Mill Planning Area

Post Annexation Implementation Plan

Revised July 2016
March 2016

GOLDSMITH
LAND DEVELOPMENT SERVICES

Exhibit 10

Mill Planning Area

Post Annexation Implementation Plan

Prepared for:

Snoqualmie Mill Ventures, LLC

Revised July 2016
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Job Number: 12046

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Mill Planning Area

Annexation Implementation Plan

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I. INTRODUCTION

Goldsmith has been retained by Snoqualmie Mill Ventures, LLC (the "Owner") to prepare an Annexation Implementation Plan (AIP) for the Mill Planning Area, which is located adjacent to, north and east of the Snoqualmie River and includes the Mill Pond / Borst Lake. (Reference Annexation Map provided in **Appendix 1**.).

In 2011, a Pre-Annexation Agreement was approved for the Mill Planning Area. (Ref. copy of Agreement provided in **Appendix 3**.) The Mill Planning Area was annexed into the City of Snoqualmie in September 2012.

The City of Snoqualmie Comprehensive Plan ("Snoqualmie 2032"), Vision and Policy Plan, Policies 7.8.1 through 7.8.9, require preparation of an AIP in connection with an annexation. The AIP is to address land uses, road network and primary utility systems. Additional specific requirements apply to the AIP for the Mill Planning Area. For the Mill Planning Area, the Pre-Annexation Agreement provided that the AIP would be prepared subsequent to annexation. Although not required by the Comprehensive Plan, this AIP document also discusses each requirement of the Pre-Annexation Agreement.

This AIP is prepared pursuant to these requirements. It discusses historic and existing conditions, as well as the processes and regulations that will govern any future applications for development within the Mill Planning Area.

The AIP itself does not propose any development within the Mill Planning Area and approval of the AIP would not authorize any development. Project specific land use approvals and construction permits will be required before any development may occur.

It is anticipated that the portion of the Mill Planning Area owned by Snoqualmie Mill Ventures, LLC (SMV) will be developed in phases over a period of at least 10 years. Subsequent land use approvals required for development would include a Planned Commercial Industrial/Plan (PCI Plan) pursuant to Snoqualmie Municipal Code (SMC) 17.20.050 and may include a development agreement under RCW 36.70B.170 *et seq*. No application for those approvals has been submitted.

II. BACKGROUND & HISTORY

A. Property and Ownership

This Annexation Implementation Plan addresses the following properties, referred to as the Mill Planning Area:

Parcel Area Table		
Ownership	**Tax Parcel No.**	**Size / Acres**
Snoqualmie Mill Ventures, LLC	3024089004	38.70 Acres
	2924089009	120.77 Acres*
	3024089001	20.44 Acres
	3024089069	13.54 Acres
	3024089070	2.17 Acres
	2924089022	5.39 Acres
	2924089023	3.66 Acres
	2924089006	40.69 Acres
		SUBTOTAL: 245.36 Acres
King County (Parks)	2924089028	5.58 Acres
	2924089002	10.98 Acres
	2924089003	15.63 Acres
		SUBTOTAL: 32.19 Acres
Portions of Snoqualmie River and Mill Pond Road	322408HYDR; 785020HYDR; 302408HYDR; UNKNOWN	59.73
		SUBTOTAL: 59.73 Acres
Weyerhaeuser Real Estate Development Co.	2924089011	85.50
	2924089013	34.41
	2924089015	41.03
	2924089017	7.06**
	2924089018	28.25
	2924089025	2.08
	3024089015	27.4
	3224089002	5.02
	3224089006	16.41
	3224089008	8.56
		SUBTOTAL AREA: 255.72 Acres
TOTAL AREA: 593+/- ACRES		

* Parcel No. 2924089009 is 136.47 acres in size. However, 15.7 acres of this parcel was not annexed and lies within King County jurisdiction.

** Parcel No. 2924089017 is 11.20 acres in size. However, 4.14 acres of Parcel No. 2924089017 was not annexed and still lies within King County jurisdiction.

Please note: The parcels in Weyerhaeuser Real Estate Development Company ownership, Snoqualmie River properties, and Mill Pond Road have not been surveyed or studied.

B. History

The Mill Planning Area has been actively developed and utilized for commercial, industrial, and residential purposes for nearly 100 years, beginning in 1916 when construction began on the Snoqualmie Falls Lumber Company Mill. Following is a chronological summary of the site's historical development and uses.

1912: Weyerhaeuser Timber Co. and Grandin-Coast Lumber Co. begin investigations to identify a suitable site for a saw mill in the Snoqualmie Valley. The Subject Site is chosen for several benefits, including proximity to two transcontinental railroads, The Northern Pacific, and The Chicago, Milwaukee, St. Paul and Pacific ("The Milwaukee Road").

1914: Plans for a new mill are announced; Weyerhaeuser with 2/3 ownership and Grandin-Coast with 1/3 ownership interest. Site clearing and grading activities begin.

1916: Construction of mill facilities begins. Fill material is imported for use in filling swales, building foundations, and to match rail line grades.

1918: Dredging activities occur along Mill Pond for handling and sorting logs.

1916-1920: The eastern sloped portion of the site is developed for employee residences of the mill, referred to as the Mill Town, which included a store, hospital, community services, roads, and housing for workers and management.

1920: Construction of the saw mill is complete and operations begin.

1930s - 1970s: Continued expansion of mill facilities; ongoing grading and fill is placed across the site.

2003: The saw mill closes and demolition of buildings begins.

2010: DirtFish Rally School begins operating on-site utilizing existing impervious surfaces and exposed fill material as rally car course/track. Snoqualmie Mill Ventures, LLC, purchases the Mill Site. The Mill Pond (Borst Lake), however, remains in Weyerhaeuser ownership.

C. Current Conditions and Uses

Historic Snoqualmie Mill:

During construction and operation of the mill, a Milwaukee rail line was constructed along the eastern portion of the site for hauling lumber from the mill. In addition, development included the old Mill Town on the eastern slopes with a company store, hospital, boarding house, a community center, and homes.

The Mill Planning Area was cleared, graded, and filled over the course of its use as a lumber mill that included a network of internal haul roads for the transport of lumber. The main haul road through the site connects 396th Drive SE to Mill Pond Road and is still used to serve the site, referred to as the Weyerhaeuser Haul Road. There is a reservation across this roadway for Weyerhaeuser to maintain and use and the road, which is currently used to serve the gravel quarry located north of the Mill Planning Area. (Ref. A.F. #20080514000800) Current uses on the site continue to use the haul road

and the internal network of roads, as well as other impervious surfaces for parking, storage, and instructional driving course.

There remain some legacy infrastructure from the Weyerhaeuser Timber Co., such as vacant buildings, building foundation remnants, paved and gravel roads, culverts, trails and foot bridges, docks associated with Mill Pond, broken concrete, parking areas, wood piles, compacted fill areas, and vacated railway. Additionally, the site has an historical site associated with the former brick powerhouse and smokestack.

The existing network of roadways (paved, gravel, concrete), and some of the buildings are currently being utilized by the on-site operations listed below. Periodic site maintenance activities include ditch cleaning, brush cutting, mowing, and other infrastructure maintenance.

DirtFish Rally School: Ultimate Rally, LLC, operates a specialized driving instruction school on the site, which is comprised of a series of paved and unpaved roadways. Activities associated with the DirtFish Rally School include vehicle and equipment storage, vehicle maintenance, oil and fuel storage, and tire storage. The course lies mainly in the central area of the site, with classrooms and offices located on the easternmost portion of the site, commonly referred to as the "hillside".

Other Uses: The northern portion of the site is used by several parties, including Northfork Enterprises, which currently utilizes surface area for storage of wood recycling materials as well as production of top soil. Other activities on-site include soil and gravel storage, a bee hive operation, temporary construction staging, and truck storage.

King County Parks: A Boundary Line Adjustment was recorded in 2015 for the parcels located on the easternmost portion of the Mill Planning Area, the "hillside". (Ref. LLA 15-01 recorded at 20151106900001.) Subsequently, King County purchased the hillside parcels (32.19 acres) for future uses including construction of the missing link of the Snoqualmie Valley Trail.

III. PRE-ANNEXATION AGREEMENT

A Pre-Annexation Agreement was entered into by and between the City of Snoqualmie (Grantee); Snoqualmie Mill Ventures, LLC; Ultimate Rally, LLC; and Weyerhaeuser Real Estate Development Company (Grantors or Owners) effective October 24, 2011. Some of the more significant provisions of the Pre-Annexation Agreement are discussed below for background; the following section of this Annexation Implementation Plan addresses the terms and obligations of the Agreement as applies to future development of the Mill Planning Area. (Ref. Pre-Annexation Agreement provided in **Appendix 3**.)

A. Provisions Applicable to All Parties

A.1. Annexation

The City's Annexation of the Mill Planning Area became effective September 28, 2012.

A.2. Zoning

The land use designations of the Mill Planning Area are represented in the City's Comprehensive Plan and Official Zoning Map. The property in SMV ownership lies within the Planned Commercial/Industrial District (PCI) and Parks/Open Space (OS). Properties not in SMV ownership lie within Parks/Open Space as well as Rivers/Lakes. (Ref. Comprehensive Plan Figure 7.3 dated August 2013 and City of Snoqualmie Official Zoning Map 2016 provided in **Appendix 1**.)

A.3. Shoreline Environment Designations

Per the Draft "City of Snoqualmie Shoreline Designation Map with UGA Areas" dated September 30, 2015, the City has designated the following Shoreline Environments on the Mill Planning Area:

- That portion of the Mill Planning Area lying within the Floodway, adjacent to and northeast of Mill Pond Road, has been designated within the Conservancy Shoreline Environment.
- The Mill Planning Area lying within 200 feet landward and adjacent to the Conservancy Shoreline Environment is designated as lying within the Urban Floodplain Shoreline Environment.
- Some portions of the Mill Planning Area lie within the Snoqualmie River and the Mill Pond / Borst Lake. These areas are designated as lying within the Aquatic Environment.
- The remainder of land within the Mill Planning Area west and south of Mill Pond Road lies within the Natural Environment.

The City is in the process of updating its Shoreline Maser Program (SMP).

A.4. Comprehensive Plan Policies

The 2014 City of Snoqualmie Comprehensive Plan (Snoqualmie 2032) contains general policies for annexation, as well as specific policies for designated planning areas. The Agreement provided for deferral of application of those planning policies for the Mill Planning Area until after Annexation.

This AIP addresses the applicable annexation planning policies of the Comprehensive Plan in Section IV below.

The Agreement permits the ongoing operation of the existing on-site business operations (DirtFish Rally School and Northfork Enterprises,) including repairs, maintenance, special events, and storage.

A.5. Business License Required

All businesses operating on the Mill Planning Area have obtained, and will continue to keep current any required City business licenses.

A.6. Site Development

This AIP is a document that is required by the Comprehensive Plan in connection with annexation of the Mill Planning Area. The AIP does not propose any development in this area. Future development will require land use and construction approvals. Applications for these approvals have not yet been submitted to the City.

In the future, applications for proposed development under the City's Planned Commercial/Industrial District provisions may be submitted for review and approval, concurrent with appropriate environmental review. No site improvements or future development beyond ongoing maintenance and repair of pre-existing, legal non-conforming uses are proposed at this time.

Please reference the Technical Memorandum prepared by AESI dated June 17, 2016 (Appendix 7), which responds to the City's comment as follows:

> **COMMENT:** *Most of the site is comprised of soft/loose soils that run deep with high organic content, creating a high risk of initial and long-term secondary settlement, potentially damaging roadway and utilities. This fact is known by all and have been discussed in depth with Geotechnical consultants. The Applicant is aware of the issues and are in the process of developing a method to address this issue that will address potential settlement risk and come up with a viable solution to be reviewed and approved by the City." Please note this in the findings and probable impacts.*
>
> **RESPONSE:** *The site contains deep deposits of loose/soft compressible soils as described in AESI's October 5, 2012, Subsurface Exploration and Geotechnical Engineering Report. Without mitigation, these soil conditions are prone to short-term and long-term consolidation, which may impact proposed site improvements, including structures, roadways, and utilities. Site settlement mitigation techniques will be analyzed and proposed as part of the design phase of future site development applications for the project. Settlement mitigations may include soil preloading, ground improvement, deep foundations, or a combination thereof. Future design phase geotechnical reports will be prepared to include recommendations for temporary and permanent erosion and seismic hazard mitigation.*

Please note: The parcels in Weyerhaeuser Real Estate Development Company ownership, Snoqualmie River properties, and Mill Pond Road have not been surveyed or studied.

A.7. Amendment to Allowable Uses

This provision affords the opportunity to request that recreational uses be permitted on the Mill Planning Area that would not otherwise be permitted under current code within the City's Planned Commercial/Industrial District.

At the time of this AIP, there has been no request for consideration of expanded recreational uses submitted to the City. A request to clarify and/or allow such recreational uses on the Mill Planning Area, however, may be submitted in the future.

A.8. Amendment to Temporary Use Permits / Special Event Permits

This provision anticipates that amendments may be made to the City's Code to increase the maximum number of annual temporary use permits that may be issued. This would facilitate additional special events to occur, thereby fulfilling the City's goal of promoting tourism. (Ref. Comprehensive Plan Vision & Policy Plan 1-12, Objective 3.5.) No amendments are proposed at this time.

A.9. Limitation on Use

This provision prohibits any expansion of "race track" on the Mill Planning Area beyond what existed prior to annexation. It does not limit temporary courses laid out with cones or other markers over existing roads or grounds. No expansion is proposed.

A.10. Extension to any Future Annexations within Mill Planning Area

The provisions of the Pre-Annexation Agreement will apply to adjacent properties if transferred to any of the Grantors of the Agreement.

A.11. City Riverwalk Trail

The City of Snoqualmie has developed objectives and policies to support tourism and maximize the City's tourism assets in its Comprehensive Plan (Vision & Policy Plan 1-12, Objective 3.5), which specifically identifies plans for "opening the riverfront by developing a looped 'riverwalk' trail with connections to the local Centennial Trail and the regional Snoqualmie Valley and Preston-Snoqualmie trails".

The Owners of the area of the Mill Planning Area lying south and west of SE Mill Pond Road, within the Natural Shoreline Environment and the Open Space 1 District, are required to dedicate a 20-foot wide area to the City for a Riverwalk Trail Corridor in the area. (This area includes parcels currently owned by Weyerhaeuser Real Estate Development Company.) This trail would be located within the Snoqualmie River critical area buffer. The exact location will be determined as mutually agreed upon by the Owners and the City.

A.12. Bonded Indebtedness

The parties to the Pre-Annexation Agreement acknowledged that upon annexation, the properties became subject to a proportionate share of City bonded indebtedness.

A.13. Transfer of Infrastructure

The parties to the Pre-Annexation Agreement acknowledged that Meadowbrook Bridge and Mill Pond Road would be transferred from King County to the City on annexation. The Pre-Annexation Agreement required analysis of impacts to these facilities for any proposed future development. Consistent with this requirement of the Pre-Annexation Agreement, an analysis of future utilities and transportation infrastructure improvements necessary to serve proposed development will occur at the time development is proposed. At this time, it is premature to conduct this analysis because no development plans have been submitted to the City.

A.14. Snoqualmie Valley Trail

In order to provide for the missing link of the Snoqualmie Valley Trail, an easement, right-of-way dedication, or transfer of ownership will be required to accommodate a trail connection through the Mill Planning Area. King County has purchased the "hillside", approximately 32 acres in size, to accommodate a portion of the missing link. Additional land will be required to complete the trail system through the Mill Pond / Borst Lake portion of the Mill Planning Area. The ultimate location of the Snoqualmie Valley Trial will be determined in the future as agreed upon by the Owner(s), the City, and King County Parks Department.

A.15. Term

This Agreement remains in full force and effect and will terminate upon fulfillment of Item A.6 – Site Development and mutual agreement; except that Item A.9 – Limitation of Use will continue to remain in full effect.

B. Provisions Applicable to City, SMV, & Ultimate Rally

1. Status of Existing Uses

The City recognizes the pre-existing uses on the site as legal, non-conforming uses, including uses associated with DirtFish Rally School and Northfork Enterprises. Additionally, there are other tenants on the Mill Planning Area leasing space for storage uses. Stormwater issues are addressed in the BMP Manual submitted under separate cover.

2. Operation of Specialized Driving Instruction School

The Agreement provides conditions under which the specialized driving instruction school may continue to operate. These conditions limit the hours of operation, prohibit racing in conjunction with alcohol, and include provisions for noise abatement in the event that mitigation is required to address noise pollution onto adjacent properties.

3. Special Events

Special events may be authorized to erect temporary facilities, subject to a Temporary Use Permit and/or a Special Event Permit. The provisions restrict these special events to a maximum of two (2) events annually, up to two (2) days in duration each.

4. Sensitive Area Study

The Agreement requires that a Sensitive Area Study be submitted to the City within 30 days of the effective date of the annexation, which was September 28, 2012. On October 25, 2012, a Sensitive Area Study of the Mill Planning Area was submitted to the City, thereby fulfilling this requirement of the Pre-Annexation Agreement. The presence of Wetlands, Channel Migration Zone, Critical Aquifer Recharge Areas, Floodplain, Floodway, Shorelines, and Streams have been identified in the Mill Planning Area. The Mill Pond / Borst Lake properties, however, have not been evaluated for sensitive areas. An updated Sensitive Area Study was submitted to the City on June 24, 2016. The Study was updated to address:

1) Review comments received from Doug Gresham dated September 25, 2013.
2) Inclusion of the Mill Pond / Borst Lake into the Mill Planning Area general mapping exhibits, although no site studies have been performed on properties not in Snoqualmie Mill Ventures, LLC (SMV) ownership.
3) Finalization of the wetland mapping by Raedeke Associates, Inc. (Raedeke), and the US Army Corps of Engineers' (Corps) Jurisdictional Determination received August 27, 2015 for the SMV properties.
4) Updated floodplain mapping to reflect recent LOMA dated February 22, 2016.
5) City's draft Shoreline Designation Map dated September 30, 2015.

A Best Management Practices Manual will be submitted as an Addendum to the Sensitive Area Study under separate cover.

Any development or land disturbing activities proposed in the future will be required to adhere to the appropriate guidelines of the Snoqualmie Municipal Code (SMC), including:

- SMC 19.12.180 Wetlands
- SMC 19.12.160 Channel Migration Zones
- SMC 19.12.200 Critical Aquifer Recharge Areas
- SMC 15.12 Flood Hazard Regulations
- SMC 19.08 Shoreline Management Regulations
- SMC 19.12.170 Streams

The attached Existing Conditions Map (**Appendix 4**) prepared by Raedeke Associates, Inc., depicts wetlands and streams identified on the Mill Planning Area. Upon the City of Snoqualmie's concurrence of the Jurisdictional Determination issued by the US Army Corps of Engineers, this Map will be finalized.

Please note: The parcels in Weyerhaeuser Real Estate Development Company ownership, Snoqualmie River properties, and Mill Pond Road have not been surveyed or studied.

5. Water & Sewer

The Mill Planning Area is currently within the service area of the City of Snoqualmie for water and sanitary sewer. Furthermore, the City of Snoqualmie currently serves the Mill Planning Area with domestic water and sanitary sewer service, and will continue to serve the pre-existing, legal non-conforming uses. Future development or redevelopment of the site, however, will be predicated upon adequate capacity to serve proposed uses at the time of formal Site Development application.

A discussion of capital facilities that will be necessary to serve future development of the Mill Planning Area is provided in Section IV below. The City's Water System Plan and General Sewer/Wastewater Facility Plan will both need to be updated.

6. Uses Permitted Prior to Approval of Planned Commercial / Industrial Plan or Planned Residential Plan

This provision limits uses on the site to the existing uses previously described, unless and until all necessary development and construction permits have been approved. No development is proposed at this time.

7. Business License

This provision requires all business operators on the Mill Planning Area to obtain appropriate City business licenses. It also requires that spectator tickets be subject to an admissions tax. Business licenses are current and spectator tickets are subject to admissions tax.

8. Powerhouse

This provision requires coordination with the King County Culture and Historic Preservation Office to consider potential adaptive re-use of the Snoqualmie Falls Lumber Company Powerhouse structures. These coordination efforts will occur during review of future land use permit applications and prior to any activities proposed on or near the site of the Powerhouse structures.

IV. COMPREHENSIVE PLAN POLICIES

A. Annexation Implementation Policies

This portion of the AIP addresses the City's Annexation Policies found in the City of Snoqualmie Comprehensive Plan (Snoqualmie 2032), Vision & Policy Plan 1-26, Section 8 Annexation Implementation Plans.

Objective:

7.8 Sub-area planning prior to annexation effectively manages growth and development within the urban growth area, and assures consistency with comprehensive plan goals, objectives and policies.

RESPONSE: The Mill Planning Area was included in the City's Urban Growth Area in the 1994 King County Comprehensive Plan, and the City's Expansion Area in the 1989 Snoqualmie Valley Community Plan. King County and the City of Snoqualmie entered into an Interlocal Agreement to accomplish the annexation.

The City and the owners of the Mill Planning Area entered into a Pre-Annexation Agreement on October 24, 2011. The City issued a Determination of Non-Significance on July 27, 2011, for approval of the Pre-Annexation Agreement. A public hearing before the City Council was held on August 8, 2011. The Mill Planning Area was annexed into the City in September 2012.

Analysis of future utilities and transportation infrastructure improvements necessary to serve proposed development will occur at the time development is proposed. At this time, it is premature to conduct site analyses because no development plans have been submitted to the City.

This AIP itself does not propose any development within the Mill Planning Area and approval of the AIP would not authorize any development. Project specific land use approvals and construction permits will be required before any development may occur.

Policies:

7.8.1 Require an annexation implementation plan to portray, at a minimum, proposed land uses; primary road network and connections; and primary utility systems, including locations for sewer mains and lift stations, major storm water facilities, water mains, pump stations and reservoirs.

RESPONSE: The attached Planning Area Overview Exhibit depicts the Mill Planning Area. (Ref. **Appendix 2**) Land uses are those allowed under the PCI and OS zoning for the area, as well as other City, State, and Federal land use regulations applicable to the property. The Planning Area Overview Exhibit shows the areas of the site that may potentially be developed in the future and those that are constrained by environmental features. Under these zoning designations, future development may include commercial, warehouse, light industrial, retail, upper level residential, hospitality, and tourism, along with providing recreational opportunities and preserved open spaces.

The Planning Area Overview Exhibit shows a number of anticipated Planning Areas. Any future development would occur in phases due to the size of the site. While the property may be

developed in phases corresponding to these Planning Areas, it is also possible that the boundaries and sequence of future phases will differ from the Planning Areas shown on the Exhibit. It is anticipated that planning for the initial phase of development will avoid impacts to sensitive areas and will be supported with adequate services and facilities. Land use approvals required for any future development will include a PCI Plan pursuant to SMC 17.20.050 and may include a development agreement under RCW 36.70B.170 *et seq*.

The Planning Area Overview Exhibit also shows potential future road network systems to serve future land uses on the Mill Planning Area as permitted under the PCI and OS zones. For purposes of the AIP, it is assumed that utility main lines would follow the alignment of the backbone / main roadway through the site. A complete analysis of future utilities and transportation infrastructure improvements necessary to serve proposed development is not possible without a more specific development plan. This analysis will be completed at the time development of the property is proposed. Land use approvals required for any future development will include a PCI Plan pursuant to SMC 17.20.050 and may include a development agreement under RCW 36.70B.170 *et seq*.

7.8.2 Require the annexation implementation plan include a review of the City's current Comprehensive Water, Sanitary Sewer, and Storm Drainage Plans, and include provision for any required updates to those plans.

RESPONSE:

Water System

The City completed an update to its Water System Plan (WSP) in 2013. The WSP evaluates the current City domestic water system capacity and the capacity to serve the projected growth for 20 years (i.e. approximate Year 2032) for the City and its service area, which includes the Mill Planning Area.

Summary of System and WSP:

Per the 2013 WSP, the projected system demand based on anticipated growth is as follows:

	2010 Baseline	2032 Projected	Buildout
Average Daily Demand (ADD)	1,173,817 gpd	1,908,729 gpd	2,350,371 gpd
Number of ERUs	4,722 ERU	7,589 ERU	9,550 ERU

The WSP cites both a 2032 projection and a buildout projection. The 2032 projection specifically excludes projected demand from both the Mill Planning Area and the Snoqualmie Hills West area. The additional growth assumed to reach the buildout scenario anticipates approximately 945 residential dwelling units and 190 acres of commercial development resulting in approximately 1,300 new employees, beyond what is included in the 2032 plan projections.

The evaluation of available system capacity in the WSP is summarized as follows:

	Available	2018 Demand	2032 Demand
Storage Capacity	4,413,750 MG	1,709,364 MG	2,278,664 MG
Treatment Capacity	2,993 gpm	3,048 gpm	3,218 gpm

Annual Water Right	2,172 ac-ft/yr	1,998 ac-ft/yr	2,110 ac-ft/yr
Instantaneous Water Right	3,148 gpm	3,048 gpm	3,218 gpm

As shown, there is more than ample storage capacity for the City's projected demand as well as the projected buildout scenario. Although the WSP separates the Canyon Springs area from the Snoqualmie Ridge area and concludes that there is inadequate storage capacity within Canyon Springs, the WSP cites in the system description:

> *The two areas are connected by an intertie . . . The two areas used to operate fairly independently of each other, but with continued growth and demand requirement in both areas, the system is operated more holistically. (Ref. 2013 WSP pg. 1-4)*

As shown, there is insufficient instantaneous water rights and treatment capacity for the projected 2032 growth.

According to the WSP, the City is taking measures to develop well claim sources and redevelop decommissioned wells, which would prolong the need for additional water rights or source capacity to beyond the 20-year plan. This would indicate that with these measures taken, the water system is adequate to serve the projected demands in the WSP.

