipment; and

f. Maintenance of other features as required.

Phase 3 Comment – Condition 42 (a, b, c, d, e, and f) has been complied with. Maintenance and inspection activities are on-going.

43. The Permittee’s design team shall coordinate the re-location of the northbound Beardslee transit stop with the transit agencies and City. The stop shall be ADA accessible and connect to the regional trail link. If necessary, the trail link may need to be adjusted in grade near the stop to meet applicable ADA requirements at the transit stop. The location of the stop should generally be beyond the U-turn maneuvers, yet placed to not conflict with queues from the interchange. The specific location will be approved by the City’s Traffic Engineer and coordinated with the transit agencies. The northbound curb lane entering the 1-405 southbound ramp intersection should be a separate right-turn lane onto the southbound on-ramp with signing to allow transit only to pass straight through at the right only lane. The preliminary plan for Beardslee Boulevard improvements on file with the City, dated June 11, 1999, should be revised to show a right-only lane with appropriate signing.
and striping and appropriate changes made to the construction plans at the time of submittal.

Phase 3 Comment – Condition 43 has been complied with.

44. In addition to off-site transportation mitigation payments for Phase 2A, the Permittee acknowledges the obligation for future off-site transportation mitigation payments at each subsequent phase. The Permittee may, at its option, pay mitigation fees for projects R3 (SR 522/527) and R4 (228th Street SE) prior to subsequent phases. Additionally, at Permittee's option, latecomer's fees may either be paid directly to Permittee or retained by the City to be applied to future Campus mitigation fees.

Phase 3 Comment – Condition 44 has been complied with. The Permittee has paid only mitigation fees required for Phase 1 and Phase 2A. The Permittee has submitted documentation for the reimbursement of latecomer's fees for roadway and utility improvements along Beardslee Boulevard. It is not clear if the City has collected and/or retained latecomer's fees to date.

Prior to Commencement of any Site Work for Phase 2A:

45. The following items shall occur prior to starting any grading or construction activity:

a. The Permittee shall ensure that a Bothell approved Temporary Erosion and Sedimentation Control Plan (TESCP) has been implemented to the satisfaction of the City's Construction Inspector. The TESCP shall be maintained throughout the whole construction phase;

b. The Permittee shall establish a tire/vehicle washing area within the project area. This washing area shall be designed to facilitate the removal of all mud, sand, dirt and other construction debris that might collect on construction vehicles during the course of construction activities prior to entering onto adjacent public roadways. The wash area shall be designed to collect wash runoff in a settling pond prior to entrance into the stormwater system or conveyance ditches;

c. To mitigate the air quality impacts of construction activities, the Permittee shall implement appropriate construction practices to minimize any airborne dust generated by the construction activity and to prevent soil tracking onto public right-of-ways; and

d. The Permittee shall provide road sweeping trucks and other facilities to ensure that all public roadways remain free from possible dirt and debris taken from the subject site.

Phase 3 Comment – Condition 45 (a, b, c, and d) has been complied with.
Prior to Issuance of Occupancy Permits for the Instructional Buildings in Phase 2A:

46. The Permitee shall furnish the City with "as-builts" of all utilities and roadways. As-builts for the entire project shall include: existing and new water, sewer, storm, parking, curb, gutter, sidewalks and street improvements. The as-builts must be stamped and dated by a State of Washington Registered surveyor certifying the utilities conveyed to the City are within a recorded easement and/or right-of-way. The surveyor/engineer shall also provide an as-built survey of required water quality vaults, oil/water separators, and bioswales with critical elevations of inlets, outlets and controls. Final as-built submittal shall include the following: 1 Mylar, 3 prints and AUTOCAI Release 14 compatible 5-1/4" or 3-1/2" floppy disk, properly labeled;

   Phase 3 Comment – Condition 46 has been complied with.

47. The Permitee shall supply the Department of Community Development and Public Works with separate itemized lists of the costs for the labor and materials used in the construction of the public water and sewer systems.

   Phase 3 Comment – Condition 47 has been complied with.

48. The Permitee shall establish and maintain a Traffic Coordinating Advisory Committee to monitor and to make recommendations regarding the Transportation Management Plan (TMP). The composition of the Committee shall be determined jointly by the City and the UW-B/CCC and shall include representation from the adjacent neighborhoods and transit agencies. The committee shall meet periodically, but not less than quarterly, to review the overall impacts of the Campus operations on transportation, as outlined above, and to make recommendations to be considered by the UW-B/CCC and City to be implemented as required.

   Phase 3 Comment – Condition 48 has been complied with. The Permitee is coordinating with the City to establish, operate, and maintain a transportation management program along with a Traffic Coordinating Advisory Committee. The City has had some recent staffing changes that have limited the number of regular meetings. The Permitee and City intend to get back to a regular schedule.

49. The Permitee shall design and construct improvements at the North/South Access Road to Beardslee Boulevard as approved by the Department of Community Development and Public Works. The improvements shall include two 12-foot wide paved exiting lanes and one 12 foot wide entering lane, consistent with the Fire Department fire lane access standards and conditions.

   Phase 3 Comment – Condition 49 has been complied with.

50. The Permitee shall design and construct improvements to Beardslee Boulevard along the entire frontage of the site from the southerly property line, joining the existing improvements, to the intersection with NE 195th Street. Such improvements shall be consistent with the policies for Minor Arterials and other
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pertinent transportation policies contained in the *Imagine Bothell...* Comprehensive Plan. The improvements shall include the following:

a. Three vehicular travel lanes, transitioning from three lanes, to four lanes, to five vehicle lanes as generally depicted in the preliminary plat for Beardslee Boulevard improvements on file with the City, dated June 11, 1999, incorporating landscaped medians consistent with the Bothell Boulevard System Plan as described and depicted in Policy UD-P1 and Figures UD-1 through UD-5 of the *Imagine Bothell...* Comprehensive Plan;

b. Landscaping for the medians shall be incorporated so as not to impede lines of sight for motorists. The city shall have discretion as to the types and extent of plantings included in the medians to accomplish the desired gateway treatment for this roadway;

c. Two Class 2 bicycle lanes of five feet in width on the roadway;

d. Curb and gutter on both sides;

e. On the Campus side of Beardslee Boulevard, the required retaining walls, Class 1 Regional Trail, lighting, landscaping, Class 2 bike lane, drainage system, and utilities shall be designed and constructed in their final location and elevation, based upon the approved Phase 2A plan, subject to minor adjustments as may be required by the City and/or WSDOT;

f. On the north side of Beardslee Boulevard, widen the bike lane and provide a westbound traffic lane, including a c-curb between the pedestrian/bike lane and the travel lane, from Ross Road to the Woodland Hills property to the extent feasible within existing public street right-of-way;

g. Street lighting, sanitary sewer, water, and storm drain. The new storm drainage provided with the Phase 1 Beardslee improvements shall collect and convey runoff from a portion of Beardslee Boulevard to the on-site Campus storm drainage treatment facilities. To compensate for the new Phase 1 pavement area bypassing the on-site facility, the existing storm drainage system (and contributing roadway areas) immediately upstream of the proposed Beardslee Boulevard improvements will be connected to that part of the new drainage system contributing to the on-site facilities. The additional pavement and impervious area resulting from Phase 2A Beardslee Boulevard improvements shall be conveyed to a new detention and water quality vault within the dedicated right-of-way. This vault is to be located underneath the proposed pedestrian trail to avoid existing utilities in Beardslee Boulevard while providing access to the facility. The facility shall
be sized to control and treat the stormwater runoff for this area in accordance with the current Bothell Surface Water Design manual;

h. Dedications of sufficient street right-of-way to the City consistent with final approved street construction and reservation of additional street right-of-way for ultimate 5-lane improvements to Beardslee Boulevard. Future widening to 5 lanes, if required as a result of additional traffic analysis, may encroach upon the wetland restoration area and Class 1 trail;

i. Construction of a U-turn maneuvering area to allow passenger vehicles traveling westbound on Beardslee Boulevard to turn eastbound. The location and geometry of the U-turn configuration shall be established to provide a minimum turning radius of 59 feet, as measured from the outside edge of the turn lane to the face of curb. The design shall provide a 54-foot turning radius for passenger vehicles without encroaching into the adjacent 5-foot wide Class 2 bike lane next to the curb. The cost of the Beardslee Boulevard improvements may be shared proportionally with other developments which are required by conditions of their approval to construct any of the same improvements, based upon proportionate shares of project traffic on Beardslee Boulevard; and

j. Construction of a dedicated right-turn lane from Beardslee Boulevard to southbound 1-405, with signage to allow "transit only" through movements to eastbound NE 195th Street. Lane channelization shall provide sufficient capacity for vehicle stacking as recommended in the approved traffic report. Construction within the WSDOT control zone and right-of-way shall be designed to satisfy WSDOT standards. The Permittee shall submit engineering plans and documentation to the City of Bothell and WSDOT for review and approval. WSDOT requires that their construction field office oversee the construction contract within their limited access zone. Plans, Specifications and Engineering (P, S & E) shall be prepared to allow for separate bid and contract procedures acceptable to WSDOT, the City and the Permittee.

Phase 3 Comment – Condition 50 (a, b, c, d, e, f, g, h, i, and j) has been complied with.

51. The Permittee shall design and construct the following improvements to NE 185th Street between Beardslee Boulevard and the Campus site:

a. Minor improvements shall include widening pavement to a minimum 20 foot width and a 2 inch asphalt overlay on top of existing paving, striping and signage;
b. The Permittee shall design and install a continuous asphalt or concrete sidewalk at the discretion of the Community Development and Public Works Director along one side of NE 185th Street from Beardsle Boulevard to the Campus to ensure for safe pedestrian movements. Plans for this off-site walkway shall be submitted to the City for review and approval a sufficient time in advance to allow the sidewalk to be completed prior to occupancy of Phase 2A instructional buildings;

c. Use of NE 185th Street will be reviewed concurrent with each subsequent phase of Campus development. If the Director of Community Development and Public Works determines that NE 185th Street needs to be used as a secondary transit access route prior to approval of a subsequent phase, such use shall not require improvement during Phase 2A beyond that specified in Condition 51.b, above. The need for further improvement would be evaluated during review of subsequent phase applications; and

d. Based on monitoring by the City of the effectiveness of the initial signing to control passenger vehicle access to the Campus from NE 185th Street, the Director of Community Development and Public Works may a new opticom controlled gate at the Campus entrance to NE 185th Street. The gate system design and control shall be established for compatibility with City of Bothell emergency vehicles and with the transit providers’ vehicles.

Phase 3 Comment – Condition 51 (a and b) has been complied with. For Condition 51.c the Permittee is not aware of any current interest the transit agencies have in using NE 185th Street for transit service. The Permittee and the City maintain regular communications with the transit agencies. For Condition 51.d the Permittee has installed a gate system at NE 185th Street.

52. The Beardslee Boulevard/north site access traffic signal required for Phase 1 shall have been installed and be operational. If the City determines that the Level of Service will drop below “D” either under Phase 1 occupancy or based on further evaluation of forecast conditions with Phase 2A traffic, the Traffic Coordinating Advisory Committee may recommend other measures to alleviate congestion. The Permittee shall include all necessary hardware to add transit signal prioritization capabilities to the signal, if not already provided for in the signal design. The traffic signal controller cabinet shall be capable of supporting transit signal priority. The Permittee shall also provide traffic counting capabilities at the signal for all travel directions, and necessary cabinet hardware, to obtain traffic count information at the entrance. The traffic signal system shall be capable of being modified to accommodate a 4-way intersection in the future. The signal shall be interconnected to operate with the existing signal system at NE 195th Street/I-405 Interchange. All necessary right-of-way dedications and easements for City maintenance of the traffic signal shall have been completed.

Phase 3 Comment – Condition 52 has been complied with. See previous comments related to the status of the Traffic Coordinating Advisory Committee.
53. The Permittee shall provide sanitary sewer stubs, at locations to be approved by the Community Development and Public Works Director, from the NW sewer main extension to serve properties located on the north side of Beardslee Boulevard, southwest of the proposed Woodland Hills project. The Woodland Hills development is responsible for the cost of extending the sewer main from the new eastern sewer manhole across Beardslee Boulevard.

Phase 3 Comment – Condition 53 has been complied with subject to latecomer reimbursement.

54. The Permittee shall design and construct an 8-inch gravity main to the north in Beardslee Boulevard at its low point adjacent to the Campus property. When designing and constructing the off-site sanitary sewer extension along Beardslee Boulevard, the Permittee shall include sewer stub-outs to the property line of lots located on the north side of the road, south of the proposed Woodland Hills property. Locations of the stub-outs shall be reviewed and approved by the Community Development and Public Works Director.

Phase 3 Comment – Condition 54 has been complied with subject to latecomer reimbursement.

55. The Permittee shall provide a new on-site sanitary sewer extension along the new Upper Campus Road to serve future buildings in that area of the Campus.

Phase 3 Comment – Condition 55 has been complied with.

56. The Permittee shall construct new side sewer connections from existing on-site mains to the proposed Phase 2A buildings in conformance with City standards. The final design for all sewer improvements shall be in accordance with Metro, City and Department of Ecology standards. The Permittee shall also submit the final plans to the Department of Community Development and Public Works for concurrent review and approval.

Phase 3 Comment – Condition 56 has been complied with.

57. All mains, manholes and other required sewer facilities shall be deeded to the City. A minimum 15-foot wide unobstructed easement, with the wording for the easement approved by the City, shall be dedicated to the City. Side sewer lines shall remain the property of the Permittee and shall be operated and maintained by the Permittee.

Phase 3 Comment – Condition 57 has been complied with.

58. The Permittee shall prepare and implement a striping and signing plan approved by the City for improving operation at the intersection of Beardslee Boulevard/Main/Kaysner. No construction is anticipated with this condition.

Phase 3 Comment – Condition 58 was completed by the City as part of Preliminary PUD Condition 6.3. The Permittee contributed $80,000 towards additional neighborhood intersection improvements.
SUPPLEMENTAL FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

BOTHELL CITY COUNCIL

MODIFIED CONDITIONS

The following conditions of the Hearing Examiner are modified by the City Council. Modifications are noted in bold text.

4. A wetland and stream buffer width of a minimum of 75 feet and an average of 100 feet shall be provided from the relocated North Creek and all building facades, parking lots and other site improvements, except for the pedestrian trails, boardwalks, stream crossings and overlooks, and for the library expansion and north parking garage which shall maintain a minimum buffer of 35 feet from the current North Creek channel until the current North Creek channel is abandoned. During this interim period, the Permittee shall ensure that adequate water quality measures are implemented and maintained to control sedimentation and siltation. All wetland buffers shall fully comply with the requirements of the ICAO, BMC 20.10. Where existing vegetation is insufficient or disturbed by construction activity, the buffer will be re-vegetated with planting of riparian/wetland plant materials as reviewed and approved by the Department of Community Development and Public Works. In order to recreate a natural system consistent with state and federal approvals, minor exceptions to the minimum buffer width of 75 feet may be authorized by the City staff as an interim condition, provided the average of 100 feet is maintained.

Phase 3 Comment – Modified Condition 4 has been complied with.

33. Detailed construction plans for all off-site improvements for Phase 2A need not be submitted with the building permit application for Phase 2. However, they shall be submitted in adequate time to allow for plan review, approval and construction prior to occupancy of any building in Phase 2A, except for the North and South Parking Garages, which shall be constructed prior to occupancy of Phase 1 buildings.

The construction plans shall include engineering drawings of street improvements for Beardslee Boulevard which includes the 112th Avenue NE/Ross Road connection. The applicant is responsible to include provisions for maintaining the queue lengths that now exist for intersection approaches. Said improvements may include, but are not limited to, shoulder pavement widening on all approaches, signing, and striping leading to the Ross Road/112th Avenue N.E. western intersection portion. The Director shall have discretion in interpreting the limits/Scope of shoulder/paving improvements to meet city standards and safe operation of this connection.

The Ross Road/Beardslee Boulevard intersection shall remain open for left
turns between a.m. and p.m. peak traffic hours as designated by signage.

Phase 3 Comment – Modified Condition 33 has been complied with.
### Part 5 – Master Plan Comparative Summary

#### Comparative Summary Table

<table>
<thead>
<tr>
<th>Plan Component</th>
<th>Approved and Completed Phase 1 &amp; 2</th>
<th>Proposed Phase 3</th>
</tr>
</thead>
</table>
| **Institutional Program** | • Total of 10,000 full-time equivalents (FTEs)  
• Approximately 9,650 students, faculty and staff and visitors on campus peak weekdays  
• Approximate peak population of 75% (7,400 individuals on campus at any one time  
• Approximately 1,143,800 million gross square feet of building  
• Maximum impervious surface 23 acres  
• Full build out not anticipated prior to the year 2010 | • No Changes Proposed                                 |
| **Campus Layout and Character** | • Campus building clustered along loop road to maximize accessibility  
• Library only building that expands down toward the restored flood plain  
• Linear Central green space connecting both institutions  
• Buildings sited to minimize grading and impacts to the hillside  
• Formal pedestrian corridors leading directly from parking to camps buildings  
• A series of informal pedestrian paths linking the buildings and parking throughout campus  
• Majority of the parking contained within peripheral lots or structures, allowing a pedestrian friendly campus core to observation points in the floodplain. | • No Changes Proposed                                                |
### Part 5 – Master Plan Comparative Summary

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</thead>
<tbody>
<tr>
<td>Proposed buildings</td>
<td>• Most buildings would be two to three stories in height above ground, but may include levels below ground, particularly in the case of parking structures. The library, a campus focal point, would be four or possibly five stories in height.</td>
<td>• Due to the grade change, a majority of the existing buildings are three to four stories above grade. Phase three building will be two to three stories above grade.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Space Type</th>
<th>Approx. %</th>
<th>% of total</th>
<th>Gross SF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom/Office Building</td>
<td>377,100</td>
<td>33%</td>
<td></td>
</tr>
<tr>
<td>Library</td>
<td>168,300</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td>Student Services</td>
<td>146,100</td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td>Performing Arts</td>
<td>30,800</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>Gym</td>
<td>34,600</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>Daycare</td>
<td>53,800</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>Teaching/Laboratory</td>
<td>278,600</td>
<td>24%</td>
<td></td>
</tr>
<tr>
<td>Building Central/Phys. Plant</td>
<td>54,500</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,143,800</strong></td>
<td><strong>100%</strong></td>
<td></td>
</tr>
</tbody>
</table>

| Building Architecture    | Building design to express the high quality of education offered on campus can convey a sense of permanence. Building materials should suggest permanence and dignity: brick and wood proposed as the preferred building materials. Additional supplemental materials include masonry, stone, glass, tile, architectural CMU, and precast concrete. Preferred building forms to include roof overhangs and express northwest imagery | Phase three is constructed using the same brick and metal siding used on the existing structures. Phase 3 will have both sloped roofs with overhangs and flat roofs incorporating a vegetative roofing system. |
## Part 5 – Master Plan Comparative Summary

### Comparative Summary Table

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</tr>
</thead>
</table>
| Upland Tree Preservation and Landscape Architectural Concept | • Master plan designed to preserve site’s woodland character.  
• Trees preserved to the maximum extent possible  
• Hierarchy of open spaces proposed: primary spaces located along the main promenade and secondary spaces located between buildings, openings in the evergreen forest, and at primary site access points.  
• Primarily native species or plants adapted to the Pacific Northwest, arranged informally. Formal arrangements may be used to frame, emphasize, enhance, or screen architectural structures, building entries, parking lots, promenades, walkways and other elements on campus.  
• Landscaped buffers to provide separation between campus and adjacent residential areas; buffers to contain: preserved trees, supplemental trees and landscaping, and perimeter fencing in key locations. | • Location for the Phase three building has shifted slightly to the southeast to help preserve more trees than the previous Master Plan had shown along 110th street. |
| Lowlands Restoration                                | • Approximately 58 acres of environmental restoration and enhancement.  
• North Creek to be returned as close as possible to its original floodplain.  
• North Creek’s associated riverine wetland system to be restored  
• Restoration and enhancement to include interpretive features for recreational and educational purposes | • The 58 acres of lowlands have been restored and are being monitored |
| Vehicular Circulation                                | • Primary site access from SR 522 to the south, allowing | • No changes proposed. |
## Part 5 – Master Plan Comparative Summary

### Comparative Summary Table

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td></td>
<td>direct site access from SR522 and I-405; secondary site access from Beardslee Boulevard</td>
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<td></td>
<td>• NE 185&lt;sup&gt;th&lt;/sup&gt; Street would be limited to emergency vehicles.</td>
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<tr>
<td></td>
<td>• NE 180&lt;sup&gt;th&lt;/sup&gt; Street limited to emergency vehicles, pedestrians and bicycles.</td>
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<tr>
<td></td>
<td>• Access road provides two 14’ travel lanes through campus, widening to three lanes at Beardslee and 180&lt;sup&gt;th&lt;/sup&gt; Street. No median.</td>
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<tr>
<td></td>
<td>• Secondary access road provides two 14’ travel lanes along upper campus. No median.</td>
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<tr>
<td>Transit</td>
<td>• Transit access to the site via south access SR522 and Beardslee Boulevard.</td>
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<tr>
<td></td>
<td>• Bus stop/shelter at Library-Student Services-Bookstore.</td>
<td></td>
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<tr>
<td></td>
<td>• Bus stop/shelter/turnaround/layover at intersection of campus drive and 185&lt;sup&gt;th&lt;/sup&gt; Street.</td>
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<tr>
<td></td>
<td>• Bus stop shelter along west portion of loop road</td>
<td></td>
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<tr>
<td></td>
<td>• Bus stop/shelter/turnaround/layover at intersection of campus drive and 180&lt;sup&gt;th&lt;/sup&gt; Street via the Chase House, space for several articulated buses. Bus traffic is separate from autos.</td>
<td></td>
</tr>
<tr>
<td>Parking Layout and Design</td>
<td>• Flexible parking program with approximately 4,200 to 6,600 spaces planned, depending on the results of the transportation demand management program.</td>
<td>• No changes proposed.</td>
</tr>
</tbody>
</table>
## Part 5 – Master Plan Comparative Summary

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|                                | • A total of four major parking structures proposed at full build out  
• Majority of parking spaces concentrated near primary site access in the site’s southern portion.  
• Main parking structure at the south entrance terraced up the hillside  
• Parking structures will vary in height depending on the need and site conditions, but will stay within the established requirements.  
• Main parking structure approximately five to six levels.  
• Secondary structure located on the northeast side of the Campus roadway approximately four to six stories in height |                                                                                                     |
| Bicycle and Pedestrian Circulation | Regional Trail  
• Connection between the Sammamish River Trail and the North Creek Trail.  
• Connection to the Sammamish River trail that passes under existing SR 522 Bridge.  
• Connection to the North Creek Trail to I-405 via the existing 195th Street interchange.  
• 16 foot wide Class I corridor through from connection with existing Sammamish River Trail planned to pass under existing southern terminus of North Creek trail                                                                                                     | • No changes proposed.                                                                                                                                                                                                                     |
### Comparative Summary Table

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</table>
| Historic Resources      | Chase House  
• Retained and reused  
Boone Farm Historic District  
• For main house, adaptive reuse within current code application will be deferred as long as residential use is continued under sales agreement. Will be evaluated in future phases. Historic documentation is completed.  
Jamison House  
• Historical Documentation complete  
Bothell Cemetery  
• Landscape buffer to provide visual buffer from proposed 650-car parking structure, buffer to be installed as part of Phase 1 | • No changes proposed. |  |
| Grading and Drainage    | • Estimated quantities include approximately 300,000 cubic yards of excavation and 200,000 cubic yards of fill.  
• Storm drainage control and water quality treatment facilities to be designed according to all applicable regulatory standards | • No changes proposed. |  |
| Utility Services        | • Utility systems should be designed according to the preliminary master plan layout, and capable of being developed incrementally for each development phase. | • No changes proposed. |  |
| Off Site                | • Improvements for the new south access point include: | • No changes proposed. |  |
Part 5 – Master Plan Comparative Summary

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</tr>
</thead>
<tbody>
<tr>
<td>Improvements</td>
<td>a westbound SR 522 off ramp; traffic signals on eastbound SR522 at the access point; and grade separation at the new access point with off-ramps and on-ramps for westbound SR522.</td>
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<tr>
<td>UWB 1 and 2</td>
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<td>CCC 1 and 2</td>
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<tr>
<td>Library and Library Annex</td>
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<tr>
<td>Physical Plant</td>
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<tr>
<td>North Garage</td>
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<td>South Garage</td>
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<tr>
<td>Phase House</td>
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<tr>
<td>Truly Home</td>
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<tr>
<td>Phase 2b</td>
<td></td>
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<tr>
<td>South Annex</td>
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<tr>
<td>Phase 3</td>
<td></td>
<td></td>
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<tr>
<td>CCC-3 OUA construction</td>
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<tr>
<td>Landscape and landscaping</td>
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<tr>
<td>Phase 4</td>
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<tr>
<td>UWB-Science 1</td>
<td></td>
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<tr>
<td>UWB-3</td>
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<tr>
<td>Physical Plant Expansion</td>
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<tr>
<td>Surface Parking</td>
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<tr>
<td>Phase 5</td>
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<tr>
<td>UWB-Science 2</td>
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<tr>
<td>CCC-4</td>
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<tr>
<td>Student Services</td>
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<tr>
<td>Library Expansion</td>
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<tr>
<td>South Garage Annex 1</td>
<td></td>
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<tr>
<td>Phase 6</td>
<td></td>
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<tr>
<td>UWB-4/Parking</td>
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<td>UWB-Adruing</td>
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<td>CCC-5/Parking</td>
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<tr>
<td>South Garage Annex 2</td>
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<tr>
<td>Student Recreation/Parking</td>
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Revised Conditions of Preliminary Approval -
PUD0004-95
REVISED CONDITIONS OF PRELIMINARY APPROVAL - PUD0004-95

The following revised Conditions of Preliminary Approval were developed as part of the Phase 2A PUD application process. These revised Conditions of Preliminary Approval relate to the current Master Plan for the UW-B/CCC collocated campus. As part of the Phase 3 PUD Application, the current status of each of the Conditions of Preliminary Approval has been noted at the end of each condition below (in italics.)

INTRODUCTION

The University of Washington-Bothell/Cascadia Community College (UW-B/CCC) collocated campus proposal is, at the preliminary PUD stage, necessarily a combination of knowns and unknowns. The feasibility process authorized by the state legislature produced a conceptual master plan to accommodate 10,000 full-time-equivalent students at build out. This master plan describes and depicts the general location and arrangement of buildings, streets, parking facilities, pedestrian and bicycle pathways, utilities and landscaping, as well as an extensive restoration and enhancement of wetlands and the portion of North Creek located on the property. The master plan also contains the roles and missions of the UW-B and CCC, projected space needs of the institutions' educational programs, and a discussion of parking demand and travel demand management.

The feasibility process did not and was not intended by the state legislature to include specific site, building, transportation system, utilities system or landscaping design or detailed operational decisions. These tasks will be completed in phases -- as educational need arises and legislative appropriations permit -- and will involve the direct participation by the individual institutions. Final PUD applications and approvals will be required to allow development of each phase, including Phase 1.

These revised recommended conditions of Preliminary PUD approval have been structured to accommodate the phased process by which the state legislature and the individual educational institutions propose to develop the collocated campus, while ensuring that Bothell's interests are adequately represented and protected. Accordingly, these conditions have been divided into three categories:

Category I

Conditions pertaining in general to the overall proposed use as a university and community college; the proposed location and arrangement of buildings, streets, parking facilities, pedestrian and bicycle pathways, utilities and landscaping; the proposed restoration and enhancement of North Creek and its associated wetlands located on the property; and campus-related operational issues such as transportation demand management, energy conservation and security;
Category II

Conditions pertaining to specific aspects of design and operation of Phase 1, which conditions may be refined, expanded and otherwise addressed in greater detail in the Phase 1 Final PUD application and approval;

Category III

Conditions pertaining to specific aspects of design and operation of Phase 2 and subsequent phases, which conditions may be refined, expanded and otherwise addressed in greater detail in the Phase 2 and subsequent Final PUD applications and approvals.

As development of the campus plan progresses from general to specific, decision-making on such detail items as building architecture, landscaping, transportation and utility systems design and transportation management has already transitioned from the Higher Education Coordinating Board (HECB) to the Washington Department of General Administration (WDGA) and will likely transition further to the educational institutions themselves -- the UW-B/CCC. Therefore, for the purposes of these conditions, "Permittee" shall mean the HECB, WDGA and/or the UW-B/CCC.

CATEGORY I CONDITIONS -- OVERALL USE AND DEVELOPMENT CONCEPT

1. All phases of development of the University of Washington-Bothell/Cascadia Community College shall be in general conformance with the text and illustrations contained in the Initial (Exhibit 1A) and Amended Preliminary Planned Unit Development application (Exhibit 31), except that where there may be a conflict between the following text and illustrations and these conditions, these conditions shall take precedence:

   a. Part 6, Master Plan Summary (Exhibit 31);

   b. Part 7, Development Standards (Exhibit 1A);

   c. The following figures:

      i. Figure 5, Proposed Master Plan (Exhibit 101);

      ii. Figure 6, Phase I Site Plan (Exhibit 31);

      iii. Figure 7, Environmental Enhancement and Restoration Plan (Exhibit 1A);

      iv. Figures 11 & 12, Character Sketches (Exhibit 101);

      v. Figure 22, Master Plan Tree Preservation Plan (Exhibit 31);

      vi. Figure 37, Upland Landscape Plan Zones (Exhibit 101);

      vii. Figure 38, Lowlands Restoration Illustrative Plan (Exhibit 101)
viii. Figure 39A&B, Pedestrian/Bicycle Circulation Plan (Exhibit 101)

ix. Figure 40A & B, Transit Circulation Plan (Exhibit 101)

x. Figure 43, Existing and Proposed Water System (Exhibit 101);

xi. Figure 44, Existing and Proposed Sewer System (Exhibit 101);

xii. Figure 36, Demolition Plan (Exhibit 31).

xiii. Figure 6, Phase 2A Site Plan (Exhibit 101)

The above enumerated items supersede any previously approved PUD plans for all or any portion of the subject property and shall apply to the property legally described within the PUD application.

The proposal is summarized as follows:

The campus at full build out will consist of college buildings of approximately 1,143,800 square feet in floor area, between 4,200 and 6,600 parking spaces, two formal promenades and a secondary trail system for pedestrian and bicycle access from parking and transit areas, stormwater management and water quality treatment facilities, sewer and water line extensions, interior open spaces and exterior buffers on the westerly 69 acres of the site. The easterly 58 acres of the site are proposed for environmental restoration and enhancement of North Creek and its associated floodplain and riverine wetland system (including relocation of North Creek to a natural meander), stream crossings, observation points, on-site trails and regional trail connections, including necessary bridges and a pedestrian connection after Phase 1 under SR 522 to the Sammamish River and Sammamish River Trail. Primary vehicular access to the campus will be from a new intersection on SR 522 following Phase 1, including a grade separated crossing, new traffic signals, turn lanes and bridge structures. Secondary vehicular access will be from Beardslee Boulevard on the north. Primary transit access to the campus will be from Beardslee Boulevard, including transit stops/shelters on campus and pedestrian/bicycle accessways into the campus. Direct access to I-405 will be incorporated, if Washington State Department of Transportation approval is obtained.

Phase 1 of the campus development is projected for completion in 2000 and will consist of facilities sufficient to serve the needs of up to 2,001 on campus FTEs, including the construction of approximately 269,700 square feet of instructional and support space in six campus buildings, a majority of the surface parking (1,320 spaces), portions of the informal trail system, the regional trail link, the North Creek wetlands and floodplain restoration and enhancement, including trails, observation points, sewer, water and storm drainage utility extensions and improvements, access from Beardslee Boulevard and most of the clearing and grading site preparation for ultimate development.

Phase 3 Comment – The overall use and development concept described in Condition 1 remains unchanged.
2. The Permittee shall comply with all applicable plans, policies, ordinances, regulations, administrative rules and other directives of the City of Bothell, including the approved Shorelines permits, Case #SHR0005-95.

Phase 3 Comment – Condition 2 has been complied with.

3. All capital improvements, including but not limited to streets, pedestrian and bicycle ways, domestic water facilities, sanitary sewer facilities, and storm water facilities shall be designed and constructed in accordance with all applicable City of Bothell, State of Washington and Federal regulations that apply.

Phase 3 Comment – Condition 3 has been complied with.

4. The maximum amount of impervious surfaces on the property shall be approximately 23 acres, as stated in Part 7, Development Standards (Exhibit 1A), of the PUD application.

Phase 3 Comment – Condition 4 has been complied with.

5. No construction vehicles shall use NE 180th or NE 185th Streets for access to the site for any purpose except as necessary for construction of required improvements adjacent to or within either or both of said rights-of-way. Beardslee Boulevard and/or SR 522 shall be the construction accesses to the site. Construction activity on the site within 300 feet of the westerly project boundary between SR 522 and Beardslee Boulevard shall be limited to the hours between 7:00 A.M. and 7:00 P.M. Monday through Friday, except as may be modified with the permission of the Director of Community Development and Public Works.

Phase 3 Comment – Condition 5 has been complied with.

6. Any application for construction of the parking garages shall include detailed plans for controlling and monitoring noise and emissions from the parking garages to adjoining residential uses to the west. The design phase for such buildings shall include, but not be limited to, an analysis of the following alternatives:

a. Adjust placement of the parking garage and/or physical plant to provide an adequate buffer for adjacent residences.

b. Adjust elevation of the parking garage and/or physical plant to reduce impact on adjacent residences.

c. Alternative landscape treatments for the landscape buffer and the individual structures (e.g., placing some landscape materials on the buildings themselves). (Former 64)

Phase 3 Comment – Condition 6 (a, b, and c) has been complied with.
6.1. Following completion of North Creek relocation and filling the old creek channel, the Permittee will prepare and submit an application for Letter of Map Revision (LOMR) to FEMA for review and approval.  
Phase 3 Comment – Condition 6.1 has been complied with. A LOMR was applied for and granted by FEMA in 2003/2004.

6.2. Following completion of North Creek relocation and filling the old creek channel, the shoreline boundary for North Creek will be relocated to correspond to the new channel alignment. The Permittee is required to submit construction corrected drawings to the City showing the final limits of North Creek and the comprehensive wetland mitigation area, including required buffer areas.  
Phase 3 Comment – Condition 6.2 has been complied with in conjunction with Condition 6.1

6.3. Upon approval of the preliminary PUD amendments which are the subject of this Decision, the Permittee shall deposit with the City funds in the amount of $80,000.00 for improvements related to Ross Road, 112th Avenue SE, Beardslee Boulevard, and NE 195th Street to be implemented by the City, as such improvements are being evaluated in current City studies.
Phase 3 Comment – Condition 6.3 has been complied with by the Permittee. The Permittee has contributed $80,000 to complete its obligations under this Condition. The City needs to complete the study and associated improvements.

CATEGORY II CONDITIONS – PHASE 1 DESIGN (REQUIRED TO BE MET TO RECEIVE PHASE 1 FINAL PUD APPROVAL)

General

7. Evidence of ownership of all parcels or the signature of consent by the property owner for all parcels of land included in the entire PUD shall be submitted with the Final PUD application for Phase 1. The Phase 1 Final PUD application shall include detailed architectural plans, including building elevations, floor plans, materials, colors and surface treatments of all buildings, structures, paved areas, signing, lighting fixtures, bridges, fencing and street furniture. Any modification to height or bulk regulations of the BMC shall be specifically identified as part of this Final PUD application.  
Phase 3 Comment – Condition 7 has been complied with.

8. All final designs shall be accomplished in AUTOCAD (Version 14 or later) at a minimum scale of 1"=20 feet (unless another scale is specifically approved) in accordance with City of Bothell, Dept. of Community Development and Public Works design standards and approved prior to construction. Specific approval for each phase must also be obtained from the City of Bothell Fire Marshal, as
coordinated by the City of Bothell Community Development and Public Works Department.

Phase 3 Comment – Condition 8 has been complied with. Most site design plans have been prepared at a scale of 1"=20 feet. Building plans have been prepared at a variety of scales, all approved by the City.

9. All fees and charges shall be paid as set forth in the current City ordinances and codes prior to issuance of the initial phase final building grading permit. Additionally the Permittee shall pay for all plan reviews, special consultant costs, inspection, etc. as related to the project.

Phase 3 Comment – Condition 9 has been complied with.

10. At the time of each Construction Plan Submittal, the Permittee shall submit 5 sets of construction plans and specifications for on-site and off-site street and utility improvements to the City Engineer for review and approval with the revisions made as required. Construction plans shall meet or exceed the City of Bothell standards.

Phase 3 Comment – Condition 10 has been complied with.

11. With the submittal of final PUD applications, the Permittee shall post $150,000 with the City Engineering Trust Fund for the final PUD review, engineering plan review, and inspection. Prior to the start of any grading or construction activities, any additions and/or adjustments required for the Engineering Trust shall be posted, as required by the City Community Development and Public Works Director. This fund shall be replenished as required by the City. Any funds remaining after completion of the project shall be returned to the Permittee.

Phase 3 Comment – Condition 11 has been complied with.

12. Prior to the Issuance of any Construction Permits, the Permittee shall:
   a. Pay all storm, water and sanitary facility charges for the subject site.
   b. Obtain all Federal, State and Local required permits for the particular activity, pay all fees and charges.
   c. Post with the City a one year maintenance (cash) guarantee fund, in the amount of 10% of the cost of the Temporary Erosion and Sedimentation Control Plan (TESCP), storm drainage, water, sewer, and all work within the public right-of-way, prior to the final acceptance by the City. Itemized costs and material breakdowns shall be submitted to the City to review.

Phase 3 Comment – Condition 12 (a, b, and c) has been complied with. A maintenance guarantee fund was not provided since the Permittee is the State of Washington. All maintenance related items have been completed.

13. Items to be completed prior to final occupancy of initial phase
   a. The Permittee shall furnish the City with "as-builts", of all utilities and roadways. As-builts for the entire project shall include: existing and new
water, sewer, storm, parking, curb, gutter, sidewalks and street improvements. The as-builds must be stamped and dated by a State of Washington Registered surveyor certifying the utilities conveyed to the City are within a recorded easement and/or right-of-way. The surveyor/engineer shall also provide an "as-built" survey and volume computations for the required storm drainage systems and other critical elevations.

Final "as-built" submittal shall include the following: 1 Mylar, 3 prints & AutoCAD Release 14 compatible 5-1/4" or 3-1/2" floppy disk, properly labeled.

b. The Permittee shall supply the City's Community Development and Public Works Department with an itemized list of the costs for the labor and materials used in the construction of the public water and sewer systems.

Phase 3 Comment – Condition 13 (a and b) has been complied with.

Environment

14. The Final PUD application for Phase 1 of the campus shall demonstrate full compliance with the provisions contained in BMC 20.10 (ICAO), the Substantial Development Permit issued by the City and shall include the following special measures:

a. A wetland and stream buffer width of a minimum of 75 feet and an average of 100 feet shall be provided from all building facades, parking lots and other site improvements, except for the pedestrian trails and overlooks. All wetland buffers shall fully comply with the requirements of the ICAO, BMC 20.10. Where existing vegetation is insufficient or disturbed by construction activity, the buffer will be re-vegetated with a planting of riparian/wetland plant materials as reviewed and approved by the Department of Community Development and Public Works. In order to recreate a natural system consistent with state and federal approvals, minor exceptions to the minimum buffer width of 75 feet may be authorized by the City Staff as an interim condition, provided the average of 100 feet is maintained.

Phase 3 Comment – Condition 14.a has been complied with.

b. A monitoring system shall be established as delineated in the ICAO to ensure that the function, performance and quality of the wetlands are not adversely affected by the development.

Phase 3 Comment – Condition 14.b has been complied with. The Permittee is performing formal maintenance and monitoring activities as further described in the Phase 3 Application.

c. The stream relocation and wetland restoration areas and their required buffers shall be incorporated within a Native Growth Protection Area which
shall be recorded as a covenant prior to occupancy of Phase 2. No clearing, grading, construction or tree removal, except for dead, diseased or hazardous trees, shall be allowed within the Native Growth Protection Area, except for construction specifically authorized as part of the stream relocation and restoration plans, the regional trail and overlooks and drainage and utility extensions.

Phase 3 Comment – Condition 14.c has been complied with.

15. Phase 1 construction plans shall show compliance with Clean Water Act Section 401 and 404 permits and the Hydraulic Project Approval issued by the Washington Department of Fish and Wildlife.

Phase 3 Comment – Condition 15 has been complied with.

Grading and construction activity

16. Appropriate site and structural design will be required to mitigate impacts on soil stability. The recommendations, procedures, and methodologies contained in a draft project related soils report shall be incorporated into the final PUD application and final design and shall be considered a part of the development, and implemented by the Permittee. The draft soils report shall be finalized and submitted to the City with building permit applications. The Permittee shall submit grading, drainage and erosion control plans to the Department of Community Development and Public Works in compliance with all applicable City ordinances. These plans shall be approved by the Department of Community Development and Public Works prior to issuance of construction or building permits for site construction.

A report prepared by a professional geotechnical engineer prior to the issuance of a temporary certificate of occupancy for each phase must be submitted to the City of Bothell documenting the Permittee's compliance with the approved soils report listed above.

Phase 3 Comment – Condition 16 has been complied with.

17. Grading shall take place during the dry summer and autumn months and shall include erosion/sedimentation control methods, including the use of special materials as may be recommended by the geotechnical engineer and as reviewed and approved by the Director of Community Development and Public Works.

Phase 3 Comment – Condition 17 has been complied with.

18. The Permittee proposes to grade approximately 300,000 cubic yards of earthen materials to accommodate the development. The Permittee shall design and implement erosion control measures to prevent surface water erosion flows into the surrounding wetlands and North Creek. The Permittee shall install and maintain erosion control measures as approved and monitored by the Director of Community Development and Public Works, throughout the construction process.
Phase 3 Comment – Condition 18 has been complied with.

19. The following items shall occur prior to starting any grading or construction activity:

a. The Permittee shall ensure that a Bothell approved Temporary Erosion and Sedimentation Control Plan (TESCP) has been implemented to the satisfaction of the City's Construction Inspector. The TESCP shall be maintained throughout the whole construction phase.

b. The Permittee shall establish a tire/vehicle washing area within the project area. This washing area shall be designed to facilitate the removal of all mud, sand, dirt and other construction debris that might collect on construction vehicles during the course of construction activities prior to entering onto adjacent public roadways. The wash area shall be designed to collect wash runoff in a settling pond prior to entrance into the storm water system or conveyance ditches.

c. To mitigate the air quality impacts of construction activities the Permittee shall implement appropriate construction practices to minimize any airborne dust generated by the construction activity and to prevent soil tracking onto public rights-of-way.

d. The Permittee shall provide road sweeping trucks and other facilities to ensure that all public roadways remain free from possible dirt and debris taken from the subject site.

Phase 3 Comment – Condition 19 (a, b, c, and d) has been complied with.

Landscaping

20. The Permittee shall submit a conceptual landscape plan which generally identifies types, sizes, quantities and locations of all plant materials to be installed. To mitigate the visual impacts on adjacent uses and to provide for a pleasing aesthetic effect, the following special landscape mitigation measures shall be incorporated into the landscape plan:

a. An evergreen landscape buffer a minimum of thirty feet in width along the western periphery of the upland portion of the campus shall be installed prior to issuance of any certificate of occupancy. Such landscape buffer shall consist of a mix of coniferous and deciduous trees, shrubs and ground cover, unless otherwise provided herein. The buffer shall contain one tree for each 150 square feet of land area. Within the buffer, all coniferous trees shall be a minimum height of eight feet at time of planting and at least thirty percent of the deciduous trees shall have a minimum caliper size of three inches at time of planting. All existing, healthy conifer trees within this buffer area shall be
b. The Permittee shall install landscaping to visually soften the large building facades of the proposed campus structures at strategically selected points along building walls prior to issuance of a certificate of occupancy for each building. This landscaping shall consist of groupings and/or individual deciduous and/or coniferous trees, shrubs and ground covers. To provide for an immediate softening of these facades, fifty percent of the deciduous trees used in this landscaping shall have a minimum caliper of three inches at time of planting and all coniferous trees shall have a minimum height of eight feet at time of planting.

c. The landscape buffer adjacent to the parking structure in the southwest portion of the campus shall be not less than 30 feet wide within a building setback of not less than 50 feet. The buffer shall have sufficient evergreen landscape planting to provide a complete visual screen from the adjoining existing single family residences to the west, with this portion of the landscape buffer established as part of Phase 1 of the campus.

d. The Permittee shall install supplementary landscaping within the eastern margin of the cemetery if determined by the Bothell Landmark Preservation Board to be necessary to create an effective buffer.

e. In locations where it is not possible to install plant materials immediately adjacent to the building wall, other landscape elements, such as parking lot perimeter landscaping, or interior parking lot landscaping, shall be upgraded to achieve a visual softening of the building.

f. Interior parking lot landscaping shall be planted in accordance with BMC 17.36.060(D).

g. To reduce the demands of irrigation, drought tolerant plants shall be incorporated into the landscaping planting plan to the maximum extent possible. Large grass areas shall be limited to recreation areas or high pedestrian use areas. A planting scheme incorporating trees, shrubs and ground covers shall be installed in lieu of turf. Native grasses that are not irrigated may be used within the vicinity of drainage facilities, roadways and natural open space areas.

h. A re-vegetation plan for all areas disturbed by construction activity shall be submitted to the Department of Community Development and Public Works for review and approval prior to the issuance of any construction or building
permits. The plan shall show type, size and quantities of planting materials to be used. All disturbed areas, including areas for the installation of utilities shall be re-vegetated immediately following cessation of construction activities.

*Phase 3 Comment – Condition 20 (a, b, c, d, e, f, g, and h) has been complied with.*

**Transportation**

21. The Permittee shall provide with the final PUD application for Phase 1 a traffic report that includes the following details and/or studies:

   a. Traffic directional volume and origin/destination volumes for both 2000 FTE's and 10,000 FTE's.
   b. Plan showing transition of Beardslee from three (3) lanes to six (6) lanes at NE 195th Street intersection.
   c. Intersection details for North Access driveway onto Beardslee Boulevard, need for hard-wire inter-connect to NE 195th signal, and verification of lane widths to accommodate transit traffic.
   d. Impacts to Main Street by Campus traffic.
   e. Impacts to Main St./Beardslee Boulevard- Kaysner/Valley View intersection.
   g. Phase 1 final PUD application must include and be based on the above cited data, as set forth in Exhibit 31:10, Traffic Analysis Reports, memoranda dated December 5 and 11, 1997.

*Phase 3 Comment – Condition 21 (a, b, c, d, e, f, and g) has been complied with.*

22. The Permittee shall provide with the Final PUD application for Phase 1 an update regarding work with WSDOT on conceptual approval of the SR 522 access.

*Phase 3 Comment – Condition 22 has been complied with. The design and approval of the SR 522 South Access has been completed. Construction of the SR 522 South Access Interchange will begin in spring 2008, concurrent with Phase 3.*

23. Prior to occupancy of the first phase of the development, the Permittee shall design and construct improvements to Beardslee Boulevard along the entire frontage of the site from the southerly property line, joining the existing improvements, to the intersection with NE 195th Street. Such improvements shall be consistent with the policies for Minor Arterial and other pertinent transportation policies contained in the Imagine Bothell... Comprehensive Plan. The improvements shall include the following:

   a. Three twelve foot wide vehicular travel lanes, incorporating landscaped medians consistent with the Bothell Boulevard System Plan as described and
depicted in Policy UD-P1 and Figures UD-1 through UD-5 of the Imagine Bothell... Comprehensive Plan;

b. Two Class II bicycle lanes of five feet in width on the roadway;

c. Curb and gutter on both sides;

d. A five (5') foot wide sidewalk along the south/east side of the road, separated from the curb by a minimum five foot wide planting strip with street trees only in areas not served by the regional trail link;

e. Street lighting, sanitary sewer, water, and storm drain; the storm drainage from the new section of Beardslee shall be directed to the campus storm system for treatment and discharge, and the drainage and water quality treatment shall be included in the campus storm drainage system, calculations, and construction subject to authorization of a design deviation by the Director of the Department of Community Development and Public Works;

f. Dedication of sufficient street right-of-way to the City of Bothell consistent with final approved street construction.

A detailed description and plans for the above improvements shall be provided in the application for the Phase 1 Final PUD approval. Detailed construction plans for all on-site improvements for Phase 1 shall be submitted with the building permit application for Phase 1. Detailed construction plans for all off-site improvements need not be submitted with building permit applications; however, the Permittee shall submit such plans in time to allow plan check and construction prior to occupancy of any building in Phase 1.

Phase 3 Comment - Condition 23 (a, b, c, d, e, and f) has been complied with.

24. Prior to occupancy of the first phase of the development, the Permittee shall design and construct a traffic signal and improvements at the North Access to Beardslee Boulevard as approved by the City Public Works Department. The improvements shall include the following:

a. Two 12 foot wide paved exiting lanes and one 12 foot wide entering lane, consistent with the Fire Department fire lane access standards and conditions;

b. Two Class II bicycle lanes of five feet in width along the entire North Access driveway to interconnect between the proposed on-site pedestrian/bike trail system and the Class II bike lanes along Beardslee Boulevard.
A detailed description and plans for the above improvements shall be provided in the application for the Phase 1 Final PUD approval.

*Phase 3 Comment – Condition 24 (a and b) has been complied with.*

25. Prior to occupancy of the first phase of the development, the Permittee shall design and construct the following improvements to NE 185th Street between Beardslee Boulevard and the campus site:

a. Since transit providers have recommended approval to a change in access for transit from NE 185th Street to the campus entrance from Beardslee Boulevard, there shall be no major improvements for NE 185th Street in Phase 1, given the Permittee has submitted evidence that use of that street for regular emergency access by fire and medical response vehicles can be safely accommodated without damage to the existing 12 inch water line.

b. Minor improvements shall include widening of pavement to a minimum of 20 feet and a 2 inch asphalt overlay on top of existing paving, striping and signage;

c. Phase 2A Final PUD shall propose a design for a pedestrian/bicycle/emergency access gateway entrance for NE 185th Street into the campus for review and approval by the City.

d. In the event that transit agencies recommend use of NE 185th Street in connection with review of future phases of campus development, the Final PUD submittal for such future phase shall require submittal of a plan for improvement of NE 185th Street, including phasing of such improvements to accommodate the initiation of transit service from that street, if so recommended by the transit agencies, for review and approval by the City.

c. Prior to submittal of Final PUD applications for Phase 2A and subsequent phases, the Permittee shall arrange a joint meeting to include City and transit providers to discuss access and ridership levels, and site circulation issues.

Detailed construction plans for all on-site improvements for Phase 1 shall be submitted with the building permit application for Phase 1. Detailed construction plans for all off-site improvements need not be submitted with building permit applications; however, the Permittee shall submit such plans in time to allow plan check and construction prior to occupancy of any building in Phase 1.

*Phase 3 Comment – Condition 25 (a, b, and c) has been complied with. For Condition 25 (d and e) the Permittee is not aware of any current interest the transit agencies have in using NE 183rd Street for transit service. The Permittee and the City maintain regular communications with the transit agencies.*
26. Prior to occupancy of Phase 1 development, the Permittee shall design and construct the following improvements to NE 180th Street/Valley View Street between Beardslee Boulevard and the campus site:

   a. A controlled emergency access as required by the Bothell Fire Marshal where NE 180th Street dead-ends at the campus.

   b. From Valley View to the campus property, minor widening to provide 20-foot wide fire access. Signing shall be provided but no striping. Maintain trees at historic cemetery.

   c. From Beardslee Boulevard to Valley View, provide 5-foot wide, non-exclusive pedestrian/bicycle path along one side of the roadway. Signing and striping shall be provided.

A detailed description and plan section for the above improvements shall be provided in the application for the Phase 1 Final PUD approval. Detailed construction plans for all on-site improvements for Phase 1 shall be submitted with the building permit application for Phase 1. Detailed construction plans for all off-site improvements need not be submitted with building permit applications; however, the applicant shall submit such plans in time to allow plan check and construction prior to occupancy of any building in Phase 1.

*Phase 3 Comment – Condition 26(a, b, and c) has been complied with.*

27. Prior to occupancy of the first phase of the development, the Permittee shall design and construct one or more transit centers and/or shelters on campus, subject to the approval of King County Metro Transit and Community Transit. Permittee shall submit locations of preliminary transit stops, including textual description for type of shelter, in the application for the Phase 1 Final PUD approval.

*Phase 3 Comment – Condition 27 has been complied with.*

28. As part of Phase 2A construction, the Permittee shall construct the entire length of the Regional Trail to the full width of 16-feet (12-foot pavement with 2-foot gravel shoulders) between the Sammamish River Trail and the west side of the I-405/NE 195th Street interchange unless otherwise provided herein. A portion of the trail from its connection to the Sammamish River Trail to where it enters the south boundary of the campus site will need to be constructed to a width less than 16 feet. A width of 10 feet is the maximum that can be provided underneath SR 522 due to constraints with North Creek and the bridge structure. This is still a Class 1 facility and will be wider than the existing Sammamish River Trail. Construction of the Regional Trail will satisfy the City’s requirement for a sidewalk along the new Main Campus Drive and the southeast side of Beardslee Boulevard. This trail construction is required in addition to the Class 2 bike lanes required along the north and south
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sides of Beardslee Boulevard. This shall constitute the full requirements for the North Creek Trail connection until such time as an updated design for the I-405 overpass is developed and adopted by WSDOT and the City. The Permittee shall be responsible for constructing the Class 1 pedestrian/bicycle trail improvements over the I-405/NE 195th Street interchange upon construction of the updated interchange improvements. As part of Phase 2B, the Permittee will submit a detailed plan for the Class 1 pedestrian/bicycle trail improvements across the I-405/NE 195th Street interchange and identify when and how the improvements will be constructed.

Phase 3 Comment – The design and construction of the improvement described in Condition 28 has been completed. There was not a formal Phase 2B. It is currently not feasible to identify proposed pedestrian/bicycle trail improvements across I-405/NE 195th Street because further study of this interchange needs to be completed by the City and WSDOT. The Permittee proposes that this Condition be modified. See proposed Amendments to PUD Conditions.

29. Prior to Phase 1 Final PUD approval, the Permittee shall request vacation of the rights-of-way of NE 180th Street and 113th Avenue NE within the project boundaries, including vacation and/or relocation of all utilities. Vacation shall have been approved prior to construction of any improvements affecting the right(s)-of-way to be vacated.

Phase 3 Comment – Condition 29 has been complied with.

30. Upon issuance of construction permits for Phase 1 campus site improvements, the City shall initiate a program for the Permittee and City to meet jointly with the Ross Road neighborhood to review, discuss and recommend which traffic calming improvements will be installed in the Ross Road neighborhood prior to occupancy of the Phase 1 buildings. The Permittee and City will work together on designing a neighborhood involvement strategy to review the Ross Road traffic calming improvements which will not delay the construction of improvements or occupancy of the Phase 1 buildings. See Attachment C to Exhibit 27 for examples of acceptable improvements from which the Permittee shall design and construct improvements for Ross road/NE 185th Street and 112th Avenue NE/NE 195th Street.

Phase 3 Comment – Condition 30 has been complied with. The Permittee has contributed $80,000.00 for neighborhood improvements in this vicinity as further described per Condition 6.3. The City has taken the lead role in determining how these funds will be used.

31. Prior to issuance of construction permits for the first phase of development, the Permittee shall mitigate initial phase development off-site traffic impacts by payment of the following fees, as shown in Table 3 of the 1995 JHK & Associates report, Exhibit 27:

<table>
<thead>
<tr>
<th>Project ref. no.</th>
<th>Project name</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>R3</td>
<td>SR 522/527</td>
<td>$40,480.00</td>
</tr>
<tr>
<td>R4</td>
<td>228th St. SE.</td>
<td>69,700.00</td>
</tr>
</tbody>
</table>
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R7  39th Ave. Ext. *  125,652.00
R15  19th Ave. SE  12,480.00
R20  NE 185th Ave.  35,000.00
     SR 527/I-405 Agreement  4,640.00

TOTAL INITIAL PHASE  $287,952.00

* or identified alternative roadway link

Phase 3 Comment – Condition 31 has been complied with.

32. In addition to off-site transportation mitigation payments for the first phase of
development, the Permittee acknowledges the obligation for future off-site
transportation mitigation payments at each subsequent phase, as shown on Table 3
of the aforementioned JHK & Associates report, except as provided for in condition
number 21. Prior to issuance of construction permits for any subsequent phase, the
Permittee shall pay mitigation fees for project R7, the 39th Ave. extension, or
contribute in the same amount to improvements to 228th Street SE. The Permittee
may, at its option, pay mitigation fees for projects R3 (SR 522/527) and R4 (228th
Street SE) prior to subsequent phases.

Phase 3 Comment – Condition 32 has been complied with. All mitigation fees have been paid for
Phase 1 and Phase 2A.

33. Within six months of occupancy of the first phase of development, the Permittee
shall design, construct and/or implement a transportation management programs
and projects that may include a selection from the following list:

a. Employee Transportation Coordinator;

b. Information kiosks;

c. Marketing plan and implementation;

d. Transit subsidy;

e. Preferential carpool parking;

f. Bike racks, lockers and showers;

g. Ride Match Program.

A programmatic description and project information as developed to date shall be
provided in the application for Phase 1 Final PUD approval.

Phase 3 Comment – Condition 33 has been complied with. The Permittee is coordinating with the
City to establish, operate, and maintain a transportation management program.
34. Prior to occupancy, the Permittee shall establish and maintain a Traffic Coordinating Advisory Committee to monitor and to make recommendations regarding the Transportation Management Plan (TMP). The composition of the Committee shall be determined jointly by the City and the UW-B/CCC and shall include representation from the adjacent neighborhoods. The committee shall meet periodically, but not less than quarterly, to review the overall impacts of the campus operations on transportation, as outlined above, and to make recommendations to be considered by the UW-B/CCC and City to be implemented as required.

*Phase 3 Comment – Condition 34 has been complied with. The Permittee is coordinating with the City to establish, operate, and maintain a transportation management program along with a Traffic Coordinating Advisory Committee. The City has had some recent staffing changes that have limited the number of regular meetings. The Permittee and City intend to get back to a regular schedule.*

35. Beginning eighteen months after receipt of the initial occupancy permit, the Permittee, with the advice of the Traffic Coordinating Advisory Committee, shall prepare annual traffic reports to verify the status of the Transportation Management Plan and the achievement of the goals outlined in traffic and transportation reports for the UW-B/CCC.

*Phase 3 Comment – Condition 35 has been complied with and is on-going.*

**Domestic Water**

36. The initial phase water improvements shall consist of a 12-inch ductile iron (DI) looped system that connects to the 12-and 16-inch mains in Beardslee Blvd. on the north, and interties with the existing 12-inch main in NE 185th Street and the existing 8-inch main in NE 180th Street unless an alternate configuration is approved by the City of Bothell Public Works Director. Subsequent water extensions shall consist of a minimum of 8-inch sub-loop lines connected to the 12-inch main campus loop for fire flows up to 3000 gpm. Where fire flows of greater than 3000 gpm are required for a future phase, a sub-loop line of greater than 8-inch in size will be required as determined by the City. When the existing 8-inch main on NE 180th is relocated to accommodate any subsequent phase, it shall be replaced with 12-inch DI. Schematic plans for the above improvements shall be provided in the application for the Phase 1 Final PUD approval.

*Phase 3 Comment – Condition 36 has been complied with.*

37. All mains shall be constructed, flushed and tested in accordance with City of Bothell and State of Washington Department of Health standards and requirements.

*Phase 3 Comment – Condition 37 has been complied with.*

38. All mains, hydrants, valves and other requested facilities shall be deeded to the City. Additionally, a minimum 15-foot wide unobstructed easement with the wording for the easement approved by the City, shall be dedicated to the City. These easements shall include all facilities to be owned and operated by the City including fire...
hydrants and service lines up to and including the meters. The line from the meter to the buildings shall remain the property of the UW-B/CCC.

Phase 3 Comment – Condition 38 has been complied with.

39. Fire lines shall remain the property of the UW-B/CCC and State approved fire detector check assemblies shall be placed within 50 feet of the main line connection and in accordance with City of Bothell standards. An alternate location for the double detector check valve (DDCV) assembly such as inside a building must receive specific approval of the Bothell Community Development and Public Works Director. The entire fire line from the point of connection to the main up to the DDCV assembly shall be constructed, flushed, and tested in accordance with main line standards. This construction shall be included in the public improvement plan submitted to and approved by the Community Development and Public Works Department.

Phase 3 Comment – Condition 39 has been complied with.

Sanitary Sewer

40. The developer proposes to discharge sewage generated by the initial phase of development and by portions of future phases directly into a Metro line crossing the site. Prior to occupancy of the first phase of development, the Permittee shall design and construct the sewer system to extend past the property lines in the north and south portions of the property in such a manner as to enable adjacent unsewered properties to connect via gravity flow to the sewer system. To the north, the Permittee shall design and construct an 8-inch gravity main to the centerline of Beardslee Boulevard at its low point adjacent to the campus property. To the south, the Permittee shall design and construct an 8-inch gravity main to the centerline of Sylvan Drive in a location to be approved by the Community Development and Public Works Director. The final design for all sewer improvements shall be in accordance with Metro, City of Bothell and Department of Ecology standards. The Permittee shall also submit the final plans to the City Community Development and Public Works Department for concurrent review and approval. Schematic plans for the above improvements shall be provided in the application for the Phase 1 Final PUD approval.

Phase 3 Comment – Condition 40 has been complied with.

41. All mains, manholes and other required sewer facilities shall be deeded to the City. A minimum 15-foot wide unobstructed easement, with the wording for the easement approved by the City, shall be dedicated to the City. Side sewer lines shall remain the property of the Permittee and shall be operated and maintained by the Permittee.

Phase 3 Comment – Condition 41 has been complied with.
42. In addition to the City of Bothell's fees and charges the Permittee shall pay any connection fees and charges required by King County Metro. All sanitary sewer design shall be reviewed and approved by King County.

*Phase 3 Comment – Condition 42 has been complied with.*

**Storm Water**

43. The Permittee shall submit with the Phase 1 Final PUD application a preliminary Technical Information Report (T.I.R.), together with schematic plans, which addresses all on- and off-site drainage issues, piping, vaults, treatment and other facility sizes with the final storm system design for the initial phase. All submittals for the initial and subsequent phases shall be in compliance with the 1990 King County Surface Water Design Manual, as may be subsequently amended or superseded. Prior to issuance of any construction permit, Community Development and Public Works shall approve the final T.I.R., calculations and final design.

*Phase 3 Comment – Condition 43 has been complied with.*

44. The Permittee has proposed that no detention be required as part of this application package based on the principle that potential flooding and the consequent threat to property is lessened by allowing the on site storm drainage from the UW-B/CCC to enter and exit North Creek before the peak flows from the upstream North Creek basin reach the project site. As a portion of the final PUD for the initial phase, the Permittee shall prepare a study and a preliminary plan and submit it to the City for review and approval using hydrograph or other time series of flows illustrating that on- and off-site runoff will not increase the peak flow in North Creek. This analysis shall be completed for storm events of 10, 25, 50 and 100 years. If it is shown that in fact the peak flows do coincide, then detention facilities for this project would be required.

*Phase 3 Comment – Condition 44 has been complied with. Detention facilities were not required.*

45. Final North Creek design drawings shall be submitted for review and approval of the city Community Development and Public Works Department and other appropriate reviewing agencies before the City's Community Development and Public Works Department will issue any required City permits for this work.

*Phase 3 Comment – Condition 45 has been complied with.*

46. The storm system including on-site mains, catch basins, manholes, structures and treatment facilities shall remain the property of the UW-B/CCC. The Permittee shall submit construction plans and an Operation and Maintenance plan to the City for approval. The plans shall meet the requirements of the City. The Operation and Maintenance Plan shall require inspection twice yearly and submittal to the City of a yearly certification of compliance.

At a minimum, the Operations and Maintenance Plan shall provide for the following:
a. Sweeping of all parking and roadway area on an agreed frequency.
b. Yearly pumping of all CBs wet vaults and other facilities that accumulate silts and debris.
c. Yearly inspection and certification that the system is performing in accordance with the design.
d. Yearly maintenance of ditches, slopes, etc. as required.
e. Maintenance of coalescing plate oil/water separators, etc. at a frequency recommended by the manufacturer of the equipment.
f. Maintenance of other features as required.

Phase 3 Comment – Condition 46 (a, b, c, d, e, and f) has been complied with. Maintenance and inspection activities are on-going.

47. In the event any portion of the development is within the one hundred year floodplain as it may exist following the proposed relocation of North Creek and wetlands enhancement and restoration at the time that building permits are requested to be issued, the Permittee shall be required to comply with the floodway/floodplain development regulations contained in Chapter 20.10 of the Bothell Municipal Code, including regulations relating to compensatory flood storage, building floodproofing, etc. and shall obtain such additional Substantial Development Permits and Shoreline Conditional Use Permits as required under the Shoreline Management Act (SMA) and the Bothell Shoreline Master Program (BSMP) in order to comply with the above-referenced flood regulations as well as the requirements of the SMA and the BSMP.

Phase 3 Comment – Condition 47 has been complied with.

Public Safety

48. Construction drawings shall demonstrate compliance with fire flow requirements in accordance with Bothell Municipal Code (BMC) Chapters 15.08 and 15.32.

Phase 3 Comment – Condition 48 has been complied with.

49. All Fire Department emergency access traffic control signals which will be installed or modified by the campus development (including the proposed emergency access at the west campus boundary on NE 180th Street) shall incorporate the 500 series 3M opticom equipment, which shall be compatible with current Fire Department standards.

Phase 3 Comment – Condition 49 has been complied with.

50. The minimum standards for fire lanes are as follows:

a. No less than 20 feet in width of approved all-weather surface capable of supporting emergency vehicles.
b. Inside turning radii for access roads shall be no less than 35 feet when the roadway is less than 24 feet in width and 30 feet when the roadway is wider than 24 feet.

c. Roadway grades shall not exceed 15 percent.

d. Vertical clearance shall be no less than 13 feet, 6 inches.

e. Fire Department approved turn-around shall be provided on any dead end road that exceeds 150 feet in length.

f. Loading requirements.

Phase 3 Comment – Condition 50 (a, b, c, d, e, and f) has been complied with.

51. The final configuration of NE 180th St. shall be designed to meet the imposed weight of emergency vehicles and marked as a fire lane with an opticom controlled emergency gate at the campus boundary.

Phase 3 Comment – Condition 51 has been complied with.

52. Obstructions that could impede the response of Fire Department vehicles will not be permitted.

Phase 3 Comment – Condition 52 has been complied with.

53. With the building permit application for the initial phase, a technical report shall be prepared by a third party consultant who has been approved by the Building Official and Fire Department. The report shall include the storage, use and handling of hazardous materials as well as any hazardous processes that will be performed on campus. In addition to the technical report, a hazardous materials inventory statement and a hazardous materials management plan shall also be prepared by the consultant. The cost for these reports shall be borne by the Permittee as required by the Uniform Fire Code.

Phase 3 Comment – Condition 53 has been complied with.

54. If hazardous materials are going to be used during construction, as indicated in the PUD, a hazardous materials management plan and inventory statement shall be provided with construction permit application.

Phase 3 Comment – Condition 54 has been complied with.

55. All buildings shall be provided with a complete fire sprinkler system meeting all the requirements of NFPA 13, 231 and 231C. Plans shall be submitted to the Fire Department for review of the building permit application. The fire sprinkler design density will be determined when information has been submitted to the Fire Department as to storage height, type of commodity and the quantity that will be stored in this building.

Phase 3 Comment – Condition 55 has been complied with.
56. All of the requirements of the Bothell Municipal Codes 15.04, 15.08, 15.10 and 15.32 shall be met. These ordinances address the Uniform Codes, Bothell Sprinkler and Fire Alarm ordinance and fire flow/fire hydrant issues.  
*Phase 3 Comment – Condition 56 has been complied with.*

57. Phase 1 Final PUD applications shall include a specific evaluation of fire flow and fire access conditions and standards related to all buildings, paths and roadways proposed within Phase 1, consistent with Uniform Fire Code and BMC requirements.  
*Phase 3 Comment – Condition 57 has been complied with.*

58. Fire hydrant spacing shall be no greater than 300 feet on center around the building perimeter. The fire hydrants shall be located at least 50 feet from the buildings. Hydrant locations shall be approved by the Bothell Fire Marshal.  
*Phase 3 Comment – Condition 58 has been complied with.*

59. The required fire flow for the proposed structures will be determined during the building plan review process.  
*Phase 3 Comment – Condition 59 has been complied with.*

**CATEGORY III CONDITIONS – PHASE 2 AND SUBSEQUENT PHASES DESIGN (REQUIRED TO BE MET TO RECEIVE PHASE 2 AND LATER FINAL PUD APPROVALS)**

**Environment**

60. Prior to submittal of the final PUD application for Phase 2, the modifications to North Creek shall require FEMA approval and appropriate modifications of the North Creek flood plain limits and mapping. Final design shall be such that no impact to or raising of 100-year flow elevations shall occur to up-stream properties.  
*Phase 3 Comment – Condition 60 has been complied with.*

61. The final PUD application for each phase shall demonstrate full compliance with the provisions contained in BMC 20.10 (ICAO) and the Substantial Development Permit issued by the City.  
*Phase 3 Comment – Condition 61 has been complied with.*

62. Construction plans for all phases shall show compliance with Clean Water Act Section 401 and 404 permits and the Hydraulic Project Approval issued by the Washington Department of Fish and Wildlife.  
*Phase 3 Comment – Condition 62 has been complied with.*

**Transportation**
HEARING EXAMINER RECOMMENDATION
RE: PUD0004-95
Preliminary PUD Amendments
UW-B/CCC Campus
July 16, 1999
Page 23

63. Prior to issuance of construction permits for any subsequent phase, the Permittee shall pay mitigation fees for project R7, the identified alternative to the 39th Ave. extension or contribute an equivalent amount to improvements to 228th Street SE. Phase 3 Comment – Condition 63 has been complied with.

64. Prior to occupancy of any structure within Phase 2B, the Permittee shall design and construct the south access to SR 522, subject to the approval of the access location and needs analysis by the Federal Highway Administration, and in accordance with approval of the Washington State Department of Transportation. The Permittee, WSDOT and the City shall coordinate the design of these improvements.

   a. The added access study currently being conducted by WSDOT is not anticipated to be completed until late 1998. Funding for Phase 2A construction could be available as soon as July 1999, with occupancy as soon as the fall of 2001. The south access could not be completed in time for Phase 2A occupancy, given the significant review and approvals required.

   b. Analyses to date show that an additional 1,000 FTEs in Phase 2A would not significantly impact the adjacent road network.

   c. The traffic analysis for Phase 2A FPUD shall provide further detailed analysis and coordination opportunities between the City of Bothell and the Permittee to review the traffic implications of Phase 2A and establish appropriate traffic mitigation measures. Phase 3 Comment – Condition 64 (a, b, and c) has been complied with. The design and approval of the SR 522 South Access has been completed. Construction of the SR 522 South Access Interchange will begin in spring 2008, concurrent with Phase 3.

65. Phase 2B Final PUD application shall include an evaluation of the modal split performance of the transportation demand management plan over the entire operation of Phase 1 and a comparison of that performance to the amount of campus parking, external street network and traffic impact mitigation being provided in Phase 2 for the campus. Phase 3 Comment – It is the Permittee’s recommendation that this analysis be incorporated in a comprehensive update of the campus’s traffic and parking impacts and requirements, to be initiated at an appropriate time prior to the next phase of Campus development but not as a prerequisite for Phase 3. The comprehensive update should be completed after the SR 522 South Access Interchange is complete and operational.

66. Table 3 of the 1995 JHK & Associates report, Exhibit 27 of the Preliminary PUD, sets forth the required traffic impact mitigation for Phase 1 of the campus. The traffic impact mitigation fees for subsequent phases of campus development will be based upon information available at the time of application for Final PUD for such
subsequent phases and shall include updated traffic analyses and estimated fees. Actual traffic mitigation fees are due immediately prior to issuance of construction permits.

*Phase 3 Comment – Condition 66 has been complied with to date.*

67. The intersection of NE 195th Street/I-405 South Bound Ramp is projected to operate at an unsuitable Level of Service (LOS) in the PM peak hour as a result of the campus traffic at some point during the development of the campus, according to the Traffic and Transportation Impacts report, Exhibit 27. Mitigation to raise the LOS F, due to the campus traffic, to LOS D requires adding a sixth lane across I-405. The Permittee shall pay the cost of mitigating this LOS deficiency or construct a sixth lane across I-405, unless a loop ramp is developed as discussed in the second paragraph following below.

Prior to the approval of Phase 2B, the City and the UW-B/CCC shall work with WSDOT to secure funding for the design and construction of the sixth lane. When the LOS for the intersection falls to LOS D, the Permittee shall initiate an agreement with the State of Washington DOT to guarantee the construction of the sixth lane.

As an alternative, DOT is also evaluating a change to the intersection design that would incorporate a "loop" ramp for the westbound NE 195th Street to I-405 southbound traffic, to mitigate the future intersection LOS. This future DOT improvement would also mitigate the impact of the Campus traffic, and, alternatively, the Permittee could contribute to the cost of the DOT project an amount equal to the cost of widening the over-crossing with the sixth lane.

*Phase 3 Comment – WSDOT has made additional I-405 improvements at the NE 195th Street intersection, adding HOV lanes along I-405 and at the ramps. Beyond this, the condition cannot be met as written, as there are no formal plans to further improve the I-405/195th Interchange. WSDOT controls the interchange, and neither the Permittee nor the City can specify what improvements can be made. The purpose of the NE 195th Street/I-405 Interchange improvement study (see Final Phase 2A PUD Condition 25) was to determine the appropriate and necessary improvements, and gain formal approval from WSDOT and other affected agencies. However, as discussed below, the City has not yet initiated the study, and therefore the improvements and their timing are still unknown. The Permittee proposes that this Condition be modified or deleted. See proposed Amendments to PUD Conditions.*
March 4, 2008

Mr. William Wiselogle  
Director of Community Development  
City of Bothell  
18305 101st Ave NE  
Bothell, WA 98011

Re: PUD Amendment 3  
Center for Global Learning and the Arts Building  
Cascadia Community College

Dear Mr. Wiselogle:

Department of General Administration is assuming lead agency status under SEPA for this project. The controlling environmental document for the development of the College is the Final Environmental Impact Statement issued by the Washington Higher Education Coordinating Board in September 1995.

A review of this EIS shows that the proposed GLA Building is consistent with the campus development outlined in that document and no additional action is required under SEPA.

Please feel free to contact me at (206) 255-7216 if you have any questions.

Sincerely,

Robert Kacel, Architect  
Project Manager

C: Bob Dixon, GA  
Dee Sliney, CCC  
Margaret Sprug, Miller-Hull Partnership.
Consistency with SEPA

The proposed programs for the UWB/CCC Master plan and Phases 1 and 2 in this Final PUD application are very similar to the programs that were analyzed in the Environmental Impact Statement (EIS) published in June 1995 in accordance with the State Environmental Policy Act.

There have been no major changes to the proposed overall development program for the campus, although there have been minor modifications to the plans related to building locations and configurations, and circulation design for Phases 1 and 2 and the Master Plan (build-out). The table below compares the program elements of the Master Plan previously analyzed in the EIS to those currently proposed as part of this Phase 3 Final PUD application.

<table>
<thead>
<tr>
<th>Program Element</th>
<th>Preliminary PUD and EIS</th>
<th>Phase 3 Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projected Full-time Equivalents (FTEs)</td>
<td>10,000</td>
<td>3,800 FTE</td>
</tr>
<tr>
<td>Gross Square Footage (Building Area)</td>
<td>1,143,800</td>
<td>54,300 sf</td>
</tr>
<tr>
<td>Quantity of Parking Spaces</td>
<td>4,200-6,600</td>
<td>2</td>
</tr>
</tbody>
</table>

Since the proposed campus development program is within the limits of that analyzed in the EIS, with no major modifications, it is not anticipated that additional or supplemental environmental analysis will be necessary for Phase 3.

Please refer to the attached letter from the State Department of General Administration. This letter confirms that the State is acting as the lead agency for the project and that the State has acknowledged that no additional or supplemental environmental analysis should be necessary for the project.
Federal

U.S. Army Corps of Engineers, Section 404
Federal Emergency Management Agency (FEMA)
  - CLOMR
  - LOMR

National Historic Preservation Act (section 106)

NPDES (National Pollution Discharge Elimination System) Permit

State

State of Washington, Section 401 Water Quality Certification
State Dept. of Fish and Wildlife Hydraulic Projects Approval

City of Bothell

Bothell Shoreline Conditional Use/Substantial Development Permit
(Bothell and State Department of Ecology)
Bothell Preliminary Planned Unit Development
Bothell Final Planned Unit Development
Bothell Critical Areas Alteration Permit
Bothell Grading and Drainage Permit
Bothell Foundation Permit
Bothell Utility Permit
Bothell Shell and Core Permit

Permit obtained 7-16-96
Obtained
Pending, after relocation of North Creek to new channel
Permit obtained as part of Section 404 permit, 7-16-96
Permit obtained 9-14-98

Approval June 16, 1998
Permit obtained May 14, 1998

Permit obtained 12-14-95
Permit obtained 2-8-96
Permit obtained 5-20-98
Permit obtained 7-24-98
Permit obtained 8-24-98
Permit obtained 9-7-98
Permit obtained 10-8-98
Permit obtained 12-28-98
Proposed Phase 3 Amendments to Preliminary and Final PUD
Proposed Phase 3 Amendments to Preliminary and Final PUD

Preliminary PUD
(Refer to revised Conditions of Preliminary Approval included as part of Phase 3 PUD Application. Proposed revisions are shown in bold.)

28. As part of Phase 2A construction, the Permittee shall construct the entire length of the Regional Trail to the full width of 16-feet (12-foot pavement with 2-foot gravel shoulders) between the Sammamish River Trail and the west side of the I-405/NE 195th Street Interchange unless otherwise provided herein. A portion of the trail from its connection to the Sammamish River Trail to where it enters the south boundary of the campus site will need to be constructed to a width less than 16 feet. A width of 10 feet is the maximum that can be provided underneath SR 522 due to constraints with North Creek and the bridge structure. This is still a Shared Use Path facility and will be wider than the existing Sammamish River Trail. Construction of the Regional Trail will satisfy the City’s requirement for a sidewalk along the new Main Campus Drive and the southeast side of Beardslee Boulevard. This trail construction is required in addition to the bike lanes required along the north and south sides of Beardslee Boulevard. This shall constitute the full requirements for the North Creek Trail connection until such time as an updated design for the I-405 overpass is developed and adopted by WSDOT and the City. The Permittee shall be responsible for constructing the Shared Use Path pedestrian/bicycle trail improvements over the I-405/NE 195th Street Interchange upon construction of the updated interchange improvements. During the phase of Campus development, following WSDOT and the City’s completion of plans for improvement of the I-405/NE 195th Street Interchange, the Permittee will submit a schematic plan for the Shared Use Path pedestrian/bicycle trail improvements across the I-405/NE 195th Street Interchange and identify what subsequent phase of Campus development the improvements will be constructed.

The last two sentences of the current condition can not be met by the Permittee because it is not feasible to identify proposed pedestrian/bicycle trail improvements across the I-405/NE 195th Street Interchange until further study of this interchange is completed by the City and WSDOT. The Permittee proposes that this Condition be modified as shown.

65. Prior to or concurrent with the next phase of Campus development, after the SR 522 South Access Interchange is constructed and operational, the Permittee shall prepare a comprehensive update of the traffic/transportation elements of the Campus master plan, including an evaluation of the modal split performance of the Campus transportation demand management plan and a re-evaluation of Campus parking needs and external street network and traffic impact mitigation. The evaluation shall include a comparison of predicted future performance to the amount of Campus parking, external street network and traffic impact mitigation being provided in the current phase of Campus development.
It is the Permittee’s recommendation that this analysis be incorporated in a comprehensive update of the campus’s traffic and parking impacts and requirements, to be initiated at an appropriate time prior to or concurrent with the next phase of Campus development but not as a prerequisite for Phase 3. The comprehensive update will be completed after the SR 522 South Access Interchange is complete and operational. The SR 522 South Access Interchange begins construction in spring 2008 and will be completed in approximately two years. (Given the schedule and Campus-wide impact of the South Access Interchange Project, it is not necessary and would be of little value to update the Campus Transportation Plan as part of the Phase 3 Application or at any time prior to opening of the South Access Interchange.) The Permittee proposes that this Condition be re-written as shown.