Snoqualmie Mill Annexation Planning Area

The 2013 Water System Plan evaluated the water system demands at a 2010 base year with "projected" growth together with committed service by contract or agreement to Snoqualmie Ridge (and Snoqualmie Ridge II), and a reserve for service to the Lake Alice Community Association, pending a need through monitoring. Between 2010 and 2015, the City has experienced actual growth and has entered into additional commitments for service to Kimball Creek Development, the Salish Lodge Expansion, and the Mt. Si High School Renovation project.

Gray & Osborne, Inc., Consulting Engineers to the City of Snoqualmie prepared a Technical Memorandum dated June 27, 2016, that provides an updated capacity analysis of the City's water system in order to determine how much excess capacity currently exists beyond current uses and current commitments. (Ref. Appendix 8) The conclusion states:

> *The City has adequate annual water rights to provide all allocated water. However, the City currently lacks developed instantaneous water rights and source capacity to serve all customers to whom water has already been allocated. If the two groundwater claims are considered, the City has adequate instantaneous water rights to serve the allocated water and approximately 290 additional ERUs.*
>
> *The City's capacity to serve additional connections could be increased by the following measures:*
>
> - *If the City uses the two groundwater right claims and fully develops sources for those rights, the City could serve 290 ERUs in addition to existing demands and the demands already allocated for current development.*

- *If the City were to curtail the augmentation of potable water to Eagle Lake and the reclaimed Class A irrigation systems, the City could regain up to approximately 315 ERUs of maximum day demand (corresponding to instantaneous withdrawal, Qi).*

- *The construction of a backwash decant and recycle facility at the North Wellfield will allow the City to more efficiently use the existing water rights by decreasing the amount of wasted backwash water. If the backwash recycle system is able to recycle at least 50 percent of the backwash, the City could regain up to approximately 285 ERUs of maximum day demand (corresponding to instantaneous withdrawal, Qi).*

According to the Technical Memorandum, the City has over-committed, or has over-allocated water service to planned development projects by approximately 152 ERUs over developed source capacity and, therefore, must implement one or more of the recommended measures to increase available capacity. The least of these being developing source capacity up to the maximum groundwater right claims, which would provide capacity for all allocated water plus approximately 290 ERUs of excess capacity in the system.

Anticipated results from implementing the recommended measures:

Groundwater Right Claims	+290 ERUs
Eagle Lake (Reclaimed Class A Irrigation)	+315 ERUs
Recycle Backwash Water	+285 ERUs
Total Anticipated Increase in Capacity	**+890 ERUs**

Implementation of the recommended measures, therefore, could potentially yield approximately **890 ERUs of excess capacity** within the system for development within Snoqualmie Mill or other growth areas within the City before additional water rights would become necessary for additional service.

Sanitary Sewer System

The City completed an update to its General Sewer/Wastewater Facilities Plan (WWP) in 2012. The WWP evaluates the current City sewer system and Wastewater Treatment Plant (WWTP) capacity and the capacity to serve the projected growth in the City for 20 years (i.e. approximate Year 2032) for the City and its service area, which includes the Mill Planning Area.

Summary of System

The capacity of the WWTP is limited by the approved design criteria contained in the 2011 modification to the NPDES Permit for the City of Snoqualmie's Wastewater Treatment and Water Reclamation Facility (PERMIT # WA-002240-3).

The analysis of projected loading from anticipated growth is as follows:

Permitted	2032 Projected	Buildout	
Max. Month Loading	2.15 MGD	1.95 MGD	2.01 MGD
Number of ERUs	5,013 ERU	7,286 ERU	7,539 ERU

Like the Water System Plan (WSP), the WWP assumes a level of continued development beyond the 20-year projection (2032) that was considered in the design and the rating of the WWTP.

Also, like the WSP, the WWP assumes a significant rate of growth between the 2010 baseline and year 2018 coincident with anticipated completion of Snoqualmie Ridge and Snoqualmie Ridge II, after which the growth factors are significantly reduced.

Mill Planning Area

A number of assumptions are included in the analysis and projections of the 2012 WWP which are of importance in anticipating the City's ability to serve the Mill Planning Area:

- When evaluating the residual capacity of the WWTP by the above projections it would indicate that there is approximately 0.20 MGD of residual capacity (2.15 MGD – 1.95 MGD) which equates to approximately 1500 ERUs of development which could occur over and above the Plan's 2032 projected loading.

- From the analysis of projected growth in the WWP, the anticipated loading to the WWTP should reach 1.154 MGD, or 6,310 ERUs by year 2016, and 1.209 MGD, or 6,709 ERUs by 2018.

- At the time an application is made for the first phase of development at the Mill Planning Area, the City's review will include an analysis / comparison of actual growth and facility loading to those projected in the WWP.

- The Mill Planning Area is adjacent to and south of the WWTP facility. It is anticipated that any proposal for development on the Mill Planning Area would plan and construct independent conveyance facilities directly to the primary inflow to the WWTP and would not be dependent on, or impact any other conveyance facilities within the City.

Stormwater Management

General

At this time, there is no development proposed for the Mill Planning Area. Stormwater management systems will be designed in connection with future development proposals for the property. Stormwater management systems will comply with all applicable City requirements. A general discussion of the stormwater management methods anticipated for the property follows.

The Mill Planning Area lies entirely within the Snoqualmie River Basin. The site drains either directly to the Snoqualmie River or through a series of manmade ditches and swales to manmade outfalls to the Mill Pond / Borst Lake, which drains over a manmade outlet weir to the Snoqualmie River.

The general strategy for stormwater management for development of the Mill site is treatment at the source with facilities within the development areas and direct discharge of flood events to the Snoqualmie River.

Treatment at the Source

The type of development planned for the Mill site by the vision and zoning established by the City of Snoqualmie is very conducive to providing source treatment facilities within development areas. Surface water runoff from pollution-generating impervious surfaces would be treated either in Filterra® bioretention systems or swales / rain gardens as part of streetscapes and parking areas, open space areas, or amenity areas with aesthetic or educational water features.

Treated stormwater from these systems and roof water would be drained separately into clean water conveyance prior to discharge to the natural systems or to other conveyance for discharge to the river as described below.

Discharge of Treated Runoff and Floodwater

Treated stormwater and other larger stormwater runoff (or flood flow) would ultimately be discharged to the Snoqualmie River. The Snoqualmie River is a "Direct Receiving Water" in accordance with the King County Surface Water Design Manual and the Department of Ecology Stormwater Manual for Western Washington.

At the time development is proposed, site design will evaluate necessary development regulations related to stormwater and critical areas together with drainage control studies required under SEPA. These studies would determine for currently proposed development areas whether there is a potential impact to critical areas by the collection of runoff and conveyance to the river, or whether proposals should include some frequency of discharge of clean water to on-site critical areas.

It is anticipated that initial development proposals would avoid development within, or discharge to, on-site critical areas and would provide a primary conveyance trunk and outfall to the river. For purposes of this AIP, this is assumed to include Planning Areas 1 and 2. The first development proposal would provide appropriate studies and runoff analysis to size the trunk line and permit the discharge outfall through appropriate agencies.

It is contemplated that Planning Area 3, per this AIP, may include proposals to fill or alter on-site critical areas in order to create a unique large contiguous land area to achieve some of the goals and vision of the Mill Planning Area's zoning. It is not known whether or not this will be proposed, however, in contemplation of such a proposal it is assumed that the portions of the Mill site lying within the Floodway could serve as a viable large-scale mitigation site for both (a) mitigation of any such proposal and (b) enhancement of the river floodplain. As such, it is assumed that the large-scale area of Planning Area 3 would provide a separate ultimate outfall to the Snoqualmie River either independently or as part of such a proposed mitigation / enhancement of the Floodway. Therefore, studies for the initial proposal for development would only develop a stormwater discharge outfall for Planning Areas 1 and 2.

Fire

Fire services are supported by general tax revenues. Emergency responses beyond the capabilities of the City Fire Department are commonly provided by neighboring jurisdictions. Development of the Mill Planning Area would pay any fees in place at the time of development as well as ongoing property tax revenue to support fire and emergency services.

Police

The City assumes responsibility for law enforcement at the site, but does occasionally contract with other agencies for specialized support services should the need arise. Development of the Mill Planning Area would pay any fees in place at the time of development as well as ongoing property tax revenue to support police and emergency services.

Parks

Development of the Mill Planning Area would result in provisions for a trail connection to the Snoqualmie Valley Trail (King County Parks Department) and an easement to accommodate a Riverwalk Trail Corridor (City of Snoqualmie).

The City's code requires development within the PCI District to set aside at least 35% of the total acreage for open space, natural areas, parks, or greens and common areas. Total acreage within the PCI District is 238.85 acres. Developable area (less sensitive areas and buffers) is approximately 148 acres. It is estimated, therefore, that full buildout of the Mill Planning Area within the City's PCI District would set aside the required 35% in open space for preservation of sensitive areas and associated buffers, and/or active/passive recreational uses, as well as landscape buffers.

Because it is highly unlikely that the Mill Pond / Borst Lake properties would develop, approximately 75% of the entire Mill Planning Area would be set aside and preserved for passive recreational uses.

Roads

Traffic Impact Analyses will be prepared for the PCI Plan and for future development applications consistent with City requirements. At this time, it is premature to conduct this analysis because no development plans have been submitted to the City. An analysis of future utilities and transportation infrastructure improvements necessary to serve proposed development will occur at the time development is proposed.

Any mitigation measures necessary to address transportation impacts will be determined during environmental review of the PCI Plan and future development applications.

Summary

For purposes of the Annexation Implementation Plan, it is assumed that utility main lines would follow the alignment of the backbone / main roadway through the site. A complete analysis of future utilities and transportation infrastructure improvements necessary to serve proposed development (along with impacts and mitigation) will be performed at the time development is proposed.

7.8.3 Allow that annexation implementation plans may be amended in the review process of more specific final plans based on environmental review, in response to changes over time in housing and employment needs, neighboring land uses and evolving City and King County policies.

RESPONSE: This policy provides opportunity for the City to amend the AIP in the future due to changes in housing, employment needs, and/or neighboring land uses as well as changes in City

and/or County policies. Amendment may be considered in the context of future review of a PCI Plan and phased development plans.

7.8.4 Require all development approvals to conform substantially to the annexation implementation plan. An approved mixed use final plan will be the controlling document for subsequent property development approvals in the Mixed Use Zone.

RESPONSE: Following approval of the AIP, subsequent applications for proposed development under the City's PCI District regulations, including a PCI Plan, will be submitted for review and approval, concurrent with appropriate environmental review.

Future review by the City will ensure conformance to the AIP and the future PCI Plan and will address all anticipated impacts associated with development of the Mill Planning Area as envisioned in the City's Comprehensive Plan.

7.8.5 Where the area proposed for annexation abuts designated King County rural or resource areas, require the land use plan to include buffers to adjacent rural and resource areas from more intensive land uses.

RESPONSE: The Mill Planning Area abuts the Snoqualmie River and downtown Snoqualmie to the south and southwest, the City's wastewater treatment plant to the northwest, rural properties in King County jurisdiction beyond 396th Drive SE to the east, and rural properties in King County jurisdiction to the north as well as a quarry.

Specifically, adjacent properties are:

East: The eastern portion of the Mill Planning Area abuts 396th Drive SE and then rural King County properties. The easterly 400 feet of the Mill Planning Area has been transferred to King County Parks Department for development of park facilities and the missing link of the Snoqualmie Valley Trail. As such, a 400-foot buffer is provided between future commercial / industrial development in the PCI District and properties within King County jurisdiction.

North: Properties to the north include several rural properties in King County jurisdiction as well as the Calportland Quarry / Glacier Northwest gravel mining facility which lies approximately ¼ mile north of the Mill Planning Area. The northernmost portion of the Mill Planning Area will be set aside in a Conservation Tract providing a 600-foot buffer between future commercial / industrial development in the PCI District and properties within King County jurisdiction. Where the Conservation Tract does not provide a buffer to the north, this land is currently in SMV ownership and is intended to be annexed in the future based on the City's UGA boundary. If construction occurs prior to annexation, a buffer will be provided per applicable development standards.

South: Lands to the south of the Mill Planning Area do not lie within King County jurisdiction. Therefore, no special buffers would be required.

West: Lands to the west of the Mill Planning Area do not lie within King County jurisdiction. Therefore, no special buffers would be required.

Landscaping and screening buffers, as required by the City, will be proposed with development applications submitted in the future. Current City Code for development within the PCI District calls for 10-foot side and rear-yard setbacks, and 20-foot front yard setbacks.

7.8.6 When the proposed annexation area contains sensitive areas, require the annexation implementation plan to include a study of all applicable sensitive areas.

RESPONSE: A Sensitive Area Study was prepared for the Mill Planning Area and a revised copy was submitted to the City of Snoqualmie on June 24, 2016. This Study is currently under review by the City and its Consultants. A Best Management Practices Manual will be submitted to the City as an Addendum to the Sensitive Area Study under separate cover.

The presence of Wetlands, Channel Migration Zone, Critical Aquifer Recharge Areas, Floodplain, Floodway, Shorelines, and Streams have been identified in the Mill Planning Area. The Mill Pond / Borst Lake property, however, has not been evaluated for sensitive areas.

Any development or land disturbing activities proposed in the future will be required to adhere to the appropriate guidelines of the Snoqualmie Municipal Code (SMC), including:

- SMC 19.12.180 Wetlands
- SMC 19.12.160 Channel Migration Zones
- SMC 19.12.200 Critical Aquifer Recharge Areas
- SMC 15.12 Flood Hazard Regulations
- SMC 19.08 Shoreline Management Regulations
- SMC 19.12.170 Streams

Please note: The parcels in Weyerhaeuser Real Estate Development Company ownership, Snoqualmie River properties, and Mill Pond Road have not been surveyed or studied.

7.8.7 Consider granting exceptions to annexation implementation plan requirements for annexations of a public health and safety nature, or providing facilities to serve residents of the City and its urban growth area.

RESPONSE: The Mill Planning Area has been annexed. Therefore, this policy does not apply.

7.8.8 When a proposed annexation is not accompanied by a development proposal allowing for meaningful consideration of required Annexation Implementation Plan topics, consider deferring Annexation Implementation Plan preparation until after annexation, provided that the terms associated with such deferral are established in a pre-annexation agreement approved by City Council and executed by all affected parties.

RESPONSE: This AIP is submitted in accordance with this policy, which allows for an AIP to be submitted following annexation. As such, this AIP complies with the terms established in the Pre-Annexation Agreement dated October 2011, which is discussed in Section III of this AIP document. The Pre-Annexation Agreement does not require a development proposal to accompany the AIP document.

Development of a PCI Plan and specific phases of development are in the pre-planning stage. Analysis of future utilities and transportation infrastructure improvements necessary to serve proposed

development will occur at the time development is proposed. At this time, it is premature to conduct site analyses because no development plans have been submitted to the City.

7.8.9 Require Mill, Snoqualmie Hills, and Snoqualmie Falls Planning Area annexation implementation plans to implement the requirements of specific Planning Areas as articulated in Table 1.3.

RESPONSE: The Annexation Implementation Plan requirements for the Mill Planning Area are found in the Comprehensive Plan Vision & Policy Plan 1-34, Table 1.3, and are addressed below.

B. Planning Area Requirements - Mill Planning Area

This portion of the Annexation Implementation Plan addresses the City of Snoqualmie's Annexation Policies as found in the Snoqualmie 2032 – City of Snoqualmie Comprehensive Plan Vision & Policy Plan 1-34, Table 1.3 – Planning Area Requirements for Annexation Implementation Plans.

Each of the City's requirements are cited below in bold followed by a response.

a. Flood hazard considerations for the sub-areas detailed in the King County Flood Hazard Reduction Plan and the City's Hazard Mitigation Plan, including an independent survey to compare the initial topographic elevations used as the community's base flood elevation in the City's 1984 Flood Insurance Study to the current floodplain elevations created by the mill site berm and sort-yard fill;

RESPONSE: The vast majority of the Mill Planning Area lies within the 100-year floodplain of the Snoqualmie River. The base flood elevation (BFE) has been determined by studies undertaken by FEMA and their DFIRM program to supersede the 1984 Flood Insurance Study, which included specific hydraulic analysis of the Snoqualmie River and the current conditions of the Mill Planning Area property.

In 2010, FEMA processed a LOMR for the City of Snoqualmie based on the 2009 USACE 205 Snoqualmie River Channel Widening Project. This included technical documentation citing available river data and local topographic data developed between 2000 and 2005, as well as the 2009 205 river widening project. Some of this topographic data included river and floodplain cross sections specifically across the Mill Planning Area property.

The study confirmed that the base flood was not contained by fill or berming on the Mill property and that previous breaching of the berm caused the base flood to extend across the entire Mill site. The study also confirmed the effective lowering of the BFE by the 2009 205 widening project. This was the basis for the LOMR and re-publication of the NFIP for this section of river in 2010.

Topographic information gathered on the Mill property in 2012 for the purposes of future planning for the Mill Planning Area, revealed that there are portions of past berming along Mill Pond Road that remain above the BFE. The removal of these berms is intended to be part of future development of the site and flood mitigation strategy.

Floodplain Development and Compensating Storage

Any future proposed development of the Mill Planning Area property will be required to comply with and be consistent with Floodplain regulations of the City of Snoqualmie and FEMA. Development on the Mill site will consist of:

- Non-residential buildings (non-ground floor residential buildings);
- Site work roads, parking areas and associated utilities to support the building development; and
- Open spaces, public spaces, or other non-building spaces.

Building in the floodplain will include provisions of either (a) Flood Proofing or (b) fill **and** compensatory storage. See excerpts from **SMC 15.12.160** below:

> *B. Nonresidential Construction.*
> *1. New construction and substantial improvement of any commercial, industrial or other nonresidential structure shall either have the lowest floor (including basement) elevated to or above the level of the base flood elevation or, together with attendant utility and sanitary facilities, shall:*
> *a. Be floodproofed so that below one foot above the base flood level the structure is watertight with walls substantially impermeable to the passage of water;*
> *b. Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and*
> *c. Be certified by a registered professional engineer or architect that the design and methods of construction are in accordance with accepted standards of practice for meeting the provisions of this subsection based on their development and/or review of the structural design, specifications and plans, and such certification is provided to the building official.*
> *2. Nonresidential structures that are elevated, not floodproofed, must meet the same standards for space below the lowest floor as provided for residential structures.*
> *3. Applicants for floodproofing nonresidential buildings shall be notified that flood insurance premiums will be based on rates that are one foot below the floodproofed level; for example, a building floodproofed to one foot above the base flood level will be rated as at the base flood level.*
>
> *F. Fill.*
> *1. Subject to the provisions of subsection (F)(2) of this section, no fill shall be permitted except where provision has been made on the subject property to balance the capacity to store floodwaters and accommodate potential surface flow in an amount equal to the amount of floodwater likely to be displaced by the fill; provided, provision may be made to balance the capacity to store floodwaters off the subject property, when it can be demonstrated that the property upon which the balancing capacity is being created is located such that no increase in the base flood discharge will result. Care shall be taken to prevent erosion and surface runoff to adjacent properties. All fill shall be compacted at the time of placement.*
> *2. Any person may place not more than five yards of material used solely for landscape maintenance or gardening at a residence or business in any one calendar year; provided, written notification shall be given to the building official within five business*

days after the placement of such fill. Such right shall not be assignable, nor shall it carry over from year to year or otherwise be cumulative.

As discussed above, development of the Mill Planning Area intends to include removing remains of past berming along Mill Pond Road. This creates a potential for a large volume of compensatory storage which would compensate for a development approach of **FILL** prior to building construction in lieu of development of floodproofed buildings.

b. Preservation of the flood storage and conveyance functions of the floodway;

RESPONSE: Strategies for future proposed development on the Mill Planning Area would recognize, preserve, and improve the functions of the floodway in conformance with the City of Snoqualmie's development regulations as well as FEMA's requirements for the preservation of flood storage and avoidance of impacts to the BFE.

Please note: The parcels in Weyerhaeuser Real Estate Development Company ownership, Snoqualmie River properties, and Mill Pond Road have not been surveyed or studied.

c. Protection and preservation of unique natural features and viewsheds of the sub-area;

RESPONSE: The Mill Planning Area is a site with little or no "natural" features as the working mill over the past century has significantly altered the natural terrain and drainage features. Future land development strategies would recognize current understanding of critical areas and would include viewshed considerations.

Please note: The parcels in Weyerhaeuser Real Estate Development Company ownership, Snoqualmie River properties, and Mill Pond Road have not been surveyed or studied.

d. Assessment of toxic contamination and remaining clean-up necessary to support proposed land uses, prevent further environmental impacts and protect public health as may be required by applicable State or Federal regulations;

RESPONSE: The Mill Planning Area has been subject to several environmental assessments and remedial actions in the past. The existing environmental condition of the property was recently reviewed. (Reference **Appendix 7** - Environmental Site Assessment – Current Conditions Report dated March 5, 2015, prepared by Associated Earth Sciences, Inc.) There are currently 6 areas of potential environmental concern that have been identified on the site.

A remedial action plan will be prepared in conjunction with future development proposals that will identify specific sites on the portion of the property proposed for development that require remediation, assess various remediation action alternatives and recommend a remedial action for each site. The property will be entered into the Washington State Department of Ecology (Ecology) Voluntary Cleanup Program (VCP) which will allow Ecology to review and comment on the proposed remedial actions which would be compliant with the State of Washington Model Toxics Control Act (MTCA), WAC 173-340.

Upon successful completion of the remedial actions and following Ecology review of the remedial action, the goal is to receive a No Further Action (NFA) determination from Ecology. Completion of

these activities would result in a regulatory determination that the property is not a threat to human health or the environment.

Completion of remedial actions at the site prior to future proposed site development would remove environmental health hazards to the public and site users. Exposure of construction workers during site development would be mitigated by implementation of appropriate health and safety plans, exclusion zones, use of trained workers, and good construction work practices.

Please reference Technical Memorandum prepared by AESI dated June 17, 2016 provided in Appendix 7, which responds to the City's comment:

> **COMMENT**: *If the cleanup of the toxic contamination is proposed with each phase, confirm the delay of this cleanup will not exacerbate the existing conditions.*
>
> **RESPONSE**: *The subject mill was demolished in 1989 and subsequent remedial activities occurred at the site from 1989 through 2006. Past remedial actions have cleaned up a majority of the property to the maximum extent practicable and these actions have been reported to the Washington State Department of Ecology. Areas of potential concern that remain at the property consist of soil contamination with limited mobility and isolated areas of potential ground water contamination that have not migrated a significant distance from the source. With the limited mobility and transport of contaminants, and continued natural attenuation, the delay of cleanup activities will not exacerbate the existing conditions.*

Please note: The parcels in Weyerhaeuser Real Estate Development Company ownership, Snoqualmie River properties, City of Snoqualmie, and Mill Pond Road have not been surveyed or studied.

> **e. Visual and aural buffers to any future residential or open space uses from the gravel quarry site and sewage treatment plant;**

RESPONSE: Residential uses are conditionally permitted on the second floor of non-residential uses within the PCI District. Locations for potential residential uses within the Mill Planning Area have not yet been determined. The existing on-site sensitive areas and buffers, conservation easement, and the 150-foot wide road reservation through the Mill Planning Area currently provide both an aural and visual buffer and separation from adjacent uses.

It is anticipated that the existing buffer provided by the 150-foot wide roadway for the Haul Road, together with additional landscaping and screening buffers that will be proposed with development applications in the future, would provide adequate buffer and separation of uses (City's wastewater treatment plant) and would be sufficient to protect on-site uses from off-site noise.

> **f. A comprehensive transportation analysis to assess City street and intersection impacts, and identify necessary upgrades to these facilities to serve new uses and development. Ensure upgrading of transportation facilities does not result in the use of Meadowbrook Way as a truck route;**

RESPONSE: At this time no development proposals have been submitted for the Mill Planning Area. It is premature to assess traffic impacts. However, as the PCI Plan and specific phases of development

are proposed in the future, one or more traffic analyses will be prepared to identify projected traffic-related impacts, including impacts to Meadowbrook Way.

g. A plan for, and commitment to provide, trail right-of-way to connect local and regional trails as identified in the comprehensive plan transportation element, Snoqualmie Open Spaces, Parks and Recreation Plan and the King County regional trails plan; and

RESPONSE: The Mill Planning Area will accommodate the missing link of the Snoqualmie Valley Trail as well as portions of the City's Riverwalk Trail.

The attached Planning Area Overview Exhibit shows the Snoqualmie Valley Trail connection within a portion of the Mill Planning Area property that has been conveyed to King County. As set forth in the Pre-Annexation Agreement, additional land will be required to complete the trail system through the Mill Planning Area. The ultimate location of the Snoqualmie Valley Trial will be determined in the future as agreed upon by the Owner(s), the City, and King County Parks Department.

The Owner of the Mill Planning Area lying south and west of SE Mill Pond Road, within the Natural Shoreline Environment and the Open Space 1 District, is required to dedicate a 20-foot wide area to the City for a Riverwalk Trail Corridor in the area. (This parcel is currently owned by Weyerhaeuser.) This trail will be located within the Snoqualmie River critical area buffer. The exact location will be determined as mutually agreed upon by the property Owner(s) and the City.

h. Assurances that future land uses and development activities will protect the City's north well field area from potential contamination.

RESPONSE: Prior to development, sources of potential ground water contamination and contaminated ground water will be remediated to meet current environmental cleanup standards according to MTCA to be protective of the ground water resource.

All future development will be in accordance with the City of Snoqualmie Municipal Code Chapter 19.12.200 Critical Aquifer Recharge Areas. Additional information regarding the North Valley Well field can be found in the document "Hydrogeolgic Evaluation for Source Approval of Group A Public Water Systems, Snoqualmie Ridge North Valley Well Field, Snoqualmie, Washington" 1996, prepared by AESI for Weyerhaeuser Real Estate Corporation.

Please reference Technical Memorandum prepared by AESI dated June 17, 2016 provided in Appendix 7, which responds to the City's comment:

COMMENT: *"If the cleanup of the toxic contamination is proposed with each phase, confirm the delay of this cleanup will not exacerbate the existing conditions."*

RESPONSE: *The subject mill was demolished in 1989 and subsequent remedial activities occurred at the site from 1989 through 2006. Past remedial actions have cleaned up a majority of the property to the maximum extent practicable and these actions have been reported to the Washington State Department of Ecology. Areas of potential concern that remain at the property consist of soil contamination with limited mobility and isolated areas of potential ground water contamination that have not migrated a significant distance from the source. With the limited mobility*

and transport of contaminants, and continued natural attenuation, the delay of cleanup activities will not exacerbate the existing conditions.

V. SOURCES REFERENCED (NOT ATTACHED)

Associated Earth Sciences, Inc.
- Preliminary Geotechnical Engineering Report, 2012
- Critical Aquifer Recharge Area Letter, 2012
- Environmental Site Assessment Current Conditions Report, March 5, 2015

Cedarock Consultants, Inc.
- Fisheries Technical Information Report, 2012

City of Snoqualmie
- Comprehensive Plan "Snoqualmie 2032", Adopted December 8, 2014 by Ordinance 1148.
- City of Snoqualmie Municipal Code
- General Sewer/Wastewater Facility Plan, Gary & Osborne, Inc., November 2012
- City of Snoqualmie Res. No. 1115, Approval of Pre-Annexation Agreement, October 2011
- Notice of DNS Determination for Pre-Annexation Agreement, July 27, 2011
- Staff Summary, September 22, 2011
- Council Agenda Staff Report for AB12-076, July 31, 2012
- City of Snoqualmie Wastewater Treatment and Water Reclamation Facility
  - NPDES Permit WA0022403, June 18, 2008
  - Fact Sheet for NPDES Permit WA0022403, June 18, 2008 & March 19, 2014
  - Addendum to Fact Sheet for NPDES Permit WA0022403, May 18, 2011
  - Continuous Monitoring Equipment Plan, Gray & Osborne, Inc., July 2014
  - Whole Effluent Toxicity Test Report, Nautilus Environmental, LLC, April 2, 2012
  - Notice of Violations No. 10390 and 10707
- Water System Plan 2013 (Gray & Osborne, Inc.)

Cultural Resource Consultants, Inc.
- Cultural Resources Assessment, October 2015

FEMA
- Letter of Map Revision Determination Documents, 2009
- FIRM Panels, 2011
- Letter of Map Amendment, 2016

King County GIS Mapping

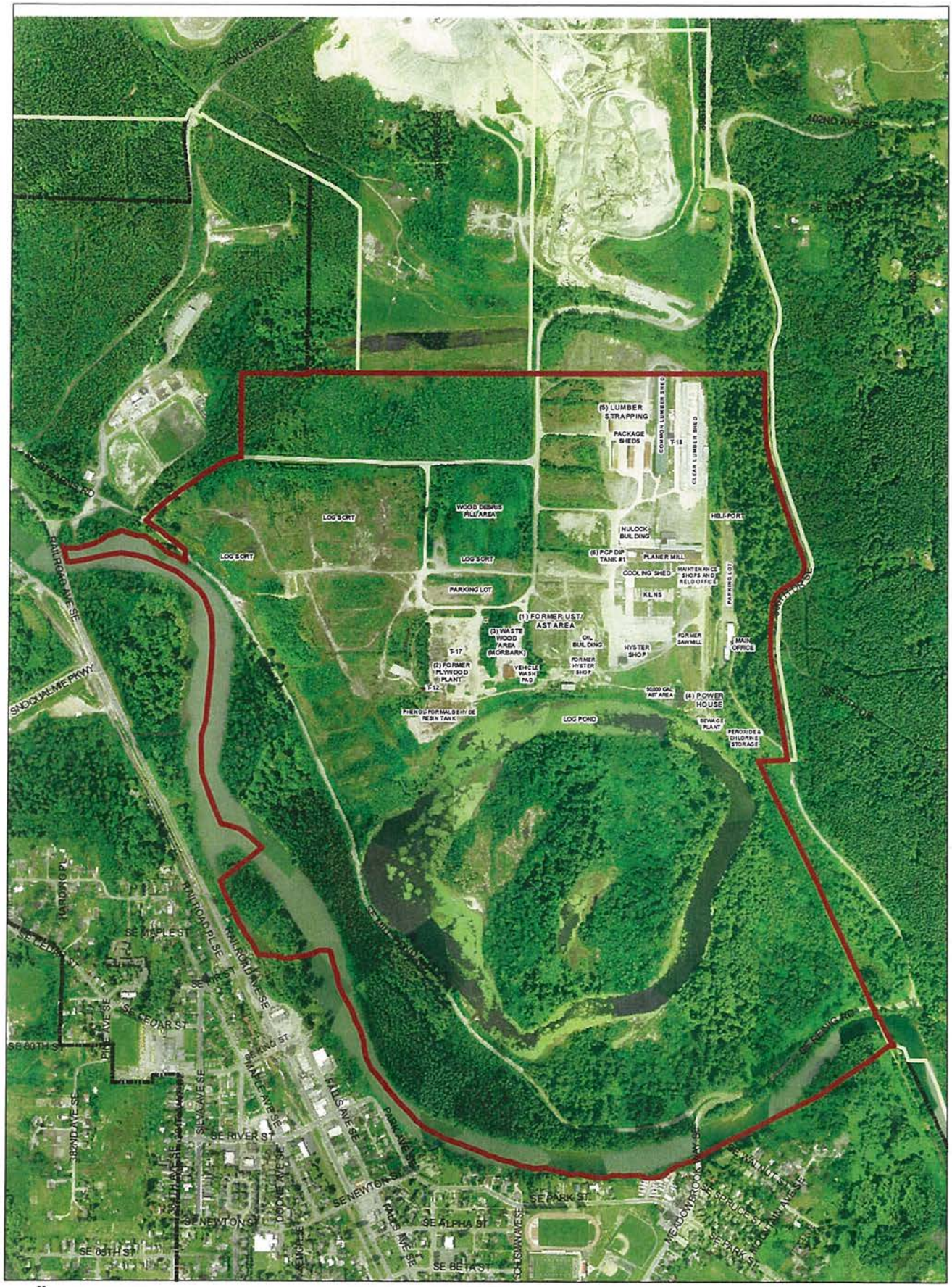
Raedeke Associates, Inc.
- Wetland Delineation & Wildlife Reconnaissance, 2012
- Jurisdictional Determination Technical Memorandum, January 27, 2015
- Wetland Ratings and Buffer Width Technical Memorandum, June 4, 2015
- Tokul Roundabout Soils Receiving Area – Wetland Ratings and Buffer Widths, July 21, 2015
- Existing Conditions Map June 2015

US Army Corps of Engineers
- Memorandum for the Record, July 24, 2013
- Jurisdictional Determination, August 2015

Wilma, David, Historical Research Papers and Photographs

Appendix 1

Annexation Map / Zoning Map / Comprehensive Plan Map



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APPLICABLE ANNEXATION STATUTES:
RCW 35A.14.460
RCW 35A.14.005

DATA SOURCE:
KING COUNTY GIS
CITY OF SNOQUALMIE

0 175 350 700 Feet
1 inch = 700 feet

JULY 8, 2011

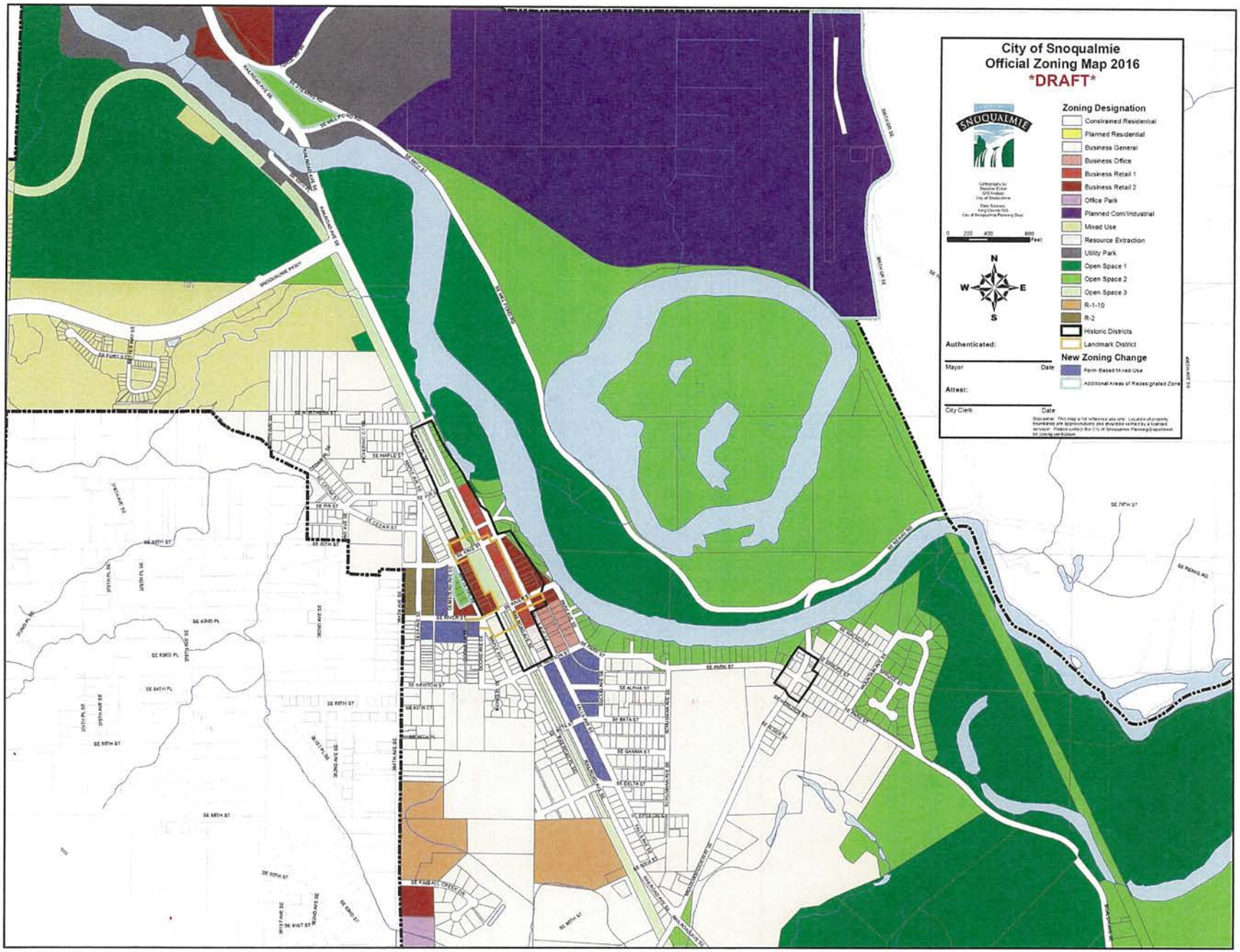
All users of this data shall be advised that the map features are approximate and are intended only to provide an indication of said feature. Additional areas that have not been mapped may be present. THIS IS NOT A SURVEY. The City of Snoqualmie assumes no liability for variances ascertained by an actual survey. ALL DATA IS EXPRESSLY PROVIDED 'AS IS' AND 'WITH ALL FAULTS'. The City makes no warranty of fitness for a particular purpose. This disclaimer

APPENDIX 1

CITY OF SNOQUALMIE
MILL PLANNING AREA
PROPOSED ANNEXATION
MILL SITE BUILDINGS

LEGEND

- PROPOSED ANNEXATION
- URBAN GROWTH BOUNDARY
- OTHER SNOQUALMIE CITY LIMITS


City of Snoqualmie
Official Zoning Map 2016
DRAFT
SNOQUALMIE
Zoning Designation
Constrained Residential
Planned Residential
Business General
Business Office
Business Retail 1
Business Retail 2
Office Park
Planned Com/Industrial
Mixed Use
Resource Extraction
Utility Park
Open Space 1
Open Space 2
Open Space 3
R-1-10
R-2
Historic Districts
Landmark District
New Zoning Change
Form-Based Mixed-Use
Additional Areas of Redesignated Zone
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Mayor
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City Clerk
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SE MAPLE ST
SE CEDAR ST
SE ALPHA ST
SE BETA ST
SE GAMMA ST
SE DELTA ST
SE PARK ST
SE 84TH ST
SE 88TH ST
SE 92ND ST
SE 96TH ST
SE 99TH ST
SE KIMBALL CREEK RD
SE FURY LN
SE 79TH ST
SE REINIG RD
SNOQUALMIE PKWY
SE NEWTON ST
SE 80TH PL
SE 82ND PL
SE 84TH PL
SE 85TH ST
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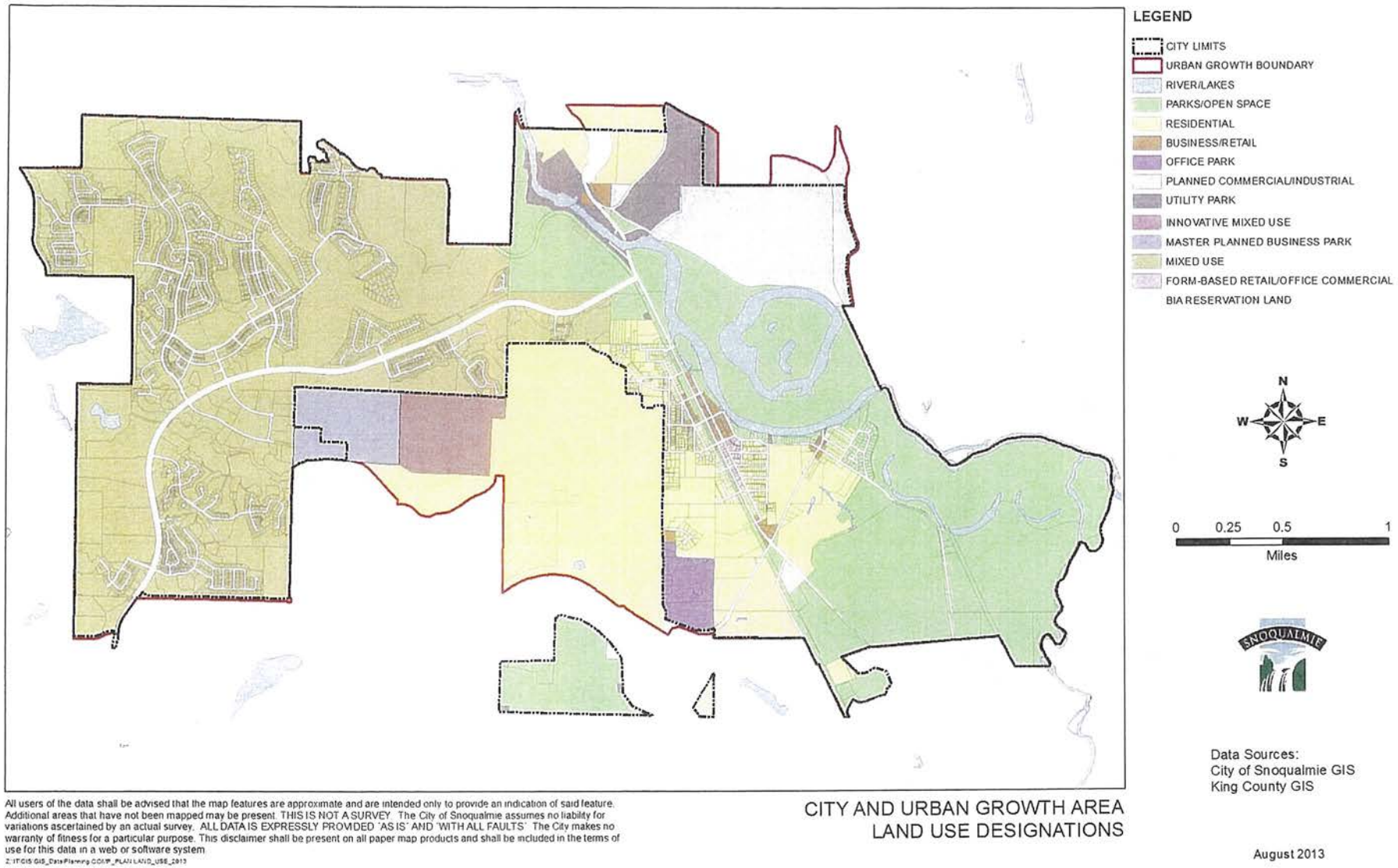

All users of the data shall be advised that the map features are approximate and are intended only to provide an indication of said feature. Additional areas that have not been mapped may be present. THIS IS NOT A SURVEY. The City of Snoqualmie assumes no liability for variations ascertained by an actual survey. ALL DATA IS EXPRESSLY PROVIDED "AS IS" AND "WITH ALL FAULTS". The City makes no warranty of fitness for a particular purpose. This disclaimer shall be present on all paper map products and shall be included in the terms of use for this data in a web or software system.

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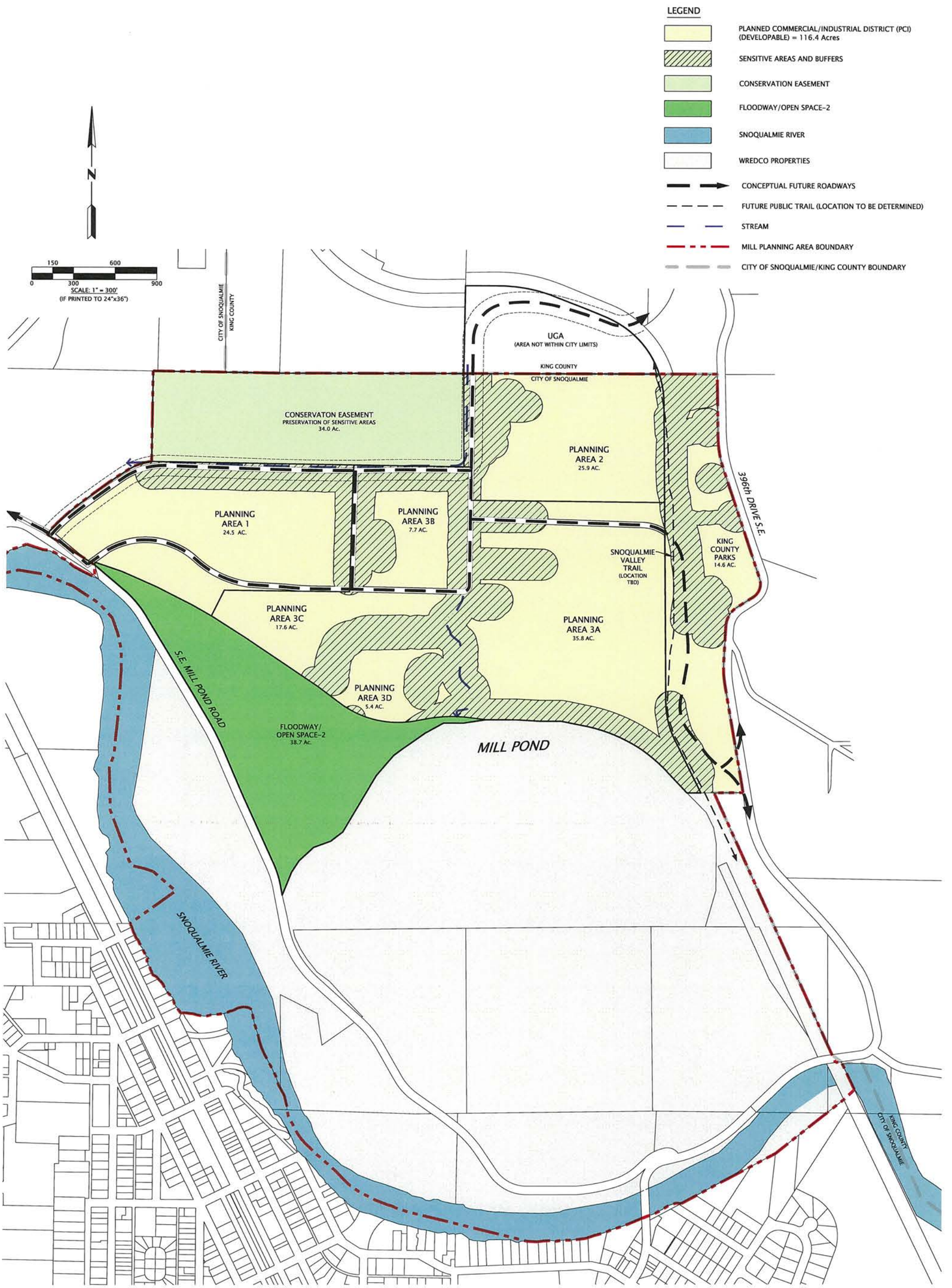
CITY AND URBAN GROWTH AREA
LAND USE DESIGNATIONS

Figure 7.3 Land Use Designations

Appendix 2

Planning Area Overview Exhibit

SE ¼, SW ¼ & SW ¼, SE ¼ SEC. 20, NW ¼ & NW ¼, SE ¼ & W ½, NE ¼ & N ½, SW ¼ SEC. 29, NE ¼ & NE ¼, SE ¼ SEC. 30, ALL IN TWP. 24 N, R. 8 E, W.M., KING COUNTY, WASHINGTON



GOLDSMITH
LAND DEVELOPMENT SERVICES
1215 114th Ave SE, Bellevue, WA 98004 | PO Box 3565, Bellevue, WA 98009
T 425 462 1080 F 425 462 7719 WWW.goldsmithengineering.com

SNOQUALMIE MILL VENTURES, LLC
CITY OF SNOQUALMIE, KING COUNTY, WA

PLANNING AREA OVERVIEW EXHIBIT FOR MILL PLANNING AREA

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Appendix 3

Pre-Annexation Agreement

When Recorded, Return to:

CITY OF SNOQUALMIE
Attn. City Clerk
P.O. Box 987
Snoqualmie, WA 98065

PRE-ANNEXATION AGREEMENT

Grantor: 1) Snoqualmie Mill Ventures, LLC.
2) Ultimate Rally, LLC
3) Weyerhaeuser Real Estate Development Company

Grantee: 1) City of Snoqualmie

Legal Description (abbreviated): Por. of Sections 29, 30 & 32, T 24 N., R. 8 E., W.M., King County WA, lying northerly and easterly of the Plat of Snoqualmie Falls as recorded in volume 6 of plats at page 51 on September 25, 1890, records of King County, Washington and northerly and easterly of the City of Snoqualmie municipal boundaries as established by City ordinance numbers 265, 514, 566/569 and 650/659 and westerly of urban growth area boundary established by King County ordinance No. 11575

☒ Additional on : EXHIBITS A AND B

Assessor's Tax Parcel ID #: All or portions of King County Tax Parcels: 292408-9002; 292408-9003; 292408-9006; 292408-9009;292408-9011; 292408-9013; 292408-9015; 292408-9017; 292408-9018; 292408-9022; 292408-9023; 292408-9028; 302408-9001; 302408-9004; 302408-9015; 302408-9069; 302408-9070; 322408-9002; 322408-9006; 322408-9008; 322408-HYDR; 785020-HYDR.

Reference Nos. of Documents Released or Assigned: N/A

THIS PRE-ANNEXATION AGREEMENT ("Agreement") is dated for reference purposes this 24th day of October 2011 ("Effective Date"), by and between SNOQUALMIE MILL VENTURES, LLC, a Washington limited liability company ("SMV"), WEYERHAEUSER REAL ESTATE DEVELOPMENT COMPANY ("WREDCo"), a _____, ULITMATE RALLY, LLC, ("Ultimate Rally") a Washington limited liability company, and the CITY OF SNOQUALMIE, a municipal corporation of the state of Washington ("City").

RECITALS

A. The City is incorporated under the Optional Municipal Code of the State of Washington. The City has authority under chapter 35A.14 RCW to consider annexation of property within its Urban Growth Area. The City has authority under RCW 36.70B.170 -.210 to enter into agreements to control the use and development of property within its jurisdiction, and for property outside of its boundaries as part of a proposed annexation pursuant to RCW 36.70B.170(1).

B. SMV is the owner of a portion of the property commonly known as the Snoqualmie Mill Site located in unincorporated King County and legally described on Exhibit A (the "SMV Property"). Ultimate Rally is the operator of a specialized instructional school located on the SMV property. WREDCo is the owner of a portion of the property commonly known as the Snoqualmie Mill Site and legally described on Exhibit B (the "WREDCo Property"). The property to be annexed includes a portion of the SMV Property and a portion of the WREDCO Property (the "Annexation Area") and is legally described on Exhibit C.

C. At least 60 percent of the boundaries of the Annexation Area are contiguous to the City.

D. The Annexation Area was included in the City's Expansion Area in the 1989 Snoqualmie Valley Community Plan. The Annexation Area is within the City's Urban Growth Area as designated in the 1994 King County Comprehensive Plan pursuant to RCW 36.70A.110 and all subsequent updates of the King County Comprehensive Plan.

E. The Growth Management Act recognizes cities as the appropriate providers of urban services.

F. King County and the City have agreed that the Annexation Area should be annexed to the City pursuant to an Interlocal Agreement ("ILA") between the Ccounty and the City as authorized by RCW 35A.14.460, and are negotiating an Interlocal Agreement to accomplish the annexation.

G. SMV and WREDCo desire the Annexation Area to be annexed to the City.

H. The Snoqualmie Vicinity Comprehensive Plan designates the portion of the Annexation Area within the floodway portion of the 100 year floodplain as Parks and Open Space, and portions of the 100 year floodplain as Planned Commercial Industrial ("PCI") and area outside of the floodplain as Planned Residential ("PR").

I. The City issued a Determination of Non-Significance pursuant to the State Environmental Policy Act on approval of this Preannexation Agreement on July 27, 2011.

J. On August 8, 2011, the City Council held a public hearing on this Agreement, as required by RCW 36.70B.200, pursuant to Notice of Hearing published on July 27, 2011.

K. City Council proposes to adopt an ordinance providing for annexation of the Annexation Area, as required by RCW 35A.14. 460, which will contain an effective date of annexation not less than 45 days after adoption. Prior to annexation, the parties wish to memorialize certain commitments with respect to the annexation, and the use and future development of the Annexation Area.