67. **This Condition will be deleted in its entirety.**

WSDOT has made additional I-405 improvements at the NE 195th Street intersection, adding HOV lanes along I-405 and at the ramps. Beyond this, the condition cannot be met as written, as there are no formal plans to further improve the I-405/195th Street Interchange. WSDOT controls the interchange, and neither the Permittee nor the City can specify what improvements can be made. The purpose of the NE 195th Street/I-405 Interchange improvement study (see Final Phase 2A PUD Condition 25) was to determine the appropriate and necessary improvements, and gain formal approval from WSDOT and other affected agencies. However, as discussed below, the City has not yet initiated the study, and therefore the improvements and their timing are still unknown. Construction of the SR 522 South Access Interchange will significantly change traffic at the NE 195th Street/I-405 Interchange. The Permittee proposes that this Condition be deleted at this time. After a comprehensive update of traffic conditions is completed as outlined in Amended PUD Condition 65 above, a new condition related to the mitigation of traffic on the I-405/195th Street Interchange can be written, if required. And, if required, the new condition would apply to future phases of Campus development.

Final PUD

(Refer to revised Conditions of Preliminary Approval included as part of Phase 3 PUD Application.

**Proposed revisions are shown in bold.**)

25. Immediately following approval of the FPUD for Phase 2A, the City shall initiate the work plan as set forth in Appendix D of the project Traffic Report, dated May 28, 1999. The Permittee shall fund data collection, design reports, technical analyses, environmental document preparation, consultants, and community meeting preparation as necessary to develop and arrive at recommended long-term strategies and/or improvements to the NE 195th Street/I-405 Interchange including location of a Class 1 trail crossing. The Permittee's maximum amount to be expended toward preparation of the above mentioned technical analyses shall be $100,000.00. Funds expended for this effort shall be credited towards any identified solution required to be funded in whole or in part by subsequent phases of the Campus. **The Permittee will not be required to comply with any other PUD Condition that relies upon the technical analyses to be generated by this Condition until the referenced technical analyses is completed by the City.**

Condition 25 has been complied with. The Permittee has contributed $100,000.00 for study of the Interchange. However, the City has not completed the Interchange Study which limits the Permittee’s ability to comply with several related PUD Conditions. See additional comments and proposed Amendments to PUD
Conditions. The Permittee proposes that this Condition be modified as shown, which relates to Preliminary PUD Conditions 28, 65, and 67 and Final PUD Condition 25.
Storm Drainage Technical Information Report
Memorandum

10230 NE Points Drive
Suite 400
Kirkland, WA 98033
Phone (425) 822-4446
Fax (425) 827-9577

To: Margaret Sprug, The Miller|Hull Partnership

From: Jeremy Andrews

Copies:

Date: August 8, 2007

Subject: CCC Global Learning & the Arts Building

Project No.: 30777

Background

The CCC Global Learning & the Arts project site is part of a 125 acre University of Washington Bothell and Cascadia Community College Co-located Campus (Campus) located immediately north of SR-522 and west of SR-405. Storm drainage facilities for the entire 125-acre site were analyzed in the Drainage Technical Information Report (TIR) “UWB/CCC Co-locate Campus Phase 2A”, (June 1999) prior to this project. Stormwater runoff from the Campus is collected, treated, and effectively discharged directly to the Sammamish River. Discharge to the Sammamish River is exempt from peak rate runoff control (i.e., detention) requirements per King County SWM.

This project will utilize and enhance the two existing, independent stormwater conveyance systems to account for different treatment requirements. Subsurface drainage and building roof runoff, “clean water”, does not require water quality treatment prior to discharging to downstream systems. All onsite surface water runoff collected from paved areas subject to vehicular use and referred to as pollution generating impervious surface (PGIS), will be treated prior to discharging to the downstream system. This water quality treatment will be provided by an existing three-stage water quality treatment system consisting of a coalescing plate oil/water separator (CPS), a wetvault, and a biofiltration facility.

Hydrology

The project site is situated on 2.38 acres and has approximately 1.04 acres of impervious area (roofs, sidewalks, walls and pavement). Referring to the 1999 TIR, the majority of the site is in Basin C1B with a small portion (approximately 0.29 acres) is in Basin C1A. The building roof and sub-surface drains, which account for approximately 1.8 acres, is connected to the “clean water system” while the “Load Zone” is approximately 4,250 square feet of PGIS.

A computer model of the onsite hydrologic conditions was developed using StormShed software. This model used the Santa Barbra Unit Hydrograph (SBUH) methodology with Type 1A unit...
Water Quality
The coalescing plate oil/water separators are designed to facilitate runoff generated only from the surface parking and roadway areas during the Mean Annual, 24-hour storm event (the Mean Annual, 24-hour flow rate and volume is determined using the same unit hydrograph methods and a precipitation depth equal to one-third that of the 2-year, 24-hour precipitation).

As stated above, runoff from the Promenade is routed to the Wet Vault #2 as assumed in the TIR. However, runoff from the “Load zone” area was routed to Wet Vault #1. Since the TIR did not assume this additional impervious area, it was necessary to analyze the impact of the additional impervious area. The following table summarized Wet Vault #1 capacity.

<table>
<thead>
<tr>
<th></th>
<th>TIR</th>
<th>TIR + “Load Zone”</th>
<th>Provided by existing Vault#1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impervious Area (sf)</td>
<td>182,952</td>
<td>187,202</td>
<td>-</td>
</tr>
<tr>
<td>Minimum Required Surface Area (sf)</td>
<td>1,829</td>
<td>1,872</td>
<td>1,875</td>
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<tr>
<td>Minimum Required Volume (cf)</td>
<td>6,600</td>
<td>6,601</td>
<td>7,500</td>
</tr>
</tbody>
</table>

Erosion/Sedimentation Control
TESC measures for the project site are designed to be in accordance with section D.3.5.1 of 2005 KCSWDM. Because the total contributing drainage area is less than three acres, a sediment trap will be used to remove sediment originating from disturbed areas with the project site. A majority of the construction work will be conducted during winter months, therefore the design inflow for the sediment trap will be the 10-year, 24-hour Design Storm ($Q_{10}=0.88$). The required size of the sediment trap is 1,833 square feet and the available area is approximately 3,000 square feet.
Project Site StormShed Hydrology Analysis

Proposed Event Summary:

<table>
<thead>
<tr>
<th>BasiniD</th>
<th>Peak Q (cfs)</th>
<th>Peak T (hrs)</th>
<th>Peak Vol (ac-ft)</th>
<th>Area (ac)</th>
<th>Method /Loss</th>
<th>Raintype</th>
<th>Event</th>
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</thead>
<tbody>
<tr>
<td>Proposed</td>
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<td>8.00</td>
<td>0.1983</td>
<td>2.38</td>
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<td>TYPE1A</td>
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<td>Proposed</td>
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<td>8.00</td>
<td>0.0366</td>
<td>2.38</td>
<td>SBUH/SCS</td>
<td>TYPE1A</td>
<td>Mean Annual Storm</td>
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</table>

Drainage Area: Proposed

- Hyd Method: SBUH Hyd
- Peak Factor: 484.00
- Storm Dur: 24.00 hrs
- Pervious: 1.3400 ac
- Impervious: 1.0400 ac
- Total: 2.3800 ac

Loss Method: SCS Abs: 0.20
Intv: 10.00 min

Supporting Data:

- **Pervious CN Data:**
  - Landscape: 86.00
  - 1.3400 ac

- **Impervious CN Data:**
  - Bldg, paving, walls: 98.00
  - 1.0400 ac

Pervious TC Data:

- Flow type: Description: Sheet
- Length: 240.00 ft
- Slope: 6.00%
- Coeff: 0.1500
- Travel Time: 17.45 min

Impervious TC Data:

- Flow type: Description: Fixed
- Length: 0.00 ft
- Slope: 0.00%
- Coeff: 5.0000
- Travel Time: 5.00 min

By: JSA
StormShed Analysis Project Site
Load Zone StormShed Hydrology Analysis

Load zone Event Summary:

<table>
<thead>
<tr>
<th>BasinID</th>
<th>Peak Q (cfs)</th>
<th>Peak T (hrs)</th>
<th>Peak Vol (ac-ft)</th>
<th>Area ac</th>
<th>Method /Loss</th>
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<th>Event</th>
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<tbody>
<tr>
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<td>0.04</td>
<td>8.00</td>
<td>0.0121</td>
<td>0.10</td>
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<td>8.00</td>
<td>0.0031</td>
<td>0.10</td>
<td>SBUH/SCS</td>
<td>TYPE1A</td>
<td>Mean Annual Storm</td>
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</table>

Drainage Area: Load zone

Hyd Method: SBUH Hyd
Peak Factor: 484.00
Storm Dur: 24.00 hrs
Area

Pervious: 0.0000 ac 86.00
Impervious: 0.0980 ac 98.00
Total: 0.0980 ac

Loss Method: SCS CN Number
SCS Abs: 0.20
Intv: 10.00 min
TC
0.00 hrs
0.08 hrs

Supporting Data:

Impervious CN Data:
Bidg, paving, walls 98.00 0.0980 ac

Impervious TC Data:
Flow type: Description: Fixed Directly connected to storm system
Length: Slope: Coeff: Travel Time 0.00 ft 0.00% 5.0000 5.00 min

By: JSA
StormShed Analysis Load Zone
Pipe Parameters:

Pipe Diameter, \( D = 12 \text{ in.} \)
Longitudinal Slope of Pipe, \( s = 2.00 \% \)
Manning’s roughness coefficient, \( n = 0.011 \)

Full Pipe Capacity:

Pipe Flow Capacity, \( Q_{\text{full}} = \frac{1.49 \pi}{n} \cdot \frac{D}{4} \cdot \left(\frac{D}{4}\right)^{0.67} \cdot s^{0.5} \quad Q_{\text{full}} = 5.94 \text{ cfs} \)

Velocity at Pipe Capacity, \( V_{\text{full}} = \frac{Q_{\text{full}}}{\pi \cdot D^2} \quad V_{\text{full}} = 7.57 \text{ fps} \)

Design Flow Conditions:

Design Flow Rate \( Q_{\text{design}} = 0.06 \text{ cfs} < Q_{\text{full}}, \text{ O.K.} \)

Velocity in Pipe, \( V_{\text{design}} = 1.033 \cdot V_{\text{full}} \cdot \left(\frac{Q_{\text{design}}}{Q_{\text{full}}}\right)^{0.27} \quad V_{\text{design}} = 2.26 \text{ fps} \)

Depth of Flow in Pipe, \( y = D \left[ 0.208 + 0.69 \left(\frac{Q_{\text{design}}}{Q_{\text{full}}}\right) \right] \quad \text{From Fig. III-2-2 D.O.E Stormwater Management Manual} \quad y = 2.58 \text{ inches} \)
SEDIMENT TRAP (per KCSWDM ESC STANDARD D.3.5.1)

Developed 2-Year Runoff Rate, $Q_{d2} := 0.51$ cfs
Developed 10-Year Runoff Rate, $Q_{d10} := 0.88$ cfs
Developed 100-Year Runoff Rate, $Q_{d100} := 1.43$ cfs

Design Safety Factor, $SF := 2$
Particle Settling Velocity (particle size = 0.02 mm, silt), $V_s := 0.00096$ fps

Minimum Required Surface Area, SA:

Wet Weather Construction: $SA_{10} := \frac{SF \cdot Q_{d10}}{V_s}$; $SA_{10} = 1833.33$ sf
Letters from Utility Providers
3-5-08

Otak
Touta J. Phengsavath, PE
10230 NE Points Drive, Suite 400
Kirkland, WA 98033

Re: Cascadia Community College – Center for Global Learning and the Arts
Otak Project No# 30777

To Whom it May Concern:

Thank you for your interest in using natural gas for the site listed above.

Puget Sound Energy (PSE) will provide new gas service to the site noted above according to the terms and conditions of Gas Tariff Rule 7 on file with the Washington Utilities and Transportation Commission.

An application for Service can be obtained by dialing 1-888-321-7779 or you can visit our web site at www.pse.com for more information on how to apply for service. For your convenience I have included our current Gas Commercial Handbook and the application forms to request natural gas service.

**External Requests for maps:**

If you are inquiring about requesting maps please email: maprequest@pse.com. The maps and records department will send you a form to complete. Follow the instructions on the form and fax it in. External requests can usually take 5 to 10 working days for delivery.

Thank You,

**Kim Gray**
Customer Construction Services
Puget Sound Energy
425-424-6476
From: Touta Phengsavath
Sent: Thursday, February 14, 2008 4:53 PM
To: Kim Otto
Cc: Chad Weiser; Nico Vanderhorst
Subject: FW: Cascadia Community College - GLA Building

Touta Phengsavath, P.E. | Project Engineer
10230 NE Points Drive, Suite 400 | Kirkland, WA 98033
v: 425.739.4248 | c: 206.713.4919 | f: 425.827.9577
www.otak.com

From: jeremy.d.fallt@verizon.com [mailto:jeremy.d.fallt@verizon.com]
Sent: Thursday, February 14, 2008 4:48 PM
To: Touta Phengsavath
Subject: RE: Cascadia Community College - GLA Building

Hi,

Verizon will be able to provide telephone service to the GLA building located on the CCC site. New entrance cable will be required to serve the building, in addition to other site requirements such as backboard and conduit out to the right of way. Please allow for 90 days of lead time for our engineering, procurement, and installation of cable and equipment.

Please let me know if you have any other needs or questions.

Jeremy Fallt
Network Engineer
Network Engineering and Planning – Northwest
jeremy.d.fallt@verizon.com
425.263.4024 Office
425.263.4050 Fax

3/3/2008
Traffic Analysis Report/TMP
Cascadia Community College
Center for Global Learning and the Arts

Concurrency Analysis

Prepared for:
Cascadia Community College
Bothell, Washington

Prepared by:
Robert Bernstein, P.E.
Consulting Transportation Engineer/Planner

November 30, 2007
November 30, 2007

TO:    Dee Sliney, Director of Capital Projects and Auxiliary Services
       Cascadia Community College

SUBJECT:    Cascadia Community College Center for Global Learning and the Arts
            Concurrency Analysis

INTRODUCTION

The proposed Center for Global Learning and the Arts (GLA) is located on the University of
Washington-Bothell / Cascadia Community College co-located campus in Bothell (see
Figure 1).

The GLA is included in the Campus Master Plan EIS and PUD, for which complete traffic
studies were prepared and accepted by the City of Bothell. The purpose of this report is
twofold:

(1) provide the Concurrency Analysis required by the City of Bothell (BMC 17.03); and

(2) determine the impact fee required by the City (BMC 17.045.070) and University of
Washington-Bothell / Cascadia Community College Co-located Campus Final PUD
Condition 66).

This Concurrency Analysis contains seven sections:

- Project Description
- Trip Generation/Distribution
- Concurrency Analysis Study Intersections
- Traffic Volumes
- Traffic Operations Analysis
- Concurrency
- Mitigation
Figure 1: Project Location

PROJECT DESCRIPTION

The GLA will be a new 3-story, 50,400 gross square foot (GSF) academic and office building that will house a multipurpose room with stage, a gallery for displaying student work, teaching classrooms, art studios and team rooms as well as faculty offices. The GLA creates an anchor and identity for the northern end of campus, and its siting reinforces the pedestrian nature of the campus and the master plan for future growth. Site development includes a 5,000 square foot (SF) plaza and associated walkways, loading area and two handicapped parking stalls.

Robert Bernstein, P.E.
Consulting Transportation Engineer/Planner
The GLA, as specified in the State capital facilities plan and budget, will accommodate 800 full-time equivalent students (FTE), which will increase the campus "population" from the 3,000 FTE comprised by Phases 1 and 2A of campus development, to 3,800. The Concurrency Analysis is based on this 800 FTE increase. The GLA is scheduled to open in Fall, 2009.

**Campus South Access**

An important assumption for this Concurrency Analysis is the status of the campus' SR 522 South Access. Because a construction bid solicitation went out on October 15, 2007, the GLA Concurrency Analysis will assume that the SR 522 South Access will be in place and open to traffic when the GLA opens.

**TRIP GENERATION/DISTRIBUTION**

Trip generation and distribution for the campus were determined and incorporated in the co-located campus' 1998 Final PUD. Excerpts from the Final PUD TIA documenting campus trip generation and trip distribution methodology and results are compiled in Attachment A and Attachment B. Trip generation and distribution for GLA were determined based on the adopted campus trip generation and distribution. GLA trip generation is compiled in Table 1, and GLA trip distribution is shown in Figure 2.

Opening of the South Access not only will affect the trip distribution of GLA-generated traffic, it also will cause a reorientation of existing campus traffic (i.e., the traffic generated by Phase 1 and 2A development). This reorientation, or redistribution, as shown in Figure 3, was incorporated in the GLA Concurrency Analysis by adjusting the 2009 without-project traffic volumes used in the analysis.

| Table 1: GLA Traffic Generation (Auto Traffic Volumes to/from Campus) |
|--------------------------|------------------------|------------------------|------------------------|
| **Time Period** | **Buildout** | **Phases 1 & 2A** | **GLA** |
| | (10,000 FTE) | (3,000 FTE) | (800 FTE) |
| | arriving traffic | departing traffic | arriving traffic | departing traffic | arriving traffic | departing traffic |
| A.M. Peak Hour | 3,380 | 1,010 | 270 |
| P.M. Peak Hour | 2,350 | 1,200 | 700 | 365 | 190 | 95 |

Figure 2: CCC GLA Trip Distribution
(10 or more p.m. peak hour trips)

[Diagram of a transportation map with various numbers and directions indicating trip distribution.]

To be planned at a later date.

Robert Bernstein, P.E.
Consulting Transportation Engineer/Planner
Figure 3: Campus Trip Redistribution with Opening of South Access

(To be planned at a later date.)
CONCURRENCY ANALYSIS STUDY INTERSECTIONS

City of Bothell concurrency requirements are specified in BMC 17.03. As shown in Figure 2, three of the City-defined “concurrency corridors” carry 10 or more project-generated p.m. peak hour trips: Beardslee–195th, SR 522, and SR 527. These corridors are considered to be impacted by project-generated traffic, and therefore require a Concurrency Analysis. The Concurrency Analysis is required to analyze a total of 16 intersections in these corridors, as shown in Figure 4.

TRAFFIC VOLUMES

With-Project and Without-Project traffic volumes at the study intersections for the analysis year (2009) p.m. peak hour are compiled in Attachment C.

The GLA Without-Project traffic volumes were derived from recently-submitted concurrency analyses for other projects:

- SR 522 Corridor: *Northcliffe Estate Updated Concurrency Analysis*, Transpo Group, October 22, 2007
- SR 527 Corridor: *Gustafson Property Updated Concurrency Analysis*, Transpo Group, September 10, 2007

For each corridor, the 2009 With-Project volumes determined by the concurrency analysis were used. These volumes meet all the requirements of the concurrency analysis procedures prescribed by the City: all are based on 2007 counts, all include 2007-2009 background traffic growth, and all include the necessary “pipeline” project traffic (i.e., the traffic generated by projects that have been approved but are not yet occupied and actually generating traffic). By using these volumes as inputs, the GLA Concurrency Analysis ensures that it is completely consistent with other concurrency analyses prepared by other developers.

The final step in developing the Without-Project traffic volumes used in the GLA analyses was to adjust the initial volumes (described above) to account for the opening of the South Access. These adjustments were made by reassigning Campus Phase 1 and 2A traffic as shown in Figure 3 and described in a previous section.

GLA With-Project volumes were developed by adding the GLA-generated trips (see Figure 2) to the Without-Project volumes.
Figure 4: Concurrency Analysis Study Intersections
TRAFFIC OPERATIONS ANALYSIS

Traffic operations in the impacted concurrency corridors were analyzed as prescribed by the City. The analysis methodology is described and the analysis results are reported in this section.

Methodology

The traffic operations were analyzed using “Level of Service” (LOS), on which the City of Bothell standards are based. LOS and traffic delays were determined for each of the study intersections using the methodology prescribed by the Highway Capacity Manual\(^1\), published by the Transportation Research Board and used nationwide. Intersection LOS is described below. Calculations were made using the Synchro 6.0 software package.

Signalized intersections: LOS is determined for the intersection as a whole, and is based on average control delay for vehicles entering the intersection. (“Average control delay” is the average delay per vehicle attributable to the traffic signal, and “involves movements at slower speeds and stops on intersection approaches, as vehicles move up in the queue or slow down upstream of the intersection,”\(^2\)

All-Way Stop Control (AWSC) intersections: LOS is determined for the intersection as a whole, and is based on average control delay for vehicles entering the intersection.

Two-Way Stop Control (TWSC) intersections: LOS is determined for the individual “minor” movements (i.e., those movements that must stop or yield), and is based on average control delay for vehicles entering the intersection.

**Intersection Level of Service**

<table>
<thead>
<tr>
<th>LOS</th>
<th>signalized intersections</th>
<th>AWSC intersections</th>
<th>TWSC intersections</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>≤ 10 sec/veh</td>
<td>≤ 10 sec/veh</td>
<td>≤ 10 sec/veh</td>
</tr>
<tr>
<td>B</td>
<td>10-20 sec/veh</td>
<td>10-15 sec/veh</td>
<td>10-15 sec/veh</td>
</tr>
<tr>
<td>C</td>
<td>20-35 sec/veh</td>
<td>15-25 sec/veh</td>
<td>15-25 sec/veh</td>
</tr>
<tr>
<td>D</td>
<td>35-55 sec/veh</td>
<td>25-35 sec/veh</td>
<td>25-35 sec/veh</td>
</tr>
<tr>
<td>E</td>
<td>55-80 sec/veh</td>
<td>35-50 sec/veh</td>
<td>35-50 sec/veh</td>
</tr>
<tr>
<td>F</td>
<td>&gt; 80 sec/veh</td>
<td>&gt; 50 sec/veh</td>
<td>&gt; 50 sec/veh</td>
</tr>
</tbody>
</table>

---

\(^1\) *Highway Capacity Manual* (HCM2000), Transportation Research Board, National Research Council, 2000

Results

The results of the traffic operations analyses are compiled in Table 2. (The Synchro analysis report worksheets are compiled in Attachment D.)

As shown in Table 2, GLA project-generated traffic will have minimal impact on corridor LOS and average delay in the study corridors. With or without the project, the Beardslee-195th Corridor will operate at LOS C, and the SR 522 and SR 527 Corridors will operate at LOS D in the 2009 p.m. peak hour. In each corridor, the average corridor delays vary by less than a second between with-project and without-project conditions.

CONCURRENCY

As shown in the table below, City of Bothell concurrency requirements are met in the three corridors impacted by project-generated traffic (i.e., the three corridors that carry 10 or more project-generated p.m. peak hour trips).

<table>
<thead>
<tr>
<th>CONCURRENCY CORRIDOR</th>
<th>Level of Service (LOS)</th>
<th>2009 with project</th>
<th>City of Bothell Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beardslee Blvd-195th St</td>
<td>C</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td>SR 522</td>
<td>D</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td>SR 527</td>
<td>D</td>
<td></td>
<td>E</td>
</tr>
</tbody>
</table>

MITIGATION

The City of Bothell requires the payment of mitigation fees for new development. BMC 17.045.030(B) states that “Payment of the impact fee shall constitute satisfactory mitigation of those traffic impacts related to the specific improvements identified on the project list (compiled in BMC 17.045.060).” The GLA Project is a “University/College” land use, and the applicable impact fee is $338 per student, per BMC 17.045.070. The total impact fee for the 800-FTE GLA Project comes to $270,400.
Table 2: Traffic Operational Analysis Results (p.m. peak hour)

<table>
<thead>
<tr>
<th>Corridor</th>
<th>2009 without Project</th>
<th>2009 with Project</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Delayed Vehicles</td>
<td>Level of Service (LOS)</td>
</tr>
<tr>
<td>Beardslee Blvd-195th St Corridor</td>
<td>12,556</td>
<td>C</td>
</tr>
<tr>
<td>Beardslee / 185th St b)</td>
<td>212</td>
<td>D</td>
</tr>
<tr>
<td>Beardslee / 110th Ave</td>
<td>1,269</td>
<td>B</td>
</tr>
<tr>
<td>Beardslee / 112th Ave</td>
<td>1,706</td>
<td>B</td>
</tr>
<tr>
<td>195th St / I-405 SB ramps</td>
<td>2,254</td>
<td>C</td>
</tr>
<tr>
<td>195th St / I-405 NB ramps</td>
<td>2,708</td>
<td>C</td>
</tr>
<tr>
<td>195th St / North Creek Pkwy</td>
<td>2,554</td>
<td>C</td>
</tr>
<tr>
<td>195th St / 120th Ave</td>
<td>1,853</td>
<td>D</td>
</tr>
<tr>
<td>SR 522 Corridor</td>
<td>15,144</td>
<td>D</td>
</tr>
<tr>
<td>SR 522 / 96th Ave</td>
<td>3,935</td>
<td>D</td>
</tr>
<tr>
<td>SR 522 / 180th St</td>
<td>3,783</td>
<td>B</td>
</tr>
<tr>
<td>SR 522 / SR 527 / Main St</td>
<td>3,948</td>
<td>D</td>
</tr>
<tr>
<td>SR 522 / Kaysner Wy</td>
<td>3,478</td>
<td>D</td>
</tr>
<tr>
<td>SR 527 Corridor</td>
<td>27,264</td>
<td>D</td>
</tr>
<tr>
<td>SR 527 / SR 524</td>
<td>5,885</td>
<td>E</td>
</tr>
<tr>
<td>SR 527 / 214th St</td>
<td>4,425</td>
<td>B</td>
</tr>
<tr>
<td>SR 527 / 220th St</td>
<td>5,285</td>
<td>F</td>
</tr>
<tr>
<td>SR 527 / I-405 NB ramps</td>
<td>6,071</td>
<td>B</td>
</tr>
<tr>
<td>SR 527 / I-405 SB ramps</td>
<td>5,598</td>
<td>A</td>
</tr>
</tbody>
</table>

a) "Total Delayed Vehicles" comprises all entering vehicles at signalized and AWSC intersections, but only the vehicles on stop-sign-controlled legs at TWSC intersections.

b) TWSC on 185th at Beardslee; all other intersections are signalized.
SUMMARY

Concurrency

City of Bothell concurrency requirements are met in the three corridors impacted by project-generated traffic (see Table 4).

Mitigation

An impact fee of $270,400 ($338 per student x 800 FTE) is required of the project, per BMC 17.045.070
ATTACHMENT A

Excerpt from *Traffic Impact Report for Final PUD Application*:
Section 2. Traffic Generation
Section 3. Trip Distribution

University of Washington-Bothell / Cascadia Community College
February 10, 1998

2. TRAFFIC GENERATION

The traffic impact analysis and the identification of street improvement requirements were based on the predicted travel demand and vehicular traffic generated by the campus. In order to develop the necessary estimates of campus-generated daily and peak hour person-trips and traffic, a number of characteristics of the student, faculty, and staff populations, and their travel habits/patterns were specified. Site-generated travel demand was estimated for campus buildout (10,000 FTE students), for Phase 1 (2,000 FTE students), and for Phase 1A (3,000 FTE students). Person-trip generation estimates for CCC/UW-B Campus Buildout, Phase 1, and Phase 1A are summarized in Table 2-1. The assumptions and computations from which the estimates were derived are compiled in Table 2-3. The assumptions were either provided by or reviewed and approved by UW-B and CCC staff. The assumptions and the resulting trip estimates were approved by the PCT and SDAG.

The traffic volumes generated by the campus were determined using the person-trip estimates and estimates of the number of trips traveling to/from the campus via transit and via carpools. Campus traffic generation assumed typical peak period suburban transit and carpool use rates, or “mode splits.” Estimated mode splits used for the traffic analysis were 17% (2% transit and 15% carpool) for daytime trips to/from campus, and 7% (no transit and 7% carpool) for evening trips to/from campus. The a.m. and p.m. peak hour traffic generation estimates for CCC/UW-B Campus Buildout, Phase 1, and Phase 1A are summarized in Table 2-2.
### TABLE 2-1

**Campus Trip Generation:**
**Person Traveling to/from Campus**
(Faculty + Staff + Students + Visitors)

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Buildout (10,000 FTE)</th>
<th>Phase 1 (2,000 FTE)</th>
<th>Phase 2A (3,000 FTE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attending/present on peak weekday</td>
<td>9,640</td>
<td>1,930</td>
<td>2,895</td>
</tr>
<tr>
<td>Attending/present on peak weeknight</td>
<td>4,440</td>
<td>890</td>
<td>1,335</td>
</tr>
<tr>
<td>Arriving am peak hour on peak weekday</td>
<td>3,750</td>
<td>750</td>
<td>1,125</td>
</tr>
<tr>
<td>Departing pm peak hour on peak weekday</td>
<td>1,330</td>
<td>270</td>
<td>405</td>
</tr>
<tr>
<td>Arriving pm peak hour on peak weekday</td>
<td>2,470</td>
<td>490</td>
<td>735</td>
</tr>
</tbody>
</table>

### TABLE 2-2

**Campus Traffic Generation:**
**Auto Traffic Volumes to/from Campus**

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Buildout (10,000 FTE)</th>
<th>Phase 1 (2,000 FTE)</th>
<th>Phase 2A (3,000 FTE)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>arriving traffic</td>
<td>departing traffic</td>
<td>arriving traffic</td>
</tr>
<tr>
<td>A.M. Peak Hour</td>
<td>3,380</td>
<td>675</td>
<td>1,010</td>
</tr>
<tr>
<td>P.M. Peak Hour</td>
<td>2,350</td>
<td>1,200</td>
<td>465</td>
</tr>
</tbody>
</table>

(a) based on person-trip generation and estimated transit/HOV mode split:
- 17% transit/HOV (= 90 cars for every 100 persons) for a.m. peak arrivals and p.m. peak departures
- 7% transit/HOV (= 95 cars for every 100 persons) for p.m. peak arrivals
Table 2-3a: Campus Trip Generation

<table>
<thead>
<tr>
<th>STUDENTS</th>
<th>CCC</th>
<th>UW-B</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>all students</td>
<td>undergrad (grad)</td>
<td></td>
</tr>
<tr>
<td>Total FTEs</td>
<td>4,217</td>
<td>3,746</td>
<td>1,961</td>
</tr>
<tr>
<td>Total Persons</td>
<td>7,070</td>
<td>5,509</td>
<td>4,902</td>
</tr>
<tr>
<td>Daytime students</td>
<td>72% 5,090</td>
<td>60% 3,305</td>
<td>60% 2,941</td>
</tr>
<tr>
<td>Day students attending on peak weekday</td>
<td>67% 3,393</td>
<td>81% 2,677</td>
<td>74% 2,161</td>
</tr>
<tr>
<td>Evening students</td>
<td>28% 1,980</td>
<td>40% 2,204</td>
<td>40% 1,961</td>
</tr>
<tr>
<td>Eve students attending on peak weeknight</td>
<td>67% 1,320</td>
<td>60% 1,322</td>
<td>60% 1,177</td>
</tr>
<tr>
<td>Day students arriving a.m. peak hour</td>
<td>50% 1,697</td>
<td>39% 1,452</td>
<td></td>
</tr>
<tr>
<td>Day students departing p.m. peak hour</td>
<td>10% 339</td>
<td>10% 484</td>
<td></td>
</tr>
<tr>
<td>Evening students arriving p.m. peak hour</td>
<td>67% 880</td>
<td>50% 1,250</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FACULTY</th>
<th>CCC</th>
<th>UWB</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student FTE per Faculty FTE</td>
<td>23.8</td>
<td>18.0</td>
<td></td>
</tr>
<tr>
<td>Total Faculty FTE</td>
<td>177</td>
<td>317</td>
<td></td>
</tr>
<tr>
<td>Total Faculty Persons</td>
<td>319</td>
<td>444</td>
<td></td>
</tr>
<tr>
<td>Daytime faculty</td>
<td>230</td>
<td>266</td>
<td></td>
</tr>
<tr>
<td>Day faculty attending on peak weekday</td>
<td>143</td>
<td>266</td>
<td></td>
</tr>
<tr>
<td>Evening faculty</td>
<td>89</td>
<td>178</td>
<td></td>
</tr>
<tr>
<td>Eve faculty attending on peak weeknight</td>
<td>55</td>
<td>178</td>
<td></td>
</tr>
<tr>
<td>Day faculty arriving a.m. peak hour</td>
<td>70% 100</td>
<td>30% 80</td>
<td></td>
</tr>
<tr>
<td>Day faculty departing p.m. peak hour</td>
<td>15% 21</td>
<td>15% 40</td>
<td></td>
</tr>
<tr>
<td>Evening faculty arriving p.m. peak hour</td>
<td>100% 55</td>
<td>50% 89</td>
<td></td>
</tr>
</tbody>
</table>

Robert Bernstein, P.E.  
Consulting Transportation Engineer/Planner
### Table 2-3b: Campus Trip Generation

<table>
<thead>
<tr>
<th>STAFF</th>
<th>CCC</th>
<th>UWB</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff per Faculty (space planning ratio)</td>
<td>1.6</td>
<td>1.6</td>
<td></td>
</tr>
<tr>
<td>Total staff</td>
<td>283</td>
<td>507</td>
<td>790</td>
</tr>
<tr>
<td>Daytime staff</td>
<td>228</td>
<td>304</td>
<td>532</td>
</tr>
<tr>
<td>Day staff attending on peak weekday</td>
<td>152</td>
<td>304</td>
<td>456</td>
</tr>
<tr>
<td>Evening staff</td>
<td>89</td>
<td>152</td>
<td>241</td>
</tr>
<tr>
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### TOTAL: FACULTY + STAFF + STUDENTS + VISITORS

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3. Trip Distribution

Site-generated travel demand was estimated for campus buildout (10,000 FTE students), Phase 1 (2,000 FTE students), and Phase 1A (3,000 FTE students), as described in the previous section. Geographical distribution of the travel demand was estimated using campus population information supplemented by information from the City of Bothell and regional travel demand forecasting models.

The "trip distribution" process identified the origins and destinations of the trips to/from the campus. Trip distribution was based on the following characteristics of campus-generated travel:

- CCC and UW-B students all will live within 30 minutes travel time of campus; in addition, CCC students will live closer to CCC than to Edmonds, Shoreline, or Bellevue CCs.

- The geographical distribution of job locations of the 75% of CCC and UW-B evening students traveling to the campus from work will be similar to the job locations of the general population residing the "service areas" described above (i.e., residential areas within 30 minutes travel time of campus).

- The geographical distribution of home locations of CCC and UW-B faculty, staff, and visitors will be similar to the distribution of home locations of people working in the central Bothell/North Creek Valley area.

The general geographical distribution of campus trips for the p.m. peak hour is summarized in Figure 3-1.

**Important Note**: Due to the size and potential impacts of the campus development, the trip distribution and traffic assignment process typically used to analyze development traffic impacts was deemed inadequate, and a more rigorous approach was employed. The typical process comprises three basic steps: 1) background traffic volumes, which do not include traffic generated by the proposed development, are estimated, 2) the geographic distribution of the traffic generated by the proposed development is determined and the development-generated traffic is assigned to the street network, and 3) traffic volumes with the development are computed by adding the background traffic and the development-generated traffic volumes. Though appropriate in most cases, this process inherently assumes that development-generated traffic will not affect the patterns and flows of background traffic (i.e., although development-generated traffic may affect traffic operations, it will not shift or divert background traffic onto other streets).

In the case of the CCC/UW-B Campus, however, campus-generated traffic volumes were expected to be large enough to have some affect background traffic flows. In order to account for this effect, the campus traffic flows were incorporated directly into the City of Bothell's EMME/2 traffic forecasting/assignment model. Using the model, campus and background traffic flows were assigned to the street/highway network simultaneously, as described in the following section.
ATTACHMENT B

Excerpt from *Traffic Impact Report for Final PUD Application*:
selected Figures

University of Washington-Bothell / Cascadia Community College
February 10, 1998
FIGURE 4-4

2010 Buildout Campus Traffic Volumes
(p.m. peak hour)
FIGURE 4-5
2010 Buildout Campus Traffic Volumes
(p.m. peak hour)
FIGURE 4-8

2000 Phase 1 Campus Traffic Volumes
(p.m. peak hour)
FIGURE 4-9

2000 Phase 1 Campus Traffic Volumes
(p.m. peak hour)
FIGURE 4-11
2001 Phase 2A Campus Traffic Volumes
(p.m. peak hour)
ATTACHMENT C
Concurrency Analysis Traffic Volumes
Figure C-1: 2009 P.M. Peak Hour Traffic Volumes
Beardslee–195th Corridor, Without Project

Robert Bernstein, P.E.
Consulting Transportation Engineer/Planner
Figure C-2: 2009 P.M. Peak Hour Traffic Volumes
SR 522 Corridor, Without Project
Figure C-3: 2009 P.M. Peak Hour Traffic Volumes
SR 527 Corridor, Without Project
Figure C-4: 2009 P.M. Peak Hour Traffic Volumes
Beardslee–195th Corridor, With Project
Figure C-5: 2009 P.M. Peak Hour Traffic Volumes  
SR 522 Corridor, With Project
Figure C-6: 2009 P.M. Peak Hour Traffic Volumes
SR 527 Corridor, With Project
ATTACHMENT D
Traffic Operations Analysis Worksheets
### HCM Signalized Intersection Capacity Analysis

**Beardells-95th Corridor, 31 95th St S & North Creek Pkwy**

#### 2009 without project

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| **Lane Configurations** |     |     |     |     |     |     |     |     |     |     |     |     |     |
|             | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| **Total Lost time (s)** | 4.0  | 4.0  | 4.0  | 4.0  | 4.0  | 4.0  | 4.0  | 4.0  | 4.0  | 4.0  | 4.0  | 4.0  | 4.0  |
| **Lane Util Factor** | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| **Flt** | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| **Flt Delayed** | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| **Total Delay (s)** | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| **Sat. Flow (vph)** | 595 | 595 | 595 | 595 | 595 | 595 | 595 | 595 | 595 | 595 | 595 | 595 | 595 |
| **Sat. Flow (pm)** | 595 | 595 | 595 | 595 | 595 | 595 | 595 | 595 | 595 | 595 | 595 | 595 | 595 |

#### Interaction Summary

- **HCM Volume to Capacity ratio:** 0.64
- **HCM Capacity:** 100.1
- **Sum of lost time (s):** 10.0
- **HCM Level of Service:** C
- **HCM Level of Service:** D
- **HCM Level of Service:** C
- **HCM Level of Service:** D
- **HCM Level of Service:** C
- **HCM Level of Service:** D
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- **HCM Level of Service:** D
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- **HCM Level of Service:** D
- **HCM Level of Service:** C
### HCM Signalized Intersection Capacity Analysis

#### Cascadia CC GLA TIA

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### HCM Volume to Capacity Ratio

| Movement Configurations | | | | | | | | | | | | |
| Ideal Flow (vph) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Fit | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Fit Protected | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (vph) | 1805 | 3539 | 3539 | 3539 | 3539 | 3539 | 3539 | 3539 | 3539 | 3539 | 3539 | 3539 |
| Fit Permitted | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Satd. Flow (vph) | 1805 | 3539 | 3539 | 3539 | 3539 | 3539 | 3539 | 3539 | 3539 | 3539 | 3539 | 3539 |

For more details, see the full report.
### HCM Signaled Intersection Capacity Analysis

#### Cascadia CC GLA TIA

#### Beardslee-195th Corridor 60 112th Ave & Beardslee

#### 2006 without project

**Movement**

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**Intersection Summary**

- HCM Average Control Delay: 5.1
- HCM Volume to Capacity Ratio: 0.81
- HCM Volume to Capacity Ratio: 0.61
- Sat. Flow (vph): 1656
- Filt Protected: 0.95
- Lane Util Factor: 1.00
- Filt Protected: 0.95
- Lane Group Flow (vph): 534
- Heavy Vehicles (%): 2%

**Lane Configurations**

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**Turn Type**

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**Intersection Summary**

- HCM Average Control Delay: 11.5
- HCM Volume to Capacity Ratio: 0.29
- Sat. Flow (vph): 1656
- Filt Protected: 0.95
- Lane Util Factor: 1.00
- Filt Protected: 0.95
- Lane Group Flow (vph): 534
- Heavy Vehicles (%): 2%

**Analysis Period (min)**

- C: Critical Lane Group
### HCM Signalized Intersection Capacity Analysis

**SR 522 Corridor: 43: SR 522 & Kayser Wy**

**Cascadia CC GLA TIA**

**2005 without project**

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**Intersection Summary**

| HCM Average Cycle Delay | 38.8 |
| HCM Volume to Capacity Ratio | 0.77 |
| Adjusted Cycle Length ($) | 88.0 |
| Intersection Capacity Utilization (%) | 71.2% |

| Critical Lane Group | 15 |

### HCM Unsignalized Intersection Capacity Analysis

**Beardside-195th Corrider: 22: 195th St & Beardside**

**Cascadia CC GLA TIA**

**2005 without project**

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### Intersection Summary

| Average Delay | 3 |
| Interception Capacity Utilization | 51.3% |
| Analysis Period (min) | 15 |
### HCM Signalized Intersection Capacity Analysis

**SR 522 Corridor: 47, 180th St & SR 522**

#### Cascadia CC GLA TIA

#### 2008 without project

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| **Lane Configurations** | 800 | 1000 | 1000 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| **Total Lost Time (s)** | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| **Lane Util Factor** | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| **Fit** | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| **Fit Protected** | 0.95 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 | 0.95 |
| **Satd. Flow (vph)** | 3518 | 1856 | 3518 | 1856 | 3518 | 1856 | 3518 | 1856 | 3518 | 1856 | 3518 | 1856 | 3518 |

#### HCM Signalized Intersection Capacity Analysis

**SR 522 Corridor: 50, SR 522 & SR 527**

#### Cascadia CC GLA TIA

#### 2008 without project

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| **Lane Configurations** | % | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| **Total Lost Time (s)** | 4.0 | 6.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| **Lane Util Factor** | 0.95 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 | 0.95 |
| **Fit** | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| **Fit Protected** | 0.95 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 | 0.95 |
| **Satd. Flow (vph)** | 3462 | 1916 | 3518 | 1856 | 3518 | 1856 | 3518 | 1856 | 3518 | 1856 | 3518 | 1856 | 3518 |
| **Satd. Flow (vph)** | 3518 | 1856 | 3518 | 1856 | 3518 | 1856 | 3518 | 1856 | 3518 | 1856 | 3518 | 1856 | 3518 |

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#### Intersection Summary

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<td><strong>HCM Volume to Capacity ratio</strong></td>
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#### Additional Data

- **HCM Average Delay** = 18.6
- **HCM Level of Service** = B
- **HCM Volume to Capacity ratio** = 0.63
- **Actuated Delay** = 15
- **HCM Level of Service** = D
- **Analysis Period** = 15

---

**NOTES:**

- **Consulting Transportation Engineer:**
- **Prepared by:**
- **Date:**

---

**CCGLA Capacity Analysis**

**November 30, 2007**

Page D-4
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Interception Summary

HCM Average Delay - 96.0
HCM Level of Service - C

Cascada CC GLA TIA

HCM Signalized Intersection Capacity Analysis

SR 222 Corridor: 42, 98th Ave & SR 222

2008 without project

Consaeling Transportation Engineer Planner

Robert Barnert, P.E.