L. SMV currently leases a portion of the SMV Property to Ultimate Rally, LLC dba DirtFish Rally School, a specialized driving instruction school. SMV also desires to use its buildings and property for special events of limited duration. These are the only uses proposed to be permitted on the property pending further planning and environmental review.

NOW, THEREFORE, in consideration of the mutual agreements set forth herein, as well as other valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereby agree as follows:

AGREEMENTS

A. PROVISIONS APPLICABLE TO ALL PARTIES:

1. **Annexation.** This Agreement will become effective upon the City's annexing the Annexation Area.

2. **Zoning.** Upon the effective date of the annexation ordinance, the portion of the Annexation Area located within the floodplain but outside of the 100 year floodway as depicted on the most recent FEMA Flood Insurance Rate Maps on file with the City of Snoqualmie shall be subject to the Planned Commercial Industrial (PCI) District Regulations of Section 17.50.050 SMC; the portion of the Annexation Area located north and east of S.E. Mill Pond Road and within the 100 year floodway as depicted on the FEMA Flood Insurance Rate Maps shall be subject to the Open Space 2 (OS-2) District Regulations of Section 17.25.050 SMC; the portion of the Annexation Area located south and west of S.E. Mill Pond Road shall be subject to the Open Space 1 (OS-1) District Regulations of Section 17.25.050 SMC; and the portion of the Annexation Area located east of parcel 2924089028 and east of a line extended southward from the SE corner of said parcel to connect with the western point of the UGA line on the north boundary of parcel 2924089017 shall be subject to the Planned Residential District Regulations of Section 17.15.050.

3. **Shoreline Environment Designations.** Upon the effective date of the annexation ordinance, the City will commence the process required to designate that portion of the Annexation Area within the floodway of the Snoqualmie River and north

and east of S.E. Mill Pond Road as Conservancy Shoreline Environment; that portion of the Annexation Area within the 100 year floodway as depicted on the most recent FEMA Flood Insurance Rate Maps on file with the City and located south and west of S.E. Mill Pond Road as Natural Shoreline Environment; and that portion of the Annexation Area within the floodplain of the Snoqualmie River but outside of the floodway as Urban Floodplain Environment, to become effective upon approval by the Washington State Department of Ecology.

4. **Comprehensive Plan Policies.** The Snoqualmie Vicinity Comprehensive Plan contains both general annexation policies and policies specific to annexation of the Mill Planning Area, which includes the Annexation Area. The City will defer applying the comprehensive plan annexation policies:

4.1 To the WREDCo Property until development or redevelopment of the WREDCO Property is proposed.

4.2 To the SMV Property until development or redevelopment is proposed on the SMV Property which exceeds:

4.2.1 The specialized driving instruction school as it currently exists, provided, routine repairs and maintenance shall be permitted;

4.2.1 City permitted special events of limited duration subject to the provisions of Section B.2;

4.2.3 The Northfork Enterprises wood recycling and topsoil production use as it currently exists; and

4.2.4 Use of existing buildings for storage of equipment, provided, no business activities other than storage are conducted in such buildings.

5. **Business License Required**. From and after the effective date of annexation, any and all persons conducting any business activities for which a business license is required by the Snoqualmie Municipal Code on any portion of the Property shall apply for and obtain a City business license.

6. **Site Development.** The City will not approve any new or additional site development until review of applicable Comprehensive Plan policies, approval of an Annexation Implementation Plan and, for any development within the PCI zone, a Planned Commercial Industrial Plan, and for any development in the PR zone a Planned Residential Plan, and associated environmental review under the State Environmental Policy Act have been completed.

7. **Amendment to Allowable Uses.** Upon annexation, the City will present amendments to the allowable uses table in section 17.55.020 of the Snoqualmie Municipal Code in the Planned Commercial / Industrial and the Open Space 2 Districts to the Planning Commission and City Council for their consideration as may be requested by SMV and WREDCo to clarify and/or expand allowable recreational uses both within and without buildings.

8. **Amendment to Temporary Use Permits / Special Event Permits.** Upon annexation, the City will present amendments to section 17.55.050, governing temporary use permits, and chapter 12.20 of the Snoqualmie Municipal Code, Special Events, to amend current restrictions on the number of temporary use permits annually and to clarify that temporary use permits may be authorized and special events that promote tourism may be allowed in all zoning districts except residential districts. All such temporary use permits shall nonetheless be subject to the provisions of this Preannexation Agreement.

9. **Limitation on Use.** SMV, Ultimate Rally, and WREDCo agree neither they nor their tenants shall at any time seek to construct a race track or speedway for racing of motor vehicles of any type whatsoever on the Annexation Area, and that the only racing of motor vehicles that may occur shall be on the same facilities used for the specialized driving instruction school pursuant to Section B.3. For purpose of this section, a "race track" or "speedway" is a more or less permanent purpose-built facility for racing of automobiles, motorcycles or other motorized vehicles, as opposed to a temporary course laid out with cones or other markers over existing roads or ground.

10. **Extension to any Future Annexations within Mill Planning Area.** This Agreement shall automatically be extended to apply to any other property owned by SMV or WREDCo within the Mill Planning Area should such property be annexed to the City in the future.

11. **City Riverwalk Trail.** WREDCo will dedicate property within the portion of the annexation area to be subject to the Open Space 1 (OS-1) District Regulations to the City of Snoqualmie for a riverwalk trail corridor. The corridor provided shall be located within the Snoqualmie River critical area buffer and shall measure 20 ft. wide.

12. **Bonded Indebtedness.** Upon the effective date of the annexation ordinance, the Annexation Area shall be subject to a proportional share of existing City bonded indebtedness.

13. **Transfer of Infrastructure.** Meadowbrook Bridge and Mill Pond Road constitute infrastructure which will be transferred from King County to the City a result of the annexation. SMV and WREDCo acknowledge that they will be required to analyze impacts to the Meadowbrook Bridge and Mill Pond Road of any proposed future development or redevelopment.

14. **Snoqualmie Valley Trail.** SMV and/or WREDCo will dedicate property to the City of Snoqualmie for the Snoqualmie Valley Trail in a location to be mutually agreed upon by the City and the record owner(s) of the property . The City will consult with the King County Parks Department regarding location and right-of-way requirements.

15. **Term.** This Agreement shall remain in full force and effect until terminated by mutual agreement of the parties, provided, all provisions of this Agreement other than Section A.9, Limitation of Use, shall terminate upon full accomplishment of the Site Development requirements of Section 6 of this Agreement, and further provided, Section A.9, Limitation of Use, shall survive the termination of the other provisions of this Agreement.

B. PROVISIONS APPLICABLE TO CITY, SMV, AND ULTIMATE RALLY

1. **Status of Existing Uses.** The City will recognize the specialized driving instruction school and storage of equipment in existing buildings as conforming uses and the Northfork Enterprises use as a legal nonconforming use upon annexation.

2. **Operation of Specialized Driving Instruction School.** The specialized driving instruction school shall be subject to the following conditions for operation of vehicles.

2.1 Only street-legal fully muffled vehicles shall be used.

2.2 Days and hours of operation of the instructional course during which vehicles may be operated on the course shall be Monday through Saturday between 8:00 a.m. and 7:00 p.m., provided, hours of operation may be extended solely for military or police training which must take place in non-daylight hours. Such extended hours may occur for up to two nights per month with 72 hours advance notice to the City Administrator, and shall employ only street legal fully muffled vehicles and shall not involve any discharge of firearms or other weapons.

2.3 In the event that the City determines that noise emanating from vehicles used in the specialized driving school interferes with the ability of a person with normal hearing standing in a location exterior to the Annexation Area to hear another person speaking from a distance of two feet or less, or otherwise violates section 8.16.050(H) of the Snoqualmie Municipal Code, incorporating by reference chapter 12.88 of the King County Code, the specialized driving instruction school will be required to mitigate the noise, including changes to the location of the course(s) or track(s) on the property, modifying the vehicles, or other means as approved by the City.

2.4 No racing shall be promoted or permitted as part of or in conjunction with the specialized driving school.

2.5 No alcoholic beverages shall be served or permitted as part of or in conjunction with the specialized driving school.

3. **Special Events.** The City will permit special events of limited duration involving only the erection of temporary facilities, which must be removed at the conclusion of each special event, subject to SMV's obtaining approval of a City temporary use permit pursuant to section 17.55.050 of the Snoqualmie Municipal Code and/or a special event permit pursuant to chapter 12.20 of the Snoqualmie Municipal Code. SMV, or its tenants, shall comply with all conditions which the City reasonably identifies as necessary to protect the health, and safety of those in attendance and the affected public, both within and without the corporate limits of the City, subject to the

following additional provisions.

3.1 No more than two rally cross race events, or events of comparable external noise impacts, as determined in the sole discretion of the City, of two days duration or less (excluding the setting up and breaking down of temporary facilities) shall be conducted in any one year.

3.2 Every other special event shall be evaluated on a case by case basis for its external noise and other impacts, and mitigating measures may be required.

3.3 All events shall be subject to the provisions of chapter 9.36 of the Snoqualmie Municipal Code, Public Disturbance Noises.

4. **Sensitive Areas Study.** Within thirty (30) days after the effective date of annexation, SMV shall provide the City with a sensitive areas study for City review and approval to ensure that all aspects of the operation of the specialized driving instruction school, and any special events, and the operations of Northfork Enterprises comply with the requirements of chapter 19.12 of the Snoqualmie Municipal Code. Conditions imposed on operation of the specialized driving instruction school by the City as a result of the sensitive areas study shall be deemed to be conditions of the business license of the specialized driving instruction school and any temporary use permit / special event permit. The business license for the specialized driving instruction school may be revoked, and any temporary use permit / special event permit for any special event may be revoked, for violation of such conditions in the conduct of the specialized driving instruction school or the special event.

5. **Water and Sewer.** The City will continue to provide domestic water and sewer service to the existing office building. Any expansion of service is subject to completing planning under the comprehensive plan annexation policies and approval of a Planned Commercial Industrial Plan pursuant to SMC 17.20.050 or a Planned Residential Plan pursuant to SMC 17.15.050. SMV acknowledges that fire suppression facilities serving its property may not be adequate. The City and SMV will explore options for fire suppression.

6. **Uses Permitted Prior to Approval of Planned Commercial Industrial Plan or Planned Residential Plan.** SMV agrees that it will limit development activity on the site to repairing and maintaining the uses described in Section A.4.2 until the City has issued the approvals required by Section A.6. It will not construct additional permanent facilities or seek other development of the SMV Property, except in accordance with Section A.6, provided, facilities required for special events may be permitted as provided in Section B.3.

7. **Business License.** SMV will advise its tenants, Ultimate Rally and Northfork Enterprises, that they must obtain a City business license. SMV will obtain a business license for its active recreation and special events business(es). Spectator tickets will be subject to admissions tax.

8. **Powerhouse.** SMV agrees to coordinate with the City and King County

(Culture and Historic Preservation Office) for protection and potential adaptive re-use of the Snoqualmie Falls Lumber Company Powerhouse structures on the site. These structures are a designated King County Landmark and are included on the Most Endangered Historic Properties list maintained by the Washington Trust for Historic Preservation.

C. GENERAL PROVISIONS

1. **Recitals and Exhibits.** All of the recitals set forth above and all exhibits attached hereto are adopted by the parties as material and integral elements and/or findings related to this Agreement. All such exhibits are incorporated herein by this reference as if fully set forth.

2. **Recording.** This Agreement will be recorded with the King County Department of Records and Elections at SMV's sole expense.

3. **Mutual Drafting.** The parties have participated equally in the drafting of this Agreement, and, as such, no interpretation presumptions for or against the drafter shall apply.

4. **Governing Law.** This Agreement shall be governed by and interpreted in accordance with the laws of the state of Washington.

5. **Attorneys' Fees and Costs.** In the event any party commences proceedings in Superior Court to enforce this Agreement, the prevailing party shall be entitled to an award of attorneys' fees and actual costs and disbursements, including expert witness fees, reasonably incurred or made in such proceedings, including appellate proceedings.

6. **Severability.** In the event a court of competent jurisdiction declares any material provision of this Agreement invalid, unconstitutional, or otherwise unenforceable, any party may elect to terminate the remainder of this Agreement. In the event a non-material provision of this Agreement is declared invalid, unconstitutional, or otherwise unenforceable, the provisions hereof not affected by such declaration shall remain in full force and effect.

7. **Amendment.** This Agreement may be modified only by written instrument duly executed by all parties, after approval of the City Council.

8. **Authority to Execute.** The signatories to this Agreement represent and warrant that they have all authority required to bind the respective parties thereto.

9. **Binding Effect.** This Agreement shall be binding upon, and inure to the benefit of, the parties, their respective heirs, successors, and assigns.

IN WITNESS WHEREOF, the parties have executed this Agreement as of the Effective Date first above written.

Snoqualmie Mill Ventures, LLC,
a Washington limited liability company

By: STEPHEN THOMAS RIMMER
Its: MEMBER
Signed: Stephen Thomas Rimmer

Weyerhaeuser Real Estate Development Company, a _____

By: _____
Its: _____
Signed: _____

City of Snoqualmie, a municipal corporation of the State of Washington

_____
Matthew R. Larson, Mayor

Attest:

_____
Jodi Warren, City Clerk

Approved as to form:

_____
Patrick B. Anderson, City Attorney

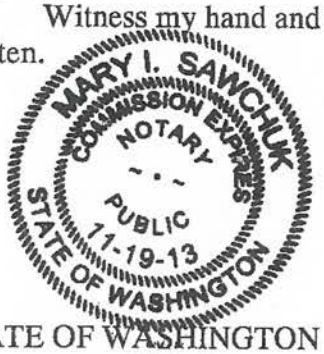
Ultimate Rally, LLC
a Washington limited liability company

By: STEPHEN THOMAS RIMMER
Its: MEMBER
Signed: Stephen Thomas Rimmer

STATE OF WASHINGTON)
ss.
COUNTY OF KING)

On this 25th day of October, 2011, before me, the undersigned, a Notary Public duly commissioned and sworn, personally appeared Stephen Thomas Remme to me known to be the member of **SNOQUALMIE MILL VENTURES, LLC**, a Washington limited liability company, and acknowledged that he signed this instrument, on oath stated that he was authorized to execute this instrument, and acknowledged the said instrument to be the free and voluntary act of said company, for the uses and purposes therein stated.

Witness my hand and official seal hereto affixed the day and year first above written.



Mary I Sawchuk
Printed Name Mary I. Sawchuk
NOTARY PUBLIC in and for the State of Washington,
residing at Sammamish, WA
My Commission Expires Nov. 19, 2013

STATE OF WASHINGTON)
ss.
COUNTY OF KING)

On this 25th day of October, 2011, before me, the undersigned, a Notary Public duly commissioned and sworn, personally appeared Stephen Thomas Remmel to me known to be the member of **ULTIMATE RALLY, LLC**, a Washington limited liability company, and acknowledged that he signed this instrument, on oath stated that he was authorized to execute this instrument, and acknowledged the said instrument to be the free and voluntary act of said company, for the uses and purposes therein stated.

Witness my hand and official seal hereto affixed the day and year first above written.

Mary I Sawchuk
Printed Name Mary I. Sawchuk
NOTARY PUBLIC in and for the State of Washington,
residing at Sammamish, WA
My Commission Expires Nov. 19, 2013

STATE OF WASHINGTON }
ss.
COUNTY OF KING }

On this _____ day of _____, 2011, before me, the undersigned, a Notary Public duly commissioned and sworn, personally appeared _____, to me known to be the _____ of **WEYERHAEUSER REAL ESTATE DEVELOPMENT COMPANY**, a _____, and acknowledged that he signed this instrument, on oath stated that he was authorized to execute this instrument, and acknowledged the said instrument to be the free and voluntary act of said company, for the uses and purposes therein stated.

Witness my hand and official seal hereto affixed the day and year first above written.

_____
Printed Name _____
NOTARY PUBLIC in and for the State of Washington,
residing at _____
My Commission Expires _____

STATE OF WASHINGTON }
ss.
COUNTY OF KING }

On this 24th day of October, 2011, before me, the undersigned, a Notary Public duly commissioned and sworn, personally appeared Matt Larson, to me known to be the Mayor of the **CITY OF SNOQUALMIE**, a Washington municipal corporation, and acknowledged that he signed this instrument, on oath stated that he was authorized to execute this instrument, and acknowledged the said instrument to be the free and voluntary act of said corporation for the uses and purposes therein stated.

Witness my hand and official seal hereto affixed the day and year first above written.

E Joann Warren
Printed Name E Joann Warren
NOTARY PUBLIC in and for the State of Washington,
residing at Maple Valley
My Commission Expires 9-15-13

Notary Public
State of Washington
E JOANN WARREN
My Appointment Expires Sep 15, 2013

IN WITNESS WHEREOF, the parties have executed this Agreement as of the Effective Date first above written.

Snoqualmie Mill Ventures, LLC,
a Washington limited liability company

By:_____
Its:_____
Signed:_____

Weyerhaeuser Real Estate Development Company, a _____

By: Scott M. Dahlquist
Its: Vice President
Signed: Scott M. Dahlquist

City of Snoqualmie, a municipal corporation of the State of Washington

_____
Matthew R. Larson, Mayor

Attest:

_____
Jodi Warren, City Clerk

Approved as to form:

_____
Patrick B. Anderson, City Attorney

Ultimate Rally, LLC
a Washington limited liability company

By:_____
Its:_____
Signed:_____

STATE OF WASHINGTON)
) ss.
COUNTY OF KING)

On this 26 day of October, 2011, before me, the undersigned, a Notary Public duly commissioned and sworn, personally appeared Scott Dahlquist, to me known to be the V. President of **WEYERHAEUSER REAL ESTATE DEVELOPMENT COMPANY**, a Washington Corp., and acknowledged that he signed this instrument, on oath stated that he was authorized to execute this instrument, and acknowledged the said instrument to be the free and voluntary act of said company, for the uses and purposes therein stated.

Witness my hand and official seal hereto affixed the day and year first above written.

Marlene J. Voss

Notary Public
State of Washington
MARLENE T. VOSS
My Commission Expires
December 15, 2012

Printed Name Marlene T Voss
NOTARY PUBLIC in and for the State of Washington,
residing at King County, WA
My Commission Expires Dec. 15, 2012

STATE OF WASHINGTON)
) ss.
COUNTY OF KING)

On this _____ day of _____, 2011, before me, the undersigned, a Notary Public duly commissioned and sworn, personally appeared Matt Larson, to me known to be the Mayor of the **CITY OF SNOQUALMIE**, a Washington municipal corporation, and acknowledged that he signed this instrument, on oath stated that he was authorized to execute this instrument, and acknowledged the said instrument to be the free and voluntary act of said corporation for the uses and purposes therein stated.

Witness my hand and official seal hereto affixed the day and year first above written.

Printed Name _____
NOTARY PUBLIC in and for the State of Washington,
residing at _____
My Commission Expires _____

EXHIBIT A
Legal Description of SMV Property

Lot 1, Lot 2, Tract C, and Tract E, King County Boundary Line Adjustment & Large Lot Segregation No. L10L0024, as recorded under King County Recording No. 2010063090006, located in portions of Sections 20, 29, and 30, T 24 N., R. 8 E., W.M. Together with that portion of the west half of the NE quarter of Section 29, T. 24 N, R. 8 E., W.M., lying westerly of 396th Drive SE and outside of Tract E of said King County BLA L10L0024;

And together with that portion of the NE quarter of Section 30, T. 24 N., R. 8 E., W.M., lying northeasterly of SE Mill Pond Road and easterly of that certain tract of land conveyed to the City of Snoqualmie by Statutory Warranty Deed under Recording No. 9010291617.

Situate in King County, Washington.

Together with an easement for locations, ingress, egress, utilities and maintenance over the area occupied by the Snoqualmie Mill Pond Pumphouse adjacent to the southwestern boundary of the Property, directly adjacent to and extending above the surface of the Snoqualmie Mill Pond, together with the area surrounding the entire Pumphouse structure to a distance of 20 feet.

EXHIBIT B
Legal Description of WREDCo Property

THAT PORTION OF SECTIONS 29, 30 & 32, TOWNSHIP 24 NORTH, RANGE 8 EAST, WILLAMETTE MERIDIAN LYING NORTHERLY AND EASTERLY OF THE PLAT OF SNOQUALMIE FALLS AS RECORDED IN VOLUME 6 OF PLATS AT PAGE 51 ON SEPTEMBER 25, 1890, RECORDS OF KING COUNTY, WASHINGTON AND NORTHERLY AND EASTERLY OF THE CITY OF SNOQUALMIE MUNICIPAL BOUNDARIES AS ESTABLISHED BY CITY ORDINANCE NUMBERS 265, 514, 566/569 AND 650/659 AND WESTERLY OF URBAN GROWTH AREA (UGA) BOUNDARY ESTABLISHED BY KING COUNTY ORDINANCE NO. 11575;

EXCEPT THE RIGHT OF WAY OF 396TH DRIVE SE

ALSO EXCEPT THAT PORTION IN SAID SECTION 30 LYING NORTHERLY OF S.E. MILL POND ROAD;

ALSO EXCEPT THAT PORTION IN SAID SECTION 29 WITHIN LOT 1, LOT 2, TRACT C AND TRACT E, KING COUNTY BOUNDARY LINE ADJUSTMENT NO. L10L0024, RECORDED UNDER KING COUNTY RECORDING NO. 20100630900006

SITUATE IN THE COUNTY OF KING AND STATE OF WASHINGTON.

CONTAINING ALL OR PORTIONS OF KING COUNTY TAX PARCELS

292408-9002	292408-9006	292408-9011	292408-9013
292408-9015	292408-9017	292408-9018	292408-9022
292408-9023	292408-9025	292408-9028	302408-9015
322408-9002	322408-9006	322408-9008	322408-HYDR
785020-HYDR			

CONCEPT ENGINEERING, INC.
455 Rainier Boulevard North
Issaquah, Washington 98027
(425) 392-8055 Fax: (425) 392-0108

CEI JOB NO: 30007

DATE: 09-08-11

EXHIBIT C
Legal Description of Annexation Area

THAT PORTION OF SECTIONS 29, 30 & 32, TOWNSHIP 24 NORTH, RANGE 8 EAST, WILLAMETTE MERIDIAN LYING NORTHERLY AND EASTERLY OF THE PLAT OF SNOQUALMIE FALLS AS RECORDED IN VOLUME 6 OF PLATS AT PAGE 51 ON SEPTEMBER 25, 1890, RECORDS OF KING COUNTY, WASHINGTON AND NORTHERLY AND EASTERLY OF THE CITY OF SNOQUALMIE MUNICIPAL BOUNDARIES AS ESTABLISHED BY CITY ORDINANCE NUMBERS 265, 514, 566/569, 650/659 AND 876 AND WESTERLY OF URBAN GROWTH AREA (UGA) BOUNDARY ESTABLISHED BY KING COUNTY ORDINANCE NO. 11575;

EXCEPT THE RIGHT OF WAY OF 396TH DRIVE SE

SITUATE IN THE COUNTY OF KING AND STATE OF WASHINGTON.

CONTAINING ALL OR PORTIONS OF KING COUNTY TAX PARCELS
292408-9002 292408-9003 292408-9006 292408-9009 292408-9011
292408-9013 292408-9015 292408-9017 292408-9018 292408-9022
292408-9023 292408-9028 302408-9001 302408-9004 302408-9015
302408-9069 302408-9070 322408-9002 322408-9006 322408-9008
322408-HYDR 785020-HYDR

Appendix 4

Existing Conditions Maps

FIGURE 1
BROOKWATER ADVISORS, LLC
SNOQUALMIE MILL

EXISTING CONDITIONS

WETLAND 10
1.07 AC.

STREAM 1

STREAM 3

WETLAND 11 CONTINUES OFF-SITE

19 20
30 29

INCLUDES UNDIFFERENTIATED WETLANDS

WETLAND 11
35.52 AC.
ON-SITE

STREAM 1

WETLAND 11
35.52 AC.
ON-SITE

WETLAND 12
2.77 AC.(TOTAL SYSTEM)

WETLAND 12
(CONT.)

WETLAND 9
0.61 AC.

WETLAND 8
0.09 AC.

Ex. Pavement & Buildings

WETLAND 1 CONTINUES OFF-SITE

CATCHBASIN

WETLAND 1
0.57 AC. ON-SITE

STREAM 4

WETLAND 2
0.11 AC.

STREAM 5

WETLAND 3
0.03 AC.

STREAM 6
(OHWM)

WETLAND 4
0.01 AC.

WETLAND 18
0.07 AC.

396TH AVE. SE

WETLAND 19
0.04 AC.

WETLAND 15
0.09 AC.

WETLAND 14
0.05 AC.

WETLAND 13
0.08 AC.

CATCHBASIN

WETLAND 5
0.10 AC.

WETLAND 6
0.20 AC.

STREAM 2

WETLAND 12
(CONT.)

WETLAND 28
0.25 AC.

SNOQUALMIE RIVER

SE MILL POND RD.

WETLAND 29
0.01 AC.

WETLAND 24
0.12 AC.

WETLAND 25
0.03 AC.

WETLAND 27
0.05 AC.

WETLAND 26
0.02 AC.

WETLAND 21
0.03 AC

WETLAND 20
0.01 AC

WETLAND 22
0.01 AC

MILL POND
NOT ON SITE

WETLAND 7
0.42 AC. ON-SITE

WETLAND 7
CONTINUES
OFF-SITE

MATCHLINE

MATCHLINE

NORTH

0 100' 200' 400'
SCALE: 1" = 200'

LEGEND

- PROJECT BOUNDARY
- PLSS BOUNDARY
- EXISTING 10' CONTOURS
- EXISTING WETLAND
- STREAMS
- FLOW DIRECTION

Raedeke Associates, Inc.
9510 Stone Avenue North
Seattle, WA 98103

RAI PROJECT: 2012-013

DATE: 6/8/2015

DRAWN BY:AC | PM:EP

BASE INFORMATION: GOLDSMITH ENGINEERING,
Ph: 425.462.1080 x 242 Fax: 425.462.7719PO

F:\2012\2012-013 Snoqualmie Mill\22x34 Snoqualmie Mill Figs.dwg

Appendix 5

Cultural Resources Assessment

Cultural Resource Consultants, Inc.