CC CLGA Currntly Analysis
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**Interception Summary**

| HCM Average Delay (s) | 1.4 |
| HCM Volume to Capacity ratio | 1.10 |
| Actuated Cycle Length (s) | 130.8 |
| Actuated Capacity Utilization | 92.9% |

**Cascadia CC GLA TIA**

**SR 527 Corridor: S. 214th & SR 527**

2009 without project
### Cascadia CC GLA TIA SR 527 Corridor: 15: NB I-405 & SR 527
#### 2009 without project

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### Cascadia CC GLA TIA SR 527 Corridor: 12: NB I-405 & SR 527
#### 2009 without project

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### HCM Average Control Delay
- Duration: 6.9
- Level of Service: A

### HCM Volume to Capacity ratio
- 12.0
- Level of Service: D

### HCM Intersection Capacity Utilization
- 78.8%
- Level of Service: D

### Notes
- Critical Lane Group
- Analysis Period: 15 minutes

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|          |     |     |     |     |     |     |     |     |     |     |     |     |     |
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|          |     |     |     |     |     |     |     |     |     |     |     |     |     |
|          |     |     |     |     |     |     |     |     |     |     |     |     |     |
|          |     |     |     |     |     |     |     |     |     |     |     |     |     |

**HCM Signaled Intersection Capacity Analysis**

*Bedrockle-156th Corridor, 37: 156th St & EB I-405* 2009 with project

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|          |     |     |     |     |     |     |     |     |     |     |     |     |     |
|          |     |     |     |     |     |     |     |     |     |     |     |     |     |
|          |     |     |     |     |     |     |     |     |     |     |     |     |     |
|          |     |     |     |     |     |     |     |     |     |     |     |     |     |
|          |     |     |     |     |     |     |     |     |     |     |     |     |     |

**HCM Signaled Intersection Capacity Analysis**

*Bedrockle-156th Corridor, 34: 156th St & NB I-405* 2009 with project

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
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---

**Trend Summary**

- **HCM Average Critical Delay:** 29.5
- **HCM Volume to Capacity ratio:** 0.62
- **Adusted Cycle Length (s):** 105.5
- **Intersection Capacity Utilization:** 73.5%

**Analysis Period:** 15

---

**HCM Average Critical Delay:** 21.8

**HCM Volume to Capacity ratio:** 0.65

**Adusted Cycle Length (s):** 102.0

**Intersection Capacity Utilization:** 70.5%

**Analysis Period:** 20

---

**Trend Summary**

- **HCM Average Critical Delay:** 29.5
- **HCM Volume to Capacity ratio:** 0.62
- **Adusted Cycle Length (s):** 105.5
- **Intersection Capacity Utilization:** 73.5%

**Analysis Period:** 15

---

**HCM Average Critical Delay:** 21.8

**HCM Volume to Capacity ratio:** 0.65

**Adusted Cycle Length (s):** 102.0

**Intersection Capacity Utilization:** 70.5%

**Analysis Period:** 20
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<td>HCM Average Control Delay</td>
<td>14.1</td>
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<td>B</td>
<td>B</td>
<td>B</td>
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<tr>
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<td>A</td>
<td>A</td>
<td>A</td>
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<td>A</td>
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### HCM Signalized Intersection Capacity Analysis

**SR 522 Corridor: AS, SR 522 & Kayser Key**

| Movement | EBL | EBT | WBL | WBT | YBR | YVB | NBL | NBT | HBR | SBL | SBT | SBR |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ideal Flow (vphpl) | 1900 | 1900 | 1500 | 1500 | 1200 | 1200 | 1000 | 1000 | 900 | 900 | 800 | 800 | 800 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util Factor | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Fit Proportion | 0.95 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 | 0.95 |
| Sand Flow (vph) | 168 | 25577 | 503 | 3574 | 1999 | 1785 | 1748 |
| Volume (vph) | 25 | 1289 | 5 | 5 | 1492 | 373 | 5 | 5 | 263 | 5 | 20 |
| Peak-hour factor, PHF | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Adj. Flow (vph) | 27 | 1370 | 5 | 5 | 1587 | 387 | 5 | 5 | 301 | 5 | 21 |
| RTOR Reduction (vph) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 27 | 1374 | 5 | 5 | 1587 | 387 | 5 | 5 | 301 | 5 | 21 |
| Turn Type | Free | Split |
| Protected Phases | 2 | 6 |
| Permitted Phases | Free |
| Actuated Green, G (s) | 41.1 | 36.9 | 33.7 | 36.9 | 88.4 | 16.0 | 16.0 |
| Effective Green, G (s) | 41.1 | 36.9 | 33.7 | 36.9 | 88.4 | 16.0 | 16.0 |
| Actuated g/C Ratio | 0.48 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 |
| Clearance Time (s) | 4.2 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Gap (vph) | 114 | 1594 | 101 | 1573 | 1599 | 323 | 315 |
| v/s Ratio Prot | 0.09 | 0.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| v/s Ratio Perm | 0.11 | 0.22 | 0.02 | 0.02 | 0.02 | 0.02 | 0.19 |
| v/s Ratio | 0.30 | 0.37 | 0.30 | 0.30 | 0.30 | 0.30 | 1.02 |
| Uniform Delay, d1 | 21.7 | 22.9 | 15.0 | 24.0 | 0.3 | 28.9 | 36.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.1 | 6.7 | 0.2 | 2.0 | 0.4 | 2.0 | 5.7 |
| Delay (s) | 22.8 | 28.1 | 15.2 | 46.0 | 30.4 | 93.2 |
| Level of Service | C | C | D | A | C |
| Approach Delay (s) | 28.6 | 36.7 | 30.0 | 93.2 |
| Approach LOS | D | D | C | F |

**Intersection Summary**

- HCM Average Control Delay: 40.2
- HCM Volume to Capacity Ratio: 0.77
- Actuated Cycle Length (s): 86.4
- Intersection Capacity Utilization: 71.7%
- Analysis Period End: 15
- Critical Lane Group: A

---

### HCM Unsignalized Intersection Capacity Analysis

**Beardslee-155th Corridor: 155th St & Beardslee**

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<th>SBL</th>
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<td>Free</td>
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<td>0%</td>
<td>0%</td>
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<td>Volume (vph)</td>
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<td>352</td>
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<td>Pedestrian Lane Width (ft)</td>
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<td>Percent Blockage</td>
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<td>Right Turn Lane (vph)</td>
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<td>Median Type</td>
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<td>Median Storage (vph)</td>
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<td>Upstream Signal (ft)</td>
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<tr>
<td>%P, plateaus unplanned</td>
<td>771</td>
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<tr>
<td>V(C), conflicting volume</td>
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<tr>
<td>V(C), stage 1 control</td>
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<td>V(C), stage 2 control</td>
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<tr>
<td>%T, 2 stage</td>
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<td>%T, 4 stage</td>
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<td>%P, queue free</td>
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<td>%P, capacity (vph)</td>
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**Direction, Lane #**

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<tr>
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<tr>
<td>Volume Right</td>
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<td>%SH</td>
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<td>Approach Delay (s)</td>
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</table>

**Intersection Summary**

- Average Delay: 4.4
- Intersection Capacity Utilization: 51.8%
- Analysis Period End: 15
### HCM Signaled Intersection Capacity Analysis

**SR 522 Corridor: 47: 180th St & SR 522**

#### Casual Lane Group

<table>
<thead>
<tr>
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<th>EBL</th>
<th>EBT</th>
<th>EBR</th>
<th>WBL</th>
<th>WBT</th>
<th>WBR</th>
<th>NBL</th>
<th>NBT</th>
<th>SBL</th>
<th>SBT</th>
<th>SBR</th>
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<tbody>
<tr>
<td><strong>Volume (veh/h)</strong></td>
<td>131</td>
<td>49</td>
<td>70</td>
<td>55</td>
<td>15</td>
<td>25</td>
<td>125</td>
<td>126</td>
<td>40</td>
<td>25</td>
<td>1568</td>
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<tr>
<td>Peak-hour factor, PHF</td>
<td>0.65</td>
<td>0.96</td>
<td>0.95</td>
<td>0.94</td>
<td>0.95</td>
<td>0.95</td>
<td>0.96</td>
<td>0.95</td>
<td>95</td>
<td>96</td>
<td>0.95</td>
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<tr>
<td>Adj. Flow (vph)</td>
<td>134</td>
<td>42</td>
<td>74</td>
<td>57</td>
<td>16</td>
<td>24</td>
<td>128</td>
<td>117</td>
<td>42</td>
<td>26</td>
<td>1587</td>
</tr>
<tr>
<td>RTOR Reduction (vph)</td>
<td>0</td>
<td>67</td>
<td>0</td>
<td>24</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>6</td>
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<td>0</td>
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<tr>
<td>Lane Group Flow (vph)</td>
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<td>49</td>
<td>70</td>
<td>55</td>
<td>15</td>
<td>25</td>
<td>126</td>
<td>175</td>
<td>0</td>
<td>26</td>
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</table>

#### Casual Lane Group Summary

- **HCM Average Control Delay**: 1.6
- **HCM Level of Service**: B
- **HCM Volume to Capacity Ratio**: 0.83
- **Actual Cycle Length (s)**: 87.2
- **Intersection Capacity Utilization**: 77.8%
- **Analysis Period (min)**: 15
- **CASL (Trip Rating)**: D

#### Intersection Summary

- **HCM Level of Service**: D
- **HCM Volume to Capacity Ratio**: 0.83
- **Actual Cycle Length (s)**: 87.2
- **Intersection Capacity Utilization**: 77.8%
- **Analysis Period (min)**: 15
- **CASL (Trip Rating)**: D

---

**SR 522 Corridor: 50: SR 522 & SR 527**

#### Casual Lane Group

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<th>EBT</th>
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<tbody>
<tr>
<td><strong>Volume (veh/h)</strong></td>
<td>131</td>
<td>49</td>
<td>70</td>
<td>55</td>
<td>15</td>
<td>25</td>
<td>125</td>
<td>126</td>
<td>40</td>
<td>25</td>
<td>1568</td>
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<tr>
<td>Peak-hour factor, PHF</td>
<td>0.65</td>
<td>0.96</td>
<td>0.95</td>
<td>0.94</td>
<td>0.95</td>
<td>0.95</td>
<td>0.96</td>
<td>0.95</td>
<td>95</td>
<td>96</td>
<td>0.95</td>
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<tr>
<td>Adj. Flow (vph)</td>
<td>134</td>
<td>42</td>
<td>74</td>
<td>57</td>
<td>16</td>
<td>24</td>
<td>128</td>
<td>117</td>
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<td>26</td>
<td>1587</td>
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<tr>
<td>RTOR Reduction (vph)</td>
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<td>67</td>
<td>0</td>
<td>24</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>6</td>
<td>8</td>
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<td>Lane Group Flow (vph)</td>
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<td>70</td>
<td>55</td>
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<td>126</td>
<td>175</td>
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#### Casual Lane Group Summary

- **HCM Average Control Delay**: 1.6
- **HCM Level of Service**: B
- **HCM Volume to Capacity Ratio**: 0.83
- **Actual Cycle Length (s)**: 87.2
- **Intersection Capacity Utilization**: 77.8%
- **Analysis Period (min)**: 15
- **CASL (Trip Rating)**: D

#### Intersection Summary

- **HCM Level of Service**: D
- **HCM Volume to Capacity Ratio**: 0.83
- **Actual Cycle Length (s)**: 87.2
- **Intersection Capacity Utilization**: 77.8%
- **Analysis Period (min)**: 15
- **CASL (Trip Rating)**: D
### HCM Signalized Intersection Capacity Analysis

**SR 527 Corridor: 3, SR 524 & SR 527**

2009 with project

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<th>WB</th>
<th>WB</th>
<th>SB</th>
<th>SB</th>
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### Cascadia CC GLA TIA

**SR 527 Corridor: 3, SR 524 & SR 527**

2009 with project

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### Intersections Summary

- **HCM Average Control Delay**: 56.0
- **HCM Level of Service**: E
- **HCM Volume to Capacity ratio**: 1.04
- **Actuated Cycle Length (s)**: 130.0
- **Sum of lost time (s)**: 16.0
- **Intersection Capacity Utilization**: 98.7%
- **ICU Level of Service**: F
- **Analysis Period (min)**: 15

- **Cascadia CC GLA TIA**

November 30, 2007

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**HCM Signalized Intersection Capacity Analysis**

**SR 527 Corridor: 9, 220th & SR 527**

2020 vhs project

**Cascadia CC GLA T1A**

**HCM Signalized Intersection Capacity Analysis**

**SR 527 Corridor: 5, 214th & SR 527**

2020 vhs project

**Cascadia CC GLA T1A**
### Signalized Intersection Capacity Analysis

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### Intersection Summary

- **HCM Average Capacity Delay (vph)**: 8.8
- **HCM Level of Service**: A
- **HCM Volume to Capacity Ratio**: 0.74
- **Adopted Cycle Length (s)**: 120.0
- **Sum of Lost Time (sec)**: 8.0
- **Intersection Capacity Utilization**: 78.8%
- **ICU Level of Service**: D
- **Analysis Period (min)**: 15
- **Critical Lane Group**: C

---

### Signalized Intersection Capacity Analysis

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<th>EBT</th>
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### Intersection Summary

- **HCM Average Capacity Delay (vph)**: 11.3
- **HCM Level of Service**: B
- **HCM Volume to Capacity Ratio**: 0.84
- **Adopted Cycle Length (s)**: 120.0
- **Sum of Lost Time (sec)**: 8.0
- **Intersection Capacity Utilization**: 78.5%
- **ICU Level of Service**: D
- **Analysis Period (min)**: 15
- **Critical Lane Group**: C
Geotechnical Report
GEOTEchnical ENGINEERING SERVICES
THE CENTER FOR GLOBAL Learning
& THE Arts
Cascadia Community College
Bothell, Washington

SEPTEMBER 21, 2006

FOR
Cascadia Community College
Geotechnical Engineering Services
The Center for Global Learning & The Arts
Cascadia Community College
Bothell, Washington
File No. 10600-002-00

September 21, 2006

Prepared for:
Washington State Department of General Administration
Division of Engineering and Architectural Services
206 General Administration Building
Olympia, Washington 98504-1012

Attention: Bob Colasurdo

Prepared by:
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Associate, Geotechnical Engineer

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Four copies submitted

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Appendix B – Laboratory Testing

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   Figure B-2 – Atterberg Limits Test Results
   Figure B-3 – Consolidation Test Results

Appendix C – Report Limitations And Guidelines For Use
EXECUTIVE SUMMARY

This report contains the results of our geotechnical engineering services for use in the design of the proposed Center for Global Learning & The Arts at Cascadia Community College (CCC) in Bothell, Washington.

SUBSURFACE CONDITIONS

The subsurface soils observed in the borings generally consist of 1 to 2.5 feet of topsoil/fill underlain by glacial lacustrine deposits. Topsoil consisting of sandy silt and silty sand was observed near the ground surface in each of the borings. Lacustrine deposits consisting of stiff to very stiff silt and clay was generally encountered below the topsoil in each of the borings. The lacustrine deposits commonly exhibit slickensides. Possible fill consisting of loose to medium dense fine to coarse sand with occasional gravel was encountered in boring B-3 to a depth of about 8 feet. This fill may be associated with utility lines in the area. Perched groundwater was observed in four of the borings at depths ranging from 3 to 8 feet below the ground surface.

SEISMIC DESIGN

In accordance with the 2006 International Building Code (IBC), the site is classified as Site Class D.

REUSE OF ON-SITE MATERIALS

The lacustrine silt/clay deposits encountered in the borings are not suitable for reuse as structural fill. It will be necessary to import structural fill to the site to achieve adequate compaction for support of pavements, floor slabs, building foundations, and for use as wall backfill. Therefore, for planning purposes we recommend that the project include importing all structural fill and the structural fill should be suitable for wet weather construction (i.e. WSDOT Gravel Borrow).

TEMPORARY CUT SLOPES

We anticipate that the entire building footprint may be excavated using temporary open cut slopes inclined at 2H:1V (horizontal:vertical) for cuts made in the stiff to very stiff lacustrine deposits. Steep temporary cut slopes should not be used due to the fractured nature of the native soils.

FOUNDATION DESIGN

The building can be supported on conventional spread footings bearing on undisturbed stiff to very stiff lacustrine deposits or on structural fill placed over these soils. Footings bearing on undisturbed stiff to very stiff lacustrine deposits may be designed using an allowable soil bearing value of 4,000 pounds per square foot (psf). Footings bearing on structural fill placed over undisturbed dense glacial soils may also be designed using an allowable soil bearing value of 4,000 psf. The allowable bearing value may be increased by one-third for short duration loads such as wind or seismic events.

Existing fill located below planned foundations, including existing trench backfill, should be removed and replaced with structural fill.

Lateral foundation loads may be resisted by passive resistance on the sides of the footings and by friction on the base of the footings. For footings supported and surrounded by either very stiff native soils or
compacted structural fill, a coefficient of friction of 0.35 and a passive resistance of 350 pounds per cubic foot (pcf) may be used.

Footing drains should be incorporated in the design of the building.

**FLOOR SLABS**

A subgrade modulus of 75 pounds per cubic inch (pci) may be used for design of the slabs-on-grade at the site. Concrete slabs-on-grade should be supported on a 6-inch-thick capillary break layer overlain by a vapor retarder. Perched groundwater seepage was observed throughout the site; therefore, we recommend that the floor slabs be provided with an under drain pipe.

**BELOW-GRADE WALLS**

Below-grade walls should be provided with a free draining drainage layer and footing drain pipes. For below-grade walls constructed either neat against the dense native soils, or backfilled with compacted structural fill, we recommend the following equivalent fluid weights:

- allowable passive – 350 pcf
- active – 35 pcf
- at rest – 55 pcf

**SUBSURFACE DRAINAGE**

Due to observed wet conditions in the campus green area and perched water across the site, we recommend that a subsurface drain be constructed west of the building to intercept shallow groundwater flow. The drain should extend to a depth of about 10 feet below the ground surface.
INTRODUCTION

GENERAL

This report presents the results of our geotechnical engineering services for the proposed Center for Global Learning & The Arts at Cascadia Community College (CCC) in Bothell, Washington. The location of the site and general configuration of the proposed building is shown on the Vicinity Map and Site Plan, Figures 1 and 2, respectively.

We previously provided preliminary geotechnical information for the building in our memorandum "Preliminary Geotechnical Recommendations, Proposed Centre for Global Learning and Design, Cascadia Community College, Bothell, Washington," dated June 20, 2006.

GeoEngineers conducted geotechnical and geologic services for design and construction of the existing University of Washington/Cascadia Community College (UWB/CCC) Co-located Campus including all existing buildings and site work. The results of our geotechnical services are summarized in the following documents:


PROJECT DESCRIPTION

The proposed building will be located in the area upslope and west of the existing CCC building. We understand that The Center For Global Learning & The Arts building will be a 60,400 square foot three-story structure. The proposed configuration and location of the building is shown on Figure 2. We understand that the classroom portion of the building will have a finish floor at Elevation 82.5 feet, while the Showbox finish floor will be at about Elevation 78.5 feet.

The building will be constructed in a wooded and undeveloped area upslope of the existing CCC building. Construction of the building will require a moderate amount of earthwork to accomplish the planned building grades. The existing ground at site varies from about Elevation 69 feet near the northeast corner of the building to about Elevation 91 feet near the southwest corner. Excavations for the Showbox will require cuts up to 5 feet deep and the classroom level will require cuts up to about 9 feet deep. A fill on the order of 10 feet will be needed in the northeast area to achieve the Showbox finished floor elevation.

Access to the building will be accomplished from the Upper Campus Drive located west of the building. We understand that a heat pump system may be installed southeast of the building. We also understand
that the existing campus green area located southeast of the proposed building experiences groundwater seepage which results in soft ground conditions into the summer months.

**PURPOSE AND SCOPE**

The purpose of our services is to evaluate soil and groundwater conditions as a basis for developing design criteria for the geotechnical aspects of the proposed Center for Global Learning & The Arts. Field explorations and laboratory testing were performed to identify and evaluate subsurface conditions at the site in order to develop engineering recommendations for use in design of the project.

Our services were performed in general accordance with our proposal dated April 28, 2006. Written authorization (Agreement No. 2006-144 T (3)) to proceed with our initial services was provided by the Department of General Administration, Division of Engineering & Architectural Services on May 10, 2006.

**FIELD EXPLORATION AND LABORATORY TESTING**

**FIELD EXPLORATIONS**

Subsurface conditions were evaluated through a field exploration program that consisted of drilling and sampling eight hollow-stem auger borings drilled within and adjacent to the building footprint using track-mounted drilling equipment. The locations of the borings are shown on the Site Plan, Figure 2.

The borings, designated B-1 through B-8, were advanced to depths ranging from 11.5 to 31.5 feet below the ground surface. Groundwater piezometers were installed in borings B-2 and B-7. Locations of the borings were determined in the field by tape measuring to existing site features such as the existing CCC building, roadways, and nearby trees. Elevations at the boring locations were estimated from the site survey map provided by The Miller/Hull Partnership, which was used as a base for Figure 2. The respective ground surface elevations are shown on the boring logs in Appendix A. Appendix A includes logs of the borings (Figures A-2 through A-9) and details of the subsurface explorations performed.

**LABORATORY TESTING**

Soil samples obtained from the borings were transported to our laboratory and examined to confirm or modify field classifications, as well as to evaluate engineering properties of the soil. Representative samples were selected for laboratory testing consisting of moisture content, dry density, sieve analyses, atterberg limits, and consolidation testing. The tests were performed in general accordance with test methods of the American Society for Testing and Materials (ASTM) or other applicable procedures. Appendix B includes a brief discussion of the laboratory tests and test results.

**SITE DESCRIPTION**

**SITE GEOLOGY**

Our review of the geologic map for the area (Minard, 1985) and our previous geotechnical reports for the campus indicates that the proposed building site is underlain by stiff to hard lacustrine deposits at relatively shallow depths. Lacustrine deposits consisting of stiff to very stiff silt and clay were encountered in all of the borings.
Glacial till was also observed near the site and is mapped in the project vicinity. The till and lacustrine deposits are underlain at depth by advance outwash deposits. Glacial till commonly consists of a very compact, poorly sorted, non-stratified mixture of clay, silt, sand, gravel and cobbles. Glacial till commonly appears gray or blue on a fresh surface, while weathered glacial till may be brown to yellow in color. Till may include large boulders. Advance outwash deposits underlie the glacial till and lacustrine deposits and typically consist of a thick section of mostly clean gray, pebbly sand with gravel. However, fine-grained sand and silt are common in the lower parts of the section and sparingly in the upper part on the unit.

**SURFACE CONDITIONS**

The proposed site for The Center for Global Learning & The Arts building is located on the west side of the UWB/CCC campus. The building is located immediately west and upslope from the existing CCC building and east of Upper Campus Drive. The existing bus turn-around is located north of the building site and a campus green area is located south of the building site.

The existing ground surface at site slopes gently down from west to east, except in the northeast area where an approximate 2H:1V east facing slope exists. Ground elevations vary from about Elevation 69 feet near the northeast corner of the building to about Elevation 91 feet near the southwest corner. Most of the site is located in an existing wooded area vegetated by large deciduous and conifer trees, including fir and maples. The portion of the site where the Showbox is situated was a previous construction staging area and is currently relatively flat and covered with grass. Minor fill should be expected in this area. The northeast corner of the building is located on an existing east facing slope that is 10 to 15 feet high. Moderate to thick underbrush exists in the wooded areas. The south side of the site is occupied by landscaping and a large campus lawn area.

We understand that an abandoned waterline traverses northwest to southeast across the proposed Showbox area, as shown on Figure 2. In addition, an existing subsurface drain is located north-south and generally along the east side of the classroom portion of the building, as shown on Figure 2.

**SUBSURFACE SOIL CONDITIONS**

Borings B-1 through B-6 were drilled within the proposed building footprint, while boring B-7 was drilled in a known wet area located east of the south portion of the building and B-8 was drilled in the proposed access drive area. In general, the soils encountered in the borings consisted of the following.

- **Sod/Topsoil:** Topsoil consisting of loose, dark brown, sandy silt and silty sand was encountered in each of the borings. Topsoil in the wooded areas typically ranged from 1.5 to 2.5 feet deep. Topsoil in previously graded areas, such as around borings B-4 and B-6, ranged from 1 to 2 feet deep.

- **Fill:** Possible fill consisting of loose to medium dense fine to coarse sand with occasional gravel was encountered in boring B-3. The potential fill area is up to 8 feet deep and was observed overlying stiff lacustrine deposits. The fill may be associated with an underground utility in this area, including possibly an abandoned water line or backfill for a groundwater subsurface drain.

- **Glacial Till.** Medium dense to very dense glacial till was observed from about 2 to 7 feet below the ground surface in boring B-7. The till consists of silty sand with gravel and overlies lacustrine deposits.

- **Lacustrine Deposits:** Lacustrine deposits consisting of stiff to very stiff silt and clay were encountered in all of the borings. The lacustrine deposits were encountered below the topsoil and fill soils. All of the borings were terminated in gray, stiff to very stiff, lacustrine silt/clay. The lacustrine deposits commonly exhibit slickensides.
GROUNDWATER CONDITIONS

Perched groundwater seepage was observed in borings B-2, B-3, B-6, B-7 and B-8. The perched groundwater observed in B-2, B-3 and B-7 was about 7 to 8 feet below the ground surface. Perched groundwater observed in borings B-6 and B-8 was located about 2 to 3 feet deep. Groundwater was measured in the piezometers installed in B-2 and B-7 at 10.9 and 7.3 feet below the ground, respectively. We anticipate that perched groundwater will exist at the contact between the lacustrine silt/clay deposits and the overlying looser topsoil and fill soils. The amount of seepage will be in response to seasonal changes in precipitation. The lacustrine deposits are relatively impermeable and water that infiltrates through the ground surface and/or fill will likely become perched on the silt/clay and flow down gradient over the silt/clay interface. This may result in minor to moderate seepage when daylighted in cuts. However, high concentrations of seepage may occur in topographic lows such as in the area between borings B-1 and B-8. Localized groundwater zones may also exist in more permeable layers within lacustrine deposits and in the soils overlying the lacustrine deposits. The regional groundwater table was not encountered in the borings.

CONCLUSIONS AND RECOMMENDATIONS

GENERAL

Based on the results of the borings, laboratory testing, and engineering analysis, we conclude that development of the site can be accomplished as proposed and that shallow foundation support will be suitable for the planned building. A summary of primary geotechnical considerations for the site development and design of the proposed building is provided in the subsequent sections.

EARTHQUAKE ENGINEERING

We evaluated the site for seismic hazards including liquefaction, lateral spreading, fault rupture and earthquake induced landsliding. Our evaluation indicates that the site does not have liquefiable soils present and therefore also has no risk of liquefaction induced lateral spreading. In addition the site has a low risk of fault rupture and earthquake induced landsliding.

2006 IBC Seismic Design Information

For the site, we recommend the IBC 2006 parameters for Average Field Standard Penetration Resistance, Site Class, short period spectral response acceleration \( (S_s) \), 1-second period spectral response acceleration \( (S_1) \), and Seismic Coefficients \( F_A \) and \( F_V \) presented in Table 1.

<table>
<thead>
<tr>
<th>Table 1. IBC Seismic Parameters</th>
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<tr>
<td><strong>2006 IBC Parameter</strong></td>
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<tr>
<td>Average Field Standard Penetration Resistance</td>
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<tr>
<td>Site Class</td>
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<tr>
<td>Short Period Spectral Response Acceleration, ( S_s ) (percent g)</td>
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<tr>
<td>1-Second Period Spectral Response Acceleration, ( S_1 ) (percent g)</td>
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<tr>
<td>Seismic Coefficient, ( F_A )</td>
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<td>Seismic Coefficient, ( F_V )</td>
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</table>
Liquefaction Potential

Liquefaction is a phenomenon where soils experience a rapid loss of internal strength as a consequence of strong ground shaking. Ground settlement, lateral spreading and/or sand boils may result from soil liquefaction. Structures supported on liquefied soils could suffer foundation settlement or lateral movement that could be severely damaging to the structures.

Conditions favorable to liquefaction occur in loose to medium dense, clean to moderately silty sand, which is below the groundwater level. Based on our evaluation of the subsurface conditions observed in the explorations completed at the site, it is our opinion that potentially liquefiable soils are not present below the site.

Ground Rupture

Ground rupture from lateral spreading is associated with liquefaction. Lateral spreading involves lateral displacements of large volumes of liquefied soil, and can occur on near-level ground as blocks of surface soils displace relative to adjacent blocks. In our opinion, ground rupture resulting from lateral spreading at the site is unlikely because potentially liquefiable soils are not present at the site as discussed above.

Because of the thickness of the Quaternary sediments below the site, which are commonly more than 1,000 feet thick, the potential for surface fault rupture is considered remote.

Landslides

Because stiff to very stiff lacustrine deposits occur at shallow depths, it is our opinion that landsliding as a result of strong ground shaking is unlikely at this site.

Earthwork Recommendations

General

Based on the subsurface soil conditions encountered in the borings, we expect that the soils at the site may be excavated using conventional heavy duty construction equipment. The materials we encountered are generally loose to medium dense to depths of about 1 to 3 feet where topsoil and surficial fill was encountered. Below the topsoil, the native soils are stiff to very stiff silt/clay and silty sand. Materials within the deeper portions of excavations may require a large excavator to accomplish the excavations. Glacial deposits in the area commonly contain boulders that may be encountered during excavation. Accordingly, the contractor should be prepared to deal with boulders, if encountered.

The glacial lacustrine deposits contain almost all fines (material passing the U.S. standard No. 200 sieve) that are extremely moisture-sensitive and susceptible to disturbance, especially when wet. Ideally, earthwork should be undertaken during extended periods of dry weather when the surficial soils will be less susceptible to disturbance and provide better support for construction equipment. Dry weather construction will help reduce earthwork costs. If earthwork will occur between October and May, we suggest that a contingency be included in the project schedule and budget to account for increased earthwork difficulties.

Trafficability on the site is not expected to be difficult during dry weather conditions. However, the native soils will be susceptible to disturbance from construction equipment during wet weather conditions. Even in the summer months pumping and rutting of the exposed lacustrine soils under equipment loads will occur.
Clearing and Site Preparation

All areas to receive fill, structures or pavements should be cleared of vegetation and stripped of topsoil. Clearing should consist of removal of all trees, brush and other vegetation within the designated clearing limits. The topsoil materials could be separated and stockpiled for use in areas to be landscaped. Debris should be removed from the site, but organic materials could be chipped/composted and also reused in landscape areas, if desired.

We anticipate that the depth of stripping will generally be about 1.5 to 3 feet, as summarized on the boring logs. Stripping depths may be greater in some areas, particularly where trees and large vegetation have been removed. Actual stripping depths should be determined based on field observations at the time of construction. The organic soils can be stockpiled and used later for landscaping purposes or may be spread over disturbed areas following completion of grading. If spread out, the organic stripings should be in a layer less that 1 foot thick, should not be placed on slopes greater than 3H:1V and should be track-rolled to a uniformly compacted condition. Materials that cannot be used for landscaping or protection of disturbed areas should be removed from the project site.

Grubbing of the project should consist of removing and disposal of stumps, roots larger than 1-inch-diameter, and matted roots from the designated grubbing areas. Grubbed materials should be completely removed from the project site. All depressions made during the grubbing activities to remove stumps and other materials, should be completely backfilled with properly placed and compacted structural fill.

Care must be taken to minimize softening of the subgrade soils during stripping operations. Areas of the exposed subgrade which become disturbed should be compacted to a firm, nonyielding condition, if practical, prior to placing any structural fill necessary to achieve design grades. If this is not practical because the material is too wet, the disturbed material must be aerated and recompacted or excavated and replaced with structural fill.

Removal of Existing Utilities

We recommend that existing or abandoned utilities that cross the building footprint be removed as part of the project, especially where they cross building foundations. This includes removal of a potential abandoned water line that traverses under the Showbox area, as shown on Figure 2. The subsurface drain could be left in place, provided that the trench backfill is removed and replaced with structural fill below the building footprint and extending beyond the building by the depth of the trench. However, portions of the drain pipe will cross under planned foundations; therefore it may be desirable to remove or relocate the drain line.

Abandoning Piezometers

We recommend that the contractor abandon the piezometers installed in borings B-2 and B-7 using a licensed well driller per the Washington State Department of Ecology requirements.

Subgrade Preparation

Prior to placing new fills, pavement base course materials or gravel below on-grade floor slabs, subgrade areas should be proofrolled to locate any soft or pumping soils. Prior to proofrolling, all unsuitable soils should be removed from below the building footprint. Proofrolling can be completed using a piece of heavy tire-mounted equipment such as a loaded dump truck. During wet weather, the exposed subgrade
areas should be probed to determine the extent of soft soils. If soft or pumping soils are observed they should be removed and replaced with structural fill.

If deep pockets of soft or pumping soils are encountered outside the building area, it may be possible to limit the depth of overexcavation by placing a non-woven geotextile fabric such as Mirafi 500X (or similar material) on the overexcavated subgrade prior to placing structural fill. The geotextile will provide additional support by bridging over the soft material and will help reduce fines contamination into the structural fill.

After completing the proofrolling, the subgrade areas should be recompacted to a firm and unyielding condition, if possible. The degree of compaction that can be achieved will depend on when the construction is performed. If the work is performed during dry weather conditions, we recommend that all subgrade areas be recompacted to at least 95 percent of the maximum dry density (MDD) in accordance with the American Society for Testing and Materials (ASTM) D 1557 test procedure (modified Proctor). If the work is performed during wet weather conditions, it may not be possible to recompact the subgrade to 95 percent of the MDD. In this case, we recommend that the subgrade be compacted to the extent possible without causing undue gouging or pumping of the subgrade soils.

Subgrade disturbance or deterioration could occur if the subgrade is wet and can not be dried. If the subgrade deteriorates during proofrolling or compaction, it may become necessary to modify the proofrolling or compaction criteria or methods.

Protecting Subgrade Areas

If construction of the building occurs during the wet weather months, generally October through May, routing of equipment on the native silt/clay subgrade soils will be difficult and the subgrade will likely become disturbed and softened. In addition, a significant amount of mud can be produced. Therefore, to protect the subgrade soils and to provide an adequate working surface for the contractor’s equipment and labor, the contractor should consider constructing a working pad layer over the exposed silt and clay subgrade soils. The working pad layer should be about 12 inches thick and should consist of 1½-inch minus clean crushed gravel with negligible sand or silt. The working pad layer can be placed in one lift and should be compacted to at least 95 percent of the MDD (per ASTM D 1557). It may be warranted to place a geotextile separator, such as Mirafi 500X, on the native soil subgrade prior to placing the gravel layer.

Structural Fill

All fill that will support floor slabs, pavement areas or foundations, or be placed against retaining walls or in utility trenches should generally meet the criteria for structural fill presented below. The suitability of soil for use as structural fill depends on its gradation and moisture content.

Materials. Materials used to construct the building pad, placed below structures, backfill below-grade walls and utility trenches, and surface parking areas are classified as structural fill for the purpose of this report. Structural fill material quality varies depending upon its use as described below:

1. Structural fill should consist of imported gravel borrow as described in Section 9-03.14(1) of the 2006 Washington State Department of Transportation (WSDOT) Standard Specifications, with the additional restriction that the fines content be limited to no more than 5 percent. If needed, building foundations should also be supported on imported gravel borrow.
2. Structural fill placed immediately outside below-grade walls (drainage zone) should consist of washed 3/8 inch to No. 8 pea gravel or conform to Section 9-03.12(4) of the 2006 WSDOT Standard Specifications, as shown on Figure 3.

3. Structural fill placed as crushed surfacing base course below pavements should conform to Section 9-03.9(3) of the 2006 WSDOT Standard Specifications.

4. Structural fill placed as capillary break below slabs should consist of 1½-inch minus clean crushed gravel with negligible sand or silt in conformance with Section 9-03.1(4)C, Grading No. 57 of the 2006 WSDOT Standard Specifications.

Reuse of On-site Native Soils. The native lacustrine silt/clay deposits contain a high percentage of fines and will be sensitive to changes in moisture content and difficult to handle and compact during wet weather. The in-place moisture content of the native soils are also well above the optimum moisture content. Therefore, we do not recommend that on-site soils be reused as structural fill. We recommend that all fill used on site and placed as structural fill be imported gravel borrow.

Use of Recycled Concrete. Recycled Portland cement concrete rubble may be used as structural fill throughout the project. For use as general structural fill across the site, recycled concrete should be crushed or otherwise ground up and should meet the gradation requirements for gravel borrow as described in Section 9-03.14(1) of the 2006 WSDOT Standard Specifications. If recycled asphalt and/or concrete will be used under pavement areas, we recommend that it meet the gradation requirements for crushed surfacing base course as described in Section 9-03.9(3) of the 2006 WSDOT Standard Specifications.

Use of Recycled Glass. Recycled glass may also be used as structural fill in some areas. Based on the project location, it may be economical to use recycled glass in lieu of imported materials. We recommend that recycled glass meet the requirements of recycled glass aggregates as described in Section 9-03.21(4) of the 2006 WSDOT Standard Specifications.

Fill Placement and Compaction Criteria. Structural fill should be mechanically compacted to a firm, non-yielding condition. Structural fill should be placed in loose lifts not exceeding 10 inches in thickness. The actual thickness will be dependent on the structural fill material used and the type and size of compaction equipment. Each lift should be conditioned to the proper moisture content and compacted to the specified density before placing subsequent lifts. Compaction of all structural fill at the site should be in accordance with the ASTM D 1557 (modified proctor) test method. Structural fill should be compacted to the following criteria:

1. Structural fill placed behind below-grade walls should be compacted to between 90 to 92 percent of the MDD estimated in accordance with ASTM D 1557. Care should be taken when compacting fill near the face of below-grade walls to avoid over-compaction and hence overstressing the walls. Hand operated compactors should be used within 5 feet behind the wall. Wall backfill placed within the building footprint and under floor slabs should be compacted to between 90 to 92 percent of the MDD within 5 feet of the walls and to at least 95 percent of the MDD beyond 5 feet of the walls. The upper 2 feet of fill below floor slab subgrade should also be compacted to at least 95 percent of the MDD. The contractor should keep all heavy construction equipment away from the top of retaining walls a distance equal to ½ the height of the wall, or at least 5 feet, which ever is greater.

2. Structural fill in new pavement and hardscape areas, including utility trench backfill, should be compacted to at least 90 percent of the MDD, except that the upper 2 feet of fill below final subgrade should be compacted to at least 95 percent of the MDD, see Figure 4.
3. Structural fill placed below floor slabs and foundations should be compacted to 95 percent of the MDD, including all backfill for utility trenches.

4. Structural fill placed as crushed rock base course below pavements should be compacted to 95 percent of the MDD.

5. Non-structural fill, such as fill placed in landscape areas, should be compacted to at least 90 percent of the MDD.

**Weather Considerations.** Disturbance of near surface soils should be expected if earthwork is completed during periods of wet weather. During dry weather the soils will (1) be less susceptible to disturbance, (2) provide better support for construction equipment, and (3) be more likely to meet the required compaction and subgrade preparation criteria.

The wet weather season generally begins in October and continues through May in western Washington; however, periods of wet weather may occur during any month of the year. For earthwork activities during wet weather, we recommend that the following steps be taken:

- The ground surface in and around the work area should be sloped so that surface water is directed away from the work area. The ground surface should be graded so that areas of ponded water do not develop. Measures should be taken by the contractor to prevent surface water from collecting in excavations and trenches. Measures should be implemented to remove surface water from the work area.

- Earthwork activities should not take place during periods of moderate to heavy precipitation.

- Slopes with exposed soils should be covered with plastic sheeting.

- The contractor should take necessary measures to prevent on-site soils and soils to be used as fill from becoming wet or unstable. These measures may include the use of plastic sheeting, sumps with pumps, and grading. The site soils should not be left uncompacted and exposed to moisture. Sealing the surficial soils by rolling with a smooth-drum roller prior to periods of precipitation will help reduce the extent that these soils become wet or unstable.

- The contractor should cover all soil stockpiles that will be used as structural fill with plastic sheeting.

- Construction traffic should be restricted to specific areas of the site, preferably areas that are surfaced with working pad materials not susceptible to wet weather disturbance.

- Construction activities should be scheduled so that the length of time that soils are left exposed to moisture is reduced to the extent practical.

Routing of equipment on the native lacustrine silt/clay subgrade soils during the wet weather months will be difficult and the subgrade will likely become highly disturbed and rutted. In addition, a significant amount of mud can be produced by routing equipment directly on the glacial soils in wet weather. Therefore, to protect the subgrade soils and to provide an adequate wet weather working surface for the contractor's equipment and labor, we recommend that the contractor protect exposed subgrade soils with a crushed gravel working pad or ATB.

**Permanent Cut and Fill Slopes**

We recommend that permanent fill slopes be constructed at inclinations of 2H:1V or flatter if constructed using structural fill. Fill slopes should be blended into existing slopes with smooth transitions. To achieve uniform compaction, we recommend that fill slopes be overbuilt slightly and subsequently cut
back to expose well compacted fill. Permanent cut slopes should be no steeper than 3H:1V if made in the
native lacustrine silt/clay deposits. If steeper slopes are needed, specific design studies should be done to
verify the stability of the native soils.

All fill placed on existing slopes, including structural fill placed under the building, should be bench or
keyed into the slope in accordance with Section 2-03.3(14) of the 2006 WSDOT Standard Specifications.

To reduce erosion, newly constructed slopes should be planted or hydroseeded shortly after completion of
grading. Until the vegetation is established, some sloughing and ravelling of the slopes should be
expected. This may necessitate localized repairs and reseeding. Temporary covering, such as clear heavy
plastic sheeting, jute fabric, or erosion control blankets (such as American Excelsior Curlex 1 or North
American Green S150) could be used to protect the slopes during periods of rainfall.

Utility Trenches

Trench excavation, pipe bedding, and trench backfilling should be completed using the general
procedures described in the 2006 WSDOT Standard Specifications or other suitable procedures specified
by the project civil engineer. The native glacial deposits and fill soils encountered at the site are generally
of low corrosivity based on our experience in the Puget Sound area and on the campus.

Utility trench backfill should consist of structural fill and should be placed in lifts of 8 inches or less
(loose thickness) such that adequate compaction can be achieved throughout the lift. Sand backfill,
containing less than 5 percent fines, may be compacted in loose lifts not exceeding 12 inches when placed
below four feet of the finished ground surface. Each lift must be compacted prior to placing the
subsequent lift. Prior to compaction, the backfill should be moisture conditioned to within 3 percent of
the optimum moisture content, if necessary. The backfill should be compacted in accordance with the
criteria discussed above. Figure 4 illustrates recommended trench compaction criteria under pavement
and non-structural areas.

Infiltration

The capacity for on-site infiltration of storm water is very low.

Erosion and Sediment Control

In our opinion, the erosion potential of the on-site soils is low to moderate. Construction activities
including stripping and grading will expose soils to the erosional effects of wind and water. The amount
and potential impacts of erosion are partly related to the time of year that construction actually occurs.
Wet weather construction will increase the amount and extent of erosion and potential sedimentation.

Erosion and sedimentation control measures may be implemented by using a combination of interceptor
swales, straw bale barriers, silt fences and straw mulch for temporary erosion protection of exposed soils.
All disturbed areas should be finish graded and seeded as soon as practicable to reduce the risk of erosion.
Erosion and sedimentation control measures should be installed and maintained in accordance with the
requirements of the City of Bothell.
EXCAVATIONS

General

Excavations for the Showbox and classrooms levels will require cuts ranging from about 5 to 9 feet deep. These cuts can likely be made as temporary open cut slopes depending on site constraints. Excavations are also required for underground utilities. The stability of open cut slopes is a function of soil type, groundwater seepage, slope inclination, slope height and nearby surface loads. The use of inadequately designed open cuts could impact the stability of adjacent work areas, existing utilities, and endanger personnel. Sloughing and/or small block failures may occur along fractures where vertical cuts are made in the fractured (slickensided) lacustrine silt/clay, such as for footing excavations. Therefore, the contractor should be prepared to remove additional sloughed materials, most of which will likely be generated during the excavation process. The use of inadequately designed open cuts could impact the stability of adjacent work areas, existing utilities, and endanger personnel.

The contractor performing the work has the primary responsibility for protection of workmen and adjacent improvements. In our opinion, the contractor will be in the best position to observe subsurface conditions continuously throughout the construction process and to respond to variable soil and groundwater conditions. Therefore, the contractor should have the primary responsibility for deciding whether or not to use open cut slopes for much of the excavations rather than some form of temporary excavation support, and for establishing the safe inclination of the cut slope. Acceptable slope inclinations for utilities and ancillary excavations should be determined during construction. Because of the diversity of construction techniques and available shoring systems, the design of temporary shoring is most appropriately left up to the contractor proposing to complete the installation. Temporary cut slopes and shoring must comply with the provisions of Title 296 WAC, Part N, “Excavation, Trenching and Shoring.”

Excavations for the structures will be completed primarily in stiff to very stiff native lacustrine deposits with a relatively thin overlying layer of loose fill and topsoil. The following section summarizes general excavation recommendations for temporary cut slopes.

Temporary Cut Slopes

For planning purposes, temporary unsupported cut slopes more than 4 feet high may be inclined at 2H:1V or flatter within the stiff to very stiff native lacustrine silt and clay deposits. If groundwater seepage is present on the cut face, the cut slopes may have to be flattened. These guidelines assume that surface loads such as traffic, construction equipment, stockpiles or building supplies will be kept away from the top of the cut slopes a sufficient distance so that the stability of the excavation is not affected. We recommend that this distance be at least 5 feet from the top of the cut for temporary cuts.

Temporary cut slopes should be planned such that they do not encroach on a 1H:1V influence line projected down from the edges of nearby or planned foundation elements. New footings planned for the classroom floor level and in temporary cut slope areas for the first floor level should extend through wall backfill and be embedded in native soils.

Water that enters the excavation must be collected and routed away from prepared subgrade areas. We expect that this may be accomplished by installing a system of drainage ditches and sumps along the toe of the cut slopes. Some sloughing and raveling of the cut slopes should be expected. Temporary covering, such as heavy plastic sheeting with appropriate ballast, should be used to protect these slopes during periods of wet weather and throughout the winter. Surface water runoff from above cut slopes
should be prevented from flowing over the slope face by using berms, drainage ditches, swales or other appropriate methods.

If temporary cut slopes experience excessive sloughing or raveling during construction, it may become necessary to modify the cut slopes to maintain safe working conditions. Slopes experiencing problems can be flattened, regraded to add intermediate slope benches, or additional dewatering can be provided if the poor slope performance is related to groundwater seepage.

FOUNDATIONS

General

We recommend that the proposed Center for Global Learning & The Arts be supported on shallow spread footings founded on the stiff to very stiff lacustrine deposits encountered in our borings or on properly compacted structural fill extending down to the stiff to very stiff lacustrine deposits. The following recommendations for the building foundations are based on the subsurface conditions observed in the borings and the site survey.

Foundation Design

For shallow foundation support, we recommend widths of at least 24 and 36 inches, respectively, for continuous wall and isolated column footings supporting the proposed building. An allowable bearing pressure of 4,000 psf may be used for footings supported on the native stiff to very stiff lacustrine deposits or on structural fill extending down to native stiff to very stiff lacustrine deposits. This allowable bearing pressure applies to the total dead and long-term live loads and may be increased up to one-third for short-term live loads such as wind or seismic forces. Table 2 summarizes the minimum embedment depth below existing grade for an allowable bearing pressure of 4,000 psf on native soil.

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<thead>
<tr>
<th>Boring Number</th>
<th>4,000 psf Bearing Soil</th>
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<tr>
<td></td>
<td>Approximate Depth (feet)</td>
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<tr>
<td>B-1</td>
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<td>B-7</td>
<td>3.5</td>
</tr>
<tr>
<td>B-8</td>
<td>3.5</td>
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</tbody>
</table>

* Assumes the loose the medium dense soil observed to about 8 feet deep is utility trench backfill, which should be removed and replaced with structural fill.

All footings near below-grade walls should be embedded to a depth that is at least below a 1H:1V line projected up from the bottom of the closest section of wall, otherwise the below-grade walls need to be designed for lateral loads from the footings. In addition, new footings planned for the second floor level
and in temporary cut slope areas for the first floor level should extend through wall backfill and be embedded in native soils, unless designed to be supported on structural fill.

The soils encountered in boring B-3 indicate the potential presence of fill material consisting of loose to medium dense fine to coarse sand with occasional gravel in the northwest corner of the classroom level. These loose soils extend to a depth of about 8 feet. This fill may be associated with an existing utility trench, possibly a water line or a subsurface drain line. In addition to a possible water line, an existing subdrain trench traverses the site. Loose material, including existing trench backfill, should be removed from below building foundations and be replaced with structural fill. Structural fill placed in the trenches should extend beyond the edges of the foundations by a distance equal to the depth of the trench. Loose or disturbed soils not removed from below footings may result in settlement and potential damage to the foundations.

The design frost depth for the Puget Sound area is 12 inches; therefore, we recommend that exterior footings for the building be founded at least 18 inches below lowest adjacent finished grade. Interior footings should be founded at least 12 inches below bottom of slab or adjacent finished grade.

**Foundation Settlement**

We estimate that the post-construction settlement of footings founded as recommended above will be about ½ inch to 1 inch. Differential settlement between comparably loaded column footings or along a 25-foot section of continuous wall footing should be less than ½ inch. We expect most of the footing settlements will occur as loads are applied. Loose or disturbed soils not removed from footing excavations prior to placing concrete will result in additional settlement.

**Lateral Resistance**

Lateral loads can be resisted by passive resistance on the sides of the footings and by friction on the base of the footings. Passive resistance should be evaluated using an equivalent fluid density of 350 pounds per cubic foot (pcf) where footings are poured neat against native soil or are surrounded by structural fill compacted to at least 95 percent of MDD, as recommended. Resistance to passive pressure should be calculated from the bottom of adjacent floor slabs and paving or below a depth of 1 foot where the adjacent area is unpaved, as appropriate. Frictional resistance can be evaluated using 0.35 for the coefficient of base friction against footings. The above values incorporate a factor of safety of about 1.5.

If soils adjacent to footings are disturbed during construction, the disturbed soils must be recompacted, otherwise the lateral passive resistance value must be reduced.

**Construction Considerations**

Immediately prior to placing concrete, all debris and loose soils that accumulated in the footing excavations during forming and steel placement must be removed. Debris or loose soils not removed from the footing excavations will result in increased settlement.

If wet weather construction is planned, we recommend that all footing subgrades be protected using a lean concrete mud mat. The mud mat should be placed the same day that the footing subgrade is excavated and approved for foundation support.

We recommend that all completed footing excavations be observed by a representative of our firm prior to placing mud mat, reinforcing steel, and structural concrete. Our representative will confirm that the
bearing surface has been prepared in a manner consistent with our recommendations and that the subsurface conditions are as expected.

Footing Drains

We recommend that perimeter footing drains be installed around the building. The perimeter drains should be installed at the base of the exterior footings as shown on Figure 3. The perimeter drains should be provided with cleanouts and should consist of at least 4-inch-diameter perforated pipe placed on a 3-inch bed of, and surrounded by, 6 inches of drainage material enclosed in a non-woven geotextile fabric such as Mirafi 140N (or approved equivalent) to prevent fine soil from migrating into the drain material. We recommend against using flexible tubing for footing drainpipes. The perimeter drains should be sloped to drain by gravity, if practicable, to a suitable discharge point, preferably a storm drain. We recommend that the cleanouts be covered, and be placed in flush mounted utility boxes. Water collected in roof downspout lines must not be routed to the footing drain lines.

BELOW-GRADE WALLS AND RETAINING WALLS

General

The following recommendations should be used for the design of below-grade walls that are intended to act as retaining walls and for other retaining structures that are used to achieve grade changes.

Design Parameters

Lateral earth pressures for design of below-grade walls and retaining structures should be evaluated using an equivalent fluid density of 35 pounds per cubic foot (pcf) provided that the walls will not be restrained against rotation when backfill is placed. If the walls will be restrained from rotation, we recommend using an equivalent fluid density of 55 pcf. Walls are assumed to be restrained if top movement during backfilling is less than H/1000, where H is the wall height. These lateral soil pressures assume that the ground surface behind the wall is horizontal. For unrestrained walls with backfill sloping up at 2H:1V, the design lateral earth pressure should be increased to 55 pcf, while restrained walls with a 2H:1V sloping backfill should be designed using an equivalent fluid density of 75 pcf. These lateral soil pressures do not include the effects of surcharges such as floor loads, traffic loads or other surface loading. Surcharge effects should be included as appropriate. Below-grade walls for buildings should also include seismic earth pressures. Seismic earth pressures should be included as a rectangular distribution determined using 8H in psf, where H is the wall height.

If vehicles can approach the tops of exterior walls to within 1/2 the height of the wall, a traffic surcharge should be added to the wall pressure. For car parking areas, the traffic surcharge can be approximated by the equivalent weight of an additional 1 foot of soil backfill (about 125 psf) behind the wall. For delivery truck parking areas and access driveway areas, the traffic surcharge can be approximated by the equivalent weight of an additional 2 feet (250 psf) of soil backfill behind the wall. These traffic surcharge loads can also be calculated based on a rectangular distributed load (equivalent fluid density) to the wall of 35 psf for car parking areas and 70 psf for truck parking areas. Positive drainage should be provided behind below-grade walls and retaining structures as discussed below.

These recommendations are based on the assumption that any retaining walls at this project will be provided with backdrainage. The values for soil bearing, frictional resistance and passive resistance presented above for foundation design are applicable to retaining wall design. Walls located in level ground areas should be founded at a depth of 18 inches below the adjacent grade.
Backdrainage

To reduce the potential for hydrostatic water pressure buildup behind the retaining walls, we recommend that the walls be provided with backdrainage. Backdrainage can be achieved by using free draining material with perforated pipes to discharge the collected water as shown on Figure 3. The zone of free-draining material should be 2 feet wide and should extend from the base of the wall to within 1 foot of the ground surface. The free draining material should be covered with 1.5 feet of less permeable material, such as the on-site till soil. We recommend against using flexible tubing for wall backdrain pipe. The footing drain recommended above can be incorporated into the bottom of the backdrainage zone and used for this purpose.

The pipes should be laid with minimum slopes of one-half percent and discharge into the storm water collection system to convey the water off site. The pipe installations should include a cleanout riser with cover located at the upper end of each pipe run. The cleanouts could be placed in flush mounted access boxes. Roof downspouts must not discharge into the perforated pipes intended for providing wall backdrainage.

Other Considerations

Exterior retaining systems used to achieve grade transitions or for landscaping, can be constructed using traditional structural systems such as reinforced concrete, CMU blocks, or rockeries. Alternatively, retaining walls can consist of reinforced soil and block facing structures. In recent years, the latter structural system has proven to be an economically reasonable alternative to more traditional retaining wall systems. We can provide additional design recommendations for reinforced soil and block facing structures, if requested.

SLAB-ON-GRADE FLOOR

General

We expect that slab-on-grade floors can be supported on the native stiff to very stiff lacustrine deposits encountered in our borings or on properly compacted structural fill. A subgrade modulus of 75 psi may be used for design of the slabs-on-grade at the site. We recommend that an appropriate capillary break and vapor retarder be installed below the floor slab to reduce the risk of moisture migration through the floor slab. This is especially important since zones of groundwater seepage may be present at the planned floor slab level in more permeable layers within the native soil or in looser soils on top of the native soil.

We recommend that concrete slabs-on-grade be constructed on a gravel layer to provide uniform support and drainage, and to act as a capillary break. We also recommend that a perforated pipe be installed below the gravel layer to discharge any water that seeps into the gravel. Prior to placing the gravel layer, the subgrade should be proofrolled as described previously in the earthwork section of this report. If necessary, the subgrade should be recompacted to a firm and unyielding condition.

The gravel layer below slabs-on-grade should consist of 6 inches of clean crushed gravel, with a maximum particle size of ½-inch and negligible sand or silt, such as WSDOT Standard Specification section 9-03.1(4)c, AASHTO Grading No. 57. If prevention of moisture migration through the slab is essential, such as where carpet or floor coverings are used, a vapor retarder such as heavy plastic sheeting or Moist-Stop should be installed between the slab and the gravel layer. We recommend that the plastic sheet be placed over the capillary break layer. The contractor should be made responsible for maintaining
the integrity of the vapor barrier during construction. It may also be prudent to apply a sealer to the slab to further retard the migration of moisture through the floor.

**Underslab Drainage**

Groundwater could accumulate below the slab-on-grade floor(s) because the building will be cut into the hill slope where multiple zones of shallow perched groundwater seepage exists. To help mitigate this condition, we recommend that the building slabs-on-grades for the classroom level and Showbox level be provided with under drainage to collect and discharge groundwater from below the slab. This can be accomplished by installing a 4-inch diameter, heavy-wall perforated collector pipe in a shallow trench placed below the capillary break gravel layer. The trench should measure about 1 foot wide by 1.5 feet deep and should be backfilled with clean pea gravel. We recommend installing a single under drain collector pipe below the long axis of these areas and connect each end of the drain pipe into the perimeter footing drain pipe or into the existing subsurface drain pipe. The condition of the existing subsurface drain pipe should be evaluated to make sure it is not damage and is free of debris and functioning properly. If connected to the footing drain system, the invert of the under drain pipe should be higher than the invert of the footing drain pipe where they meet.

The collector pipe should be sloped to drain and discharge into the storm water collection system to convey the water off site. The pipe should also incorporate cleanouts, if possible. The cleanouts could be extended through the foundation walls to be accessible from the outside, or could be placed in flush-mounted access boxes cast into the floor slabs.

**Subsurface Drainage**

We recommend that a subsurface drain pipe be installed upslope and west of the proposed building, as shown on Figure 2. The interceptor drain may be an extension of or may be connected to the existing interceptor drain that was constructed during the initial campus development. The new drain should be connected to the old drain line downslope of the building if possible. We do not recommend routing the new drain under the planned building. The subsurface drain trench should be at least 10 feet deep and 2 feet wide and include a 6-inch-diameter perforated drain pipe. The trench should be backfilled with free-draining material, such as washed 3/8" to No. 10 pea gravel or backfill for sand drains per WSDOT section 9-03.13. The drain will aid in intercepting perched groundwater flow that is migrating through the soil from the west side of the building, especially in the low area between borings B-1 and B-8. Locating the drain as far as west as possible will not only help dry up the site during construction, but it will also intercept shallow seepage before it migrates to the access driveway area. We recommend that 2 feet of onsite soil be placed over the top of the trench backfill. A geotextile separator (Mirafi 140N or equivalent) should be placed below the 2-foot cover soil layer where the trench crosses the access roads.

**Surface Water Drainage Considerations**

We anticipate shallow groundwater seepage may enter deep excavations depending on the time of year construction takes place, especially in the winter months. However, we expect that this seepage water can be handled by digging interceptor trenches in the excavations and pumping from sumps. The seepage water if not intercepted and removed from the excavations will make it difficult to place and compact structural fill and may destabilize cut slopes.

All paved and landscaped areas should be graded so that surface drainage is directed away from the building to appropriate catch basins.
Water collected in roof downspout lines must not be routed to the footing drain lines or subsurface drain lines. Collected downspout water should be routed to appropriate discharge points in separate pipe systems.

**RECOMMENDED ADDITIONAL GEOTECHNICAL SERVICES**

Throughout this report, recommendations are provided where we consider additional geotechnical services to be appropriate. These additional services are summarized below:

- GeoEngineers should be retained to review the project plans and specifications when complete to confirm that our design recommendations have been implemented as intended.
- During construction, GeoEngineers should observe temporary cut slopes, evaluate the suitability of the foundation subgrades, evaluate the suitability of floor slab and pavement subgrades, observe installation of subsurface drainage measures, observe and test structural backfill, and provide a summary letter of our construction observation services. The purpose of GeoEngineers construction phase services is to confirm that the subsurface conditions are consistent with those observed in the explorations and other reasons described in Appendix C, Report Limitations and Guidelines for Use.

**LIMITATIONS**

We have prepared this report for use by Cascadia Community College, The Miller/Hull Partnership, and members of the design team for use in design of this project.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted practices in the field of geotechnical engineering in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

Please refer to Appendix C titled Report Limitations and Guidelines for Use for additional information pertaining to use of this report.

**REFERENCES**


Vicinity Map

The Center For Global Learning & The Arts
Cascade Community College

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unlawful to copy or reproduce all or any part thereof, whether
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GEOENGINEERS

Figure 1
Legend

- Approximate Soil Boring
- Soil Boring, GeoEngineers 1998 and 1999
- Test Pit, GeoEngineers 1999
- Test Pit By Others

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to as a document. GeoEngineers, Inc. can not guarantee the accuracy by GeoEngineers, Inc. and will serve as the official record of the site.

Reference: Drawing base from The Miller Hull Partnership, Till

Site Plan

The Center For Global Learning & The Arts
Cascade Community College

GEOENGINEERS

Figure 2
Materials:

A. WALL DRAINAGE MATERIAL: May consist of washed 3/8" to No. 8 pea gravel. Alternatively the wall drainage material may consist of "Gravel Backfill for Drains" per WSDOT Standard Specification 9-03.12(4), surrounded with a non-woven geotextile such as Mirafi 140N (or approved equivalent).

B. RETAINED SOIL: Should consist of structural fill, either on-site soil or imported. The backfill should be compacted in loose lifts not exceeding 6 inches. Wall backfill supporting building floor slabs should consist of imported sand and gravel per WSDOT Standard Specification 9-03.14 or City of Seattle Type 17 compacted to at least 95 percent ASTM D1557. Backfill not supporting building floor slabs, sidewalks, or pavement should be compacted to 90 to 92 percent of the maximum dry density, per ASTM D1557. Backfill supporting sidewalks or pavement areas should be compacted to at least 95 percent in the upper two feet. Only hand-operated equipment should be used for compaction within 5 feet of the walls and no heavy equipment should be allowed within 5 feet of the wall.

C. CAPILLARY BREAK: Should consist of at least 6 inches of clean crushed gravel with a maximum size of 1-1/2 inches and negligible sand or fines.

D. PERFORATED DRAIN PIPE: Should consist of a 4-inch diameter perforated heavy-wall solid pipe (SDR-35 PVC) or rigid corrugated polyethylene pipe (ADS N-12) or equivalent. Drain pipes should be placed with 0.5 percent minimum slopes and discharge to the storm water collection system.
Legend:

95

RECOMMENDED COMPACTION AS A PERCENTAGE OF MAXIMUM DRY DENSITY, BY TEST METHOD ASTM D1557 (MODIFIED PROCTOR)

FRAME CONCRETE OR ASPHALT PAVEMENT

BASE COURSE

TRENCH BACKFILL

PIPE BEDDING

Compaction Criteria for Trench Backfill

The Center For Global Learning & The Arts
Cascade Community College

Notes:
1. All backfill under building areas should be compacted to at least 95 percent per ASTM D1557.
APPENDIX A

FIELD EXPLORATIONS
APPENDIX A
FIELD EXPLORATIONS

Subsurface conditions at the site were explored on July 5, 2006 by advancing eight borings (B-1 through B-8) at the approximate locations shown on the Site Plan, Figure 2. The borings were advanced to depths ranging from about 11.5 to 31.5 feet below the existing ground surface. Piezometers were installed in borings B-2 and B-7 to evaluate groundwater levels. The borings were completed using a track-mounted CME-850 drill rig owned and operated by Holocene Drilling, of Fife, Washington.

The borings were continuously monitored by a geotechnical engineer from our firm who examined and classified the soils encountered, obtained representative soil samples, and observed groundwater conditions. Our representative maintained a detailed log of each boring. Disturbed samples of the representative soil types were obtained from the borings using Standard Penetration Test (SPT) sampling procedures. Standard Penetration Test (SPT) sampling was performed using a 2-inch outside diameter split-spoon sampler driven with a standard 140-pound hammer in accordance with ASTM D 1586. Samples were also collected using a Dames and Moore sampler driven with a 140-pound hammer.

The soils encountered in the borings were typically sampled at 2½ to 5-foot vertical intervals with the Standard Penetration Test (SPT) split spoon sampler. Samples were obtained by driving the sampler 18 inches into the soil with a hammer free-falling 30 inches. The number of blows required for each 6 inches of penetration is recorded. The Standard Penetration Resistance ("N-value") of the soil is calculated as the number of blows required for the final 12 inches of penetration (blows/foot). This value is shown on the boring logs. This resistance, or N-value, provides a measure of the relative density of granular soils and the relative consistency of cohesive soils. If the high penetration resistance encountered in the very dense soils precluded driving the total 18-inch sample interval, the penetration resistance for the partial penetration is entered on logs as follows: if the penetration is greater than 6 inches and less than 18 inches, then the number of blows is recorded over the number of inches driven; 30 blows for 6 inches and 50 for 3 inches, for instance, would be recorded as 80/9”. The blow counts are shown on the boring logs at the respective sample depths. The Standard Penetration Test is a useful quantitative tool from which soil density/consistency was evaluated.

Soils encountered in the borings were classified in the field in general accordance with ASTM D 2488, the Standard Practice for Classification of Soils, Visual-Manual Procedure, which is summarized in Figure A-1. Logs of the borings are provided as Figures A-2 through A-9.

Boring locations were determined in the field by measuring distances from existing site features. Ground surface elevations were estimated from the site survey map provided by The Miller/Hull Partnership. Boring locations should be considered accurate to the degree implied by the method used. Ground surface elevations at the boring locations were not surveyed and were estimated from the site survey map; therefore, the elevations may only be accurate to the nearest foot.

The piezometers consist of 2-inch inside diameter Schedule 40 PVC pipe installed within the boring following completion of drilling. The bottom 10 feet of the pipe in B-2 and the bottom 5 feet of the pipe in B-7 is factory slotted to allow water infiltration. The boring is backfilled with sand around and above the slotted section of the pipe and a bentonite seal is placed above the sand pack up to about the ground surface. A steel flush-mounted monument cover was placed at the surface to protect the pipe and secure the piezometer casing.
### Soil Classification Chart

<table>
<thead>
<tr>
<th>Major Divisions</th>
<th>Symbols</th>
<th>Typical Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Coarse Grained Soils</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gravel and Gravelly Sands</td>
<td>GW</td>
<td>Well-graded gravelly sands, gravel - sand mixtures</td>
</tr>
<tr>
<td>More than 50% of coarse fraction retained on No. 4 sieve</td>
<td>GP</td>
<td>Poorly-graded gravelly sands, gravel - sand mixtures</td>
</tr>
<tr>
<td>Gravels with Finer</td>
<td>GM</td>
<td>Silty gravels, gravel-sand mixtures</td>
</tr>
<tr>
<td>(inappreciable amount of fines)</td>
<td>GC</td>
<td>Clayey gravels, gravel - sand-clay mixtures</td>
</tr>
<tr>
<td>Sand and Sandy Soils</td>
<td>SW</td>
<td>Well-graded sandy gravelly sands</td>
</tr>
<tr>
<td>More than 50% retained on No. 200 sieve</td>
<td>SP</td>
<td>Poorly-graded sandy gravelly sand</td>
</tr>
<tr>
<td>Sands with Finer</td>
<td>SM</td>
<td>Silty sands, sand - silt mixtures</td>
</tr>
<tr>
<td>(inappreciable amount of fines)</td>
<td>SC</td>
<td>Clayey sands, sand - clay mixtures</td>
</tr>
<tr>
<td><strong>Fine Grained Soils</strong></td>
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<td></td>
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<tr>
<td>Silts and Clays</td>
<td>ML</td>
<td>Inorganic silts, rock flour, clayey silts with slight plasticity</td>
</tr>
<tr>
<td>Liquid Limit Less Than 50</td>
<td>CL</td>
<td>Inorganic clays of low to medium plasticity, clayey silts, sandy clays, silty clays, lean clays</td>
</tr>
<tr>
<td>OL</td>
<td>Organic silts and organic silty clays of low plasticity</td>
<td></td>
</tr>
<tr>
<td>More than 50% passing No. 200 sieve</td>
<td>MH</td>
<td>Inorganic silts, micaceous or diatomaceous silty clays</td>
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<tr>
<td>Silts and Clays</td>
<td>CH</td>
<td>Inorganic clays of high plasticity</td>
</tr>
<tr>
<td>Liquid Limit Greater Than 50</td>
<td>OH</td>
<td>Organic clays and silts of medium to high plasticity</td>
</tr>
<tr>
<td><strong>Highly Organic Soils</strong></td>
<td>PT</td>
<td>Peat, humus, swamp soils with high organic contents</td>
</tr>
</tbody>
</table>

### Additional Material Symbols

<table>
<thead>
<tr>
<th>Symbols</th>
<th>Typical Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC</td>
<td>Cement Concrete</td>
</tr>
<tr>
<td>AC</td>
<td>Asphalt Concrete</td>
</tr>
<tr>
<td>CR</td>
<td>Crushed Rock/ Quarry Spalls</td>
</tr>
<tr>
<td>TS</td>
<td>Topsoil/ Forest Duff/Sod</td>
</tr>
</tbody>
</table>

**Stratigraphic Contact**
- Distinct contact between soil strata or geologic units
- Gradual change between soil strata or geologic units
- Approximate location of soil strata change within a geologic soil unit

### Sampler Symbol Descriptions
- 2.4-inch I.D. split barrel
- Standard Penetration Test (SPT)
- Shelby tube
- Piston
- Direct-Push
- Bulk or grab

Blow count is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted). See exploration log for hammer weight and drop.

A "P" indicates sampler pushed using the weight of the drill rig.

### Laboratory / Field Tests
- Percent fines (%F)
- Atterberg limits (AL)
- Chemical analysis (CA)
- Laboratory compaction test (CP)
- Consolidation test (CS)
- Direct shear (DS)
- Hydrometer analysis (HA)
- Moisture content (MC)
- Moisture content and dry density (MD)
- Organic content (OC)
- Permeability or hydraulic conductivity (PM)
- Pocket penetrometer (PP)
- Sieve analysis (SA)
- Triaxial compression (TX)
- Unconfined compression (UC)
- Vane shear (VS)

### Sheen Classification
- No Visible Sheen (NS)
- Slight Sheen (SS)
- Moderate Sheen (MS)
- Heavy Sheen (HS)
- Not Tested (NT)

### Key to Exploration Logs

**GeoEngineers**

Figure A-1
**LOG OF BORING B-1**

**Project:** The Center for Global Learning & The Arts

**Project Location:** Cascade Community College

**Project Number:** 10600-002-00

---

**Date(s) Drilled:** 06/05/06  
**Logged By:** ZAN  
**Checked By:** RCM

**Drilling Contractor:** Holocene  
**Drilling Method:** Hollow-stem Auger  
**Sampling Methods:** SPT/D&M

**Auger Data:** 4.5 ID  
**Hammer Data:** 140 lb hammer/30 in drop automatic  
**Drilling Equipment:** CME-850 Track Rig

**Total Depth (ft):** 31.5  
**Surface Elevation (ft):** ± 87.5  
**Groundwater Level (ft. bgs):** Not Encountered

**Vertical Datum:** Datum / System: nothing

---

**MATERIAL DESCRIPTION**

<table>
<thead>
<tr>
<th>Elevation feet</th>
<th>Interval (feet)</th>
<th>Depth (feet)</th>
<th>Recovered (in)</th>
<th>Blows/foot</th>
<th>Sub-Sample</th>
<th>Sample Number</th>
<th>Water Level</th>
<th>Graphic Log</th>
<th>Group Symbol</th>
<th>Description</th>
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<td>25</td>
<td>1</td>
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<td></td>
<td></td>
<td>TS</td>
<td>Dark brown sandy silt, root zone (loose, moist) (topsoil)</td>
</tr>
<tr>
<td>5</td>
<td>18</td>
<td>33</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ML</td>
<td>Light brown silt with fine sand and occasional gravel (very stiff, moist)</td>
</tr>
<tr>
<td>10</td>
<td>18</td>
<td>25</td>
<td>3</td>
<td></td>
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<td></td>
<td></td>
<td>SM</td>
<td>Light brown fine sand with silt (dense, moist)</td>
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<td>15</td>
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<td>63</td>
<td>4</td>
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<td></td>
<td>CH</td>
<td>Light brown fat clay (very stiff, moist)</td>
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<td>20</td>
<td>18</td>
<td>28</td>
<td>5</td>
<td></td>
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<td></td>
<td></td>
<td>ML</td>
<td>Light brown to gray silt, slickensided (very stiff, moist)</td>
</tr>
<tr>
<td>25</td>
<td>18</td>
<td>31</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Gray silt with trace fine sand, slickensided</td>
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<tr>
<td>30</td>
<td>18</td>
<td>28</td>
<td>8</td>
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<td>Gray silt, slickensided</td>
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</tbody>
</table>

**Note:** See Figure A-1 for explanation of symbols.

**OTHER TESTS AND NOTES**

- **Moisture Content %:** 28  
- **Dry Unit Weight, lbs/ft³:** 107  
- **LL=57, PI=32**  
- **pp >4.5 TSF**

---

**GEOEngineers**

**Figure A-2**  
**Sheet 1 of 1**
Dark brown sandy silt with occasional gravel, root zone
(loose, moist) (topsoil)

Light brown silt with occasional fine sand, gray motling
(very stiff, moist)

Light brown, silty fine sand (dense, moist)

Light brown silt, varved (very stiff, moist)

Gray silt, slickensided (very stiff to hard, moist)

pp >4.5 TSF

Note: See Figure A-1 for explanation of symbols.
## LOG OF BORING B-3

**Project:** The Center for Global Learning & The Arts  
**Project Location:** Cascade Community College  
**Project Number:** 10600-002-00  

---

### MATERIAL DESCRIPTION

<table>
<thead>
<tr>
<th>Elevation feet</th>
<th>Depth feet</th>
<th>Interval</th>
<th>Recovered (in)</th>
<th>Sub-Sample</th>
<th>Sample Number</th>
<th>Water Level</th>
<th>Group Symbol</th>
<th>Moisture Content %</th>
<th>Dry Unit Weight, lbs/ft³</th>
<th>OTHER TESTS AND NOTES</th>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>TS</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>8</td>
<td>18</td>
<td>1</td>
<td></td>
<td></td>
<td>Dark brown silty sand, with gravel and wood fragments, root zone (loose, moist) (topsoil)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6</td>
<td>6</td>
<td>2</td>
<td></td>
<td></td>
<td>SP-SM</td>
<td>Light brown fine coarse sand with silt and occasional fine gravel (loose to medium dense, moist to wet)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>18</td>
<td>51</td>
<td>3</td>
<td></td>
<td></td>
<td>SM</td>
<td>Light brown silty fine to coarse sand with occasional fine gravel (very dense, wet/moist)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>18</td>
<td>74</td>
<td>4</td>
<td></td>
<td></td>
<td>ML</td>
<td>Gray silt with fine sand (hard, moist)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>18</td>
<td>38</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td>Silt with gravel and fine sand, varved, slickensided</td>
<td></td>
</tr>
</tbody>
</table>

Note: See Figure A-1 for explanation of symbols.
### MATERIAL DESCRIPTION

<table>
<thead>
<tr>
<th>Depth Interval (ft)</th>
<th>Group Symbol</th>
<th>Sample Number</th>
<th>Water Level</th>
<th>Material Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>TS</td>
<td>1</td>
<td></td>
<td>Dark brown sandy silt with roots (loose, moist) (topsoil)</td>
</tr>
<tr>
<td>5</td>
<td>ML</td>
<td>2</td>
<td></td>
<td>Light brown fine sandy silt with gravel (stiff, moist)</td>
</tr>
<tr>
<td>10</td>
<td>ML</td>
<td>3</td>
<td></td>
<td>Brown and gray silt (very stiff, moist)</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>4</td>
<td></td>
<td>Occasional slickensides</td>
</tr>
<tr>
<td>20</td>
<td></td>
<td>5</td>
<td></td>
<td>Becomes sandy silt</td>
</tr>
<tr>
<td>25</td>
<td>ML</td>
<td>6</td>
<td></td>
<td>Gray silt, slickensided, slight plasticity (very stiff, moist)</td>
</tr>
<tr>
<td>30</td>
<td></td>
<td>7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** See Figure A-1 for explanation of symbols.