TECHNICAL MEMO 1509C-2

DATE: October 26, 2015

TO: Tom Sroufe
Snoqualmie Mill Ventures, LLC

FROM: Glenn D. Hartmann, Principal Investigator

RE: Cultural Resources Assessment for the Snoqualmie Mill Site, City of Snoqualmie, King County, WA

The attached short report form constitutes our report for the above referenced project. No evidence of archaeological or historic sites was found in the project location. Please contact our office should you have any questions about our findings and/or recommendations.

197 Parfitt Way SW, Suite 100
PO Box 10668, Bainbridge Island, WA 98110
Phone 206 855-9020 - info@crcwa.com

CULTURAL RESOURCES REPORT COVER SHEET

Author: Sonja Kassa

Title of Report: Cultural Resources Assessment for the Snoqualmie Mill Site, City of Snoqualmie, King County, Washington

Date of Report: October 26, 2015

County(ies): King Section: 20, 29, and 30 Township: 24 North Range: 08 East

Quad: Snoqualmie, WA (1993) Acres: 293

PDF of report submitted (REQUIRED) ☒ Yes

Historic Property Inventory Forms to be Approved Online? ☐ Yes ☒ No

Archaeological Site(s)/Isolate(s) Found or Amended? ☐ Yes ☒ No

TCP(s) found? ☐ Yes ☒ No

Replace a draft? ☐ Yes ☒ No

Satisfy a DAHP Archaeological Excavation Permit requirement? ☐ Yes # ☒ No

Were Human Remains Found? ☐ Yes DAHP Case # ☒ No

DAHP Archaeological Site #:

_____
_____
_____
_____
_____
_____
_____
_____
_____

- Submission of PDFs is required.
- Please be sure that any PDF submitted to DAHP has its cover sheet, figures, graphics, appendices, attachments, correspondence, etc., compiled into one single PDF file.
- Please check that the PDF displays correctly when opened.

Management Summary
This report describes the methods and results of archival review regarding the history Snoqualmie Mill Site and surrounding area in Snoqualmie, King County, Washington.

1. Administrative Data

Report Title: Cultural Resources Assessment for the Snoqualmie Mill Site, City of Snoqualmie, King County, Washington

Author (s): Sonja Kassa

Report Date: October 26, 2015

Project Background: Snoqualmie Mill Ventures, LLC, requested a cultural resources overview for the Snoqualmie Mill Site. No development activities are currently proposed. This overview report will serve to provide background information to be relied upon for future archaeological surveys that will be required for future development and construction permits. Known future actions on the subject property include a clear and grade permit to allow the import and temporary storage of up to 135,000 cubic yards of fill material. Fill material will be imported from the Tokul Roundabout Project (Morrison and Earley 2008), located west of the subject property.

Location: The Snoqualmie Mill Site is bounded by Mill Pond (Borst Lake) to the south, SE Mill Pond Road to the west, 396th Drive SE to the east, and various private and public property owners to the north in Snoqualmie, King County, Washington (Figure 1 and 2). The legal description for this project is Township 24 North, Range 08 East, Section 20, 29, and 30 Willamette Meridian.

USGS 7.5' Topographic Map (s): Snoqualmie, WA (1993).

Objective (Research Design): CRC's work was intended, in part, to assist in addressing state regulations pertaining to the identification and protection of cultural resources (e.g., RCW 27.44, RCW 27.53). The Archaeological Sites and Resources Act (RCW 27.53) prohibits knowingly disturbing archaeological sites without a permit from the Washington State Department of Archaeology and Historic Preservation (DAHP), and the Indian Graves and Records Act (RCW 27.44) prohibits knowingly disturbing Native American or historic graves.

Assessment methods consisted of review of available project information provided by Snoqualmie Mill Ventures, LLC, local environmental, cultural, and historical information, and records on file at DAHP. CRC also contacted cultural resources staff of the Muckleshoot Indian Tribe, Snoqualmie Indian Tribe, Squaxin Island Tribe, Stillaguamish Tribe, Suquamish Tribe, and Tulalip Tribe to inquire about project-related cultural information or concerns (Attachment A). At the time this assessment was completed, only the Suquamish Tribe had responded indicating no concern for the project area; however, if new information were provided, it would be incorporated into a revision of this document. This assessment utilized a research design that considered previous studies, the magnitude and nature of the undertaking, the nature and extent

of potential effects on historic properties, and the likely nature and location of historic properties within the project area, as well as other applicable laws, standards, and guidelines (per 36CFR800.4 (b)(1)) (DAHP 2015a).

Recorded Cultural Resources Present: Yes [ ] No [x]
No archaeological or historic sites have been previously recorded within the project.

2. Background Research

Background research conducted in September - October 2015.

Archival Sources Checked:

DAHP WISAARD	[x] Recorded archaeological and historic sites are not located in the project area.
Historic Maps	[x] Anderson, Kroll, Metsker, NETR, USGS, and USSG.
Web Soil Survey	[x] Arents, 0 - 8 percent slopes; Nooksack silt loam, 0 - 2 percent slopes; Tokul gravelly medial loam, 15 - 30 percent slopes; Barneston gravelly ashy coarse sandy loam, 8 - 30 percent slopes; Belfast silt loam, 0 - 3 percent slopes; Edgewick silt loam, 0 - 2 percent slopes; Seattle muck, 0 - 1 percent slopes (USDA NRCS 2015).
Library	[x] Various historical, archaeological, and ethnographic references in University of Washington libraries and in CRC's library.

Context Overview: Numerous cultural resources studies (Baldwin 2012; Dellert et al. 2012; Gilpin et al. 2009; Kopperl 2004; Morrison and Earley 2008; Murphy et al. 2000; Rinck 2009; Roedel 2002a, b; Rooke 2002; Quakenbush 2003) have been conducted within one mile of the project vicinity. The context presented here summarizes environmental, ethnographic, historical, and archaeological context information presented in these reports by reference; archaeological and historic data from the Washington State Department of Archaeology and Historic Preservation (DAHP) and the Washington Information System for Architectural and Archaeological Records Data (WISAARD) records search; ethnographic resources (e.g., Waterman 2001); geological and soils surveys (e.g., USDA NRCS 2015; WA DNR 2015); and historical maps and documents from Bureau of Land Management United States Surveyor General (USSG) Land Status & Cadastral Survey Records database, HistoryLink, Historic Map Works, HistoricAerials, University of Washington's Digital Collection, Washington State University's Early Washington Maps Collection, and in CRC's library.

Environmental Context: The project area is geographically situated within the northern or Puget Sound basin of the Puget Trough Province between the Olympic Peninsula and the Northern Cascades (Franklin and Dyrness 1973). This portion of the province is described as a depressed glacial lowland part of which is submerged creating Puget Sound. Late Pleistocene and early Holocene glacial events shaped the geomorphology of this region by creating this broad low-lying province characterized by glacial outwash surfaces and channels. The most recent glacial event in the Puget Sound, termed the Vashon Stade of the Fraser glaciation, began

approximately 17,000 - 18,000 years ago. Rising temperatures roughly 14,000 years ago brought about sudden climatic change causing the glacier to rapidly retreat north. This transition into an ice-free regional landscape allowed the area to be suitable for habitation by approximately 11,000 years ago (Kruckeberg 1991:22). During the Vashon Stade, the advance and retreat of glaciers scoured and compacted underlying geology resulting in the widespread and voluminous deposition of glacial sediments.

The project area is located on the north bank of the Snoqualmie River, upstream from Snoqualmie Falls. Active deposition and erosion in nonglacial periods including the present day is mainly attributable to alluvial processes (Booth et al. 1991). Alluvial deposits, transported by normal river movement and flooding, generally consist of reworked, unconsolidated gravel, sand, and silt; glacial deposits; and bedrock escarpment from Mount Si. Throughout the Holocene, the river has changed course within its low-lying floodplain leaving relics such as old meander channels and oxbow lakes, as evidenced by Borst Lake/Mill Pond, which abuts the southern edge of the project. Prior to the installation of river channelization methodologies in the mid-1900s, the Snoqualmie River was actively migrating through the western and southern margins of the project area (King County 1996). The project area is also located within the 100-year floodplain boundary (King County 2014). The narrow and rocky river channel upstream from Snoqualmie Falls creates a 'bottleneck' effect during increased water volumes causing the river to overflow into the broad, low-lying landform above the falls.

The surface geology of the project area is mapped as Quaternary alluvium and Quaternary (Pleistocene) continental glacial drift (WA DNR 2015). The Quaternary alluvium unit is described as semi- to unconsolidated clay, silt, sand, gravel, and/or cobbles. Local variations of this unit can range from peat, muck, and diatomite; beach, dune, lacustrine, estuarine, marsh, landslide, lahar, glacial, or colluvial deposits; volcaniclastic or tephra deposits; or modified land and artificial fill. Quaternary continental glacial drift consists of Pleistocene era till, outwash clay, silt, sand, gravel, cobbles, and boulders deposited by or originating from continental glaciers. In localized environments it can also consist of peat, nonglacial sediments, as well as modified land and artificial fill.

Native soils mapped in the project area consist of the following in descending abundance: Arents, 0 - 8 percent slopes; Nooksack silt loam, 0 - 2 percent slopes; Tokul gravelly medial loam, 15 - 30 percent slopes; Barneston gravelly ashy coarse sandy loam, 8 - 30 percent slopes; Belfast silt loam, 0 - 3 percent slopes; Edgewick silt loam, 0 - 2 percent slopes; Seattle muck, 0 - 1 percent slopes (USDA NRCS 2015). The Arents mapped soil unit dominates the projects area and occurs primarily in the central developed area of the project. This soil unit is derived from volcanic ash and glacial drift and occurs on landforms such as terraces and plains. A typical profile of these sediments is: 0 - 35 inches gravelly sandy loam and 35 – 60 inches stratified extremely gravelly coarse sand to gravelly sandy loam. The second predominate soil unit is Nooksack silt loam and occurs along the southwestern and northwestern portions of the project. This soil unit is derived from alluvium and occurs of terraces and flood plains. A typical profile of these sediments is 0 – 60 inches of silt loam. The eastern border of the project is characterized by Tokul gravelly medial loam derived from volcanic ash mixed with loess over glacial till. This soil forms on till plains and on footslopes and sideslopes of hillslopes. A typical profile is: 0 – 2

inches decomposed plant material; 2 – 24 inches gravelly medial loam; 24 – 33 inches gravelly medial fine sandy loam; and 33 - 62 inches cemented material.

Artificial fill is also present within the project area (Figure 3). Subsurface testing in 2012 by Associated Earth Sciences, Inc. provided an approximation of the depth of fill present in 2012 capping the pre-1890/pre-mill native ground surface. Throughout the majority of the project area artificial fill is present from 0 to more than 20 feet in depth, most of which is between 0 and 10 feet in depth.

Local geomorphology and mapped depositional context indicates a low likelihood that intact archaeological deposits would be present within the proposed project area. In summary, the project area is a palimpsest of Pleistocene and Holocene erosional and depositional activities that underlie over a century historic land modification. Since glacial deposition, active channel migration deposited new sediments and removed, in part, the present glacial sediments. Channel migration of the Snoqualmie River has reworked the southern and western margins of the project area. Historic filling and grading has obscured the pre-1890 topography in order to create a level surface for industrial development. Periodic flooding, as recently as 2009, has likely contributed to landscape alterations and sediment deposition. These events have likely buried, obscured, or destroyed any surficial or depositional archaeological impressions within the project landscape.

Archaeological Context: Regional and local archaeological, ethnographic, and historical investigations over the past several decades have provided a synthesis for thousands of years of human occupation in Puget Sound and furnish a regional context for evaluating the project area (e.g., Ames and Maschner 1999; Greengo 1983; Larson and Lewarch 1995; Matson and Coupland 1995; Nelson 1990). Human land use is generally structured around the availability of natural resources found in local environments including fresh water, terrestrial and marine sustenance, forests, and suitable terrain. Archaeology of the Puget Sound region is broadly defined by material differences in habitation sites, tool technology, and subsistence (e.g., Larson and Lewarch 1995). Early evidence of human occupation in the Puget Sound region occurred subsequent to the retreat of glaciers and the subsidence of glacial melt waters at the end of the Pleistocene.

Ames and Maschner (1999) defined a broad regional sequence for the Pacific Northwest based on cultural change over time: Paleo-Indian (pre-Clovis-Clovis) (circa 11,800 B.C. – 10,500 B.C.), Archaic (10,500 B.C. – 4,400 B.C.), Early (4,400 – 1,800 B.C.), Middle (1,800 B.C. – A.D. 200/250), and Late Pacific (A.D. 200/250 – A.D. 1,775), and Modern (after A.D. 1,775). Land use shifted from generalized marine, littoral, and/or terrestrial use during the Paleo-Indian/Archaic to littoral, tidal, and terrestrial in the Early Pacific and continued into the ethnographic periods. Settlement patterns also changed during the Archaic to Early Pacific from short-term use of pit houses and shelters to increased sedentism in seasonal or permanent villages with special use or seasonal campsites. Subsistence followed a similar pattern as that of land use with a general exploitation of resources available on the landscape. During the Early Pacific there was an increased use of littoral and tidal resources, an increased focus on marine and riverine resources in the Middle Pacific, and specialization in marine, riverine, littoral, and terrestrial in the Late Pacific due to food storage methodologies. Owing to problems with preservation (high moisture, soil acidity), coastal and riverine archaeological finds are generally

limited to shell middens, stone tools, and stone tool-making debris (Carlson 1990). Technology during the Paleo-Indian and Archaic periods consisted of lithics, bone, antler, and perishable materials. During the Early Pacific the frequency of these materials in the archaeological record increases. In assemblages from the Middle and Late Pacific, a diversification of tools and tackle of bone is seen while stone tools occur in lower frequencies. Contact between Indian peoples of Puget Sound and Euroamericans brought about significant changes to native culture resulting from acculturation pressures to Euroamerican ways of life.

The project area is within land traditionally used by the Snoqualmie, a Southern Coast Salish people who lived along the Snoqualmie River (Suttles and Lane 1990). Snoqualmie winter villages were generally comprised of one to three multi-family houses 30 feet wide and up to 100 feet long situated at the confluences of rivers and creeks in such areas as Monroe, Fall City, North Bend, Snoqualmie, and the confluence of the Tolt and Snoqualmie Rivers (Ruby and Brown 1992; Tollefson and Abott 1993). In the spring, the Snoqualmie lived in mat lodges in select locations where they had ready access to plant and animal resources. The Snoqualmie reportedly lived in two primary groups: the lower Snoqualmie, those that lived below the falls, and the upper Snoqualmie, those that lived above the falls. Differences in their ecological settings were reflected in the material cultures of the upper and lower Snoqualmie peoples. People living above the impassable Snoqualmie Falls did not have local access to annual salmon runs and were therefore more reliant on land game and plant resources. The Snoqualmie people actively participated in trade with tribes east of the Cascade Range. An extensive trail network provided access to the mountain passes for travelling east and for hunting.

Early ethnographers documented locations of villages and names for resource areas, water bodies, and other landscape features from local informants. Waterman (2001: 177-179) recorded numerous place names surrounding the City of Snoqualmie and the Snoqualmie River. Five named places are located near the project area:

- *Kaqo'iyauk* translated as "a place on the east bank of the Snoqualmie River below the falls".
- *SqwEd* refers to Snoqualmie Falls and is translated as "under part to which the stream plunges".
- *Xa'tcu* is a lake or lagoon referring to a slough area where the river is broken into two channels east of the project area.
- *Ba'xab* meaning "prairie" and in reference to Snoqualmie Prairie where a village was once located on the south bank of the Snoqualmie River.
- *qoa'l^{3}qo* translated as "confluence" is where the South Fork of the Snoqualmie flows into the main stream.
- *Sts^{3}o'bElz* is the name of a creek (presumably Kimball Creek) that insects with the west side of the Snoqualmie River.

The Snoqualmie Falls Traditional Cultural Property (TCP) is located on the Snoqualmie River at Snoqualmie Falls (Garfield and Tollefson 1992). Snoqualmie Falls is 268-foot waterfall intertwined with the traditional creation myth of the Snoqualmie people. It is also the location of the Snoqualmie Falls Hydroelectric District Power Plant Historic District (DAHP 2015b). While the power plant has altered the natural water flow of the falls, the basin below remains intact for both its physical condition and a place of traditional use and heritage for the Snoqualmie people.

The story, originally recorded by Ballard (1929) and Haeberlin and Gunther (1924), can be summarized as thus,

> "[the] Moon the Transformer created the falls from a fish weir while he was giving shape to the natural environment and the Indian people. The Falls has also been identified by some contemporary tribal members as the location of a powerful waterfall spirit and a traditional venue for acquiring spirit power" (Garfield and Tollefson 1992:Section 8 Page 1).

Historical Context: Numerous local tribes, including the Snoqualmie, were among the signatories of the Point Elliott Treaty in 1855 (Spier 1936; Suttles and Lane 1990). This treaty dissolved Indian title to their traditional lands, subsequently forcing signatory tribes to abandon many of their villages and relocate to reservations. Following the signing of the treaty, large swaths of lands were opened up to Euroamericans incomers. This, coupled with incentives provided by the 1850 Donation Land Claim Act, brought an influx of settlement into the Puget Sound region. The first reported Euroamerican settler in the Snoqualmie Valley was Jeremiah Borst, for whom the lake abutting the southern boundary of the project is named. Jeremiah bought up land in the valley from other farmers and came to own the land where the cities of Snoqualmie and North Bend are presently located (Battey 2011).

According to Quackenbush (2003), the City of Snoqualmie has experienced three main phases of economic expansion: the Railroad Era (1889-1915), the Sunset Highway Era and Industrialization (1915-1945), and Post-War Regionalization (1945 to present). Expectations of growth from the Seattle, Lake Shore, and Eastern Railway line expansion in 1889, led to the founding of cities along the Snoqualmie River. In the 1890s, the present day City of Snoqualmie was known as Snoqualmie Falls. Due to municipal finagling, the City of Snoqualmie Falls received both the railroad depot slated for the neighboring City of Snoqualmie and the city's name, which later came to be known as North Bend (Kinsey 2014). The arrival of the railroad and the construction of the underground power plant at Snoqualmie Falls in the late 1890s prepared this area for the arrival of new industries such as hop farming, dairy farming, logging and milling of lumber, and later tourism. In 1915, the Sunset Highway was completed, connecting the Seattle area to eastern Washington and the eastern United States, by way of Snoqualmie. Subsequently, the Snoqualmie Falls Lumber Company constructed a lumber mill and the mill town of Snoqualmie Falls. During the 1920s, the town's population experienced an influx in population, and residential and commercial development. Similar to many areas across the United States, Snoqualmie saw hard times during the Great Depression. However, the large demand for timber and expansive growth in western Washington turned the tide for the area leading to a second wave of slow, but steady growth and development. The construction of US 10, which later became Interstate 90 in the 1970s, further connected Snoqualmie to the growing Puget Sound region.

The historic timeline of the Snoqualmie Mill Site is as can be described as follows and is largely derived from information provided by Snoqualmie Mill Ventures (Snoqualmie Mill Ventures, LLC, May 2015, History Presentation):

- 1892: The Snoqualmie River floods near Snoqualmie.

- 1912: Weyerhaeuser Timber Co. and Grandin-Coast Lumber Co. chose a site for a mill that included proximity to two transcontinental railroads: The Northern Pacific and The Chicago, Milwaukee, St. Paul and Pacific.
- 1914: The Snoqualmie Falls Lumber Company is incorporated (Quackenbush 2003).
- 1916: Construction begins on the Snoqualmie Falls Lumber Company Mill. The mill site is cleared. Fill material is imported for filling swales, building foundations, and to match rail line grades (Figure 4).
- 1917: Snoqualmie Falls Lumber cut its first log (Kinsey 2014). The owners of the second all-electric lumber mill in the country built their own company town, Snoqualmie Falls, across the river and up a hill from Snoqualmie. At its peak, the mill town included 250 homes, a hotel, community center, 50-bed hospital, barbershop, grade school, boarding house for single men, and eight bunkhouses built for Japanese workers. Plans for the new mill were announced with Weyerhaeuser owning two-thirds and Grandin-Coast owning one-third. The Mill Pond is dredged.
- 1920: Construction is complete (Figure 5).
- 1922: A representative group of sales people from Weyerhaeuser travelled west from Minnesota via a customized Northern Pacific Railway Company train to educate mills on ways they could better serve clients. Their first stop in Washington was the Snoqualmie Falls Lumber Company, "The plant was recognized as one of the "largest and most modern lumber manufacturing units on the Pacific coast," with every operation driven by electricity rather than by steam. They noted: "The use of electric donkeys in logging is the innovation of the Snoqualmie Falls Lumber Company. They first experimented with this type of motive power when they used it in clearing their mill site. This demonstrated to them the practicability of using the engine in actual logging operations. The use of electricity has proven an economy. The chances of starting a forest fire, always present in the use of steam donkeys, is eliminated at Snoqualmie" (Moholt 2015).
- 1930s - 1940s: Mill wages fell during the Great Depression; however, a post-World War II building boom that increased demand for lumber (Battey 2011).
- 1950s: A 1952 photograph shows "Hospital Hill", "The Terrace" worker housing, and community buildings along the eastern edge of the project area. By the 1950s, living in a mill town was no longer a popular idea among mill workers. This in conjunction with expensive maintenance need for the mill houses led to many of the houses to be moved across a temporary bridge on the Snoqualmie River to create the Williams Addition to Snoqualmie in 1958. In 1959, Weyerhaeuser built a new plywood plant at Snoqualmie Falls (Weyerhaeuser 1959).
- 1970s: The mill storage pad doubled in size since 1952 to encompass the western portion of the project (Figure 6).
- 1989: Weyerhaeuser closed its main mill (Mill 1) above Snoqualmie.
- 1989 – 2006: Remedial activities associated with the removal of contaminant source areas were completed. Soils were either removed from the subject property for treatment or were treated on site and replaced as fill.
- 1990: Mill 1 is gone.
- 1994: The Mill Site is included in City's Urban Growth Area.
- 2002: Weyerhaeuser announced it was shutting down its Snoqualmie dry kilns and planing plant.
- 2003: The sawmill closes and demolition of buildings began.

- 2006: DirtFish Rally School began operating on-site, utilizing existing impervious surfaces and exposed fill material as rally car course.
- 2012: The project area and surrounding vicinity is annexed by the City of Snoqualmie.

Historic Map/Imagery Review:

- USSG (1865): A slough is present in the southern portion of the project area. No landownership or other annotations appear within the immediate project vicinity. A trail is present on the map southwest of the project area intersecting with Kimball Creek.
- USSG (1899): A slough is present in the southern portion of the project area. The northern portion of the project area is labeled as "Prairie".
- Anderson (1907): The project area is located within the properties of Henry Fuhrman, Jas. Carroll, CL Wayland, C Weller, Mary E Cotte. Power Co, and W. T. Co (Weyerhaeuser). "Snoqualmie Mill Co" is labeled on the map within the Henry Fuhrman property.
- Kroll (1912): The project area is within the property of the Estate of Henry Fuhrman, Grandin Coast Lbr., Weyerhaeuser T. Co, and Chas Waller. Two roads are present: one along the western edge of the property and one bisecting the property running east-west. Railroad tracks are present along the eastern margin.
- Kroll (1926): Snoqualmie Falls Lumber owns the entirety of the project area and surrounding vicinity.
- 1930 – 1960: Historic topographic maps (NETR 2015) show the property remaining the same.
- Metsker (1936): Snoqualmie Falls Lumber owns the entirety of the project area and surrounding vicinity. Additional roads have been constructed and "Sch Dt 201" is present on the eastern side of the project area.
- 1952 – Aerial imagery (NETR 2015) shows the west side of the project area is vegetated likely with young forest.
- 1960: Historic topographic maps (NETR 2015) show fewer mill buildings are present and a small slough links southwestern edge of Borst Lake to the Snoqualmie River.
- 1963: Historic topographic maps (NETR 2015) show little road development in the western portion of the project area. Side streams are created off the creek flowing through the mill.
- 1969 – 2013: Aerial imagery (NETR 2015) shows the footprint of development has remained largely unchanged.
- 1970 - 1986: Historic topographic maps (NETR 2015) show the property remaining the same.
- 1986 - 1993: Historic topographic maps (NETR 2015) show road redevelopment in the western project area, building construction, and stream re-channelization. The side streams are removed from the mainstream.

- Google Earth Imagery (1998-2015): Relatively few changes are visible within the project area, with the exception of the development of a racetrack on previously developed areas.

Recorded Cultural Resource Sites: Review of archaeological and historical data on the DAHP WISSARD database did not identify any previously recorded archaeological sites within the project area. Five archaeological sites are located within one mile of the project area (Table 1). Of these, four (45KI451, 45KI546, 45KI547, and 45KI683) are historic in origin and one (45KI937) is comprised of precontact and historic components.

Three of the recorded historical sites are infrastructure relating to the early development of the area: 45KI451 is a railway grade from the Seattle, Lake Shore, & Eastern Railroad used during the period of 1888 and 1975 (Hudson and Nelson 1997); 45KI546 is a circa 1920s bridge, built in Montana, spanning the Snoqualmie River connecting the City of Snoqualmie and the Weyerhaeuser Mill (Larson 1987a); and 45KI547 is an A-frame, two-story pumphouse between the Snoqualmie River and Mill Pond (Larson 1987b). Historical site 45KI683 is a commemorative marker in the Puget Sound Power & Light Co. at Snoqualmie Falls (Stilson and Johnson 2003).

Site 45KI937 is comprised of precontact and historic components recovered during shovel probe testing in the Snoqualmie Falls Upper Park (Gilpin 2009). Two shovel probes uncovered a CCS tertiary flake, a rim sherd of decorated ironstone ceramic, a square-headed wire nail, and a small, opalescent plastic bead similar to those made during the 1950s within disturbed soils.

Two historic register properties are adjacent to the project area; neither will be affected by the proposed project. To the west is the Snoqualmie Falls Hydroelectric District Power Plant Historic District (DAHP 2015b). This district is comprised of nineteen contributing buildings and structures along both banks of the Snoqualmie River. These buildings are noted for their significance during the period of 1898 – 1910.

The Snoqualmie Depot, currently known as the Northwest Railway Museum, is located south of the project area on the south bank of the Snoqualmie River (DAHP 2015c). This structure, built in 1890 by the Seattle, Lakeshore, and Eastern Railway, operated as the train depot for numerous railway lines. The structure's design is atypical as it served as both industrial ventures such as the hop and timber industries as wells as early recreationalists from Seattle seeking hunting and fishing opportunities. The Snoqualmie Depot is the oldest continuously operating train depot in Washington State (NRM 2015).

Three historic inventory properties are located within the southeast portion of the project area (Table 2). Two of these properties were used as manufacture facilities for industry processing and extraction. One is the Snoqualmie Falls Lumber Co. Powerhouse and Brick Stack built in 1917. In 2007, a National Register of Historic Places (NRHP) Registration form was drafted, but never submitted (DAHP 2015d). The second is a 1915 boiler plant structure. The third building is a 1947 structure used for professional commerce/trade.

Eleven cultural resources assessments and monitoring projects have been conducted within approximately one mile of the project vicinity (Baldwin 2012; Dellert et al. 2012; Gilpin et al. 2009; Kopperl 2004; Morrison and Earley 2008; Murphy et al. 2000; Rinck 2009; Roedel 2002a, b; Rooke 2002; Quakenbush 2003). Of the cultural resources assessments, four did not identify cultural resources and recommended that the project proceed without further cultural resource oversight (Baldwin 2012; Kopperl 2004; Rinck 2009; Rooke 2002); one identified site 45KI937, discussed above, and suggested the surrounding area may contain more artifacts of uncertain context (Gilpin et al. 2009); and one did not identify significant cultural resources; however, monitoring was recommended in areas that may disturb intact native sediments (Morrison and Earley 2008).

Murphy et al. (2000) conducted an assessment for the Falls Crossing Project. This project is adjacent to Snoqualmie Falls Hydroelectric Power Plant Histone District, listed on the NRHP, and the Snoqualmie Falls TCP, determined eligible for the NRHP. Proposed mitigation actions included a 100-foot wide vegetated buffer and cut-out lights to minimize view and lighting impacts. Archaeologists also recorded the historic railway site 45KI451 discussed above. The Niblick Spur area was slated for development and was determined not retain to integrity due to physical alterations. A Snoqualmie Tribal member indicated that burials were present, but were not discovered during field investigations.

Quakenbush (2003) conducted a 'Survey & Inventory of Historic Resources in the Cities of North Bend and Snoqualmie', which focused on the residential areas surrounding the central business districts. During his study, the author recorded thirty-eight buildings in North Bend connected with three periods of growth and development between 1889 and 1960. In Snoqualmie, forty buildings were documented which were also connected with three periods of growth and development between 1889 and present day. None of these building will be affected by the proposed project.

Two archaeological monitoring projects were conducted near the project area. Roedel (2002a) did not observe any archaeological resources during field investigations. Dellert et al. (2012) observed historic-period artifacts within fill during ground disturbing construction activities. These finding were determined to have been adequately documented and no site form was produced. Roedel (2002b) monitored a portion of the Kimball Creek Village Project. During monitoring, two isolated historic artifacts and three historic artifact scatters were identified. The scatters were understood to be refuse disposal areas and therefore did not retain integrity of condition or location.

Archaeological Predictive Model: The DAHP statewide predictive model uses environmental data about the locations of known archaeological sites to identify where previously unknown archaeological sites are more likely to be found. The model correlates locations of known archaeological to environmental data "to determine the probability that, under a particular set of environmental conditions, another location would be expected to contain an archaeological site (Kauhi and Markert 2009:2-3). Environmental data categories included in the model are elevation, slope, aspect, distance to water, geology, soils, and landforms. According to the model, the project location is ranked as having a moderate to high potential for archaeological sites.

3. Conclusions and Recommendations

Late Pleistocene glacial events and subsequent flood episodes are responsible for much of the regional geography and depositional context, while events during the Holocene have locally altered the project area. The project area can be described as broad floodplain or plain at the base of a hillslope along the Snoqualmie River. Natural river meandering and flooding have reworked the glacially created landscape of the project area throughout the Holocene into historic periods.

Artificial modifications to the landscape have also altered the original landscape. Pre-mill terrain consisted of natural undulations and swales. As documented in photographs and recent soil studies, in preparation for the mill the project area was logged, graded, and filled (0 – 20 feet), producing the level terrain visible today.

Based upon review of local historical, archaeological, and ethnographic information, available from DAHP and other sources, no historic or precontact sites or TCPS are located within the project area. The nearest site is an A-frame, two-story pumphouse between the Snoqualmie River and Mill Pond. Three historic inventory properties are located within the southeast portion of the project area. While two of these have little associated information, the third, the Snoqualmie Falls Lumber Co. Powerhouse and Brick Stack built in 1917, had a National Register of Historic Places (NRHP) Registration form drafted in 2007. Numerous places have been ethnographically named surrounding the project area including Snoqualmie Falls, which has also been identified as a TCP related to the Snoqualmie people's traditional creation story.

Documented historic era activities within the project area consist of domestic, commercial, and industrial activities. Domestic (single family homes, boarding houses, and bunk houses) and commercial (hotels, barbershops, etc.) activities were associated with the mill town of Snoqualmie Falls located in the eastern portion of the project area. Industrial activities consisted of logging, milling, railroad, road building, and infrastructure development associated with mill activities. Prior to mill development, precontact and ethnohistoric use of the project and surrounding area likely included hunting, overland travel, resource gathering and processing, and short-term camps that could represent a range of transient or ceremonial activities. Thus associated archaeology could consist of lithic isolates or scatters, fire-cracked rock, hearth features and/or faunal remains.

A previous cultural resource study stated that during tribal consultation Snoqualmie Tribal members indicated their use of the vicinity for subsistence activities and spiritual practices (Murphy et al. 2000). A tribal member also indicated that burials were located in the area; however, none were located during reconnaissance, this is directly west of the Snoqualmie Mill Site on the west side of the river.

According to the DAHP predictive model, this area was considered to have a high likelihood to contain cultural resources due to factors such as proximity to fresh water, flat, historic prairie terrain, and southern exposure. Despite this, the project area is a palimpsest of industrial and recreational development that has spanned the late 1800s until present and has likely succeeded in burying, obscuring, or destroying any surficial or depositional precontact archaeological

impressions. Based on the condition of the property since the mill closure, historic materials may be present at or near surface. Three historic structures have been inventoried within the project area, and should be revisited during future development in the area.

In the unlikely event that ground disturbing or other activities do result in the inadvertent discovery of archaeological deposits (see protocol in Attachment B), work should be halted in the immediate area and contact made with DAHP in Olympia. Work should be halted until such time as further investigation and appropriate consultation is concluded. In the unlikely event of the inadvertent discovery of human remains, work should be immediately halted in the area, the discovery covered and secured against further disturbance, and contact effected with law enforcement personnel.

No historic properties affected [x]
Historic properties affected [ ]
No adverse effect to historic properties [ ]
Adverse effect to historic properties [ ]

Attachments:
Figures [x]
Other [x] Copies of project related correspondence between CRC and Tribal cultural resources staff.
[x] Proposed inadvertent discovery protocol.

4. Limitations of this Assessment

No cultural resources study can wholly eliminate uncertainty regarding the potential for prehistoric sites, historic properties or traditional cultural properties to be associated with a project. The information presented in this report is based on professional opinions derived from our analysis and interpretation of available documents, records, literature, and information identified in this report, and on our field investigation and observations as described herein. Conclusions and recommendations presented apply to project conditions existing at the time of our study and those reasonably foreseeable. The data, conclusions, and interpretations in this report should not be construed as a warranty of subsurface conditions described in this report. They cannot necessarily apply to site changes of which CRC is not aware and has not had the opportunity to evaluate.

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6. Figures and Tables

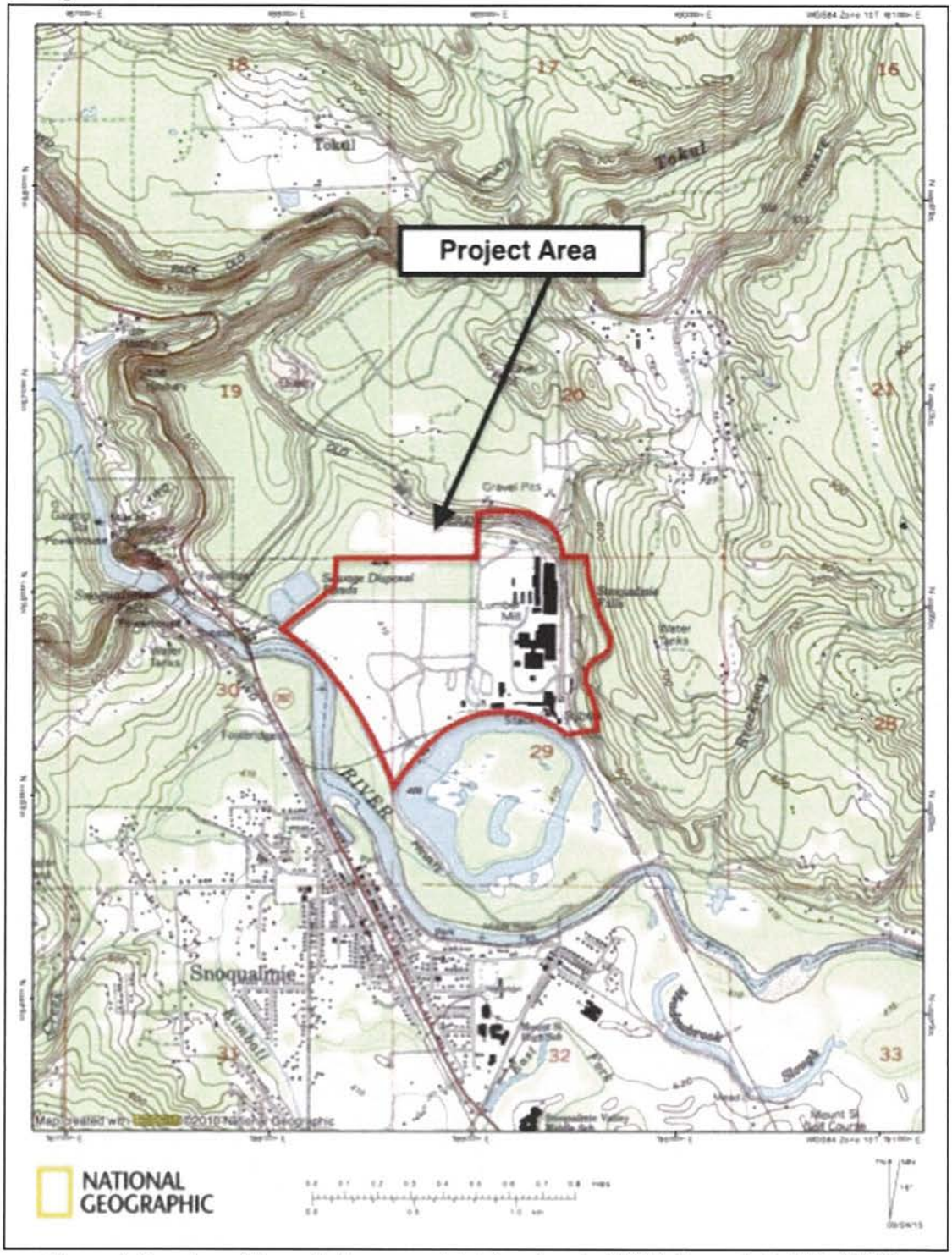

Figure 1. Location of the project area annotated in red on the USGS Snoqualmie, WA (1993) topographic quadrangle.

Figure 2. Google Earth Imagery (2015) of the Snoqualmie Mill Site project area depicted by red polygon.

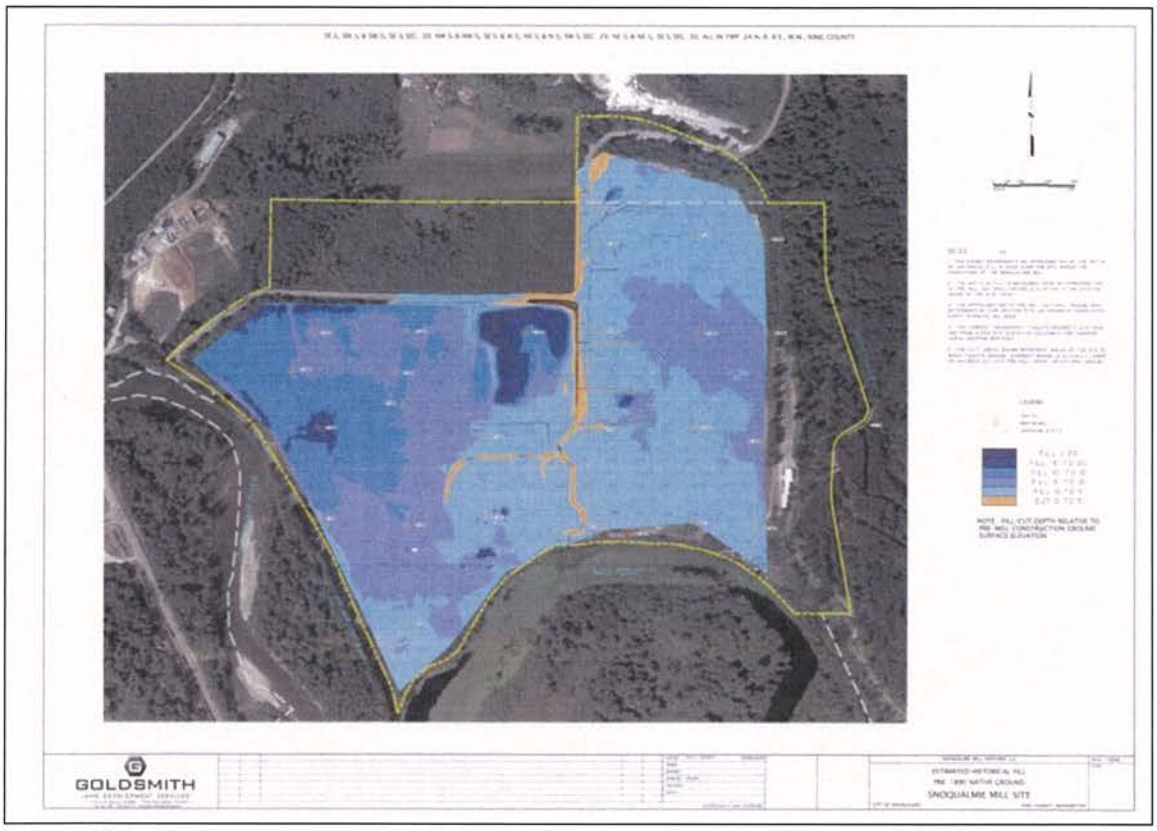

Figure 3. Estimated historical fill / Pre-1890 Native Ground of the Snoqualmie Mill Site, provided by Snoqualmie Mill Ventures, LLC.

Figure 4. A 1916 photograph of the cleared Snoqualmie Mill location, provided by Snoqualmie Mill Ventures, LLC.

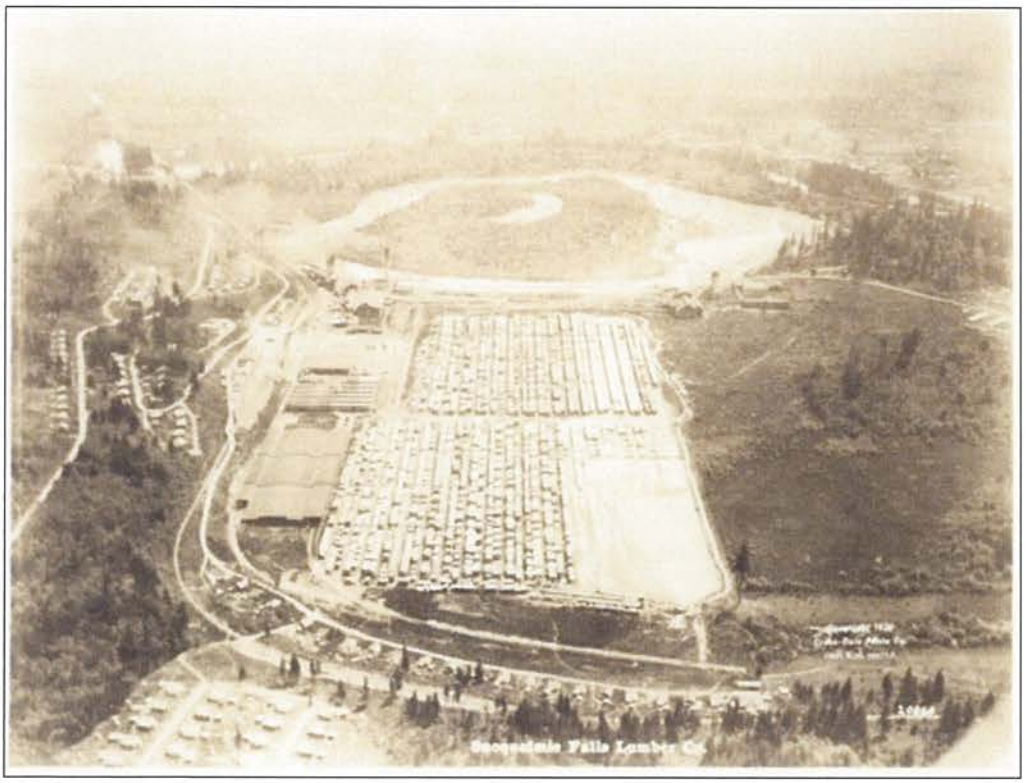

Figure 5. A 1920 photograph showing the completion of mill construction, provided by Snoqualmie Mill Ventures, LLC.

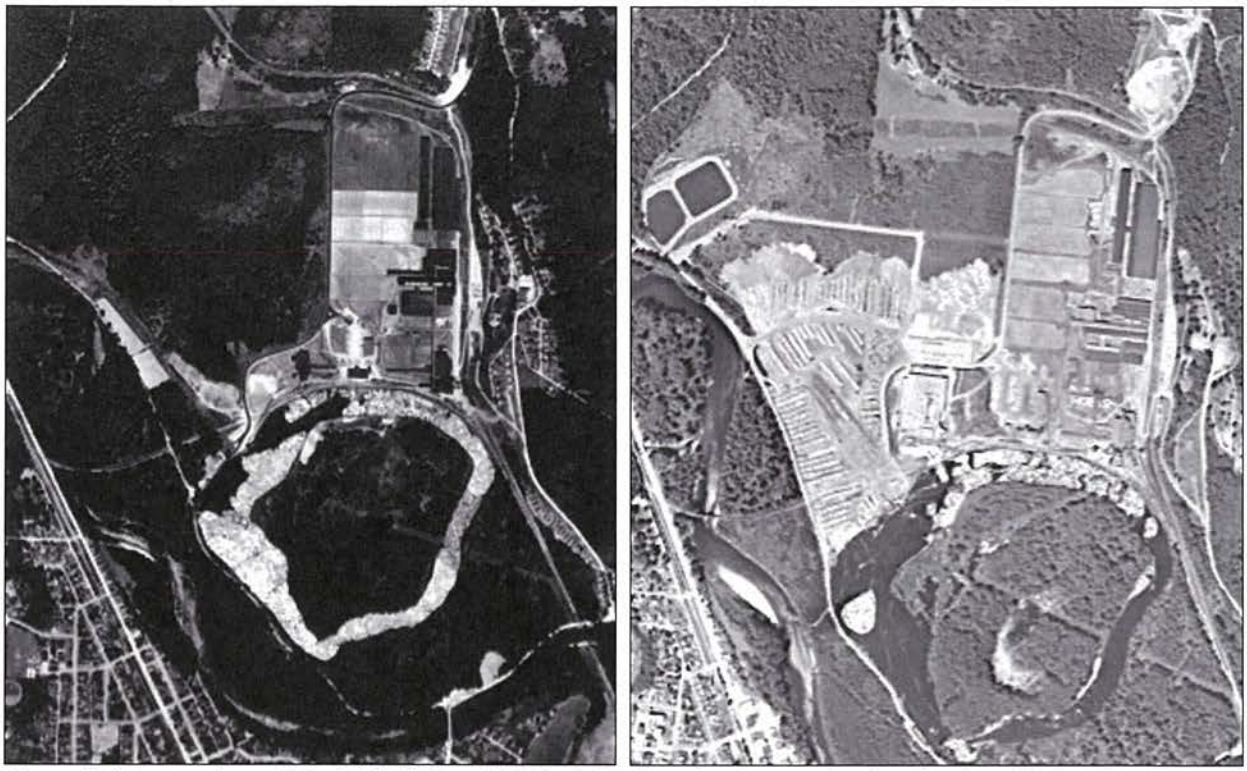

Figure 6. A comparison of the 1952 (left) and 1970 (right) historic photographs showing the mill doubling in size, provided by Snoqualmie Mill Ventures, LLC.

Table 1. Archaeological site within one mile of the project area.

Archaeological Site	DAHP Site Type Name	Listing Status	Approximate Distance from Project Area (Miles)	Potential Project Effects
45KI451	Historic Railroad Properties	Determined Not Eligible for the National Register	0.54	None.
45KI546	Historic Bridges	Potentially Eligible	0.17	None.
45KI547	Historic Logging Properties	Potentially Eligible	0.15	None.
45KI683	Historic Object(s)	Inventory	0.46	None.
45KI937	Historic Debris Scatter/Concentration, Pre Contact and Historic Components, Pre Contact Lithic Material	Inventory	0.40	None.

Table 2. Historic inventory properties recorded within the project area.

Address (Snoqualmie, WA)	Built Date	Historic Use	Historic Register Status	Potential Project Effects
38800 SE Mill Pond Rd	1917	Industry/Processing/Extraction - Manufacturing Facility	Inventory	None.
38800 SE Mill Pond Rd	1915	Industry/Processing/Extraction - Manufacturing Facility	Inventory	None.
7001 396TH DR SE	1947	Commerce/Trade - Professional	Inventory	None.

Attachment A. Project correspondence between CRC, Inc. and area Tribes.

Cultural Resource Consultants, Inc.

September 18, 2015

Muckleshoot Indian Tribe
Laura Murphy, Archaeologist/Cultural Resources
39015 172nd Ave SE
Auburn, WA 98092

Re: Cultural Resources Overview for the Snoqualmie Mill Site, Snoqualmie, WA

Dear Laura:

Cultural Resource Consultants, Inc., has been retained by Snoqualmie Mill Ventures, LLC, to prepare a Cultural Resources Overview for the Snoqualmie Mill Site. No development activities are currently proposed. This overview report will serve to provide background information to be relied upon for future archaeological surveys that will be required for future development / construction permits. The purpose of my letter is to request any information from the Tribe about the Mill Site that may not be readily available through other sources.

The Mill Site is approximately 293 acres in size located in portions of Section 20, 29, and 30, Township 24 North, Range 08 East, Willamette Meridian, in the City of Snoqualmie, WA. (Approximately 15.7 acres of the Mill Site remains in King County jurisdiction that was not included when the Mill Site was annexed by the City in 2012.)

The property is generally bounded by Mill Pond (Borst Lake) to the south, SE Mill Pond Road to the west, 396th Drive SE to the east, and various private and public property owners to the north. A private road runs general east/west through the site, which is utilized as a haul road from quarries located to the north of the Mill Site providing access to SE Mill Pond Road.

We are currently in the process of reviewing readily available information. Background research will include, at a minimum, a file search at the Washington State Department of Archaeology and Historic Preservation, review of previously recorded cultural resource reports, and review of pertinent published literature and ethnographies. Results of our investigations will be presented in a Technical Memo.

We are aware that not all information is contained within published sources. Should the Tribe have additional information to support our assessment, we would very much like to include it in our study. Please contact me should you wish to provide any comments. I appreciate your assistance in this matter and look forward to hearing from you.

Sincerely,

Glenn D. Hartmann
President/Principal Investigator

PO Box 10668, Bainbridge Island, WA 98110
Phone 206.855.9020 - info@crcwa.com

Cultural Resource Consultants, Inc.

September 18, 2015

Snoqualmie Indian Tribe
Steven Mullen-Moses
8130 Railroad Ave, Suite 103 / PO Box 969
Snoqualmie, WA 98065

Re: Cultural Resources Overview for the Snoqualmie Mill Site, Snoqualmie, WA

Dear Steven:

Cultural Resource Consultants, Inc., has been retained by Snoqualmie Mill Ventures, LLC, to prepare a Cultural Resources Overview for the Snoqualmie Mill Site. No development activities are currently proposed. This overview report will serve to provide background information to be relied upon for future archaeological surveys that will be required for future development / construction permits. The purpose of my letter is to request any information from the Tribe about the Mill Site that may not be readily available through other sources.

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Glenn D. Hartmann
President/Principal Investigator

PO Box 10668, Bainbridge Island, WA 98110
Phone 206.855.9020 - info@crcwa.com

Cultural Resource Consultants, Inc.

September 18, 2015

Squaxin Island Tribe
Rhonda Foster and Stephanie Neil
SE 70 Squaxin Lane
Shelton, WA 98584

Re: Cultural Resources Overview for the Snoqualmie Mill Site, Snoqualmie, WA

Dear Rhonda:

Cultural Resource Consultants, Inc., has been retained by Snoqualmie Mill Ventures, LLC, to prepare a Cultural Resources Overview for the Snoqualmie Mill Site. No development activities are currently proposed. This overview report will serve to provide background information to be relied upon for future archaeological surveys that will be required for future development / construction permits. The purpose of my letter is to request any information from the Tribe about the Mill Site that may not be readily available through other sources.