### LOG OF BORING B-4

**Project:** The Center for Global Learning & The Arts  
**Project Location:** Cascade Community College  
**Project Number:** 10600-002-00  
**Figure A-5**  
**Sheet 1 of 1**
Date(s) Drilled: 06/05/06
Logged By: ZAN
Checked By: RCM
Drilling Contractor: Holocene
Drilling Method: Hollow-stem Auger
Hammer Data: 140 lb hammer/30 in drop automatic
Drilling Equipment: CME-850 Track Rig
Total Depth (ft): 21.5
Surface Elevation (ft): ±69.5
Groundwater Level (ft. bgl): Not Encountered

MATERIAL DESCRIPTION

<table>
<thead>
<tr>
<th>Interval</th>
<th>Su/Sample</th>
<th>Water Level</th>
<th>Group Symbol</th>
<th>Graphic Log</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-61</td>
<td>1</td>
<td></td>
<td>TS</td>
<td>Dark brown silty sand, root zone (loose, moist)</td>
</tr>
<tr>
<td>5-18</td>
<td>2</td>
<td></td>
<td>SM</td>
<td>Orange-brown silty sand, slight plasticity (dense, moist)</td>
</tr>
<tr>
<td>10-18</td>
<td>3</td>
<td></td>
<td>ML</td>
<td>Light brown, silt, with occasional fine gravel (very stiff, moist)</td>
</tr>
<tr>
<td>15-18</td>
<td>4</td>
<td></td>
<td>CL</td>
<td>White and gray motting</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td></td>
<td></td>
<td>Gray lean clay (very stiff, moist)</td>
</tr>
<tr>
<td>20-25</td>
<td>6</td>
<td></td>
<td></td>
<td>Motting</td>
</tr>
<tr>
<td>25-35</td>
<td>7</td>
<td></td>
<td>ML</td>
<td>Gray silt with occasional fine sand (very stiff, moist)</td>
</tr>
</tbody>
</table>

Note: See Figure A-1 for explanation of symbols.

LOG OF BORING B-5

Project: The Center for Global Learning & The Arts
Project Location: Cascade Community College
Project Number: 10600-002-00

Figure A-6
Sheet 1 of 1
### Date(s) Drilled
06/05/06

### Logged By
ZAN

### Checked By
RCM

### Drilling Contractor
Holocene

### Drilling Method
Hollow-stem Auger

### Sampling Methods
SPT/D&M

### Hammer Data
140 lb hammer/30 in drop automatic

### Drilling Equipment
CME-850 Track Rig

### Total Depth (ft)
21.5

### Surface Elevation (ft)
±80.5

### Groundwater Level (ft. bgs)
3

---

### MATERIAL DESCRIPTION

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Interval (in)</th>
<th>Recovered (in)</th>
<th>Sub-Sample</th>
<th>Sample Number</th>
<th>Water Level</th>
<th>Graphic Log</th>
<th>Group</th>
<th>Symbol</th>
<th>Material Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TS</td>
<td>ML</td>
<td>Dark brown silty sand with gravel (loose to medium dense, wet) (topsoil)</td>
</tr>
<tr>
<td>1-2</td>
<td>18</td>
<td>11</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ML</td>
<td>Light brown silt with occasional gravel, gray mottling, iron staining (very stiff, moist)</td>
</tr>
<tr>
<td>3</td>
<td>18</td>
<td>19</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Occasional slickensides</td>
</tr>
<tr>
<td>4-5</td>
<td>18</td>
<td>20</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ML/SM</td>
<td>Light brown fine sandy silt to silty fine sand (very stiff, moist)</td>
</tr>
<tr>
<td>6-10</td>
<td>18</td>
<td>37</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ML</td>
<td>Brown silt, slight plasticity (very stiff, moist)</td>
</tr>
<tr>
<td>11-15</td>
<td>18</td>
<td>17</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Slickensides</td>
</tr>
<tr>
<td>16-20</td>
<td>18</td>
<td>28</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Varved, massive (no slickensides)</td>
</tr>
<tr>
<td>21-25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### OTHER TESTS AND NOTES

- Moisture Content, %: 27, 19, 27, 26, 99, 34, 23
- Dry Unit Weight, lbs/ft³: pp > 45 TSF

---

Note: See Figure A-1 for explanation of symbols.
### MATERIAL DESCRIPTION

<table>
<thead>
<tr>
<th>Elevation feet</th>
<th>Depth feet</th>
<th>Interval</th>
<th>Recovered (in)</th>
<th>Sub-Sample</th>
<th>Sample Number</th>
<th>Water Level</th>
<th>Graphic Log</th>
<th>Group Symbol</th>
<th>Material Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TS</td>
<td>Dark brown silty sand to sandy silt, root zone (loose, moist) (topsoil)</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>12</td>
<td>50/60°</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
<td>SM</td>
<td>Brown silty sand with gravel (medium dense, moist) (weathered till)</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>18</td>
<td>35</td>
<td></td>
<td>4</td>
<td></td>
<td></td>
<td>ML</td>
<td>Gray silty fine to medium sand with gravel (very dense, moist) (till)</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>18</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Light brown silt with occasional fine sand, slight plasticity, slickensides (hard, moist) Becomes gray Plastic, slickensides</td>
</tr>
</tbody>
</table>

**OTHER TESTS AND NOTES**

- Moisture Content %: 8
- Grav. Unit Weight: 6
- Perched water also observed at 7 feet during drilling
- pp > 4.5 TSF

Piezometer installed in B-7 to a depth of 10 feet

---

**LOG OF BORING B-7**

**Project:** The Center for Global Learning & The Arts  
**Project Location:** Cascade Community College  
**Project Number:** 10600-002-00

---

Note: See Figure A-1 for explanation of symbols.
# LOG OF BORING B-8

**Project:** The Center for Global Learning & The Arts  
**Project Location:** Cascade Community College  
**Project Number:** 10600-002-00

---

### MATERIAL DESCRIPTION

<table>
<thead>
<tr>
<th>Elevation (ft)</th>
<th>Depth (ft)</th>
<th>Interval Recovered (in)</th>
<th>Blows/foot</th>
<th>Sub-Sample</th>
<th>Sample Number</th>
<th>Water Level</th>
<th>Graphic Log</th>
<th>Group Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>1</td>
<td>18</td>
<td>35</td>
<td>1</td>
<td></td>
<td></td>
<td>TS</td>
<td>Dark brown fine sandy silt with gravel, organics, root zone (loose, moist) (topsoil)</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
<td>2</td>
<td>18</td>
<td>35</td>
<td>2</td>
<td></td>
<td></td>
<td>SM</td>
<td>Light brown silty fine sand with gravel, iron staining (dense, moist/wet)</td>
</tr>
<tr>
<td>10</td>
<td>0</td>
<td>3</td>
<td>18</td>
<td>21</td>
<td>3</td>
<td></td>
<td></td>
<td>ML</td>
<td>Brown fine sandy silt (very stiff to hard, moist)</td>
</tr>
<tr>
<td>15</td>
<td>0</td>
<td>4</td>
<td>18</td>
<td>39</td>
<td>4</td>
<td></td>
<td></td>
<td>ML</td>
<td>Gray silt with occasional slickensides, slight plasticity (very stiff, moist)</td>
</tr>
</tbody>
</table>

Note: See Figure A-1 for explanation of symbols.
APPENDIX B

LABORATORY TESTING
APPENDIX B
LABORATORY TESTING

GENERAL
Soil samples obtained from the borings were transported to our laboratory and examined to confirm or modify field classifications, as well as to evaluate engineering properties of the soil. Representative samples were selected for laboratory testing that consisted of moisture content and dry density determinations and sieve analysis. The tests were performed in general accordance with test methods of the American Society for Testing and Materials (ASTM) or other applicable procedures.

SOIL CLASSIFICATIONS
All soil samples obtained from the borings were visually classified in the field and/or in our laboratory using a system based on the Unified Soil Classification System (USCS) and ASTM classification methods. ASTM test method D 2488 was used to visually classify the soil samples, while ASTM D 2487 was used to classify the soils based on laboratory tests results. These classification procedures are incorporated in the boring logs shown in Figures A-2 through A-9, in Appendix A.

MOISTURE CONTENT DETERMINATIONS
Moisture contents were determined in general accordance with ASTM D 2216 for numerous samples obtained from the borings. The results of these tests are presented on the boring logs at the respective sample depth in Appendix A.

SIEVE ANALYSIS
A sieve analyses were performed on one sample obtained from the borings. The analyses were conducted in general accordance with ASTM D 422. The wet sieve analysis method was used to determine the percentage of soil greater than the U.S. No. 200 mesh sieve. The results of the sieve analyses were plotted, classified in general accordance with the USCS, and presented on Figure B-1.

PERCENT PASSING U.S. NO. 200 SIEVE (%F)
One selected silt sample was "washed" through the No. 200 mesh sieve to determine the relative percentages of coarse and fine-grained particles in the soil. The percent passing value represents the percentage by weight of the sample finer than the U.S. No. 200 sieve. These test was conducted to verify field descriptions and to determine the fines content for analyses purposes. The test was conducted in accordance with ASTM D 1140, and the result is shown on the log at the respective sample depth.

ATTERBERG LIMITS TESTING
Atterberg limits tests were performed on two selected fine-grained soil samples. The tests were used to classify the soil as well as to evaluate index properties. The liquid limit and the plastic limit were estimated through a procedure performed in general accordance with ASTM D 4318. The result of the Atterberg limits tests are summarized in Figure B-2.

CONSOLIDATION TEST
A one-dimensional consolidation test was conducted on a relatively undisturbed soil sample tested directly from a ring from the Dames & Moore sampler. The test was conducted in general accordance with ASTM D 2435, using a fixed-ring consolidometer. The primary purpose of the consolidation test is to aid in the estimation of potential consolidation of the native lacustrine soil. Figures B-3 summarizes the consolidation test results.
**U.S. STANDARD SIEVE SIZE**

<table>
<thead>
<tr>
<th>PERCENT PASSING BY WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
</tr>
<tr>
<td>90</td>
</tr>
<tr>
<td>80</td>
</tr>
<tr>
<td>70</td>
</tr>
<tr>
<td>60</td>
</tr>
<tr>
<td>50</td>
</tr>
<tr>
<td>40</td>
</tr>
<tr>
<td>30</td>
</tr>
<tr>
<td>20</td>
</tr>
<tr>
<td>10</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>0.1</td>
</tr>
<tr>
<td>0.01</td>
</tr>
<tr>
<td>0.001</td>
</tr>
</tbody>
</table>

**GRAIN SIZE IN MILLIMETERS**

<table>
<thead>
<tr>
<th>COBLES</th>
<th>GRAVEL</th>
<th>SAND</th>
<th>SILT OR CLAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>COARSE</td>
<td>FINE</td>
<td>COARSE</td>
<td>MEDIUM</td>
</tr>
</tbody>
</table>

**TABLE**

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>EXPLORATION NUMBER</th>
<th>DEPTH (ft)</th>
<th>SOIL CLASSIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>♦ B-3</td>
<td>5.0</td>
<td></td>
<td>Poorly graded sand with silt and gravel (SP-SM)</td>
</tr>
</tbody>
</table>
**CONSOLIDATION TEST RESULTS**

**FIGURE B-3**

<table>
<thead>
<tr>
<th>BORING NUMBER</th>
<th>SAMPLE DEPTH (FEET)</th>
<th>SOIL CLASSIFICATION</th>
<th>INITIAL MOISTURE CONTENT</th>
<th>INITIAL DRY DENSITY (LBS/FT³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-4</td>
<td>10</td>
<td>Lean clay (CL)</td>
<td>25.8</td>
<td>99.8</td>
</tr>
</tbody>
</table>
APPENDIX C

REPORT LIMITATIONS AND GUIDELINES FOR USE
APPENDIX C
REPORT LIMITATIONS AND GUIDELINES FOR USE

This appendix provides information to help you manage your risks with respect to the use of this report.

GEOTECHNICAL SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES, PERSONS AND PROJECTS

This report has been prepared for use by Cascadia Community College, The Miller/Hull Partnership, and members of the design team for use in the design of this project. This report may be made available to prospective contractors for bidding or estimating purposes; but our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions. This report is not intended for use by others, and the information contained herein is not applicable to other sites.

GeoEngineers structures our services to meet the specific needs of our clients. For example, a geotechnical or geologic study conducted for a civil engineer or architect may not fulfill the needs of a construction contractor or even another civil engineer or architect that are involved in the same project. Because each geotechnical or geologic study is unique, each geotechnical engineering or geologic report is unique, prepared solely for the specific client and project site. No one except Cascadia Community College, The Miller/Hull Partnership, and members of the design team should rely on this report without first conferring with GeoEngineers. This report should not be applied for any purpose or project except the one originally contemplated.

A GEOTECHNICAL ENGINEERING OR GEOLOGIC REPORT IS BASED ON A UNIQUE SET OF PROJECT-SPECIFIC FACTORS

This report has been prepared for the proposed Center for Global Learning & The Arts that will be located on the Cascadia Community College campus in Bothell, Washington. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, do not rely on this report if it was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

For example, changes that can affect the applicability of this report include those that affect:
- the function of the proposed structure;
- elevation, configuration, location, orientation or weight of the proposed structure;
- composition of the design team; or
- project ownership.

If important changes are made after the date of this report, GeoEngineers should be given the opportunity to review our interpretations and recommendations and provide written modifications or confirmation, as appropriate.

---

1 Developed based on material provided by ASFE, Professional Firms Practicing in the Geosciences; www.asfe.org.
SUBSURFACE CONDITIONS CAN CHANGE

This geotechnical or geologic report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by manmade events such as construction on or adjacent to the site, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. Always contact GeoEngineers before applying a report to determine if it remains applicable.

MOST GEOTECHNICAL AND GEOLOGIC FINDINGS ARE PROFESSIONAL OPINIONS

Our interpretations of subsurface conditions are based on field observations from widely spaced sampling locations at the site. Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied our professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ, sometimes significantly, from those indicated in this report. Our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions.

GEOTECHNICAL ENGINEERING REPORT RECOMMENDATIONS ARE NOT FINAL

Do not over-rely on the preliminary construction recommendations included in this report. These recommendations are not final, because they were developed principally from GeoEngineers' professional judgment and opinion. GeoEngineers' recommendations can be finalized only by observing actual subsurface conditions revealed during construction. GeoEngineers cannot assume responsibility or liability for this report's recommendations if we do not perform construction observation.

Sufficient monitoring, testing and consultation by GeoEngineers should be provided during construction to confirm that the conditions encountered are consistent with those indicated by the explorations, to provide recommendations for design changes should the conditions revealed during the work differ from those anticipated, and to evaluate whether or not earthwork activities are completed in accordance with our recommendations. Retaining GeoEngineers for construction observation for this project is the most effective method of managing the risks associated with unanticipated conditions.

A GEOTECHNICAL ENGINEERING OR GEOLOGIC REPORT COULD BE SUBJECT TO MISINTERPRETATION

Misinterpretation of this report by other design team members can result in costly problems. You could lower that risk by having GeoEngineers confer with appropriate members of the design team after submitting the report. Also retain GeoEngineers to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering or geologic report. Reduce that risk by having GeoEngineers participate in pre-bid and preconstruction conferences, and by providing construction observation.

DO NOT REDRAW THE EXPLORATION LOGS

Geotechnical engineers and geologists prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering or geologic report should never be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, but recognize that separating logs from the report can elevate risk.
GIVE CONTRACTORS A COMPLETE REPORT AND GUIDANCE

Some owners and design professionals believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering or geologic report, but preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with GeoEngineers and/or to conduct additional study to obtain the specific types of information they need or prefer. A pre-bid conference can also be valuable. Be sure contractors have sufficient time to perform additional study. Only then might an owner be in a position to give contractors the best information available, while requiring them to at least share the financial responsibilities stemming from unanticipated conditions. Further, a contingency for unanticipated conditions should be included in your project budget and schedule.

CONTRACTORS ARE RESPONSIBLE FOR SITE SAFETY ON THEIR OWN CONSTRUCTION PROJECTS

Our geotechnical recommendations are not intended to direct the contractor's procedures, methods, schedule or management of the work site. The contractor is solely responsible for job site safety and for managing construction operations to minimize risks to on-site personnel and to adjacent properties.

READ THESE PROVISIONS CLOSELY

Some clients, design professionals and contractors may not recognize that the geoscience practices (geotechnical engineering or geology) are far less exact than other engineering and natural science disciplines. This lack of understanding can create unrealistic expectations that could lead to disappointments, claims and disputes. GeoEngineers includes these explanatory "limitations" provisions in our reports to help reduce such risks. Please confer with GeoEngineers if you are unclear how these "Report Limitations and Guidelines for Use" apply to your project or site.

GEOTECHNICAL, GEOLOGIC AND ENVIRONMENTAL REPORTS SHOULD NOT BE INTERCHANGED

The equipment, techniques and personnel used to perform an environmental study differ significantly from those used to perform a geotechnical or geologic study and vice versa. For that reason, a geotechnical engineering or geologic report does not usually relate any environmental findings, conclusions or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Similarly, environmental reports are not used to address geotechnical or geologic concerns regarding a specific project.

BIOLOGICAL POLLUTANTS

GeoEngineers' Scope of Work specifically excludes the investigation, detection, or assessment of the presence of Biological Compounds which are Pollutants in or around any structure. Accordingly, this report includes no interpretations, recommendations, findings, or conclusions for the purpose of detecting, assessing, or abating Biological Pollutants. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria, and viruses, and/or any of their byproducts.
UWB/CCC Campus Compliance Monitoring Report for North Creek Ecosystem Restoration
University of Washington, Bothell-Cascadia Community College

Draft

2007
Draft
Year 5 Compliance Monitoring Report for North Creek Ecosystem Restoration, Snohomish County, Washington

Prepared for:
University of Washington, Bothell-
Cascadia Community College

Prepared by:
ARCADIS U.S., Inc.
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Washington 98102
Tel 206.325.5254
Fax 206.325.8218

Date:
December 2007

This document is intended only for the use of the individual or entity for which it was prepared and may contain information that is privileged, confidential and exempt from disclosure under applicable law. Any dissemination, distribution or copying of this document is strictly prohibited.
Executive Summary

This Monitoring Report has been prepared by ARCADIS BBL to document Year 5 (2007) conditions at the University of Washington-Bothell/Cascadia Community College (UWB/CCC) North Creek Ecosystem Restoration Project in Bothell, Washington. Restoration of the North Creek ecosystem was undertaken by the Washington State Higher Education Coordinating Board and the Washington State General Administration as part of the campus development plan to (1) provide environmental enhancement at the collocated campus site, and (2) to satisfy mitigation requirements for unavoidable impacts to waters of the U.S., including wetlands (waters/wetlands) as a result of campus development.

Restoration construction activities were completed on July 1, 2002, at which time "time-zero" was declared for purposes of compliance monitoring. Federal, state, and City of Bothell permits require compliance monitoring of the restoration site over a ten-year period immediately following the completion of all construction activities. Consistent with stipulations in federal, state, and City of Bothell permits, monitoring reports will be completed in Years 1, 2, 3, 5, 7, & 10 (or 2003, 2004, 2005, 2007, 2009, & 2012). This report has been prepared to satisfy requirements for Year 5 compliance monitoring as outlined in the relevant federal, state, and City of Bothell permits.

The overall goals (i.e., project targets) for the UWB/CCC Restoration Project were to: (1) restore natural stream morphology to the North Creek channel system, (2) restore hydrologic connections between the North Creek channel system and its adjacent floodplain, (3) restore complex microtopography to the North Creek floodplain, (4) improve water quality by increasing the residence time of water within the waters/wetland ecosystem, (5) restore native forested, scrub-shrub, and emergent wetland vegetation to the North Creek ecosystem, and (6) establish a compositionally and structurally complex ecosystem with attributes important to faunal species.

Results of Year 5 monitoring demonstrate that the UWB/CCC North Creek restoration site continues to function as an early seral riverine forested waters/wetlands ecosystem typical of the Puget Sound Lowlands. Eighty-one percent (81%) of the project standards were met in Year 5 (2007), an increase from 75% recorded in Year 3 (2005). Failure to meet project standards was only the result of a developing vegetative communities that has yet to meet articulated project standards. Addressing project standards in Year 5 (2007) by functional group, 100% of the hydrologic and biogeochemical project standards were met while only 53% of the plant community and faunal habitat project standards were met.
No contingency measures are recommended at this time. However, continued maintenance activities are recommended to facilitate meeting the remaining project standards within the compliance monitoring interval. Maintenance activities should focus on, in order of priority: (1) continue exotic plant control, (2) continue to plant additional conifers, (3) continue to monitor beaver activities, and (4) continue to monitor movement of stream within the active floodplain.
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1. Introduction

ARCADIS BBL has prepared this report for the University of Washington-Bothell and Cascadia Community College (hereafter UWB/CCC) to document Year 5 (2007) conditions at the UWB/CCC North Creek Ecosystem Restoration Site (hereafter referred to as restoration site). Restoration of the lower North Creek ecosystem was undertaken on the UWB/CCC campus to mitigate unavoidable impacts to waters of the U.S., including wetlands (waters/wetlands) because of campus development. “Time-zero” of the monitoring phase was initiated on July 1, 2002, following completion of all restoration project grading and planting activities. Federal, state, and City of Bothell permits require compliance monitoring of the restoration site over a ten-year period. Consistent with stipulations in federal, state, and City of Bothell permits, monitoring reports will be completed in Years 1, 2, 3, 5, 7, & 10 (or 2003, 2004, 2005, 2007, 2009, & 2012).

This report has been developed to satisfy requirements for Year 5 compliance monitoring as outlined in relevant federal, state, and City of Bothell permits (Table 1-1). In addition, the monitoring protocols outlined herein are consistent with those approved in the Final Mitigation and Monitoring Plan: University of Washington – Bothell, Cascadia Community College Collocated Campus (LCLA, 1996) and Addendum to the Final Mitigation and Monitoring Plan (LCLA, 1998), and requirements articulated in the federal, state, and City of Bothell permits.

1.1 Restoration Site Background

The UWB/CCC restoration site is located in the City of Bothell, Washington, within Sections 5 and 6, Township 26 North, Range 5 East in King County, Washington (Figures 1-1 and 1-2). The restoration site is bounded by I-405 to the east, SR 522 to the south and the main UWB/CCC campus to the west. Specifically, the restoration site is located immediately upstream of the confluence of North Creek with the Sammamish River (Figure 1-2). An aerial photograph of the restoration site taken in October 2006 is included as Photograph 1-1 Universal Transverse Mercator (UTM) coordinates for the approximate center of the restoration site are 10T 0560822 (Northing) 25290249 (Easting).

The North Creek restoration site historically consisted of a mosaic of shallow meandering channels, subtle crests and swales, sloughs, ponds, and islands. Modifications to the North Creek ecosystem began in the late 1800’s as logging occurred throughout the watershed. The North Creek channel was straightened for the
transport of logs to downstream markets. The Hiram M. Chittenden Locks were opened in 1916, which resulted in lower Lake Washington water levels (e.g., approximately 10 feet) (Galster and Laprade, 1991). Lowering of water levels in Lake Washington reduced the elevation of waters at the confluence of North Creek and the Sammamish River, thereby (1) reducing the geographic extent of backwater ponding on the North Creek floodplain, and (2) increasing the longitudinal slope of North Creek. Land use practices in the North Creek ecosystem (i.e., logging, farming, and livestock grazing) throughout the latter part of the twentieth century continued to alter surface and shallow subsurface flows by disconnecting the North Creek channel from its floodplain. When the State of Washington purchased the Truly Farm – String Town site in the late 1990s, the lower reach of North Creek was channeled and confined within levees. The historic floodplain was extensively ditched and drained, had no natural hydrologic connection to the North Creek channel system, had minimal microtopography, and was dominated by exotic plant species (Photographs 1-2 and 1-3) (LCLA, 1995b).

1.2 Background to the Application of Hydrogeomorphic Approach for the UWB/CCC Restoration Project

The overall goals of the UWB/CCC Restoration Project were to connect North Creek to its historical floodplain, and restore area and ecosystem functioning to a total of 58 acres of waters/wetlands. To accomplish this goal, the project team relied on the Guidebook for Application of Hydrogeomorphic Assessments to Riverine Wetlands (Riverine HGM Model) (Brinson et al., 1995) and the Draft Guidebook to Functional Assessments of Depressional Wetlands of the Pacific Northwest/Puget Sound Lowlands Region (Puget Sound Lowlands Guidebook) (LCLA, 1995a). Use of the HGM approach is consistent with current federal guidance (Federal Register 1996 and 1997). Important definitions used in the context of HGM and throughout this report are presented in Table 1-2.

Consistent with the classifications offered in the above-mentioned HGM guidebooks, the lower North Creek ecosystem is typical of a Puget Sound lowlands 3rd or 4th order (Strahler, 1952), low gradient riverine waters/wetlands. A reference system was developed specific for the UWB/CCC restoration site that included 58 sites with similar landscape positions, geomorphic surfaces, and hydrology. This reference system was used as the basis of (1) impact assessment, (2) restoration design, and (3) development of monitoring protocols and articulation of contingency measures.
An HGM approach to functional assessment of ecosystems relies on identification of functions performed by a class of waters/wetlands. Generally, ecosystem functions are sorted into four groups within the riverine class of waters/wetlands: hydrology, biogeochemistry, plant community, and faunal support/habitat. Table 1-3 includes the fifteen ecosystem functions identified to guide the North Creek Restoration Project.

1.3 Goals of the UWB/CCC Compliance Monitoring Program

Goals of the compliance-monitoring program for the North Creek Restoration Project are as follows:

1. Quantitatively and qualitatively assess waters/wetlands functions within the restoration site over time.
2. Illustrate progress toward, or deviation from, stipulated project targets.
3. Provide federal, state, and local agencies with information regarding restoration efforts.
4. If necessary, initiate/trigger contingency measures to maintain progress toward stipulated project targets and standards.

Federal, state, and City of Bothell permit conditions require that monitoring reports be produced in the fall of each year that compliance monitoring takes place (i.e., 2003, 2004, 2005, 2007, 2009, and 2012). Each report will include annual summaries of site conditions and biotic community development. Compliance monitoring will enable ARCADIS BBL, UWB/CCC, Washington State Department of General Administration, and pertinent regulatory agencies to follow progress of the restoration and evaluate the progress toward, or deviation from, stipulated project targets and standards. Should contingency measures become necessary the monitoring reports will identify areas of deficiency and provide recommendations for corrective actions.
2. Project Targets and Project Standards

2.1 Project Targets

Restoration activities performed on the UWB/CCC campus focused on maintaining and improving chemical, physical, and biological integrity to the lower North Creek ecosystem. The following six (6) project targets guided the restoration:

1. Restore natural stream morphology to the North Creek channel system.

2. Restore hydrologic connections between the North Creek channel system and its adjacent floodplain.

3. Restore complex microtopography to the North Creek floodplain.

4. Improve water quality by increasing residence time of water within the waters/wetlands ecosystem.

5. Restore native forested, scrub-shrub, and emergent wetland vegetation to the North Creek ecosystem.

6. Establish a compositionally and structurally complex ecosystem with attributes important to faunal species.

In applying the HGM approach to monitoring of the restoration site, a set of field measurements, each with associated project standards, are taken during each monitoring period. Recall that project standards are defined as "Performance criteria and/or specifications used to guide restoration activities toward project targets. Project standards should include and specify reasonable contingency measures if the project target is not being achieved" (Table 1-2). Project standards and associated field indicators/measurements are listed in Table 2-1.

Consistent with the HGM approach, project targets, project standards, and field indicators/measurements are based on the interaction between reference standard conditions and site potential. This is because landscape level and site-specific modifications to the North Creek watershed and the greater Lake Washington basin, as previously discussed, eliminated the possibility of returning the UWB/CCC site to its
original, historic conditions. The relationships between project standards and identified ecosystem functions are offered in Table 2-2. The following sections of this report have been organized using the articulated project targets and standards.

2.2 Project Standards and Field Indicators/Measurements

2.2.1 Project Target #1: Restore Natural Morphology to the North Creek Channel System

Seven project standards and associated field indicators/measurements are used to characterize and monitor the restoration of natural stream morphology to the lower North Creek channel (Table 2-1). These include (1) bankfull width, (2) bankfull depth, (3) bankfull width to depth ratio, (4) channel slope (at depth of thalweg), (5) flood-prone area width, (6) entrenchment ratio, (7) sinuosity, and (8) channel substrate. Please refer to Section 7 – Glossary for definition of above-mentioned terms.

Stream ecosystems are dynamic (Leopold, 1994), and thereby present a challenge to developing a compliance monitoring program. Changes in stream channel dimension, pattern, and profile will result from conditions that exist on the site (i.e., substrate characteristics, vegetative characteristics) and in the watershed (i.e., climatic conditions, urbanization). As a result, the morphology of the restored stream channel is expected to vary within naturally occurring ranges. Therefore, the project standards and associated field indicators/measurements represent the range in which the morphology of the channel is expected to fluctuate. There is no single correct value that must be maintained over time.

Please note that project standards and associated field indicators/measurements have been defined for three reaches of the restored North Creek channel to reflect different design parameters. These three reaches are shown in Figure 2-1 and outlined below.

(a) Main channel – upper and lower reaches (i.e., those areas of main channel upstream and downstream of entry and exit of secondary channel);

(b) Main channel – middle reach (i.e., those areas of main channel between the entry and exit point of secondary channel; and

(c) Secondary channel.
If channel morphology does not conform to ranges articulated by the field indicators/measurements in any particular monitoring year, then the monitoring plan calls for assessment of factors that potentially contributed to the change. Depending on the factors affecting channel morphology, contingency measures for the restored channel could include: (1) mass and/or fine grading to return the restored channel to design or revised specifications, and/or (2) bank stabilization through planting and/or bioengineering (LCLA, 1998; 1998).

2.2.2 Project Target #2: Restore Hydrologic Connections between the North Creek Channel System and Adjacent Floodplain

To assess hydrologic connections between North Creek and its floodplain, 15 wells were installed throughout the floodplain (Figure 2-1). To augment data collected from these wells, an additional 45 nested piezometers were installed throughout the floodplain in the fall of 2003 (Figure 2-1). These additional piezometers were placed along five transects, at three locations per transect. Each piezometer set has piezometers to depths of 6", 18", and 30" from the soil surface. While no quantitative project standards exist for water depth in either the wells and/or piezometers, yearly data will be analyzed to determine whether a hydrologic connection has been restored between the North Creek channel system and its adjacent floodplain.

2.2.3 Project Target #3: Restore Complex Microtopography on the North Creek Floodplain

To increase surface roughness within the restoration site and thus, the potential increase of residence time of water, complex microtopography was constructed throughout the restored floodplain. Five microdepression transects were installed in May 2004 to quantitatively document morphological changes in constructed microdepressions (Figure 2-1). Yearly surveys attempt to monitor significant sediment accumulations, morphological changes due to tree and/or shrub development, and/or other natural or anthropogenic changes that may alter morphology of microdepressions throughout the restoration site.

2.2.4 Project Target #4: Improve Water Quality by Increasing Residence Time of Water within the North Creek Ecosystem

Four project standards and associated field indicators/measurements used to monitor improvement of water quality include (1) turbidity, (2) pH, (3) conductivity, and (4) temperature (Table 2-1).
2.2.5 Project Target #5: Restore Native Forested, Scrub-Shrub, and Emergent Wetland Vegetation to the North Creek Ecosystem

Six project standards and associated field indicators/measurements to assess establishment and development of native plant communities include (1) percent cover of native tree species, (2) percent cover of native shrub species, (3) percent cover of native forbs, graminoids, ferns, and fern allies, (4) percent of native individuals, (5) percent cover of litter/detritus, and (6) vigor of planted stock (Table 2-1).

2.2.6 Project Target #6: Establish a Compositionally and Structurally Complex Ecosystem with Attributes Important to Faunal Species

For the purposes of compliance monitoring, it is assumed that faunal/support habitat functions will be restored to the lower North Creek ecosystem through restoration of floodplain microtopography and native plant communities. A well-established native mosaic of forest, scrub-shrub, and emergent wetland plant communities with horizontal and vertical structural diversity provides faunal support/habitat. Microtopography provides increased residence time of surface water throughout the floodplain to allow native amphibians the opportunity to complete their life cycle. Thus, restoration of faunal support/habitat functions is indirectly monitored through project targets #3 and #5.

In addition to relying on project targets #3 and #5 for faunal support/habitat functions, three more project standards and associated field indicators/measurements are monitored yearly. These include (1) vegetative structural diversity, (2) faunal diversity, and (3) fish surveys (Table 2-1).
3. Methods

3.1 Project Target #1: Restore natural morphology to the North Creek channel system.

3.1.1 Project Standards #1, 2, & 3: Bankfull Width, Bankfull Thalweg Depth, and Bankfull Width:Depth Ratio

To assess change in morphology of the constructed stream channel, eight permanent cross-sections perpendicular to the North Creek channel (Figure 2-1) are surveyed during each monitoring year. UTM coordinates (North American Datum (NAD) 1927) for each cross-section are included in Appendix A. Of the eight cross-sections, six are located across the main channel and two across the secondary channel (Figure 2-1). Cross-section locations are based on floodplain transects originally surveyed for revisions to the FEMA 100-year floodplain. These original cross-sections served as measures of the "as-built" condition in the Baseline Monitoring Report (LCLA, 2002).

In Year 1 (2003), each cross-section was surveyed at a finer scale than the original floodplain transects used to revise the FEMA 100-year floodplain. Ground surface elevations were surveyed every five feet along each of the eight cross-sections to establish a more accurate "baseline" for future monitoring efforts. Since this Year 1 surveying effort, surveying has focused on detecting major hydrologic points (i.e., thalweg, water line, bankfull) and breaks in slope. In Year 3, the length of each transect were reduced due to development of floodplain vegetation that precluded surveying transects across the floodplain. Therefore, each transect was surveyed from top of bank river-right to top of bank river-left. "Rebar" stakes were placed in the field to mark the ends of each transect and provide a repeatable cross section. Finally, in Year 5 (2005) the thalweg elevation of Cross section 5 could not be surveyed due to depth of channel and safety precautions taken by the monitoring team.

It is important to note that measurements of channel geometry at a cross-section only observe the two-dimensional form of a channel, while the channel is adjusting in three dimensions. To reduce the weight placed on specific cross-sections, and to take a more in-depth look at the restored channel, bankfull width and bankfull maximum depth was measured at 25 additional locations throughout the restored reach of North Creek. Transect locations are grouped in sets of three or four to represent the dominant features of the stream channel along a given meander (i.e., one transect across upstream riffle, one transect across pool, one transect across downstream riffle). These measurements are and will not be replicated at exact locations. Random
selection of transect locations from year to year will allow comparisons to project standards across the restoration site over the ten-year monitoring interval.

3.1.2 Project Standard #4: Channel Thalweg Slope

To assess the maintenance of channel longitudinal slope, the thalweg elevation at the eight permanent cross-sections were used to calculate longitudinal slope. Due to development of vegetation proximate to the secondary channel, the longitudinal profile proximate to Cross section #5 could not be surveyed in Year 5 (2005).

3.1.3 Project Standard #5, 6, & 7: Flood-prone Area Width, Entrenchment Ratio, and Sinuosity

Flood-prone area width and entrenchment ratio are calculated based on cross-sectional surveys and the as-built grading plan.

3.1.4 Project Standard #8: Channel Substrate

To characterize the dominant channel substrate, seven sampling locations are established within the North Creek channel system (Figure 2-1). Channel substrate was sampled over a 100-foot stream reach at each sampling location. Randomly walking the 100-foot reach, the "intermediate" axis is measured (see Figure 3-1 for further clarification), in millimeters, of the channel bed material (i.e., particle) directly underneath the tip of the right shoe every step. This measurement protocol is repeated 100 times, recording the length of the "intermediate" axis in standard particle size class buckets (Table 3-1).

3.2 Project Target #2: Restore Hydrologic Connections Between the North Creek Channel System and Adjacent Floodplain

3.2.1 Project Standard #9: Groundwater Levels

To assess hydrologic connections between North Creek and its floodplain, as well as overall site water balance, depth of water was measured in the 45 piezometers (Figure 2-1) 9 times between January 2006 and October 2007. UTM coordinates (NAD 27) for all piezometers are included in Appendix A.
3.3 Project Target #3: Construct Complex Microtopography on the North Creek Floodplain

3.3.1 Project Standard #10: Microtopographic Roughness

Microdepressions were constructed throughout the restoration site to increase surface roughness, and thus increase short and long term water storage. To assess stability of microtopography throughout the restoration site, five microdepression transects have been established. Microdepression transects were set along the long axis of each depression, surveying the soil surface elevation every two feet. UTM coordinates (NAD 27) for all microdepression transects are included in Appendix A.

3.4 Project Target #4: Improve Water Quality by Increasing the Residence Time of Water within the North Creek Ecosystem

3.4.1 Project Standard #11, 12, 13, & 14: Water Quality Parameters (e.g., pH, Conductivity, Turbidity, and Temperature)

To monitor changes in water quality, three locations were established within the North Creek channel: (1) entry to the site, (2) middle of the site, and (3) exit from the site (Figure 2-1). At each location, (1) turbidity, (2) pH, (3) conductivity, and (4) temperature have been measured nine times (two times in Year 5 [2007]) since “time-zero” of compliance monitoring.

3.5 Project Target #5: Restore Native Forested, Scrub-Shrub, and Emergent Wetland Vegetation to the North Creek Ecosystem

3.5.1 Project Standard #15, 16, 17, 18, 19, & 20: Percent Cover of Native Tree, Shrubs, and Herbs; Percent Native Individuals; Percent of Litter/Detritus; and Vigor of Planted Stock

To monitor the development of restored vegetative communities, 51 permanent vegetation plots are surveyed yearly throughout the restored floodplain (Figure 2-1). Please note vegetation sample plots #8 and 25, which could not be relocated in 2005, were found and sampled in 2007. However, Plot #12 was not sampled because it could not be relocated. UTM coordinates for each vegetation plot are provided in Appendix A.

In forest and scrub-shrub communities, a 1/10-acre (radius 37.3 feet) circular plot was used to assess the shrub and tree stratum and a 1/100-acre (radius 11.8 feet) circular
plot for the herbaceous and vine stratum. In emergent wetland communities, a 1/100-acre (radius 11.8 feet) circular plot was used to assess all vegetative strata. Within each plot, eight measurements were taken: (1) species present; (2) percent cover for each species; (3) total percent cover of vegetation; (4) percent cover of trees; (5) percent cover of shrubs; (6) percent cover of forbs, graminoids, ferns, and fern allies; (7) percent cover of litter/detritus; and (8) vigor of planted stock. All cover class measurements were recorded using cover class midpoints (Table 3-2). Vigor of planted stock was assessed using the qualitative guidelines outlined in Table 3-3. All plant nomenclature followed Hitchcock & Cronquist (1973).

3.6 Project Target #6: Establish a Compositonally and Structurally Complex Ecosystem with Attributes Important to Faunal Species

3.6.1 Project Standard #21, 22, & 23: Vegetative Structural Complexity, Faunal Diversity, and Fish Surveys

As previously discussed, it is assumed for the purpose of compliance monitoring that faunal/support habitat functions will be restored through the restoration of floodplain microtopography and establishment of a compositionally and structurally complex vegetative communities. A well-established mosaic of forest, scrub-shrub, and emergent wetland plant communities should provide faunal support/habitat through the establishment of horizontal and vertical structural complexity necessary to provide protective cover for foraging, resting, thermal regulation, escape, etc. Restoration of microtopography should provide increased residence time of surface water throughout the floodplain to allow native amphibians the opportunity to complete their life cycle. Thus, restoration of faunal support/habitat functions are indirectly monitored through project targets #3 and 5.

In Year 2, three additional vegetation sampling protocols / measurements were added to better assess the development of horizontal and vertical structure of native plant communities. First, the number of vegetative strata in vegetation sample plots are assessed by establishing north-south trending 100-ft transects with midpoints on plot centers. Walking in either a northerly or southerly direction, the number of strata (i.e., herb, vine, shrub, and tree) intersecting a transect are recorded every 10 feet (e.g., at 0, 10, 20, 30, 40, 50, and 60 feet). Second, estimates of mean and maximum height for shrub and tree species present in each vegetation sample plot were also recorded.

Additionally, records of wildlife species identified utilizing the restoration site are maintained. The lower North Creek ecosystem continues to provide forms of food and
cover resources for several types of activities (e.g., resting, feeding, thermal, hiding, escape) specific to a number of different species.