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Sincerely,

Glenn D. Hartmann
President/Principal Investigator

PO Box 10668, Bainbridge Island, WA 98110
Phone 206.855.9020 - info@crcwa.com

Cultural Resource Consultants, Inc.

September 18, 2015

Suquamish Tribe
Stephanie Trudel
PO Box 498
Suquamish, WA 98392-0498

Re: Cultural Resources Overview for the Snoqualmie Mill Site, Snoqualmie, WA

Dear Stephanie:

Cultural Resource Consultants, Inc., has been retained by Snoqualmie Mill Ventures, LLC, to prepare a Cultural Resources Overview for the Snoqualmie Mill Site. No development activities are currently proposed. This overview report will serve to provide background information to be relied upon for future archaeological surveys that will be required for future development / construction permits. The purpose of my letter is to request any information from the Tribe about the Mill Site that may not be readily available through other sources.

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Sincerely,

Glenn D. Hartmann
President/Principal Investigator

PO Box 10668, Bainbridge Island, WA 98110
Phone 206.855.9020 - info@crcwa.com

Tribal Historic Preservation Officer
Fisheries Department
360/394-8529
Fax 360/598-4666

THE SUQUAMISH TRIBE
P.O. Box 498 Suquamish, Washington 98392

September 23, 2015

Mr. Glenn Hartmann
Cultural Resource Consultants, Inc.
PO Box 10668
Bainbridge Island, WA 98110

RE: Cultural Resources Overview for the Snoqualmie Mill Site, Snoqualmie, Washington
Request for Traditional Cultural Property Information
Suquamish Tribe Reference: 15-09-22-03

Dear Glenn:

Thank you for consulting with the Suquamish Tribe regarding CRC's cultural resources overview for the Snoqualmie Mill Site in Snoqualmie, Washington. The Tribe does not have any specific concerns or statements about the proposed project at this time. Please contact me at 360-394-8533 or via e-mail at strudel@suquamish.nsn.us as additional project information becomes available.

Sincerely,

Stephanie E Trudel

Stephanie E. Trudel
Archaeologist

Cc: Gretchen Kaehler, Local Government Archaeologist, Washington State Department of Archaeology and Historic Preservation

Cultural Resource Consultants, Inc.

September 18, 2015

Stillaguamish Tribe
Kerry Lyste, Cultural Resources
4126 172nd Street
Arlington, WA 98223

Re: Cultural Resources Overview for the Snoqualmie Mill Site, Snoqualmie, WA

Dear Kerry:

Cultural Resource Consultants, Inc., has been retained by Snoqualmie Mill Ventures, LLC, to prepare a Cultural Resources Overview for the Snoqualmie Mill Site. No development activities are currently proposed. This overview report will serve to provide background information to be relied upon for future archaeological surveys that will be required for future development / construction permits. The purpose of my letter is to request any information from the Tribe about the Mill Site that may not be readily available through other sources.

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Glenn D. Hartmann
President/Principal Investigator

PO Box 10668, Bainbridge Island, WA 98110
Phone 206.855.9020 - info@crcwa.com

Cultural Resource Consultants, Inc.

September 18, 2015

Tulalip Tribes
Richard Young
6410 23rd Ave NE
Tulalip, WA 98271

Re: Cultural Resources Overview for the Snoqualmie Mill Site, Snoqualmie, WA

Dear Richard:

Cultural Resource Consultants, Inc., has been retained by Snoqualmie Mill Ventures, LLC, to prepare a Cultural Resources Overview for the Snoqualmie Mill Site. No development activities are currently proposed. This overview report will serve to provide background information to be relied upon for future archaeological surveys that will be required for future development / construction permits. The purpose of my letter is to request any information from the Tribe about the Mill Site that may not be readily available through other sources.

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Sincerely,

Glenn D. Hartmann
President/Principal Investigator

PO Box 10668, Bainbridge Island, WA 98110
Phone 206.855.9020 - info@crcwa.com

Attachment B. Inadvertent Discovery Protocol

Protocols for Discovery of Archaeological Resources

The Archaeological Sites and Resources Act (RCW 27.53) prohibits knowingly disturbing archaeological sites without a permit from the Washington State Department of Archaeology and Historic Preservation (DAHP), and the Indian Graves and Records Act (RCW 27.44) prohibits knowingly disturbing Native American or historic graves.

In the event that archaeological resources are encountered during project implementation, the following actions will be taken:

All ground disturbing activity at the find location will stop, and the work supervisor will be notified immediately. The find location will be secured from any additional impacts.

The project proponent will immediately contact the agencies with jurisdiction over the lands where the discovery is located, if appropriate. The appropriate agency archaeologist or the proponent's contracting archaeologist will determine the size of the work stoppage zone or discovery location in order to sufficiently protect the resource until further decisions can be made regarding the work site.

The project proponent will consult with DAHP regarding the evaluation of the discovery and the appropriate protection measures, if applicable. Once the consultation has been completed, and if the site is determined to be NRHP-eligible, the project proponent will request written concurrence that the agency or tribe(s) concurs that the protection and mitigation measures have been fulfilled. Upon notification of concurrence from the appropriate parties, the project proponent will proceed with the project.

Within six months after completion of the above steps, the project proponent will prepare a final written report of the discovery. The report will include a description of the contents of the discovery, a summary of consultation, and a description of the treatment or mitigation measures.

Protocols for Discovery of Human Remains

If human remains are found within the project area, the project proponent, its contractors or permit-holders, the following actions will be taken, consistent with Washington State RCWs 68.50.645, 27.44.055, and 68.60.055:

If ground-disturbing activities encounter human skeletal remains, then all activity will cease that may cause further disturbance to those remains. The area of the find will be secured and protected from further disturbance. The project proponent will prepare a plan for securing and protecting exposed human remains and retain consultants to perform these services. The finding of human skeletal remains will be reported to the county medical examiner/coroner and local law enforcement in the most expeditious manner possible. The remains will not be touched, moved, or further disturbed. The county medical examiner/coroner will assume jurisdiction over the human skeletal remains and make a determination of whether those remains are forensic or non-forensic. If the county medical examiner/coroner determines the remains are non-forensic, then they will report that finding to DAHP, which will then take jurisdiction over the remains. DAHP

will notify any appropriate cemeteries and all affected tribes of the find. The State Physical Anthropologist will make a determination of whether the remains are Indian or Non-Indian and report that finding to any appropriate cemeteries and the affected tribes. DAHP will then handle all consultation with the affected parties as to the future preservation, excavation, and disposition of the remains.

Contact Information

Muckleshoot Indian Tribe
39015 172nd Avenue SE Auburn, WA 98092
Primary Contact: Laura Murphy, Archaeologist/Cultural Resources, 253-876-3272

Snoqualmie Indian Tribe
8130 Railroad Avenue, Suite 103, Snoqualmie, WA 98065
Primary Contact: Steve Mullen-Moses, Director of Archaeology and Historic Preservation, 425-495-6097

Squaxin Island Tribe
SE 70 Squaxin Lane, Shelton, WA 98584
Primary Contact: Rhonda Foster, THPO, 360-432-3850

Stillaguamish Tribe
PO Box 277, Arlington, WA 98223-0277
Primary Contact: Shawn Yanity, Chair, 360-652-7362 ext. 228

Suquamish Tribe
PO Box 498 Suquamish, WA 98392-0498
Primary Contact: Dennis Lewarch, THPO, 360-394-8529

Tulalip Tribes
6410 23rd Avenue NE Tulalip, WA 98271
Primary Contact: Richard Young, Cultural Resources, 360-716-2652

Washington State Department of Archaeology and Historic Preservation (DAHP)
PO Box 48343, Olympia, WA 98504-8343
Lead Representative: Allyson Brooks, State Historic Preservation Officer, 360-586-3066
Primary Contact: Rob Whitlam, State Archaeologist, 360-586-3080
Primary Contact for Human Remains: Guy Tasa, State Physical Anthropologist, 360-586-3534

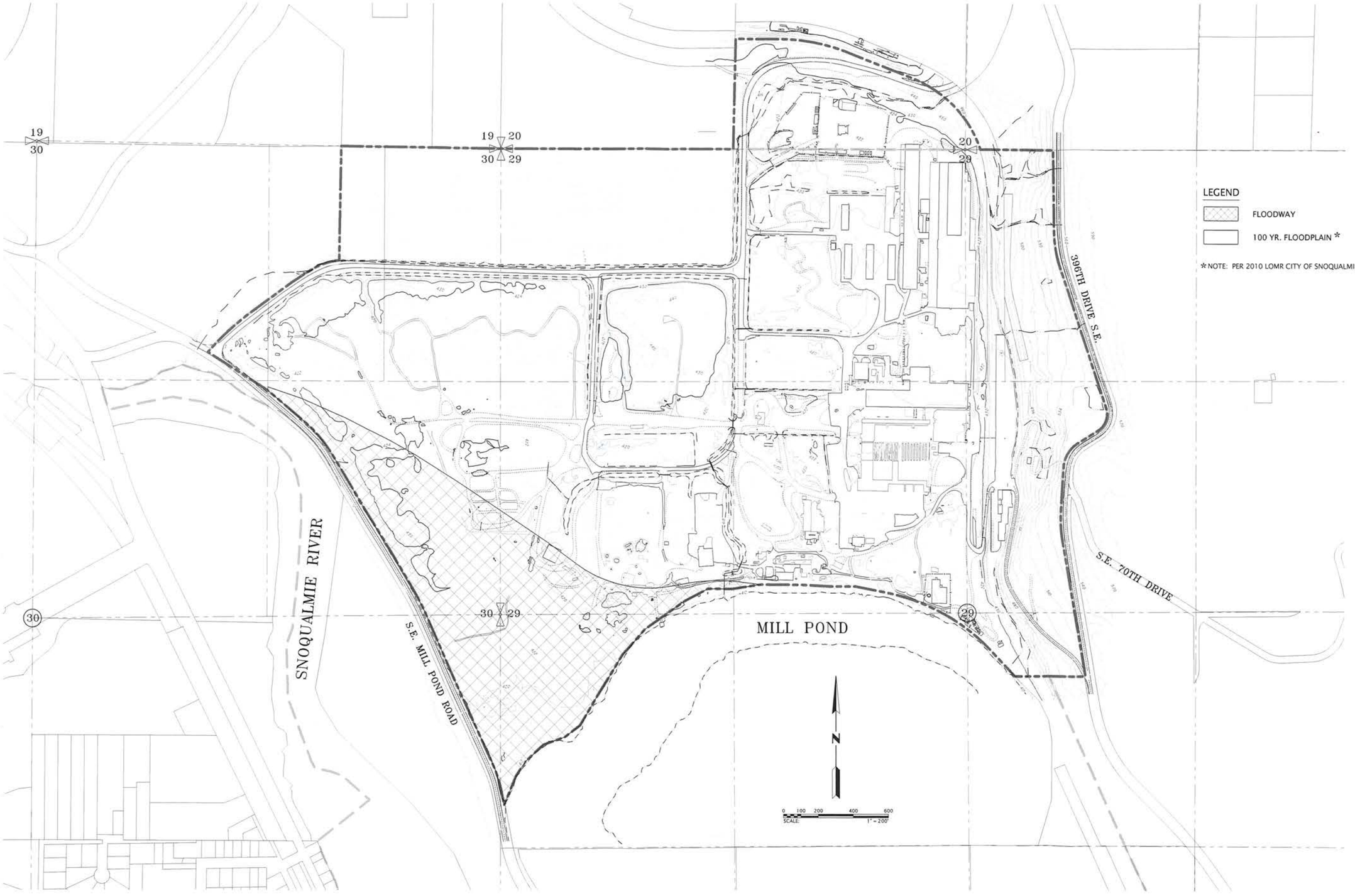
King County Sheriff's Office
516 3rd Ave W-150, Seattle, WA 98104
Lead Representative: John Urquhart, Sheriff, 206-296-4155

King County Medical Examiner's Office
908 Jefferson Street, Seattle, WA 98104
Lead Representative: Yvonne Marquis, ARNP, 206-731-3232

Appendix 6

Floodplain Exhibit

SE ¼, SW ¼ & SW ¼, SE ¼ SEC. 20, NW ¼ & NW ¼, SE ¼ & W ½, NE ¼ & N ½, SW ¼ SEC. 29, NE ¼ & NE ¼, SE ¼ SEC. 30, ALL IN TWP. 24 N, R. 8 E, W.M., KING COUNTY



GOLDSMITH
LAND DEVELOPMENT SERVICES
1215 114th Ave SE, Bellevue, WA 98004 | PO Box 3565, Bellevue, WA 98009
T 425 462 1080 F 425 462 7719 www.goldsmithengineering.com

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SNOQUALMIE MILL VENTURES, LLC

JOB NO. 12046

SHEET

TOPOGRAPHIC MAP AND FLOODPLAIN
OF
SNOQUALMIE MILL SITE

CITY OF SNOQUALMIE KING COUNTY, WASHINGTON

Appendix 7

Environmental Site Assessment – Current Conditions Report

associated earth sciences incorporated

Technical Memorandum

Date:	June 17, 2016	From:	Jon Sondergaard, L.E.G.
To:	Brookwater Fund Inc.	Project Manager:	Bruce Blyton, P.E.
	8306 428th Avenue SE	Principal in Charge:	Curtis Koger, L.Hg.
	Snoqualmie, WA 98065	Project Name:	Snoqualmie Mill
Attn:	Tom Sroufe	Project No:	KE120126A
Subject:	Mill Planning Area – Post-Annexation Implementation Plan Response to City Comment Letter Dated June 9, 2016		

Comment #5:

"If the cleanup of the toxic contamination is proposed with each phase, confirm the delay of this cleanup will not exacerbate the existing conditions."

The subject mill was demolished in 1989 and subsequent remedial activities occurred at the site from 1989 through 2006. Past remedial actions have cleaned up a majority of the property to the maximum extent practicable and these actions have been reported to the Washington State Department of Ecology.

Areas of potential concern that remain at the property consist of soil contamination with limited mobility and isolated areas of potential ground water contamination that have not migrated a significant distance from the source. With the limited mobility and transport of contaminants, and continued natural attenuation, the delay of cleanup activities will not exacerbate the existing conditions.

Comment #10:

Appendix B – The City's consultants reviewed Appendix B and noted concerns with future infrastructure improvements: "Most of the site is comprised of soft/loose soils that run deep with high organic content, creating a high risk of initial and long-term secondary settlement, potentially damaging roadway and utilities. This fact is known by all and have been discussed in depth with Geotechnical consultants. The Applicant is aware of the issues and are in the process of developing a method to address this issue that will address potential settlement risk and come up with a viable solution to be reviewed and approved by the City." Please note this in the findings and probable impacts.

The site contains deep deposits of loose/soft compressible soils as described in AESI's October 5, 2012, Subsurface Exploration and Geotechnical Engineering Report. Without mitigation, these soil conditions are prone to short-term and long-term consolidation, which may impact proposed site improvements, including structures, roadways, and utilities.

Site settlement mitigation techniques will be analyzed and proposed as part of the design phase of future site development applications for the project. Settlement mitigations may include soil preloading, ground improvement, deep foundations, or a combination thereof. Future design phase geotechnical reports will be prepared to include recommendations for temporary and permanent erosion and seismic hazard mitigation.

Geotechnical Engineering

Water Resources

Environmental Assessments and Remediation

Sustainable Development Services

Geologic Assessments

Associated Earth Sciences, Inc.

Serving the Pacific Northwest Since 1981

Environmental Site Assessment
Current Conditions Report

SNOQUALMIE MILL SITE

Snoqualmie, Washington

Prepared for

BrookWater Advisors/
Snoqualmie Mill Ventures

Project No. KV120126A
March 5, 2015

associated
earth sciences
incorporated

March 5, 2015
Project No. KV120126A

BrookWater Advisors/Snoqualmie Mill Ventures
8306 428th Avenue SE
Snoqualmie, Washington 98065

Attention: Mr. Thomas Sroufe
Mr. Mac McInnis

Subject: Environmental Site Assessment – Current Conditions Report
Snoqualmie Mill Site
Snoqualmie, Washington

Dear Sirs:

This letter accompanies a report by Associated Earth Sciences, Inc. (AESI) documenting the results of an Environmental Site Assessment (ESA) performed on the above-referenced property. The findings and conclusions in this report are based on our interpretation of information currently available, and are subject to the limitations in the attached report.

We appreciate the opportunity to work with you on this project. If you have any questions regarding the scope of our study or our conclusions, please do not hesitate to contact us at (425) 827-7701.

Sincerely,
ASSOCIATED EARTH SCIENCES, INC.
Kirkland, Washington

Jon N. Sondergaard, L.G., L.E.G.
Senior Principal Engineering Geologist

JNS/ld
KV120126A5
Projects\20120126\KV\WP

ENVIRONMENTAL SITE ASSESSMENT
CURRENT CONDITIONS REPORT

SNOQUALMIE MILL PROPERTY

Snoqualmie, Washington

Prepared for:
BrookWater Advisors/Snoqualmie Mill Ventures
8306 428th Avenue SE
Snoqualmie, Washington 98065

Prepared by:
Associated Earth Sciences, Inc.
911 5th Avenue
Kirkland, Washington 98033
425-827-7701
Fax: 425-827-5424

March 5, 2015
Project No. KV120126A

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1.0 INTRODUCTION

1.1 Purpose and Scope of Services

The purpose of this Environmental Site Assessment Current Conditions Report (CCR) is to summarize currently available information, compile the existing available environmental information into one report, provide a model of the site geology and hydrogeology, compare analytical data to current regulatory cleanup levels, identify existing data gaps and provide recommendations for further work, if appropriate.

1.2 Site Location

The subject property is located northeast of the town of Snoqualmie, Washington, north of Lake Borst (Mill Pond), north and east of the Snoqualmie River, west of 396th Drive SE, and south of SE 60th Street (Figure 1). The mill property encompasses approximately 90 acres and is located in Sections 20, 29, and 30, Township 24 North, Range 8 East in King County, Washington.

1.3 Site History

The original Weyerhaeuser sawmill in Snoqualmie (Mill No. 1, Snoqualmie Falls Branch) was built in 1916 in a joint venture with the Snoqualmie Falls Lumber Company. The mill was originally designed to manufacture dimensional lumber from large logs and served this purpose until it was closed in early 1989 and demolished in the summer of 1989. Over the years, additional structures and facilities were added to the mill complex to provide various lumber manufacturing processes and to support mill operations. These structures and facilities included a powerhouse, drying kilns, a plywood mill, office building, lumber storage sheds, log sort yard, maintenance shops, fuel storage areas, planer mill, dip tanks, and resin storage. Some of the structures that still exist include the powerhouse, office building, cooling shed, and lumber storage sheds.

2.0 ENVIRONMENTAL ASSESMENT AND REMEDIATION

Based on the review of available records, environmental assessment and remedial activities at the Snoqualmie Mill site have occurred over the period from March 1989 through December 2006. Assessment and remediation activities are located at specific operation sites (Figure 2) associated with the mill and various potential site contaminants occur depending upon the hazardous materials used at each site. The identified activity sites are: 1) Lumber Strapping Area, 2) Powerhouse/Sawmill, 3) UST/AST Area, 4) Morbark Area, 5) T-12/T-17 Transformer Area, 6) Boiler Ash Area, 7) PCP Dip Tank Area, 8) Vehicle Wash Pad, and 9) T-18 Transformer Area. The approximate locations of these areas and former/existing ground water monitoring wells are presented on Figure 2.

2.1 Lumber Strapping Area

The lumber strapping area is located at the north end of the mill site, north of the packing sheds and west of the common lumber shed. The strapping area consisted of a concrete pad with trenches that contained hydraulic fluid lines. Sheen in the trench pea gravel backfill and surface water were observed during assessment activities in 2003 and a sample of the backfill exhibited diesel (1,700 milligrams per kilogram or mg/kg) and heavy oil (8,300 mg/kg) concentrations above the Model Toxics Control Act (MTCA) Method A cleanup level for diesel and heavy oil of 2,000 mg/kg.

Subsequent assessment activities in 2004 determined that soils at a depth of 5 feet below the concrete pad surface contained diesel and heavy oil concentrations between 30 mg/kg and 25,000 mg/kg and soils at a depth of 10 feet exhibited diesel and heavy oil concentrations below the MTCA Method A cleanup level. Additional characterization work in 2005 identified one soil sample out of sixteen collected that exhibited a heavy oil concentration (4,200 mg/kg) above site-specific MTCA Method B cleanup levels of 3,600 mg/kg for diesel and 3,272 mg/kg for heavy oil which were determined to be protective of direct contact and ground water. Site-specific MTCA Method B cleanup levels for the Snoqualmie Mill site had been determined by EMCON (EMCON, 1998b). The analytical test results for soil are summarized in Table 1.

The 2005 characterization activities also analyzed three ground water samples, one of which exhibited a diesel concentration (770 micrograms per liter or µg/l) above the current MTCA Method A cleanup level of 500 µg/l for diesel. Heavy oil was either not detected or detected at a concentration below the current MTCA Method A cleanup level of 500 µg/l for heavy oil. The analytical test results for ground water are summarized in Table 1A.

In 2005, approximately 751 cubic yards of soil was excavated from the lumber strapping area. The maximum depth of the excavation was 5 feet and the average depth was 4.5 feet beneath the existing site grade. Building foundations for the adjacent lumber shed limited soil removal on the east side of the excavation. Following excavation, verification sampling reportedly confirmed that soils remaining following removal of contaminated soil exhibited petroleum hydrocarbon concentrations below the Method B site-specific cleanup levels except along the southeast sidewall of the excavation. Removal of additional soil along the southeast sidewall was prevented by the locations of foundations for the adjacent lumber shed. An unknown quantity of soil contaminated with petroleum hydrocarbons remains beneath the lumber storage shed located east of the former lumber strapping area.

2.2 Powerhouse/Sawmill Area

The powerhouse/sawmill area is located at the southeast corner of the mill site. The powerhouse building still remains but the sawmill structure was demolished in 1989. Initial site characterization activities performed by Harding Lawson Associates (HLA) in 1990 identified petroleum contaminated soils and ground water in the powerhouse/sawmill area likely due to

cooling and lubrication oils used during sawmill operations. The total petroleum hydrocarbon (TPH) cleanup level at that time was 200 mg/kg and an estimated 1,000 cubic yards of soil were removed during remedial activities in 1990. The soil remediation activities were halted because volumes of contaminated soil were larger than anticipated.

During later assessment activities completed by Delta Environmental Consultants (Delta) in 2004, one area of contamination was identified in the log haul area located east of the powerhouse. Soil sample S1.2-3-5 exhibited elevated diesel (2,600 mg/kg) and heavy oil (8,500 mg/kg) concentrations. The analytical test results for soil are presented in Table 2.

Ground water samples were collected from six monitoring wells and three geoprobes in the powerhouse/sawmill area. The samples were analyzed for petroleum hydrocarbons, benzene, toluene, ethylbenzene, and xylenes (BTEX), and polynuclear aromatic hydrocarbons (PAHs). All analytical results for ground water were below the laboratory reporting limits. The analytical test results for ground water are presented in Table 2A.

Following the initial soil remediation activities in 1990 that removed approximately 1,000 cubic yards of soil and after revision of the MTCA cleanup levels for hydrocarbons, an additional 13 cubic yards of soil were removed from the log haul area in 2005-2006. Following remediation activities the maximum residual TPH concentrations remaining in the soil was 299 mg/kg, which is below both the MTCA Method A cleanup level of 2,000 mg/kg and the site-specific Method B cleanup level of 4,090 mg/kg.

2.3 UST/AST Area

An area at the south-central portion of the mill, just north of Lake Borst and centered around the former machine shop was used to store lube oil, road oil, and fuel. The lube oil and road oil were stored in aboveground storage tanks (ASTs) located just east and adjacent to the former machine shop and west of the Hyster shop. The fuel storage area consisted of 10 underground storage tanks (USTs) that contained gasoline and diesel that were located north of the former machine shop. The analytical test results for soil are presented in Table 3.

The road oil ASTs were used until 1988, at which time the tanks were removed. Site characterization activities in 1989 initially identified impacts to soil in this area. Approximately 600 cubic yards of soil were excavated from this area and, in 1990, transported to a Land Treatment Unit (LTU) located at the Snoqualmie Tree Farm located approximately 3 miles northeast of the mill. Site constraints at that time prevented complete excavation of all identified contaminated soil. Soils in the LTU were treated by bioremediation from 1990 to 1993 until they met the definition of a Class 3 soil (heavy oil hydrocarbons 200 to 2,000 mg/kg) for use as road fill.

Additional site characterization activities by EMCON in 1998 identified heavy oil-range hydrocarbons in soil south and west of the former 1990 remedial excavation in the road oil area

and near the southeast corner of the lube oil storage building. Characterization activities by Delta in 2004 identified heavy oil contamination of soil and free phase hydrocarbon near the south end of the former 1990 remedial excavation and soil contamination and free phase hydrocarbon south of the lube soil storage building.

Starting in October 2005, additional remedial activities were completed in the road oil/lube oil storage area. At that time, approximately 1,362 cubic yards of soil were removed from the site with a maximum excavation depth of 13 feet and an average depth of 4.5 feet. The excavated soils were stockpiled in vacant buildings on-site (planar mill, clear lumber shed, and common lumber shed) for treatment by bioremediation. In 2006 upon completion of the bioremediation process, the soils met the MTCA cleanup levels for unrestricted land use for hydrocarbons and metals. The soils were subsequently returned to their original location, placed and compacted as fill.

TPH were detected in one ground water sample collected from a well located 30 feet southwest of the lube oil storage area. Ground water in this area was monitored at least until 2004. At that time, at least four consecutive quarters of hydrocarbon concentrations in ground water below MTCA Method A cleanup levels were documented. The analytical test results for ground water are presented in Table 3A.