3.7 Photographic Documentation

Twelve photo points are established throughout the restoration site to provide documentation of changes in the restoration site over time. The locations of these permanent photo points are shown in Figure 2-1. UTM coordinates (NAD 27) for each photo point are included in Appendix A. Photographs were taken in May 2007 from each photo point.
4. Year 5 Conditions

Results of the Year 5 monitoring effort demonstrate that the UW3/CCC North Creek restoration site is functioning as an early seral riverine forested waters/wetlands ecosystem typical of the Puget Sound Lowlands. Specifically, overall stream morphology appears to be stable and hydrologic connections to the historic floodplain appear to be restored. Changes observed in channel morphology and bed material appear to be consistent with natural fluvial processes. Residence time of water has increased (from pre-restoration conditions) due to ponding in microdepressions and increased groundwater levels. Restored native plant communities are developing vertical and horizontal structure, while contributing litter and shade (i.e., temperature and light control) to the ecosystem. Finally, multiple different species of wildlife have been observed since the last monitoring interval utilizing the restoration site. Specifically, a strong salmon run, including both King and Coho salmon, was observed in the fall of 2007. In addition, bald eagles are frequently observed foraging over the restoration site.

The following documentation of Year 5 conditions of the UW3/CCC restoration site has been compared to conditions documented in previous monitoring years (i.e., baseline, Year 1, Year 2, and Year 3) whenever possible. Please refer to the Baseline Monitoring Report (LCLA, 2002), Year 1 Monitoring Report (LCLA, 2003), Year 2 Monitoring Report (BBL, 2004), and Year 3 Monitoring Report (BBL, 2005) for a further discussion of past “conditions” within the restoration site.

4.1 Project Target #1: Restore Natural Morphology to the North Creek Channel System

Measured discharge between October 2000 and November 2005 at the Snohomish County Gage on North Creek at the King County line is provided as Figure 4-1 and in greater detail in Appendix B. Unfortunately, data from this stream gage is not available after December 2005. Therefore, the project team relied on data from a Snohomish County gage located upstream of the previous gage location. Data from the Snohomish County gage on North Creek at 196th Street was analyzed from October 1, 2001 through September 2007.

Based on the Snohomish County Gage at the King County line, the restored channel reach was designed to over-top its banks with flows greater than 350 cubic feet per
second. Data collected from this gage indicate that ten events greater than 350 cubic feet per second (cfs) occurred from the time the new channel was engaged to November 2005. The most significant flows during this interval were in November 2003, when hourly peak flows exceeded 1,000 cfs.

Unfortunately, hydrologic analyses have not been completed to determine a comparable flow rate at the 196th Street gage, which would reflect flows that over-top the banks in the restored reach of lower North Creek channel. Figure 4-2 presents a comparison of the two stream gages since 2001. While the difference between the flow measurements at the two gages seems to be an exponential increase with increasing storm intensity, all flows greater than 125 cfs at the 196th Street gage generally reflect the previous estimate of 350 cfs at the County line gage. For the interval of December 2005 to September 2007, 14 days exceeded a maximum daily flow of 125 cfs. This represents 10 different storm events, as four events maintained an average daily flow of 125 cfs for greater than 24 hours.

The largest flow during this interval was recorded on January 30, 2006 with a daily maximum flow of 502 cfs. Based on comparisons of maximum daily flows between the 196th Street gage and the County line gage, maximum flows on November 19, 2003 were 319 and 869 cfs, respectively. Thus, the storm that occurred on January 30, 2006 appears to have produced flows within North Creek equal to or greater than the 1,000 cfs previously recorded in November 2003.

4.1.1 Project Standards # 1, 2, & 3: Bankfull Width, Bankfull Thalweg Depth, and Bankfull Width:Depth Ratio

4.1.1.1 Year 5 Condition

Six of the eight permanent cross-sections surveyed in 2007 demonstrated stability in channel morphology. Plots of the cross-sectional surveys are shown in Appendix C. Table 4-1 provides quantitative comparisons of the channel cross-sectional geometries (e.g., bankfull width, bankfull depth, and bankfull width to depth ratio). The slump at cross-section #6 continued to erode laterally at the outside of the meander bend from conditions documented in Year 2 (2003). It appears that stream meandering at the stratigraphic weak point is the most significant cause of erosion. Concurrent deposition of new sediment was noted on the inside of the meander bend at Cross-section #6. In addition, slumping along the river left banks at cross section #7 was also documented. This was observed as the result of water evulsing around a beaver dam that was constructed at this location.
Similar bank slumps/erosion in other parts of the restored channel has also been noted along the outside of meander bends. This phenomenon can be interpreted as indicative of natural stream meandering process, coupled with post-grading instability in the channel sidewalls. In addition, the influence of beaver dams on cross-section instability must be noted. Evulsions around the beaver dams, or focused water energy has lead to bank failures throughout the lower extent of the restored channel.

ARCADIS BBL is not concerned at this point with the overall stability of the channel, given that there is no short or long-term threat to campus infrastructure or downstream reaches.

To account for the fact a stream channel adjusts in three dimensions and cross sectional geometry only documents channel conditions in the two-dimensional form, bankfull width and bankfull maximum depth was measured at 25 additional temporary locations scattered throughout the restored reach of North Creek. These additional transects are intended to reduce the weight placed on the eight permanent cross-sections, and to take a more in-depth look at the restored channel morphology throughout the restoration site. Transect locations were grouped in sets of three or four to represent the dominant features of the stream channel along a given meander (i.e., one transect across upstream riffle, one transect across pool, one transect across downstream riffle). Measurements of bankfull width, maximum depth, and width:depth ratio at the 25 transects in Year 5 (2007) are presented in Table 4-2.

Nineteen (of the 25) transects were measured within the main channel in Year 5 (2007). The average bankfull width, bankfull depth, and bankfull width:depth ratio within the main channel was 38.5 ft, 3.4 ft, and 11.8 respectively. This compares to Year 3 (2005) averages of 38.8, 3.8, and 10.5; Year 2 (2004) averages of 44.1 ft, 4.5 ft, and 10.1; and Year 1 (2003) averages of 40.0 ft, 4.3 ft, and 9.6 respectively. In addition, averages at the permanent six cross-sections in Year 5 (2007) were 46.7, 4.8, and 10.5, respectively. Generally, the primary channel is maintaining its restored morphology with the exception of the few meanders where documented bank failures due to natural hydrologic processes have been noted.

Six temporary transects were sampled within the secondary channel in Year 5 (2007). The average bankfull width, depth, and width:depth ratio was 23.7, 3.5, and 6.9 respectively. This compares to Year 3 averages of 25.3 ft, 3.7 ft, and 6.9; Year 2 averages of 27.2 ft, 3.9 ft, and 7.1; and Year 1 averages of 28.1 ft, 4.1 ft, and 7.2, respectively. In addition, the average bankfull width, depth, and width:depth ratio within the two permanent cross-sections was 29.7 ft, 4.9 ft, and 6.1 respectively. Thus,
insignificant changes have occurred within the secondary channel since initiation of the monitoring interval in July 2002.

4.1.1.2 Project Standards

The project standards for bankfull width, bankfull depth, and width to depth ratio in the primary channel are 34.0 – 48.0 ft, 3.0 -6.0 ft, and 6.0 – 16.0, respectively. While the project standards were exceeded at a few of the individual permanent and temporary transects due to channel adjustments to natural processes, the project standards were met when averaging the six permanent cross sections, as well as the nineteen temporary transects. The project standards for bankfull width, bankfull depth, and width to depth ratio in the secondary channel are 20.0 -35.0 ft, 2.0 - 5.5 ft, and 4.0 – 18.0, respectively. Again, all Project Standards were met at when averaging the two permanent cross sections, as well as the six temporary transects.

4.1.1.3 Contingency Measures and Management Recommendations

No contingency measures are required at this time. The new channel is continuing to adjust to water and sediment loads in North Creek, and it is anticipated that future monitoring years will document further change in channel morphology. The erosion of a small portion of the restored channel banks is expected, and therefore, does not require any contingency measures or management.

4.1.2 Project Standard #4: Channel Thalweg Slope

4.1.2.1 Year 5 Condition

Longitudinal slope of the channel was calculated using measured thalweg elevations for two stream reaches within the restoration site (Table 4-3). The reaches include distances between: (1) cross-sections 1 and 7, and (2) cross-sections 1 and 2. Generally, the longitudinal slope across the entire site (i.e. between cross-sections #1 to 7) has not greatly fluctuated since Year 2 (2003). The longitudinal slope over this time has ranged from 0.15 in 2003 to 0.20 in 2007. In the upper reach (between cross-sections 1 and 2b) of North Creek, the longitudinal slope has fluctuated more than across the entire restoration site. The longitudinal slope of 0.24 in Year 5 (2007), compares to 0.35 in Year 3 (2005), 0.27 in Year 2 (2004), 0.30 in Year 1 (2003), and 0.02 at baseline (2002).

Unfortunately, given the growth of vegetation within the riparian corridor of the secondary channel, the longitudinal transect within the secondary channel could not be
surveyed without significant disturbance to existing vegetation. However, results from Year 2 and Year 3 conditions demonstrated little change and ARCADIS BBL is confident that the longitudinal slope of the secondary channel continues to meet project standards.

4.1.2.2 Project Standards

Project standards were determined to be met in Year 5 (2007).

4.1.2.3 Contingency Measures and Management Recommendations

No contingency measures are required at this time.

4.1.3 Project Standard #5 & 6: Flood-prone Area Width and Entrenchment Ratio

4.1.3.1 Year 3 Condition

Cross section survey data and the "as-built" grading plan were used to calculate flood-prone area width and entrenchment ratio (Table 4-4). As in previous reports, cross-sections 1 and 7 were excluded because they are both constrained by the geographic boundaries at the northern and southern extremes of the restoration site. Due to the inability to measure the exact depth of channel at cross section #6, the greatest measured depth along the cross-section were used to approximate flood-prone area width.

The entrenchment ratio at the six cross sections ranged from 17 at Cross section 2A to 46 at Cross section 3.

4.1.3.2 Project Standards

The project standard of an entrenchment ratio greater than 2.2:1 was met at all cross sections.

4.1.3.3 Contingency Measures and Management Recommendations

No contingency measures are required at this time.
4.1.4 Project Standard #7: Sinuosity

4.1.4.1 Year 5 Condition

A standard aerial photograph purchased from Digital Globe (http://www.digitalglobe.com/product/standard_imagery.shtml) taken in October 2006 (Figure 1-1) was used to determine the ratio of stream channel length to floodplain length. The approximate sinuosity based on the October 2006 aerial photograph was 1.26 (using only the length of the primary channel). The sinuosity was determined to be relatively consistent with past conditions as only minor stream channel adjustments have been observed throughout the restoration site.

4.1.4.2 Project Standard

While the existing sinuosity of 1.26 falls outside the project standard range of 1.35 to 4.0, it is the professional opinion of ARCADIS BBL that this is the result of an initial error in determining the project standard range. Only minimal stream channel adjustments have been observed within the restoration site and nothing significant enough to alter the channel sinuosity from baseline conditions has occurred. Therefore, it is the professional opinion of ARCADIS BBL that project standards are met in Year 5 and this measurement of sinuosity will be used as a standard for comparisons in subsequent monitoring years.

4.1.4.3 Contingency Measures

No contingency measures are necessary at this time.

4.1.5 Project Standard #8: Channel Substrate

4.1.5.1 Year 5 Condition

Pebble counts were made at seven locations within the North Creek channel to characterize the dominant substrate in the streambed (Figure 2-1) providing an important assessment of in-channel physical processes. They also provide the basis for a relatively direct link between the physical processes governing stream morphology and the suitability of the stream for fish production and growth (Abbé & Montgomery, 1996). Data from seven sample locations throughout the constructed channel are provided in Table 4-5.
D50 calculations were used as an indicator of the median size class of streambed material within the channel. The mean D50 size class for the "time-zero," Year 1, Year 2, Year 3, and Year 5 condition was 14.9, 26.5, 29.7, 17.8 and 37.6 respectively. A significant increase in D50 size across the seven sample locations did occur again in Year 5 after having stabilized between Year 1 (2003) and Year 2 (2004). This increase in dominant substrate size is likely the result of the increased frequency and size (i.e., cfs) of storm events since 2004 (see Section 4.1). The largest storm recorded since the new channel was engaged occurred on January 30, 2006 with a maximum daily flow of 503 cfs.

D84 (i.e., one standard deviation above the median size class) calculations were used as an indicator of the maximum size capacity of streambed material that will be moved when discharge of the stream is equal to or greater than bankfull. The mean D84 size class for the "time-zero," Year 1, Year 2, Year 3, and Year 5 condition was 35.6, 52.9, 54.0, 42.0, and 77.2 respectively. Again, a significant increase in substrate size across the seven sample locations occurred between Year 3 and Year 5. Reasons for this increase are consistent with the discussion above.

4.1.5.2 Project Standards

Project Standards were met at all sampling points. While there have been variations in the values determined for D50 and D84, the overall channel substrate has remained medium or coarse gravel. When averaged across the seven monitoring locations, project standards were met in all monitoring years.

4.1.5.3 Contingency Measures and Management Recommendations

No contingency measures are required at this time.

4.2 Project Target #2: Restore Hydrologic Connections Between the North Creek Channel System and Adjacent Floodplain

During the design process for the restored North Creek channel, several hydrologic and hydraulic analyses were performed to support the target channel geometry, and to provide technical backing for a Letter of Map Revision to the regulatory floodplain within the project boundaries. The hydrologic analyses included the use of Hydrological Simulation Program Fortran (HSPF) model developed for the North Creek Watershed for the City of Bothell. A flow frequency analysis of the results of the HSPF model indicated that 350 cubic feet per second (cfs) would be a reasonable estimate of bankfull discharge based on stream flow data from the Snohomish County stream.
gage at the King County line. This estimate generally matched field indicators and a first level estimate of critical shear stress necessary to mobilize pre-construction channel bed materials.

Hourly mean flow data from the Snohomish County Gauge indicate that 20 events have occurred since the new channel was engaged where water has topped the banks of the restored stream channel and engaged the floodplain. This is based upon a flow greater than 350 cfs at the County line stream gage, and 125 at the 196th Street gage. Since the last monitoring interval (December 2005), 10 storm events have occurred which likely exceeded bankfull capacity in the restored channel. Throughout the interval, drift lines, sediment deposits, and bent vegetation proximate to the channel have confirmed that flow has overtopped the channel banks during this interval.

4.2.1  Project Standard #9: Groundwater Levels

4.2.1.1  Year 3 Condition

Based on the data from the five nested piezometer transects (Table 4-6), fast response times were noted for water levels on the floodplain to precipitation and runoff events. Drainage of the floodplain was moderate, with water observed in the majority of piezometers during winter sampling but groundwater levels less than 30 inches at many points on the floodplain in the majority of summer months sampling events. However, continuation of monitoring water levels in the piezometers throughout a full calendar year (or even longer) is important in making accurate predictions of ground water response to (1) seasonal trends, and (2) responses to specific storm events.

4.2.1.2  Project Standards

Project standards were determined to be met in 2005.

4.2.1.3  Contingency Measures and Management Recommendations

No contingency measures are required at this time.

4.3  Project Target #3: Restore Complex Microtopography on the North Creek Floodplain

Previous land uses on the North Creek restoration site (e.g., logging, farming, and grazing) eliminated much of the microtopography that likely existed on the historic North Creek floodplain. By reducing microtopographic relief (via grading, grazing, etc.)
the potential for biogeochemical processing was significantly reduced. Therefore, the numerous micro-topographic features (e.g., depressions, mounds) were constructed throughout the restored floodplain.

4.3.1 Project Standard #10: Microtopographic Roughness

4.3.1.1 Year 5 Condition

In Year 5 (2007), the five microdepression transects established to monitor changes in morphology, seasonal hydrologic patterns, etc. were surveyed. Plots of the five transects are offered in Appendix D. Insignificant changes to the depression morphology were observed at all five transects. In addition, ponding is observed in the majority of depressions throughout the wet months of the year (i.e., October to May). Microdepressions characteristically go dry during the summer months.

Based on visual observations and the surveys of five microdepression transects, it appears that biogeochemical processes were extant throughout the restored floodplain, given increased contact time between water, soil, sediment, and plant roots.

4.3.1.2 Project Standards

Project standards were determined to be met in 2007.

4.3.1.3 Contingency Measures and Management Recommendations

No contingency measures are required at this time.

4.4 Project Target #4: Improve Water Quality by Increasing the Residence Time of Water Within the North Creek Ecosystem

4.4.1 Project Standard #11, 12, 13, & 14: Water Quality Parameters (e.g., pH, Conductivity, Turbidity, and Temperature)

4.4.1.1 Year 5 Condition

Water quality measurements were taken within North Creek twelve times since November 2001. Data are offered in Table 4-7. Data demonstrate expected seasonal fluctuations, but show little change in measured water quality parameters as water moves through the restoration site. Temperature, pH, conductivity, and turbidity are all within acceptable ranges for salmonids and are not a concern at this time.
Of particular interest are the turbidity measurements taken in 2006 and 2007. Although, turbidity did not change significantly between sampling points within recent years, it has consistently decreased since 2001.

4.4.1.2 Project Standards

Project standards were met in 2005. As well, temperature, pH, conductivity, and turbidity were all within acceptable ranges for salmonids.

4.4.1.3 Contingency Measures and Management Recommendations

No contingency measures are required at this time.

4.5 Project Target #5: Restore Native Forested, Scrub-Shrub, and Emergent Wetland Vegetation to the North Creek Ecosystem

Vegetation was sampled at the 51 permanent vegetation plots during May 2007 (Figure 2-1). Data are included as Appendix E, and discussed in more detail below. In general, development and maintenance of native plant communities throughout the restoration site continue to be successful. Percent cover of native tree species continued to increase within the palustrine forest communities. Percent cover of scrub-shrub continued to increase in scrub-shrub communities and as understory within the palustrine forest community. The ratio of native to exotic species increased from Year 3 conditions.

4.5.1 Project Standard #15: Percent Cover of Native Tree Species

4.5.1.1 Year 5 Condition

Year 5 vegetation data demonstrate the continued development of a native tree canopy (Photograph 4-3) dominated by red alder (Alnus rubra). Average tree canopy coverage across all 51 sample plots (0.1 acre) was 40.2%. Specific to plant community type and phase of planting, average canopy cover within palustrine forest communities in plots that were planting during Phases 1-3 (n=19) and those planted in Phase 4 (n=9), was 65% and 39.4%, respectively. In palustrine scrub-shrub communities, average tree canopy cover was 25% (Phases 1-3; n=11) and 2.3% (Phase 4; n=6). Finally, average tree cover in emergent wetland communities was 22% in sampled microdepressions (n=5).
Mean cover class and frequency data for all identified trees within the 51 vegetation sample plots are summarized in Table 4-8. Red alder continues to be the dominant tree, with an average canopy cover of 32% in Year 5 (2007). This compares to 31% in Year 3 (2005), 22% in Year 2 (2004) and 18% in Year 1 (2003). Despite the presence of beavers (Castor canadensis), the frequency of red alder has increased throughout the restoration site. Frequency of red alder increased in Year 5 (2007) to 76% from 64% in Year 3 (2005), 72% in Year 2 (2004) and 82% in Year 1 (2003). The largest alders observed on the site are now producing seed, and natural recruitment can be observed throughout the site. Given the continued presence of beavers throughout the site, the overall canopy of red alders will be closely monitored.

In 2007, significant increases in canopy cover over a large number of tree species were observed. Average canopy cover of black cottonwoods (Populus trichocarpa) continued to increase. Cover of Oregon ash (Fraxinus latifolia) canopy cover nearly doubled. In addition, the efforts to increase the number of conifers throughout the site have been successful. Although there was a slight decline in Sitka spruce (Picea sitchensis), the average canopy cover of western red cedar (Thuja plicata), Douglas fir (Pseudotsuga menziesii), and Western hemlock (Tsuga heterophylla) increased. The remaining tree species showed either slight decreases or stable canopy cover with the exception of two species (Malus fusca and Betula papyrifera), which showed fairly dramatic increases (Table 4-8). It is likely that the decreases in canopy cover for the few species that experienced this are the result of fluctuations in the natural population. Finally, the exotic mountain ash (Sorbus sp.) has been practically eradicated from the restoration site, and management efforts (i.e., pulling seedlings by hand) are continuing.

4.5.1.1 Project Standards

Project Standards were not met in 2007. However, the canopy coverage is steadily increasing overall and when mean canopy averages are separated by planting phases, it can be observed that the native trees within the early planting phase plots meet and exceed the project standards. This trend is encouraging in that it is expected that within the 10-year compliance monitoring the project standards will be met for both fores: and scrub-shrub communities.

It is anticipated that the Project Standard for native tree cover in emergent wetland communities (i.e., 0% cover) will not be met at the end of the 10-year monitoring interval due to the high recruitment levels of cottonwood and willow (Salix spp.) seedlings in many of the microdepressions. However, this is a direct result of natural
processes and will not have a detrimental impact on the ecosystem functioning of the restoration site. In addition, tree recruitment has not occurred in all microdepressions and many have excellent diversity and cover of emergent species.

4.5.1.2 Contingency Measures and Management Recommendations

No contingency measures are necessary at this time. However, ARCADIS BBL has three recommendations for the next monitoring interval year.

1. Consistent with Years 1, 2, and 3, continue "out-planting" deciduous and conifer seedlings (e.g., Douglas fir, western red cedar, Sitka spruce, willow, dogwood) throughout the floodplain.

2. Consistent with Year 3, continued control of exotic mountain ashes throughout the restoration site.

3. Consistent with Year 3, continue to monitor beaver activity. If significant mortality and decreases in canopy cover of red alder occurs because of beaver feeding and felling, planting additional red alder seedlings will be considered.

4.5.2 Project Standard #16: Percent Cover of Native Shrub Species

4.5.2.1 Year 5 Condition

Native shrubs continued positive growth rates and development of horizontal and vertical structure. Average shrub canopy coverage across 51 sample plots was 63%. Specific to community types, average canopy cover in palustrine forest, scrub-shrub, and emergent wetland communities was 59%, 77%, and 29%, respectively. This compares to Year 3 (2005) averages of 31%, 57%, and 17%; and Year 2 (2004) averages of 37%, 67%, and 10.5%, respectively.

Mean cover class and frequency data are offered in Table 4-9. Pacific willow (Salix lasiandra) increased in frequency and average cover from Year 3 (2005) and so continued as the dominant species in the shrub stratum. It was observed in 78% of the sample plots (0.1 acre) with an average cover of 27%. This compares to 72% frequency and 22% average cover in Year 3 (2005), and 80% frequency and 18% average cover in Year 2 (2003). Please note that while Pacific willow is described as either a small tree or arborescent shrub, it was specified in the original planting design as a shrub. At present, S. lasiandra commonly has both a shrub (i.e., multi-stemmed) and small tree habitat within the restored floodplain.
Other successful shrub species include Sitka willow (*Salix sitchensis*), red osier dogwood (*Cornus stolonifera*), hardhack (*Spirea douglasii*), salmonberry (*Rubus spectabilis*) and twinberry (*Lonicera involucrata*). Red osier dogwood continued to increase in average canopy cover from 5.9% to 11.4% to 18.4% to 30.1% between Years 1 and 5, and in frequency of occurrence ranging from 38.8% to 41.0% to 40% to 42%. Twinberry increased its average canopy cover from 2.0% to 9.3% to 10.8% to 22.2%, and its frequency ranged from 28.6% to 38.5% to 30% to 24%. Sitka willow increased its average canopy coverage from 6.7% to 14.1% to 12.8% to 14.4%, and its frequency ranged from 71.4% to 61.5% to 64% to 48%. Hardhack increased its average canopy coverage from 12.1% to 20.3% to 14.3% to 22.6%, and its frequency ranged from 69.4% to 64.1% to 60% to 78%. Finally, mean canopy coverage of salmonberry ranged from 1.5% to 3.0% to 4.4% to 11.5% between Years 1 and 5, while its frequency ranged from 63.3% to 48.7% to 42% to 44%. It is very encouraging to see salmonberry, as well as conspecific thimbleberry (*Rubus parviflorus*) recovering from previous low growth rates by increasing and surpassing average canopy cover of the exotic Himalayan blackberry (*Rubus discolor*), which due to maintenance activities decreased in frequency from Year 3.

Several shrub species that had difficulty (i.e., mortality, stress, low growth rates) becoming established within the restoration site in previous years are experiencing higher growth rates in 2007. These species include, but are not limited to, vine maple (*Acer circinatum*), and as mentioned above thimbleberry (*Rubus parviflorus*). Vine maple previously struggled with average canopy coverage of 0.3% to 0.9% to 1.1% over the three-year monitoring interval; however, in Year 5 vine maple more than doubled in average canopy coverage to 4%. Thimbleberry increased nearly seven times in mean canopy cover from Year 3 with a clearly significant increase over the five-year monitoring interval with mean percent coverage of 0.5% to 2.4% to 2.6% to 18%. Snowberry (*Symphoricarpos albus*) has made slow progress in previous years, but has increased notably since Year 3 monitoring interval in mean canopy cover of 0.1% to 1.3% to 1.6% to 4.1%.

4.5.2.2 Project Standards

In Year 5 (2007), project standards for shrub canopy cover were only met in forest communities. While the 77% average canopy cover in scrub-shrub communities fell below project standards (i.e., greater than or equal to 85%), as was found with the native tree species, when the average canopy cover is viewed separately by planting phase the project standard is met (88%) for early phases. Therefore, it is anticipated
that project standards will be met across the restoration site at the conclusion of the 10-year monitoring interval.

Consistent with the above discussion of tree canopy cover in emergent wetland communities, the shrub canopy cover exceeded the project standard of 0% cover. Again, the failure to meet Project Standards resulted from natural tree and shrub recruitment in many of microdepressions throughout the restoration site. One microdepression in particular has turned into a recruitment bed for native trees and scrubs, thus increasing the average shrub and tree mean canopy cover within microdepressions. It is anticipated that similar patterns of recruitment will continue to occur in many of the shallow microdepressions that do not retain ponded water for the majority of the year and have characteristically high light environments. As previously stated, this failure to meet project standards is not perceived as a concern as it is directly a result of a naturally occurring successional pattern.

4.5.2.3 Contingency Measures and Management Recommendations

No contingency measures are required at this time.

4.5.3 Project Standard #17: Percent Cover of Native Forbs, Graminoids, Ferns, and Fern Allies

4.5.3.1 Year 5 Condition

Herbaceous cover was high across the restored North Creek floodplain in Year 5 (2005), with a mean canopy cover of 80%. This is a slight decrease from the 82% cover in Year 3 (2005). Mean herbaceous canopy cover specifically in palustrine scrub-shrub, and emergent wetland communities was 58% and 64% in Year 5 (2007). These canopy cover estimates are significantly less than 71%, and 88% as documented in Year 3 (2005) and, 87%, & 92% in Year 2 (2005). The reduced herbaceous canopy cover in these two community types likely reflects increasing shrub and tree canopy cover. In palustrine forest communities, mean herbaceous cover increased in Year 5 to 92% from Year 3 coverage of 88%. An increase in herbaceous cover in forest communities is likely the result of open spots in the canopy from immature shrub and/or tree coverage, tree felling from beaver activities or both. Canopy closure will likely occur in subsequent years when understory scrubs and conifers take advantage of these open spots and become more prominent in the forest communities.
Canopy coverage data for forbs, graminoids, fens, and fern allies within the vegetation sample plots are provided in Table 4-10. As in previous monitoring intervals, graminoids were the most successful species in the herbaceous stratum. The dominant graminoids (i.e., >20% average canopy cover) include, but were not limited to bentgrass (Agrostis sp.), slough sedge (Carex obnupta), tall marrgrass (Glyceria elata), common rush (Juncus effusus), creeping spike-rush (Eleocharis palustris), and reed canary grass (Phalaris arundinacea). Reed canary grass is the only exotic graminoid species from the above list.

Unlike in previous monitoring years, some planted native forbs, ferns, and fern allies have begun to recover throughout the restoration site. Many of the planted forbs and fern species that have previously suffered have increased mean canopy coverage in Year 5. Species include, but are not limited to sword fern (Polystichum munitum), lady fern (Athyrium felix-femina), piggy-back plant (Tolmiea menziesii), and water plantain (Alisma plantago-aquatica). The average percent cover in Year 5 of each species as compared with Year 3 (2005) was sword fern – 7.8% from 1.8%, lady fern – 5.4 to 5.4, piggy-back plant – 4.3% from 0%, and water plantain – 0.8% from 0%. Each species increased in frequency as well. In addition, the increase in these species across the site is not always reflected in the 51 sample plots. All four of these species were observed as locally abundant in different portions of the restoration site. It is likely that this increase is from the increased mean canopy coverage of trees and shrubs throughout the site. This recovery of the above-mentioned forbs in the monitoring plots gives us increasing hope that other planted, native forbs that may be struggling throughout the site will eventually be successful. ARCADIS BBL is optimistic that the increasing development of a shrub and/or tree canopy will create conditions that are more favorable and thus increase canopy coverage, and frequency of native forbs, ferns and fern allies throughout the restoration site.

The forbs, which dominated the 51 vegetation plots, were exclusively exotic. Dominant species include, false loosestrife (Ludwigia palustris), large leaved avens (Geum macrophyllum), bittersweet nightshade (Solanum dulcamara), and white clover (Trifolium repens). Mean canopy coverage and frequencies for the above mentioned species were: false loosestrife – 39.9% and 12%; large leaved avens – 20.5% and 2%; bittersweet nightshade – 20.5% and 2%; and white clover – 20.5% and 2%. A number of dominant exotic forbs from Year 3 (2005) have decreased in cover and frequency. These species and the mean canopy cover from Year 3 to Year 5 respectively, include duckweed (Lemna minor) 11.8% to 0%, bull thistle (Cirsium vulgare) 3.6% to 0.5%, red clover (Trifolium pretense) 8.8% to 3.0%, Canada thistle
(Cirsium arvense) 10.5% to 6.1%, and birds-foot-trefoil (Lotus corniculatus) 28% to 15.9%.

A number of exotic herbaceous species, which are listed by federal, state, and/or King County, are continually of great concern within the restoration site. These species include purple loosestrife (Lythrum salicaria), Japanese knotweed (Polygonum cuspidatum), Scotch broom (Cytisus scoparius), tansy ragwort (Senecio jacobaea), bittersweet nightshade (Solanum dulcamara), reed canary grass, Canada thistle, bull thistle, field bindweed (Convolvulus arvensis) and common touch-me-not (Impatiens sp.).

Figure 4-3 demonstrates the increase cover of reed canary grass over the past three years from 4% in Year 1 (2003), to 14% in Year 2 (2004), to 21% in Year 3 (2005) to 24% in Year 5 (2007). There was an increase in canopy cover for reed canary grass in 30% of the monitoring plots, and a decrease in 22%. The frequency of reed canary grass occurring in sample plots fluctuates each monitoring interval with the frequency of another exotic that are also a maintenance focus (i.e., Himalayan blackberry). This fluctuation may be due to the inevitable variation in allocation of a limited number of maintenance hours. In addition, the maintenance approach to reed canary grass is mechanical control in contrast to chemical control strategies for Purple loosestrife that target to kill individual plants. Mechanical control of reed canary grass is not intended to kill stands of reed canary grass, but aims to reduce further spread of the species throughout the restoration site while the forest and shrub communities continue to develop a mature canopy. The combination of continued maintenance activities by UW/B/CCC staff and the development of a tree and shrub canopy will likely reduce the abundance and canopy cover of reed canary grass and other exotic plant species of concern over the ten-year monitoring interval.

4.5.3.2 Project Standards

Project standards were not met in 2007. High average herbaceous cover in the forest and scrub-shrub communities exceeded Project Standards. Tree and shrub canopy closure and continued management activities are anticipated to inhibit the growth of many exotic forbs and graminoids that are ubiquitous throughout the restoration site (i.e., bentgrass, velvetgrass [Holcus lanatus], reed canary grass). The percent herbaceous cover in the emergent community for Year 5 was 84%, very near the project standard. It is reasonable to assume that, as discussed in section 4.5.2.2, one of the microdepressions is experiencing active recruitment of shrubs and trees and may no longer be considered an emergent community. When the microdepression that
is experiencing active shrub and tree recruitment is removed from the data, the average canopy cover (89%) exceeds the project standard.

4.5.3.3 Contingency Measures and Management Recommendations

No contingency measures are required at this time. However, the importance of continued maintenance to control establishment and spread of exotic plant species cannot be emphasized enough. ARCADIS BBL will continue to work with UWB/CCC staff over the next two years to actively manage maintenance activities.

4.5.4 Project Standard #18: Percent of Native Individuals

4.5.4.1 Year 5 Condition

The average percent of native individuals per vegetation sample plot was 73% in Year 5 (2007). Previous estimates were 70% in Year 3 (2005), 62% in Year 2 (2004) and 74% in Year 1 (2003). This continual increase in percent native species per vegetation plot reflects trends discussed above in the reduced frequency and canopy cover of many invasive plant species found throughout the restoration site. Much of this can be attributed to the continual maintenance efforts to control exotic plant species of concern (i.e., purple loosestrife, reed canary grass, Himalayan blackberry). As well, the increase tree and shrub canopy cover across the restoration site plays a role in the decreasing canopy cover of exotic herbaceous species and the increased percent of natives in each vegetation plot.

4.5.4.2 Project Standards

Project standards (i.e., greater than 75%) were not met in Year 5 (2007). While exotic species have been extremely successful in establishing throughout the restoration site during the early stages of the compliance monitoring interval, it is anticipated that their prevalence will significantly decline with (1) establishment of a shrub and tree canopy and (2) continued maintenance activities. To ensure project standards are met within the 10-year compliance monitoring interval, UWB/CCC is providing year-round maintenance.

4.5.4.3 Contingency Measures and Management Recommendations

Continuation of year round maintenance is recommended.
4.5.5 Project Standard #19: Percent Cover of Litter/Detritus

4.5.5.1 Year 5 Condition

The average percent cover of litter/detritus per vegetation sample plot in Year 5 (2007) was 49%, compared to 64% in Year 3 (2005), 66% in Year 2 (2004), and 26% in Year 1 (2003). As predicted in our previous report, the decline in mean percent cover of litter/detritus is likely a fluctuation from bank flooding events. The frequency of large storm events increased over the past tow years, likely having a direct effect on litter cover. It appears that litter cover in the 51 sample plots has generally reached equilibrium, and will continue to fluctuate between 40 to 60% cover throughout the remaining interval of compliance monitoring.

4.5.5.2 Project Standards

Percent cover of litter/detritus did not meet the project standards (i.e., greater than 50%) in Year 5 (2007). However, it is the professional opinion of ARCADIS BBL that litter cover throughout the site has reached equilibrium between 40 and 60%.

4.5.5.3 Contingency Measures and Management Recommendations

No contingency measures are required at this time.

4.5.6 Project Standard #20: Vigor of Planted Stock

4.5.6.1 Year 3 Condition

The overall vigor in 77% of vegetation sample plots (i.e., 39 of 51) was assessed as "good" or "excellent." This is an increase from previous years; 72% of sample plots in Year 3 (2005), and 54% of sample plots in Year 2 (2004). Of the remaining vegetation plots, 6% (i.e., 3 of 51) were assessed as "good/fair," 16% (i.e., 8 of 51) were assessed as "fair," and 2% (i.e., 1 of 51) were assessed as "poor." Overall vigor continued to increase for much of the same reasons as in Year 3; increased canopy cover in native planted stock in all strata, and decreased frequency and cover of many ubiquitous weeds.

4.5.6.2 Project Standard

The project standard of greater than 80% of the vegetation plots (i.e., 41 of 51) assessed as "good" was not met in Year 5. It is anticipated that project standards will
be met within the 10-year monitoring interval with development of a complex shrub and tree canopy, and shade inhibiting growth of exotic herbaceous species that are ubiquitous throughout the UW/CCC restoration site.

4.5.6.3 Contingency Measures and Management Recommendations

No contingency measures are required at this time. However, for the project standard to be met within the 10-year compliance monitoring interval, year-round maintenance must be continued and actively focused on controlling the future spread of invasive plant species found throughout the restoration site.

4.6 Project Target #6: Establish a Compositionally and Structurally Complex Ecosystem with Attributes Important to Faunal Species

4.6.1 Project Standard #21: Vegetative Structural Complexity

4.6.1.1 Year 5 Condition

Horizontal and vertical complexity of restored plant communities continued to develop through 2005. An average of 1.9 vegetative strata was documented in the 51 sample plots in Year 5 (2007). Specific to community types, the average number of vegetative strata in forest, scrub-shrub, and emergent wetland communities was 1.96, 1.7, and 1.4 respectively. Compared with results from Year 3 (2005), there was a slight increase in strata overall as well as for forest and emergent communities. There was a slight decrease in strata for the scrub-shrub community.

As an additional assessment of horizontal and vertical complexity, estimated average and maximum tree and shrub height was estimated in each vegetation sample plot. The average tree height in both forest, and scrub-shrub communities was 14.4 ft, with a range of average heights between 3 and 30 ft. This compares to a Year 3 (2005) average tree height of 10, with a range of 3 – 25 ft. The mode for maximum tree heights was 25 ft in forest and scrub-shrub communities, with a range of 5 – 40 ft.

The average shrub height in forest, and scrub-shrub communities was 9 and 11 ft respectively. The range of maximum shrub heights was 4 to 30 ft with a mode of 20 ft. Generally, all estimates of tree and shrub height were significantly taller (greater) than those presented in Year 3 (2005).
4.6.1.2 Project Standards

Project standards for vegetative strata were met in 2007 when rounding estimates of number of strata to a whole number. As stated earlier, the change in the condition and function of one particular microdepression (i.e., increased recruitment of native trees and shrubs, reduced water retention) has raised the average strata for the emergent communities. Continued development of vegetative structural complexity throughout the restoration site is anticipated, and thus continuation of meeting the project standard for vegetative strata.

4.6.1.3 Contingency Measures and Management Recommendations

No contingency measures are necessary at this time.

4.6.2 Project Standard #22: Faunal Diversity

4.6.2.1 Year 5 Condition

As vegetative cover increases in maturity, habitat for faunal communities will continue to develop. Mature plant communities can be expected to support a greater diversity of animal taxa.

Several vertebrate and invertebrate species have been observed across the restoration site since the conclusion of construction activities. A list of fauna observed within the restoration site has been compiled and offered as Appendix F. Over the past monitoring interval a number of significant wildlife species have been observed including (1) river otter within the channel; (2) beaver dams throughout the lower extent of the channel; (3) salmonid species, most notably king salmon (Oncorhynchus tshawytscha), in fall of 2007; (4) a breeding pair of bald eagles with young, and (5) kingfishers feeding and defending territory near the boardwalk.

A list of bird species incorporated into the current list is derived from work conducted by a UW student, Jennifer Leach, during the Year 1 (2003) monitoring interval.

4.6.2.2 Project Standards

Project standard for faunal diversity continue to be met as the restoration site attracts a greater number and variety of terrestrial, aquatic and semi-aquatic animals.
4.6.2.3 Contingency Measures

No contingency measures are required at this time.

4.6.3 Project Standard #23: Fish Surveys

4.6.3.1 Year 5 Condition

No additional fish surveys were completed during the Year 5 (2007) monitoring interval. Anecdotal evidence collected by UWB/CCC staff suggests a large run of Coho and King salmon occurred during the fall of 2007 (Photograph 4-7.).

4.6.3.2 Project Standards

The project standard for fish populations could not be assessed in Year 5 (2007).

4.6.3.3 Contingency Measures

No contingency measures are required at this time. Monitoring will be continued within the 10-year monitoring interval to determine if Coho and Chinook juvenile population numbers can rebound to pre-project conditions.
5. Summary

Results of Year 5 monitoring demonstrate that the UWB/CCC North Creek restoration site continues to function as an early seral riverine forested waters/wetlands ecosystem typical of the Puget Sound Lowlands. Eighty-one percent of the project standards were met in Year 5 (2007), an increase from 75% recorded in Year 3 (2005). Table 5-1 summarizes the status of the UWB/CCC restoration site relative to meeting the project targets and project standards. Failure to meet project standards was only the result of developing vegetative communities that have yet to meet articulated project standards for tree and shrub canopy coverage, as well as native:exotic ratios. Addressing project standards in Year 5 (2007) by functional group, 100% of the hydrologic and biogeochemical project standards were met while only 53% of the plant community and faunal habitat project standards were achieved.

No contingency measures are recommended at this time. However, continued maintenance activities are recommended to facilitate meeting the remaining project standards within the compliance monitoring interval. Maintenance activities should focus on, in order of priority: (1) continue exotic plant control, (2) continue to plant additional conifers, (3) continue to monitor beaver activities, and (4) continue to monitor movement of stream within the active floodplain.
6. LITERATURE CITED


7. Glossary of Terms

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bankfull</td>
<td>Stage at which water begins to flow out of channel system and into floodplain.</td>
</tr>
<tr>
<td>Channel cross-section geometry</td>
<td>The dimensions and morphology of a section of stream channel, taken perpendicular to the linear centerline of the stream from the top of the bank on one side, to the top of the bank on the opposite side.</td>
</tr>
<tr>
<td>Contingency</td>
<td>Allowances or measures set aside to respond to events or occurrences that are liable to occur, but not determinable at the present time. (Also refer to Table 1-2.)</td>
</tr>
<tr>
<td>D84, D50</td>
<td>Refers to the distribution of pebble sizes (diameter) in the bedload of a stream. The D50 is the average pebble diameter. Eighty four percent of the pebbles in the streambed will be smaller than the D84 measurement.</td>
</tr>
<tr>
<td>Entrenchment Ratio</td>
<td>Ratio of the width of the flood-prone area to the bankfull surface width of the channel.</td>
</tr>
<tr>
<td>ELJ</td>
<td>Engineered log jam.</td>
</tr>
<tr>
<td>Field Indicator/Measurement</td>
<td>Observable and/or measurable characteristics of waters/wetlands that correspond or correlate to articulated Project Standards. (Also refer to Table 1-2.)</td>
</tr>
<tr>
<td>Flood-prone Area</td>
<td>Width of floodplain measured at an elevation which is determined at twice the maximum bankfull depth.</td>
</tr>
<tr>
<td>Function</td>
<td>Processes that are necessary for the maintenance of an ecosystem, such as primary production, nutrient cycling, decomposition, etc. (Also refer to Table 1-2.)</td>
</tr>
<tr>
<td>Project Standard</td>
<td>Performance criteria and/or specifications used to guide restoration activities toward project targets. Project standards should include and specify reasonable contingency measures if the project target is not being achieved. (Also refer to Table 1-2.)</td>
</tr>
<tr>
<td>Reference Domain</td>
<td>All waters/wetlands within a defined geographic region that belong to a single hydrogeomorphic subclass. (Also refer to Table 1-2.)</td>
</tr>
</tbody>
</table>
Reference Standard  Conditions exhibited by a group of reference waters/wetlands that correspond to the highest level of functioning (highest sustainable capacity) across the suite of functions of the subclass. (Also, refer to Table 1-2.)
Table 1-1.
Federal, state, and City of Bothell environmental permits for the UWB/CCC collocated campus.

<table>
<thead>
<tr>
<th>Agency</th>
<th>Permit</th>
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</thead>
<tbody>
<tr>
<td>Federal</td>
<td></td>
</tr>
<tr>
<td>U.S. Army Corps of Engineers</td>
<td>Clean Water Act Section 404 - 95-4-01737</td>
</tr>
<tr>
<td>Washington State</td>
<td></td>
</tr>
<tr>
<td>Washington State Department of Ecology</td>
<td>Clean Water Act Section 401 Certification of Compliance</td>
</tr>
<tr>
<td>Washington State Department of Ecology</td>
<td>National Pollutant Discharge Elimination System State Waste Discharge General Permit for Stormwater Discharges Associated with Construction Activities (NPDES)</td>
</tr>
<tr>
<td>Washington Department of Fish and Wildlife</td>
<td>Hydraulic Project Approval (HPA) 00-D4061-01</td>
</tr>
<tr>
<td>City of Bothell</td>
<td></td>
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<tr>
<td>City of Bothell</td>
<td>Planned Unit Development PUD0004-95</td>
</tr>
<tr>
<td>City of Bothell</td>
<td>Clearing and Grading Permit GRA0020-98</td>
</tr>
<tr>
<td>Reference Term</td>
<td>Definitions</td>
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<td>-------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Reference Domain</td>
<td>All waters/wetlands within a defined geographic region that belong to a</td>
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<td></td>
<td>single hydrogeomorphic subclass.</td>
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<tr>
<td>Reference Standard</td>
<td>Conditions exhibited by a group of reference waters/wetlands that</td>
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<td></td>
<td>correspond to the highest level of functioning (highest sustainable</td>
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<tr>
<td></td>
<td>capacity) across the suite of functions of the subclass.</td>
</tr>
<tr>
<td>Site Potential</td>
<td>The highest level of functioning possible given local constraints of</td>
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<tr>
<td></td>
<td>disturbance history, land use, or other factors. Site potential may be equal</td>
</tr>
<tr>
<td></td>
<td>to or less than levels of functioning established by reference standards.</td>
</tr>
<tr>
<td>Project Target</td>
<td>The level of functioning identified or negotiated for a restoration project.</td>
</tr>
<tr>
<td></td>
<td>This target must be based on reference standards and/or site potential and</td>
</tr>
<tr>
<td></td>
<td>be consistent with restoration or creation goals. Project targets are used</td>
</tr>
<tr>
<td></td>
<td>to evaluate whether a project is developing toward reference standards</td>
</tr>
<tr>
<td></td>
<td>and/or site potential.</td>
</tr>
<tr>
<td>Project Standard</td>
<td>Performance criteria and/or specifications used to guide restoration</td>
</tr>
<tr>
<td></td>
<td>activities toward project targets. Project standards should include and</td>
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<td></td>
<td>specify reasonable contingency measures if the project target is not being</td>
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<td>achieved.</td>
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<tr>
<td>Field Indicator/</td>
<td>Observable and/or measurable characteristics of waters/wetlands that</td>
</tr>
<tr>
<td>Measurement</td>
<td>correspond or correlate to articulated project standards.</td>
</tr>
<tr>
<td>Function</td>
<td>Processes that are necessary for the maintenance of an ecosystem, such as</td>
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<td>primary production, nutrient cycling, decomposition, etc.</td>
</tr>
<tr>
<td>Contingency Measure</td>
<td>Allowances or measures set aside to respond to events or occurrences</td>
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<td></td>
<td>that are liable to occur, but not determinable at the present time.</td>
</tr>
</tbody>
</table>
Table 1-3.
Riverine waters/wetlands functions addressed by the UWB/CCC restoration project.

<table>
<thead>
<tr>
<th>Functional Group</th>
<th>Function</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hydrology</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dynamic surface</td>
<td>Capacity of a wetland to detain water from</td>
<td>Capacity of a wetland to detain water from overbank flow for a short duration when flow is out of the channel.</td>
</tr>
<tr>
<td>water storage</td>
<td>overbank flow for a short duration when flow is out of the channel.</td>
<td></td>
</tr>
<tr>
<td>Long term surface</td>
<td>Capacity of a wetland to temporarily store</td>
<td>Capacity of a wetland to temporarily store (detain) surface water for long durations; associated with standing water not moving over the surface.</td>
</tr>
<tr>
<td>water storage</td>
<td>(detain) surface water for long durations;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>associated with standing water not moving</td>
<td></td>
</tr>
<tr>
<td></td>
<td>over the surface.</td>
<td></td>
</tr>
<tr>
<td>Energy dissipation</td>
<td>Allocation of the energy of water to other</td>
<td>Allocation of the energy of water to other forms as it moves through, into, or out of the wetland as a result of roughness associated with large woody debris, vegetation structure, micro- and macro-topography, and other obstructions.</td>
</tr>
<tr>
<td>Subsurface water</td>
<td>availability on wetland storage. Storage</td>
<td>Availability of water storage beneath the wetland surface. Storage capacity becomes available as periodic draw down of water table or reduction in soil saturation occurs.</td>
</tr>
<tr>
<td>storage</td>
<td>capacity becomes available as periodic draw</td>
<td></td>
</tr>
<tr>
<td></td>
<td>down of water table or reduction in soil</td>
<td></td>
</tr>
<tr>
<td></td>
<td>saturation occurs.</td>
<td></td>
</tr>
<tr>
<td>Moderation of</td>
<td>Capacity of a wetland to moderate the rate</td>
<td>Capacity of a wetland to moderate the rate of groundwater flow or discharge from upgradient sources.</td>
</tr>
<tr>
<td>groundwater flow and</td>
<td>of groundwater flow or discharge from</td>
<td></td>
</tr>
<tr>
<td>discharge</td>
<td>upgradient sources.</td>
<td></td>
</tr>
<tr>
<td><strong>Biogeochemistry</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nutrient cycling</td>
<td>Abiotic and biotic processes that convert</td>
<td>Abiotic and biotic processes that convert nutrients and other elements from valence to another; primarily recycling processes.</td>
</tr>
<tr>
<td></td>
<td>nutrients and other elements from valence</td>
<td></td>
</tr>
<tr>
<td></td>
<td>to another; primarily recycling processes.</td>
<td></td>
</tr>
<tr>
<td>Removal of elements and</td>
<td>Removal of imported nutrients, contaminants,</td>
<td>Removal of imported nutrients, contaminants, and other elements and compounds.</td>
</tr>
<tr>
<td>compounds</td>
<td>and other elements and compounds.</td>
<td></td>
</tr>
<tr>
<td>Retention of</td>
<td>Deposition and retention of inorganic and</td>
<td>Deposition and retention of inorganic and organic particulates (&gt;0.45 μm) from the water column, primarily through physical processes.</td>
</tr>
<tr>
<td>particulates</td>
<td>organic particulates (&gt;0.45 μm) from the</td>
<td></td>
</tr>
<tr>
<td></td>
<td>water column, primarily through physical</td>
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</tr>
<tr>
<td></td>
<td>processes.</td>
<td></td>
</tr>
<tr>
<td>Organic carbon export</td>
<td>Export of dissolved and particulate organic</td>
<td>Export of dissolved and particulate organic carbon from a wetland. Mechanisms include leaching, flushing, displacement, and erosion.</td>
</tr>
<tr>
<td></td>
<td>carbon from a wetland.</td>
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</tr>
<tr>
<td></td>
<td>Mechanisms include leaching, flushing,</td>
<td></td>
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<tr>
<td></td>
<td>displacement, and erosion.</td>
<td></td>
</tr>
<tr>
<td><strong>Plant Community</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plant community</td>
<td>Species composition and physical characteristics of living plant biomass.</td>
<td></td>
</tr>
<tr>
<td>Detrital biomass</td>
<td>Production, accumulation, and dispersal of</td>
<td>Production, accumulation, and dispersal of dead plant biomass of all sizes.</td>
</tr>
<tr>
<td></td>
<td>dead plant biomass of all sizes.</td>
<td></td>
</tr>
<tr>
<td><strong>Faunal Support/Habitat</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spatial structure</td>
<td>Capacity of a wetland to support animal</td>
<td>Capacity of a wetland to support animal populations and guilds by providing heterogeneous habitats.</td>
</tr>
<tr>
<td>and habitat</td>
<td>populations and guilds by providing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>heterogeneous habitats.</td>
<td></td>
</tr>
<tr>
<td>Interspersion and</td>
<td>Capacity of a wetland to permit aquatic</td>
<td>Capacity of a wetland to permit aquatic organisms to enter and leave the wetland via permanent or ephemeral surface channels, overbank flow, or unconfined hyporheic gravel aquifers.</td>
</tr>
<tr>
<td>connectivity of</td>
<td>organisms to enter and leave the wetland</td>
<td></td>
</tr>
<tr>
<td>habitat</td>
<td>via permanent or ephemeral surface channels,</td>
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<tr>
<td></td>
<td>overbank flow, or unconfined hyporheic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>gravel aquifers.</td>
<td></td>
</tr>
<tr>
<td>Distribution and</td>
<td>Capacity of a wetland to maintain characteristic density and spatial distribution of aquatic, semi-aquatic, and terrestrial invertebrates.</td>
<td></td>
</tr>
<tr>
<td>abundance of</td>
<td>aquatic, semi-aquatic, and terrestrial</td>
<td></td>
</tr>
<tr>
<td>invertebrates</td>
<td>invertebrates.</td>
<td></td>
</tr>
<tr>
<td>Distribution and</td>
<td>Capacity of a wetland to maintain characteristic density and spatial distribution of aquatic, semi-aquatic, and terrestrial vertebrates.</td>
<td></td>
</tr>
<tr>
<td>abundance of</td>
<td>aquatic, semi-aquatic, and terrestrial</td>
<td></td>
</tr>
<tr>
<td>vertebrates</td>
<td>vertebrates.</td>
<td></td>
</tr>
</tbody>
</table>
Table 2-1: Project Standards for the UWB/CCC North Creek Ecosystem Restoration Project.

<table>
<thead>
<tr>
<th>Field Indicator/Measurement</th>
<th>Project Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Target #1: Restore Natural Morphology to the North Creek Channel System.</td>
<td></td>
</tr>
<tr>
<td>Main (Primary) Channel – Upper and Lower Reaches</td>
<td></td>
</tr>
<tr>
<td>Bankfull Width</td>
<td>34 to 48 feet</td>
</tr>
<tr>
<td>Bankfull Thalweg Depth</td>
<td>3.0 to 6.0 feet</td>
</tr>
<tr>
<td>Bankfull Width/Depth Ratio</td>
<td>6.0 – 16.0</td>
</tr>
<tr>
<td>Channel Slope at Thalweg</td>
<td>0.20% to 0.40%</td>
</tr>
<tr>
<td>Floodplain Area Width</td>
<td>Width is such that the entrenchment ratios will be within project standards.</td>
</tr>
<tr>
<td>Entrance Ratio</td>
<td>Greater than 2.2</td>
</tr>
<tr>
<td>Sinuosity</td>
<td>1.35 to 1.4</td>
</tr>
<tr>
<td>Channel Substrate</td>
<td>Gravel 0.20 – 6.35 cm</td>
</tr>
<tr>
<td>Main (Primary) Channel – Middle Reach</td>
<td></td>
</tr>
<tr>
<td>Bankfull Width</td>
<td>34 to 44 feet</td>
</tr>
<tr>
<td>Bankfull Thalweg Depth</td>
<td>3.0 to 6.0 feet</td>
</tr>
<tr>
<td>Bankfull Width/Depth Ratio</td>
<td>6.0 – 16.0</td>
</tr>
<tr>
<td>Channel Slope at Thalweg</td>
<td>0.15% to 0.25%</td>
</tr>
<tr>
<td>Channel Substrate</td>
<td>Gravel 0.20 – 6.35 cm</td>
</tr>
<tr>
<td>Secondary Channel</td>
<td></td>
</tr>
<tr>
<td>Bankfull Width</td>
<td>20 to 35 feet</td>
</tr>
<tr>
<td>Bankfull Thalweg Depth</td>
<td>2.0 to 5.5 feet</td>
</tr>
<tr>
<td>Bankfull Width/Depth Ratio</td>
<td>4.0 – 18.0</td>
</tr>
<tr>
<td>Channel Slope at Thalweg</td>
<td>0.15% to 0.25%</td>
</tr>
<tr>
<td>Channel Substrate</td>
<td>Gravel 0.20 – 6.35 cm</td>
</tr>
<tr>
<td>Project Target #2: Restore hydrologic connections between the North Creek Channel System and adjacent floodplain.</td>
<td></td>
</tr>
<tr>
<td>Groundwater Levels</td>
<td>Demonstration of hydrologic connection between North Creek and associated floodplain.</td>
</tr>
<tr>
<td>Project Target #3: Restore complex microtopography on the North Creek floodplain.</td>
<td></td>
</tr>
<tr>
<td>Microtopographic Roughness</td>
<td>Morphology of constructed microdepressions will not significantly change due to sediment accumulation or other natural and/or anthropogenic changes and therefore alter the duration of residence time of water within floodplain.</td>
</tr>
<tr>
<td>Project Target #4: Improve water quality by increasing the residence time of water within the North Creek ecosystem.</td>
<td></td>
</tr>
<tr>
<td>PH</td>
<td>Within limits of 6.5 and 8.5. Generally stabilizing to circumneutral (5.5-7.4) or slightly alkaline (8.2-8.9)</td>
</tr>
<tr>
<td>Conductivity</td>
<td>N/A</td>
</tr>
<tr>
<td>Turbidity</td>
<td>Turbidity shall not exceed 5 NTU over background turbidity when the background turbidity is 50 NTU or less, or have more than a 10 percent increase in turbidity when the background turbidity is more than 50 NTU</td>
</tr>
<tr>
<td>Temperature</td>
<td>N/A</td>
</tr>
<tr>
<td>Project Target #5: Restore native forested, scrub-shrub, and emergent wetland vegetation to the North Creek ecosystem.</td>
<td></td>
</tr>
<tr>
<td>Percent cover of native tree species</td>
<td>Forest Community: Greater than or equal to 55% Scrub-Shrub Community: Greater than or equal to 40% and less than or equal to 75% Emergent Community: 0%</td>
</tr>
<tr>
<td>Percent cover of native shrub species</td>
<td>Forest Community: Greater than or equal to 20% and less than or equal to 75% Scrub-Shrub Community: Greater than or equal to 85% Emergent Community: 0%</td>
</tr>
<tr>
<td>Percent cover of native forbs, graminoids, ferns, and fern allies</td>
<td>Forest Community: Less than or equal to 20% Scrub-Shrub Community: Less than or equal to 20% Emergent Community: Greater than or equal to 85%</td>
</tr>
<tr>
<td>Percent of native individuals</td>
<td>Greater than 75%</td>
</tr>
<tr>
<td>Percent of litter/debris</td>
<td>Greater than 50%</td>
</tr>
<tr>
<td>Vigor of planted stock</td>
<td>Greater than or equal to 80% of vegetation plots assessed as &quot;Good&quot; or &quot;Excellent&quot;</td>
</tr>
</tbody>
</table>
Table 2-1. Project Standards for the UWB/CCC North Creek Ecosystem Restoration Project.

<table>
<thead>
<tr>
<th>Field Indicator/Measurement</th>
<th>Project Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Target #6: Establish a compositionally and structurally complex ecosystem with attributes important to faunal species.</td>
<td>Forest Community and Scrub-Shrub Community Greater than or equal to 2 vegetative strata Emergent Community: Equal to 1 vegetative strata</td>
</tr>
<tr>
<td>Vegetative Structural Diversity</td>
<td>Restoration site continues to attract an increasing diversity of aquatic, semi-aquatic, and terrestrial wildlife.</td>
</tr>
<tr>
<td>Faunal diversity</td>
<td>Restoration site continues to support a population size equal to or greater than pre-restoration conditions.</td>
</tr>
<tr>
<td>Fish survey</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ecosystem Functions</th>
<th>Channel Cross-Sections and Longitudinal Profile</th>
<th>Channel Discharge</th>
<th>Groundwater Levels</th>
<th>Microtopographic Roughness</th>
<th>Water Quality</th>
<th>Vegetation, plots</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynamic Surface Water Storage</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Long Term Surface Water Storage</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Energy Dissipation</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Subsurface Storage of Water</td>
<td></td>
<td></td>
<td>●</td>
<td></td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Moderation of Groundwater Flow or Discharge</td>
<td></td>
<td></td>
<td>●</td>
<td></td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Nutrient Cycling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Removal of Elements and Compounds</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Retention of Particulates</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Organic Carbon Export</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Plant Community</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Detrital Biomass</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Spatial Structure of Habitat</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Interspersion and Connectivity of Habitat</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
<td></td>
<td>●</td>
</tr>
<tr>
<td>Distribution and Abundance of Invertebrates</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Distribution and Abundance of Vertebrates</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>●</td>
</tr>
</tbody>
</table>
Table 3-1.
Standard particle size class ranges used by BBL in the sampling of dominant channel substrate.

<table>
<thead>
<tr>
<th>Size Class Number</th>
<th>Size Range (mm)</th>
<th>Descriptive Size Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>≤ 2</td>
<td>Sand</td>
</tr>
<tr>
<td>2</td>
<td>≤ 3</td>
<td>Very Fine Gravel</td>
</tr>
<tr>
<td>3</td>
<td>≤ 4</td>
<td>Very Fine Gravel</td>
</tr>
<tr>
<td>4</td>
<td>≤ 6</td>
<td>Fine Gravel</td>
</tr>
<tr>
<td>5</td>
<td>≤ 8</td>
<td>Fine Gravel</td>
</tr>
<tr>
<td>6</td>
<td>≤ 11</td>
<td>Medium Gravel</td>
</tr>
<tr>
<td>7</td>
<td>≤ 16</td>
<td>Medium Gravel</td>
</tr>
<tr>
<td>8</td>
<td>≤ 23</td>
<td>Coarse Gravel</td>
</tr>
<tr>
<td>9</td>
<td>≤ 32</td>
<td>Coarse Gravel</td>
</tr>
<tr>
<td>10</td>
<td>≤ 45</td>
<td>Very Coarse Gravel</td>
</tr>
<tr>
<td>11</td>
<td>≤ 64</td>
<td>Very Coarse Gravel</td>
</tr>
<tr>
<td>12</td>
<td>≤ 91</td>
<td>Small Cobble</td>
</tr>
<tr>
<td>13</td>
<td>≤ 128</td>
<td>Medium Cobble</td>
</tr>
<tr>
<td>14</td>
<td>≤ 181</td>
<td>Large Cobble</td>
</tr>
<tr>
<td>15</td>
<td>≤ 256</td>
<td>Very Large Cobble</td>
</tr>
<tr>
<td>16</td>
<td>≤ 362</td>
<td>Small Boulder</td>
</tr>
<tr>
<td>17</td>
<td>≤ 512</td>
<td>Small Boulder</td>
</tr>
<tr>
<td>18</td>
<td>≤ 724</td>
<td>Medium Boulder</td>
</tr>
<tr>
<td>19</td>
<td>≤ 1024</td>
<td>Medium Boulder</td>
</tr>
</tbody>
</table>
Table 3-1.
Standard particle size class ranges used by BBL in the sampling of dominant channel substrate.

<table>
<thead>
<tr>
<th>Percent Cover Range</th>
<th>Cover Class Midpoint</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1%</td>
<td>0.5</td>
</tr>
<tr>
<td>1 - 5%</td>
<td>3</td>
</tr>
<tr>
<td>6 - 15%</td>
<td>10.5</td>
</tr>
<tr>
<td>16 - 25%</td>
<td>20.5</td>
</tr>
<tr>
<td>26 - 45%</td>
<td>38</td>
</tr>
<tr>
<td>46 - 75%</td>
<td>63</td>
</tr>
<tr>
<td>76 - 90%</td>
<td>85.5</td>
</tr>
<tr>
<td>&gt; 90%</td>
<td>98</td>
</tr>
</tbody>
</table>
Table 3-2. Qualitative score for assessing the vigor of planted stock.

<table>
<thead>
<tr>
<th>Score</th>
<th>Description of Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>No evidence of stress; minor pest or pathogen damage; natives dominant in all stratum</td>
</tr>
<tr>
<td>Good</td>
<td>Some evidence of stress; pest or pathogen damage present; non-native species present, but not dominant</td>
</tr>
<tr>
<td>Fair</td>
<td>Moderate level of stress; high levels of pest or pathogen damage; non-native species dominant in at least one stratum</td>
</tr>
<tr>
<td>Poor</td>
<td>High level of stress; high levels of pest or pathogen damage; non-native species dominant in at least one stratum</td>
</tr>
</tbody>
</table>
Table 4-1.
Channel cross-section characteristics at surveyed locations.

<table>
<thead>
<tr>
<th>Transect</th>
<th>Bankfull Width (ft)</th>
<th>Bankfull Maximum Depth (ft)</th>
<th>Bankfull Width : Max. Depth (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1 (main - upper reach)</td>
<td>53</td>
<td>53</td>
<td>52</td>
</tr>
<tr>
<td>#2A (main - upper reach)</td>
<td>60</td>
<td>58</td>
<td>62</td>
</tr>
<tr>
<td>#2B (main - upper reach)</td>
<td>50</td>
<td>50</td>
<td>51</td>
</tr>
<tr>
<td>#3 (secondary channel)</td>
<td>52</td>
<td>55</td>
<td>55</td>
</tr>
<tr>
<td>#4 (main - middle reach)</td>
<td>53</td>
<td>45</td>
<td>44</td>
</tr>
<tr>
<td>#5 (secondary channel)</td>
<td>50</td>
<td>35</td>
<td>32</td>
</tr>
<tr>
<td>#6 (main - lower reach)</td>
<td>63</td>
<td>55</td>
<td>63</td>
</tr>
<tr>
<td>#7 (main - lower reach)</td>
<td>NA</td>
<td>60</td>
<td>58</td>
</tr>
</tbody>
</table>

NA = Not available.
Table 4-2.
Additional channel measurements at 25 locations throughout the restored reach of North Creek.
Data collected in Year 5 (2007).

<table>
<thead>
<tr>
<th>Transect</th>
<th>Bankfull Width (ft)</th>
<th>Bankfull Depth (ft)</th>
<th>Width:Depth Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary Channel</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>45.0</td>
<td>3.3</td>
<td>13.6</td>
</tr>
<tr>
<td>2</td>
<td>47.0</td>
<td>5.5</td>
<td>8.5</td>
</tr>
<tr>
<td>3</td>
<td>40.0</td>
<td>2.5</td>
<td>16.0</td>
</tr>
<tr>
<td>4</td>
<td>44.0</td>
<td>3.1</td>
<td>14.4</td>
</tr>
<tr>
<td>5</td>
<td>50.0</td>
<td>3.7</td>
<td>13.5</td>
</tr>
<tr>
<td>6</td>
<td>37.0</td>
<td>3.3</td>
<td>11.3</td>
</tr>
<tr>
<td>7</td>
<td>50.0</td>
<td>5.5</td>
<td>9.1</td>
</tr>
<tr>
<td>8</td>
<td>29.3</td>
<td>2.0</td>
<td>14.8</td>
</tr>
<tr>
<td>9</td>
<td>35.0</td>
<td>2.9</td>
<td>12.2</td>
</tr>
<tr>
<td>10</td>
<td>37.0</td>
<td>3.4</td>
<td>10.9</td>
</tr>
<tr>
<td>11</td>
<td>31.0</td>
<td>3.7</td>
<td>8.4</td>
</tr>
<tr>
<td>12</td>
<td>41.0</td>
<td>3.7</td>
<td>11.1</td>
</tr>
<tr>
<td>13</td>
<td>30.0</td>
<td>2.4</td>
<td>12.3</td>
</tr>
<tr>
<td>14</td>
<td>38.0</td>
<td>3.8</td>
<td>10.0</td>
</tr>
<tr>
<td>15</td>
<td>37.0</td>
<td>3.4</td>
<td>10.9</td>
</tr>
<tr>
<td>16</td>
<td>32.0</td>
<td>3.0</td>
<td>10.7</td>
</tr>
<tr>
<td>17</td>
<td>39.5</td>
<td>3.9</td>
<td>10.1</td>
</tr>
<tr>
<td>18</td>
<td>39.8</td>
<td>2.9</td>
<td>13.9</td>
</tr>
<tr>
<td>19</td>
<td>29.0</td>
<td>2.4</td>
<td>12.2</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>38.5</strong></td>
<td><strong>3.4</strong></td>
<td><strong>11.8</strong></td>
</tr>
<tr>
<td><strong>Secondary Channel</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>32.0</td>
<td>3.8</td>
<td>8.4</td>
</tr>
<tr>
<td>B</td>
<td>25.5</td>
<td>2.7</td>
<td>9.6</td>
</tr>
<tr>
<td>C</td>
<td>23.5</td>
<td>3.2</td>
<td>7.3</td>
</tr>
<tr>
<td>D</td>
<td>24.5</td>
<td>4.7</td>
<td>5.2</td>
</tr>
<tr>
<td>E</td>
<td>21.0</td>
<td>3.3</td>
<td>6.4</td>
</tr>
<tr>
<td>F</td>
<td>15.8</td>
<td>3.5</td>
<td>4.5</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>23.7</strong></td>
<td><strong>3.5</strong></td>
<td><strong>6.9</strong></td>
</tr>
</tbody>
</table>
Table 4-3.  
Longitudinal slope of the channel bed for two reaches of the restored portion of North Creek.

<table>
<thead>
<tr>
<th>Transect</th>
<th>Distance (ft)</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1 to #7 (entire site)</td>
<td>3899</td>
<td>0.15</td>
<td>0.18</td>
<td>0.19</td>
<td>0.19</td>
<td>0.20</td>
</tr>
<tr>
<td>#1 to #2b (main - upper reach)</td>
<td>616</td>
<td>0.02</td>
<td>0.30</td>
<td>0.27</td>
<td>0.35</td>
<td>0.24</td>
</tr>
</tbody>
</table>
Table 4-4.
Flood-prone area width and entrenchment ratios for six cross-sectional transects.

<table>
<thead>
<tr>
<th>Transect Number</th>
<th>Flood-prone Area Width (feet)</th>
<th>Entrenchment Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>2A</td>
<td>900</td>
<td>900</td>
</tr>
<tr>
<td>2B</td>
<td>1125</td>
<td>1125</td>
</tr>
<tr>
<td>3</td>
<td>1300</td>
<td>1300</td>
</tr>
<tr>
<td>4</td>
<td>830</td>
<td>830</td>
</tr>
<tr>
<td>5</td>
<td>825</td>
<td>825</td>
</tr>
<tr>
<td>6</td>
<td>825</td>
<td>825</td>
</tr>
</tbody>
</table>
Table 4.5: Pebble count data from the restored reach of North Creek. (Units are in mm).

<table>
<thead>
<tr>
<th>Sampling Point</th>
<th>Year</th>
<th>D16</th>
<th>D25</th>
<th>D50</th>
<th>D75</th>
<th>D84</th>
<th>D95</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>2002</td>
<td>NA</td>
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(Units are in mm).

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### Table 4.4

Percent mean canopy coverage and frequency data for shrub species identified within the 50 vegetation plots.

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<th>Common Name</th>
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<th>Year 2 (%)</th>
<th>Year 3 (%)</th>
<th>Year 4 (%)</th>
<th>Year 5 (%)</th>
<th>Year 1 Year 2 (%)</th>
<th>Year 2 Year 3 (%)</th>
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* Exotic species  * Listed King County and State of Washington Noxious Weed
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<td>3.0</td>
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<tr>
<td>Nettle</td>
<td>Urban plants</td>
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<tr>
<td>American ivy</td>
<td>Hedera helix</td>
<td>3.0</td>
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<tr>
<td>Vicia sp.</td>
<td>Vicia sp.</td>
<td>0.0</td>
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Table 4-10: Percent mean canopy coverage and frequency data for forbs, graminoids, ferns and fern allies species identified within the 50 vegetation plots. Plot size was 0.01 acre.
Table 5-1.
Summary of project standards and current conditions of the UWB-CCC
North Creek Ecosystem Restoration project.

<table>
<thead>
<tr>
<th>Project Standard</th>
<th>Field Indicator / Measure</th>
<th>Does Site Meet Project Standards?</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 5</th>
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<td></td>
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<tr>
<td>Main (Primary) Channel – Upper and Lower Reaches</td>
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<tr>
<td>Bankfull Width</td>
<td>34 to 48 feet</td>
<td>Yes</td>
<td>Yes</td>
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<td>Yes</td>
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<tr>
<td>Bankfull Thalweg Depth</td>
<td>3.0 to 6.0</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Bankfull Width Depth Ratio</td>
<td>10 to 14</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Channel Slope at Thalweg Depth</td>
<td>0.20% to 0.40%</td>
<td>Yes</td>
<td>Yes</td>
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<td>Yes</td>
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<td>Floodprone Area Width</td>
<td>Floodprone area width will be such that the entrenchment ratios will be within project standards.</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Entrenchment Ratio</td>
<td>Greater than 2.2</td>
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<td>Yes</td>
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<td>Sinuosity</td>
<td>1.35 to 1.4</td>
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<td>Inc</td>
<td>Inc</td>
<td>Inc</td>
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<td>Gravel 0.20 – 6.35 mm</td>
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<td><strong>Main (Primary) Channel – Middle Reach</strong></td>
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<td>Yes</td>
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<td>10 to 14</td>
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<td>No</td>
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<td>0.15% to 0.25%</td>
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<td>Yes</td>
<td>Yes</td>
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<td><strong>Secondary Channel</strong></td>
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<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Channel Slope at Thalweg Depth</td>
<td>0.15% to 0.25%</td>
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<td>No</td>
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<td>Yes</td>
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<td>Channel Substrate</td>
<td>Gravel 0.20 – 6.35 mm</td>
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<td>NA</td>
<td>NA</td>
<td>NA</td>
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<td><strong>Project Target #2: Restore hydrologic connections between the North Creek Channel System and adjacent valley alluvium.</strong></td>
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<td>Groundwater Levels</td>
<td>Demonstration of hydrologic connection between North Creek and associated floodplain.</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td><strong>Project Target #3: Restore complex microtopography on the North Creek floodplain.</strong></td>
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<td>Microtopographic Roughness</td>
<td>Morphology of constructed microtopography will not significantly change due to sediment accumulation or other natural and/or anthropogenic changes and therefore alter the duration of residence time of water within floodplain.</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td><strong>Project Target #4: Improve water quality by increasing the residence time of water within the North Creek ecosystem.</strong></td>
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<td>pH</td>
<td>Within limits of 6.5 and 8.5. Generally stabilizing to circumneutral (5.5-7.4) or slightly alkaline (8.2-8.3)</td>
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<td>Turbidity</td>
<td>Turbidity shall not exceed 5 NTU over background turbidity when the background turbidity is 50 NTU or less, or have more than a 10 percent increase in turbidity when the background turbidity is more than 50 NTU</td>
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Table 5-1.
Summary of project standards and current conditions of the UWB-CCC
North Creek Ecosystem Restoration project.

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<th>Project Target #8:</th>
<th>Project Target #6:</th>
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<td><strong>Project Standard</strong></td>
<td><strong>Establish a compositionally and structurally complex ecosystem with attributes important to faunal species.</strong></td>
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<tr>
<td>Percent cover of native tree species</td>
<td>Forest Community: Greater than or equal to 65%</td>
</tr>
<tr>
<td></td>
<td>Scrub-Shrub Community: Greater than or equal to 40% and less than or equal to 75%</td>
</tr>
<tr>
<td></td>
<td>Emergent Community: 0%</td>
</tr>
<tr>
<td>Percent cover of native shrub species</td>
<td>Forest Community: Greater than or equal to 20% and less than or equal to 75%</td>
</tr>
<tr>
<td></td>
<td>Scrub-Shrub Community: Greater than or equal to 85%</td>
</tr>
<tr>
<td></td>
<td>Emergent Community: 0%</td>
</tr>
<tr>
<td>Percent cover of native forbs, graminoids, ferns, and fern allies</td>
<td>Forest Community: Less than or equal to 20%</td>
</tr>
<tr>
<td></td>
<td>Scrub-Shrub Community: Less than or equal to 20%</td>
</tr>
<tr>
<td></td>
<td>Emergent Community: Greater than or equal to 85%</td>
</tr>
<tr>
<td>Percent of native individuals</td>
<td>Greater than 75%</td>
</tr>
<tr>
<td>Percent of litter/debris</td>
<td>Greater than 50%</td>
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<tr>
<td>Vigor of Planted Stock</td>
<td>Greater than or equal to 80% of vegetation plots assessed as “Good” or “Excellent.”</td>
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<table>
<thead>
<tr>
<th>Does Site Meet Project Standards?</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
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<tr>
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<tr>
<td>Scrub-Shrub Community: Greater than or equal to 40% and less than or equal to 75%</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>Emergent Community: 0%</td>
<td>No</td>
<td>No</td>
<td>Yes*</td>
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<tr>
<td>Forest Community: Greater than or equal to 20% and less than or equal to 75%</td>
<td>No</td>
<td>Yes</td>
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<tr>
<td>Scrub-Shrub Community: Greater than or equal to 85%</td>
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<td>No</td>
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<tr>
<td>Emergent Community: 0%</td>
<td>No</td>
<td>No</td>
<td>Yes*</td>
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<tr>
<td>Forest Community: Less than or equal to 20%</td>
<td>N/A</td>
<td>No</td>
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<td>Greater than 75%</td>
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<tr>
<td>Greater than 50%</td>
<td>No</td>
<td>Yes</td>
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<tr>
<td>Greater than or equal to 80% of vegetation plots assessed as “Good” or “Excellent.”</td>
<td>Inc</td>
<td>No</td>
<td>No</td>
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</table>

NA = Non-applicable. Commonly the result of the absence of any specified Field Indicator/Measurement
Inc = Measurement not taken.
* project standard met after removing isolated microdepression that has functioned as a recruitment bed for native trees and shrubs. Under the assumption that this occurred as a natural process, the project standard was assumed to be met.
Figure 1-1.
Regional Map for the UWB/CCC North Creek Ecosystem Restoration Project
Figure 1-2.
Location map for the UWB/CCC North Creek Ecosystem Restoration Project.

Source: NBBJ – Submittal Package for Final Planned Unit Development Approval
Figure 3-1:
Definition of particle axes (Bundt & Abt, 2001).
Figure 4-1.
Measured discharge at Snohomish County Gauge: North Creek at County Line from October 1, 2000 to November 13, 2005.
Figure 4.2. Comparison of daily mean flow (cfs) for Snohomish County line and 196th Street stream gages since 2001.
Figure 4.3.
Percent cover and frequency of six exotic species of special concern, listed by either federal, state, and/or King county that have been identified within the 50 vegetation sample plots over the five year compliance monitoring interval.
Photograph 4-1.
Photograph depicting overall health of North Creek Restoration site during Year 5 conditions.
Photograph 4-2.
Microdepression located in floodplain.
Photograph 4-3.
Photograph 4-4
Native tree and shrub canopy coverage.
Sprouting of red alder trunks in response to burn damage.
Photograph 4-6.
Beaver dams in North Creek winter 2006.
Photograph 4-7.
King and Coho salmon documented in North Creek during fall run 2007.
Appendix A

Universal Transverse Mercator (UTM) Coordinates for Sampling Locations
### UWB/CCC Baseline Monitoring - Vegetation Plots

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UWB/CCC Baseline Monitoring - Photopoints

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## UWB/CCC Baseline Monitoring - Wells and Piezometers

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Appendix B

Cross-sectional Profiles for Permanent Stream Transects
NOTE: Vegetation growth prevented full floodplain survey in 2005. Robar was reset at the active channel margin and related to original fenceposts.

For location of transect see BBL, 2005 Monitoring Report
NOTE: Vegetation growth prevented full floodplain survey in 2005. Rebar was reset at the active channel margin and related to original fenceposts.

For location of transect see BBL 2005 Monitoring Report.
NOTE: Vegetation growth prevented full floodplain survey in 2005. Rebar was repositioned at the active channel margin and related to original fenceposts.
UWB/CCC Monitoring
Cross Section 5

NOTE: Vegetation growth prevented full floodplain survey in 2005. Rebar was reset at the active channel margin and related to original fencposts.

Station (ft) from River Left to River Right
For location of transect see BBL 2000 Monitoring Report
NOTE: Vegetation growth prevented full floodplain survey in 2005. Rebar was reset at the active channel margin and related to original fenceposts.

Gap in survey due to water depths greater than 5 ft.

For location of transect see BBL 2005 Monitoring Report
Appendix C
Profiles for Microdepressions
UWB/CCC Monitoring
Microtopography Transect 1

For location of transect see BBL 2005 Monitoring Report
UWB/CCC Monitoring
Microtopography Transect 4

For location of the transect see ARCADIS 2007 Monitoring Report
UWB/CCC Monitoring
Microtopography Transect 5

For location of transect see BBL 2005 Monitoring Report
Appendix D

Vegetation Data
Appendix E

Faunal Data
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<th>Mammals</th>
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<tr>
<td>Odocoileus hemionus</td>
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<td>Peromyscus maniculatus</td>
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<th>Reptiles and Amphibians</th>
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<td>Rana catesbiana</td>
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<table>
<thead>
<tr>
<th>Birds</th>
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<tr>
<td>Agelaius phoeniceus</td>
<td>Red-winged blackbird</td>
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<td>Anas Platyrhynchos</td>
<td>Mallard</td>
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<tr>
<td>Ardea herodias</td>
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<td>Bombilla cedrorum</td>
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BLAND, ROUCHE & LEE, INC
Engineers, Scientists, Economists
Data collected by Ms. Jennifer Leach of the bird use within the UWB/CCC North Creek and Floodplain Ecosystem Restoration Site. Data was collected once monthly between May and July 2003.

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