Petroleum hydrocarbons in soil were first encountered in the UST fuel storage area in 1989 during tank removal activities. At that time, approximately 300 cubic yards of soil were removed and an additional 700 cubic yards were removed later in 1989. All impacted soils during this phase of remediation were transported to the off-site LTU for bioremediation. Site characterization activities performed in 2005 identified additional hydrocarbon impacted soils located south and west of the UST fuel storage area. Remedial excavation of this area in 2005 generated approximately 6,787 cubic yards of soil. Depth of excavation reached a maximum of 13 feet with an average depth of 6.7 feet. The soils were transported to the on-site treatment facility for bioremediation. In 2006 upon completion of the bioremediation process, the soils met the MTCA cleanup levels for unrestricted land use for hydrocarbons and metals. The soils were subsequently returned to their original location, placed and compacted as fill.

Sampling and analyses of ground water in 1998 at the UST fuel storage area indicated that benzene concentration in one well (A1-9) and hydrocarbon concentrations in two others (A1-10 and A1-11), all located south of the UST, exhibited concentrations above the MTCA Method A cleanup levels. Ground water monitoring results at the end of 2004 indicated that only one well (A1-9) contained a contaminant (benzene) concentration slightly above the MTCA Method A cleanup criteria. All other wells had exhibited at least four consecutive quarters of hydrocarbon concentrations below MTCA Method A cleanup levels. Additional site characterization performed in 2005 by Delta found hydrocarbons, benzene, and xylene in ground water above MTCA Method A cleanup levels upgradient of well A1-9 and not detected downgradient of A1-9. The analytical test results for ground water are presented in Table 3A.

Based on the available information, there may be hydrocarbons, benzene, and xylene above MTCA Method A cleanup levels in shallow ground water southwest of the former UST fuel storage area. The data indicates the extent is limited and concentrations may have been reduced over time through natural attenuation.

2.4 Morbark Area

The Morbark area was the site of log debarking and chipping machinery located at the southwest corner of the mill, west of the UST fuel storage area and east of the plywood plant. Machine lubrication activities and leakage of hydraulic oil from the equipment resulted in release of petroleum hydrocarbons into the ground. Initial characterization of the Morbark area occurred in 1991 when the petroleum hydrocarbon impacts were first identified. The initial characterization led to an unsuccessful attempt to remediate the area. Later characterization in 1998 further identified the extent of the contamination and lead to additional remedial activities. The analytical test results for soil are presented in Table 4.

The 1998 remedial activities removed approximately 1,100 cubic yards of contaminated soil from two excavations beneath the Morbark area. A smaller excavation was completed at the west end of the log in-feed conveyor and a larger excavation was completed near the debarker/chipper area. The depths of both excavations were about 6 feet. The excavated soil was transported off site to the Weyerhaeuser Headquarters Landfill in Castle Rock, Washington and the remedial excavations were backfilled with imported fill. Concentrations of diesel and heavy oil in soil following the remedial excavations were below the site-specific Method B cleanup level of 4,418 mg/kg except along the northeast portion of the excavation adjacent to a nearby building foundation (cyclone blower shed). Additional remedial excavation was performed in 2005 when 1,500 cubic yards of soil was removed to a depth of about 5 feet. Site-specific Method B residential cleanup levels were recalculated at this time at 13,295 mg/kg. Confirmation sampling following the remedial excavation indicated all remaining soils had petroleum hydrocarbon concentrations below 13,295 mg/kg. The soils were transported to the on-site treatment facility for bioremediation. In 2006 upon completion of the bioremediation process, the soils met the MTCA cleanup levels for unrestricted land use for hydrocarbons and metals. The soils were subsequently returned to their original location, placed and compacted as fill.

During the 1998 characterization activities, five monitoring wells were installed at the Morbark area. At that time, two of the wells (A-1 and A-5) exhibited petroleum hydrocarbon concentrations above the MTCA Method A cleanup levels for unrestricted site use. In their 2004 report, Delta (Delta, 2004b) states that ground water sampling after 1998 indicates that the soil removal actions reduced petroleum hydrocarbon concentrations in ground water to below the MTCA Method A cleanup levels. This statement likely refers to data presented in a report prepared by IT Corporation (IT Corporation, 2000). However, Associated Earth Sciences, Inc. (AESI) has not found or been provided a copy of this report for review. The ground water test results for 1998 are presented in Table 4A.

2.5 T-12/T-17 Transformer Areas

The T-12 and T-17 transformers were associated with the plywood plant located at the southeast corner of the mill site. In February 1989, the plywood plant was completely destroyed by a fire that resulted in falling debris damaging these two outdoor transformers. The damage caused by the falling debris from the fire resulted in leakage of polychlorinated biphenyls (PCBs) containing cooling fluid from the pad-mounted transformers. Characterization of the area following the fire determined that the transformer sites are underlain by 3 to 6 feet of fill followed by 10 feet of clay over water-bearing silt. Perched ground water was encountered at a depth of about 5 to 6 feet.

Soil samples collected and analyzed in February 1989 identified PCB contamination of soils in the upper 2 feet beneath the T-12 and T-17 transformers. Additional sampling and analyses in March 1989 detected limited PCB contamination in soils to depths of approximately 6.5 feet below the ground surface. Remedial excavation of soils began in June 1989 after construction of barrier trenches around the sites to prevent the inflow of perched ground water. The area beneath transformer T-17 was excavated to a depth of 6.5 feet where confirmation soil sampling analyses indicated PCB concentrations at or below the 1 mg/kg cleanup level. The area beneath transformer T-12 was excavated in stages to a final depth of approximately 13 feet below the ground surface. The average PCB concentration in the soil at a depth of 13 feet was approximately 1,000 mg/kg over a 5-foot by 5-foot area. Remedial excavation was halted to prevent penetrating the bottom 2 feet of clay that separated the contaminated soil from the underlying water-bearing silt. Samples collected and analyzed from the silt underlying the clay indicate that PCB did not penetrate into the underlying water-bearing silt. The results of the soils analyses are presented in Tables 5 (T-12) and 6 (T-17).

Following the completion of the remedial excavations, both were backfilled. The T-12 excavation was backfilled with low-permeability clay because contaminated soils remain at a depth of about 13 to 13.5 feet in that area. The contaminated soil in the bottom of the excavation was separated from the clean backfill by placement of a geotextile between the two soils. In the T-17 area, soils remaining after excavation were all below the 1 mg/kg PCB cleanup level.

Site characterization activities in June 1989 monitored the ground water quality at six well locations placed across the T-12/T-17 area. Three of the wells (MW-01 through MW-03) were installed at the T-12 site and three wells (MW-04 through MW-06) were installed at the T-17 site. Results indicated that PCB concentrations in well MW-01 at the T-12 site and MW-04 at the T-17 site exceeded the cleanup level of 1 milligram per liter (mg/l) at that time. Ground water test results are presented in Table 6A. Due to the presence of uncontaminated ground water downgradient of these two wells, cleanup goals for ground water were not established and ground water remediation was not performed.

2.6 Boiler Ash Fill Area

An area identified as the boiler ash fill area is located northwest of the powerhouse (Figure 2). The boiler ash fill area covers approximately 1.4 acres where the ash ranges in thickness from about 0.5 to 3 feet. The volume of ash in this area is estimated to be about 6,000 cubic yards. A recent exploration pit (EP-1019) completed by AESI in this area encountered approximately 2 to 3 feet of this material. The ash is presumed to be a by-product of past powerhouse operations.

Characterization activities completed by Delta in 2004 collected five samples of the ash. Results of the analyses of the ash indicate that concentrations of arsenic and carcinogenic polynuclear aromatic hydrocarbons (cPAHs) exceed the MTCA Method A cleanup levels for unrestricted site use. One sample exceeded the MTCA Method A cleanup level for cadmium. The results of the ash analyses are presented in Table 7.

2.7 PCP Dip Tank Area

Two areas at the mill were identified where water-based pentachlorophenol (PCP) dip tanks existed: Area 1 was located west of the planar mill and Nulock Building and Area 2 was located south of the lumber dry kilns and west of the sawmill (Figure 2). Characterization activities identified ground water at a depth of 4 feet at both locations.

Soil samples collected from PCP Dip Tank Area 2 were analyzed and phenolic compounds were not detected in soil. Several soil samples collected from PCP Dip Tank Area 1 exhibited detectable concentrations of PCP and tetrachlorophenol, but the detections were below the MTCA Method B cleanup level for unrestricted site use based solely on ingestion. The detectable soil concentrations in Area 1 exceeded the United States Environmental Protection Agency (EPA) Region 9 preliminary cleanup goal of 0.001 mg/kg for protection of ground water. The analytical test results for soil are presented in Table 8.

Ground water samples from PCP Dip Tank Area 1 were collected in 2005. Results of the sampling and analyses indicated detectable tetrachlorophenol and PCP in one of the four samples collected. The report (Delta, 2005b) concluded that the impacts to ground water are localized and contaminants had not migrated downgradient to the other three sample locations. The analytical test results for ground water are presented in Table 8A.

Based on the available information, it appears that remedial activities were not performed in the PCP Dip Tank Areas.

2.8 Vehicle Wash Pad

A vehicle wash pad consisting of a concrete pad and sump was located at the south end of the mill site just east of the Morbark Area (Figure 2). An assessment performed by Delta in 2004 (Delta 2004a) identified oil staining on the concrete pad.

Site characterization activities in the wash pad area advanced three borings to collect samples of soil for laboratory analyses. None of the soil samples collected from the subsurface in the wash pad area exhibited concentrations of petroleum hydrocarbons above the MTCA Method A cleanup levels for unrestricted site use. The analytical results for soil are presented in Table 9.

Two ground water samples were also collected during characterization of the wash pad area. One sample exhibited a diesel concentration above the MTCA Method A cleanup level and both samples exhibited heavy oil concentrations above the MTCA Method A cleanup level for unrestricted site use. The analytical test results for ground water are presented in Table 9A.

Based on the available information, it appears that remedial activities were not performed in the vehicle wash pad area.

2.9 T-18 Transformer

The T-18 transformer was non-PCB containing equipment located between the shipping and clear lumber shed at the north end of the mill site. Site characterization activities in January 2003 encountered stained, surficial gravel around the transformer. Two of the three soil samples collected from a depth of 1 foot contained diesel and heavy oil concentrations above MTCA Method A cleanup levels. In April 2004, the T-18 area underwent additional characterization with the completion of three subsurface borings to examine soils and ground water at depth. Soil samples collected from depths of 5 and 10 feet did not exhibit diesel or heavy oil concentrations above the laboratory detection limit. The results of the soil analyses are presented in Table 10.

Ground water was encountered in the borings at depths ranging from 1.8 to 2.1 feet below the existing site grade. Ground water samples were collected from two of the borings. The samples collected did not exhibit concentrations of PCB, PAH, diesel or heavy oil or exhibited concentrations of diesel and heavy oil below the MTCA Method A cleanup levels. The results of the ground water analyses are presented in Table 10.

3.0 HYDROGEOLOGY

An interpretation of the local hydrogeology underlying the site can be made based on review of the past environmental characterization reports and recent subsurface exploration performed by AESI. Many of the past wells installed for environmental monitoring have been abandoned,

removed, or not measured recently so that there is limited current data available for interpretation. Interpretive geologic sections of the site are presented on Figures 4 and 5.

3.1 Geology

The local geology beneath the Snoqualmie Mill site is greatly influenced by man-made activities that occurred in the early 1900s at the mill, deposition related to the current Snoqualmie River, and post-glacial sedimentation within historic Lake Snoqualmie. A brief description of the deposits that underlie the Snoqualmie Mill site is provided below.

Fill

Fill was placed across the entire property at various times in the past to accommodate mill operations. In general, the fill is thinner (3 to 4 feet thick) in the east beneath the mill site property and thickens to the west (9 to 16 feet) toward the Snoqualmie River. The fill typically consists of a mixture of loose to medium dense sand and gravel with scattered woody debris that sometimes contains quarry spalls (coarse crushed rock) and construction materials such as concrete and metal.

River Channel Deposits

At certain locations beneath the fill, native granular deposits occur that are interpreted to be the result of deposition by a smaller river or stream that use to cross the mill site property. The river/stream was diverted at the north end of the mill site to accommodate fill placement and construction of mill facilities. These channel deposits typically consist of medium dense, gray to brown, fine to medium sand with scattered gravel. The channel deposits were encountered directly beneath the fill and beneath overbank deposits that lie directly beneath the fill.

Overbank Deposits

Overbank deposits typically consisting of soft to medium stiff, gray to brown fine sandy silt, silty fine sand and slightly clayey silt were encountered directly beneath the fill or beneath the channel deposits. These soils are interpreted to have been deposited as a result of flooding of the Snoqualmie River or the former on-site river/stream. Where fully penetrated by subsurface explorations, the overbank deposits range from approximately 2 to 14 feet in thickness.

Lacustrine Deposits

Post-glacial development of the Tokul Creek delta prevented the Snoqualmie River from re-establishing its pre-ice course and resulted in the creation of Lake Snoqualmie in the vicinity of the Snoqualmie Mill site. The lacustrine silt and clay deposited in Lake Snoqualmie are generally encountered below the overbank deposits on the east portion of the site and directly below the fill on the west portion of the site. In the one exploration (MW-1) that fully

penetrates these sediments, the lacustrine deposits are 160 feet thick. The lacustrine deposits form a significant hydraulic barrier to vertical ground water flow and the downward migration of contamination beneath the site.

Older Alluvial Deposits

The one deep subsurface exploration (MW-1) at the Snoqualmie Mill site indicates that older overbank and river channel deposits related to the Snoqualmie River directly underlie the lacustrine deposits. These deposits consisted of fine sand with silt and clay (overbank) and gravel and fine to coarse sand (channel). These deposits were greater than 15 feet thick where encountered in boring MW-1.

Outwash Sand

Upland areas on the north and east sides of the Snoqualmie Mill site are underlain by outwash sand typically consisting of loose sand and pebbly sand with some interbeds of silt, silty sand, and gravel (Dragovich et al., 2009). In the Snoqualmie area, this sand was primarily deposited in a shallow water, lacustrine environment related to the waning stages of Lake Snoqualmie deposition.

3.2 Ground Water

The location of ground water beneath the Snoqualmie Mill site has been documented by measurements from monitoring wells installed during past environmental characterization activities and more recent wells installed for regional ground water studies and for site water supply purposes. Monitoring wells from past environmental site characterization activities were installed on the south portion of the mill site in the areas of the powerhouse, AST/UST, Morbark, and former plywood plant. It appears that most of these wells have been abandoned with the exception of wells in the T-12 area of the former plywood plant. Other existing wells consist of those installed by AESI (EB-4 in 1992 and MW-1 in 2012) for a regional ground water study and site water supply, respectively. Exploration pits accomplished for AESI's geotechnical report for the site have provided information on the occurrence and depth to ground water at the time the pits were excavated.

Shallow Ground Water

Shallow ground water beneath the site occurs in the fill, river channel, and overbank deposits perched above the low-permeability lacustrine deposits. The permeability of the lacustrine deposits has been measured as 10^{-9} to 10^{-11} m/sec (HDR Engineering, Inc. [HDR], 1989b). The lacustrine deposits would provide a barrier to the downward migration of contaminants from the shallow ground water. Based on past ground water monitoring data, the shallow ground water typically varies in depth from approximately 1 to 7 feet below the existing site grade, depending upon the time of year. The shallow ground water flow direction is typically to the

southwest. Slug tests performed on monitoring wells located in the UST/AST area indicate the permeability of the alluvial deposits (overbank and river channel) varies from about 0.27 to 0.76 feet/day (ft/d).

Deep Ground Water

One well (MW-1) located at the south end of the mill site penetrates through the lacustrine deposit into a deeper aquifer at a depth of about 200 feet below the existing site grade. The deep aquifer is comprised of older Snoqualmie River channel deposits. Currently no other information is available regarding this aquifer.

4.0 CONCLUSIONS

Remedial activities at the Snoqualmie Mill site in the various operation areas described above occurred from 1989 to 2006. The remedial activities generally involved the removal of contaminant source areas and impacted soil with the materials either being treated on-site using bioremediation techniques or transported off-site for treatment and disposal. Soils that were treated on-site to MTCA Method B site-specific cleanup levels for unrestricted site use were typically returned to their original location and compacted in place as fill. Remediation of the ground water typically involved removal of the source area, contaminant reduction through natural attenuation, and ground water monitoring to confirm that MTCA Method A cleanup levels had been achieved. Based on the available information reviewed for this report, the following areas of potential environmental concern have been identified:

1. Soil containing hydrocarbon concentrations above MTCA cleanup levels beneath a portion of the common lumber shed location east of the lumber strapping area.

2. A limited area of shallow ground water located southwest of the UST area may contain hydrocarbon concentrations above MTCA cleanup levels.

3. Soil contaminated with PCBs still remains at depth beneath the T-12 site. The contaminated soil has been capped with low-permeability soil and geotextile and the area fenced off. A limited area of shallow ground water contaminated with PCBs may also exist around the T-12 site. The T-12 area would likely have to remain isolated and protected from any future site development.

4. Approximately 6,000 cubic yards of boiler ash contaminated with arsenic and cPAHs remain at shallow depth northwest of the powerhouse.

5. A limited area of shallow ground water in the PCP Dip Tank Area may contain tetrachlorophenol and PCP above MTCA cleanup levels.

6. A limited area of shallow ground water located in the vehicle wash pad area may contain hydrocarbon concentrations above MTCA cleanup levels.

We appreciate the opportunity to be of service to you on this project. Should you have any questions regarding this report, please contact us at your earliest convenience.

Sincerely,
ASSOCIATED EARTH SCIENCES, INC.
Kirkland, Washington

Jon N. Sondergaard, L.G., L.E.G.
Senior Principal Engineering Geologist

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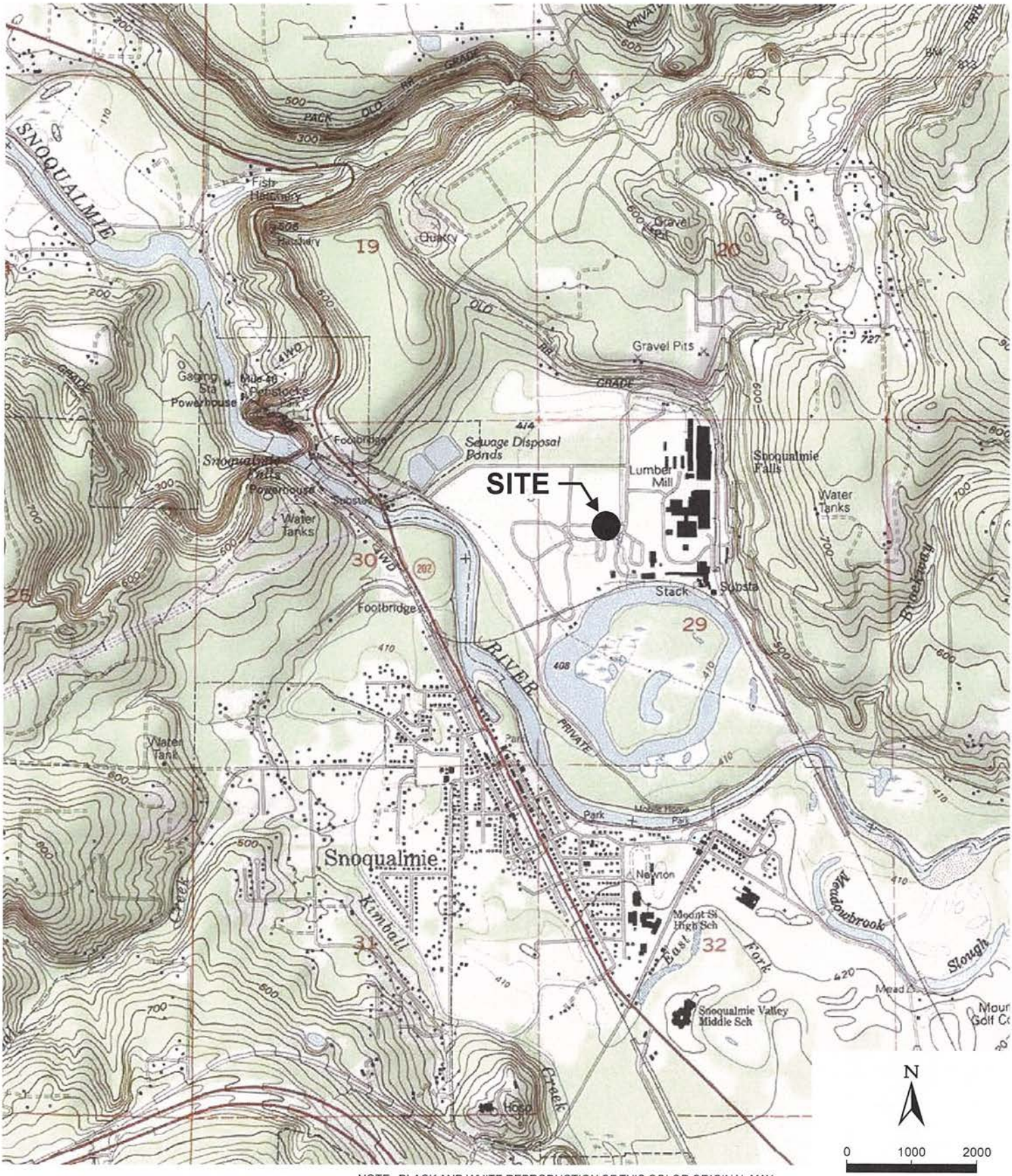


REFERENCE: USGS TOPO!

NOTE: BLACK AND WHITE REPRODUCTION OF THIS COLOR ORIGINAL MAY REDUCE ITS EFFECTIVENESS AND LEAD TO INCORRECT INTERPRETATION.

Associated Earth Sciences, Inc.

VICINITY MAP

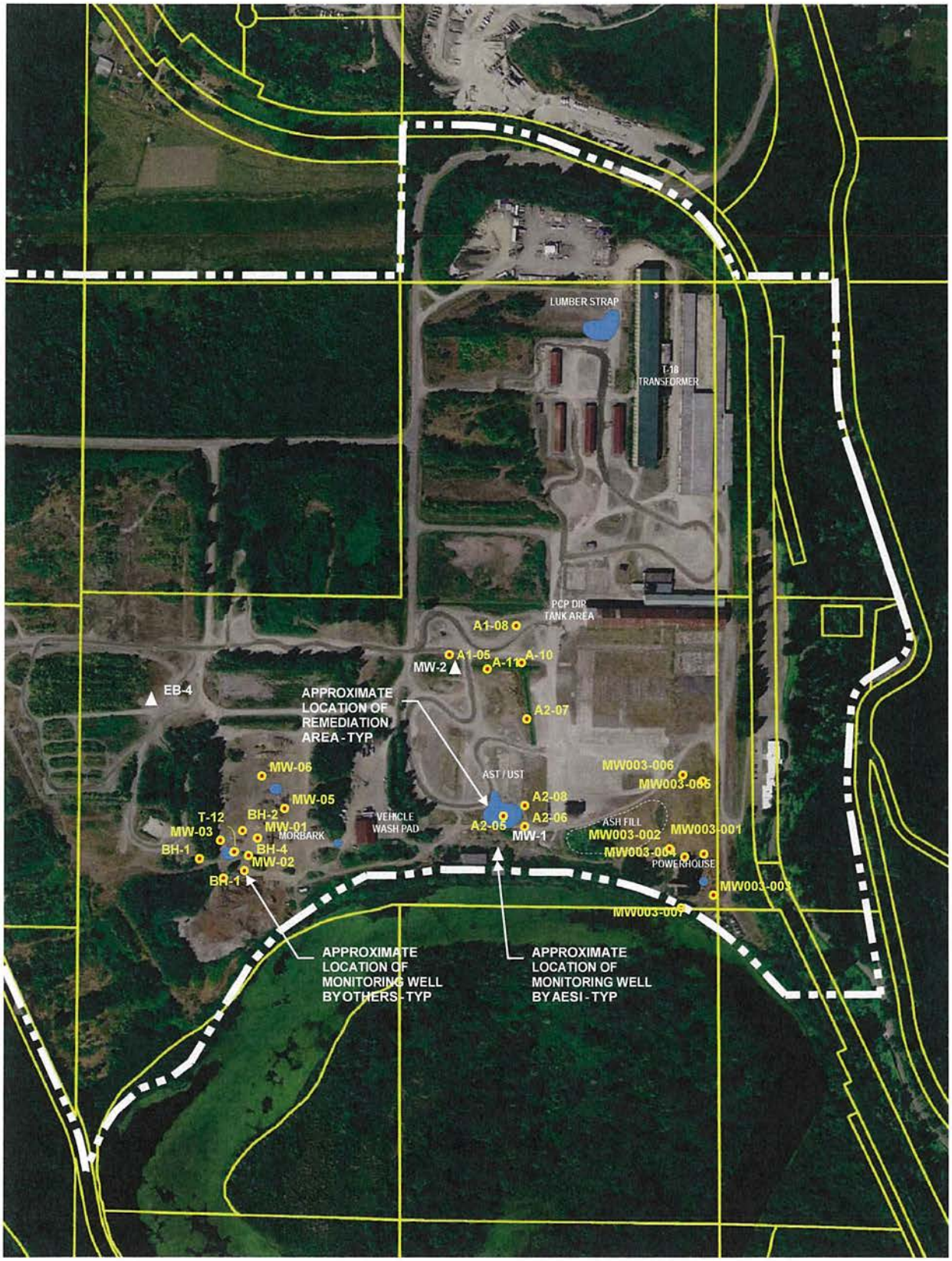
SNOQUALMIE MILL SITE
SNOQUALMIE, WASHINGTON

FIGURE 1

DATE 6/12

PROJ. NO. KV120126B

120126 Snoqualmie Mill Site \ 120126 Vicinity.cdr



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MONITORING WELLS AND REMEDIATION AREAS

SNOQUALMIE MILL SITE
SNOQUALMIE, WASHINGTON

FIGURE 2
DATE 8/12
PROJ. NO. KV120126A

120126 Snoqualmie Mill Site \ 120126 A Site w-wells - remediation 8-12.cdr

NOTE:
EXPLORATION EP-1012 WAS NOT DONE.

N

0 300 600
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REFERENCE: GOLDSMITH

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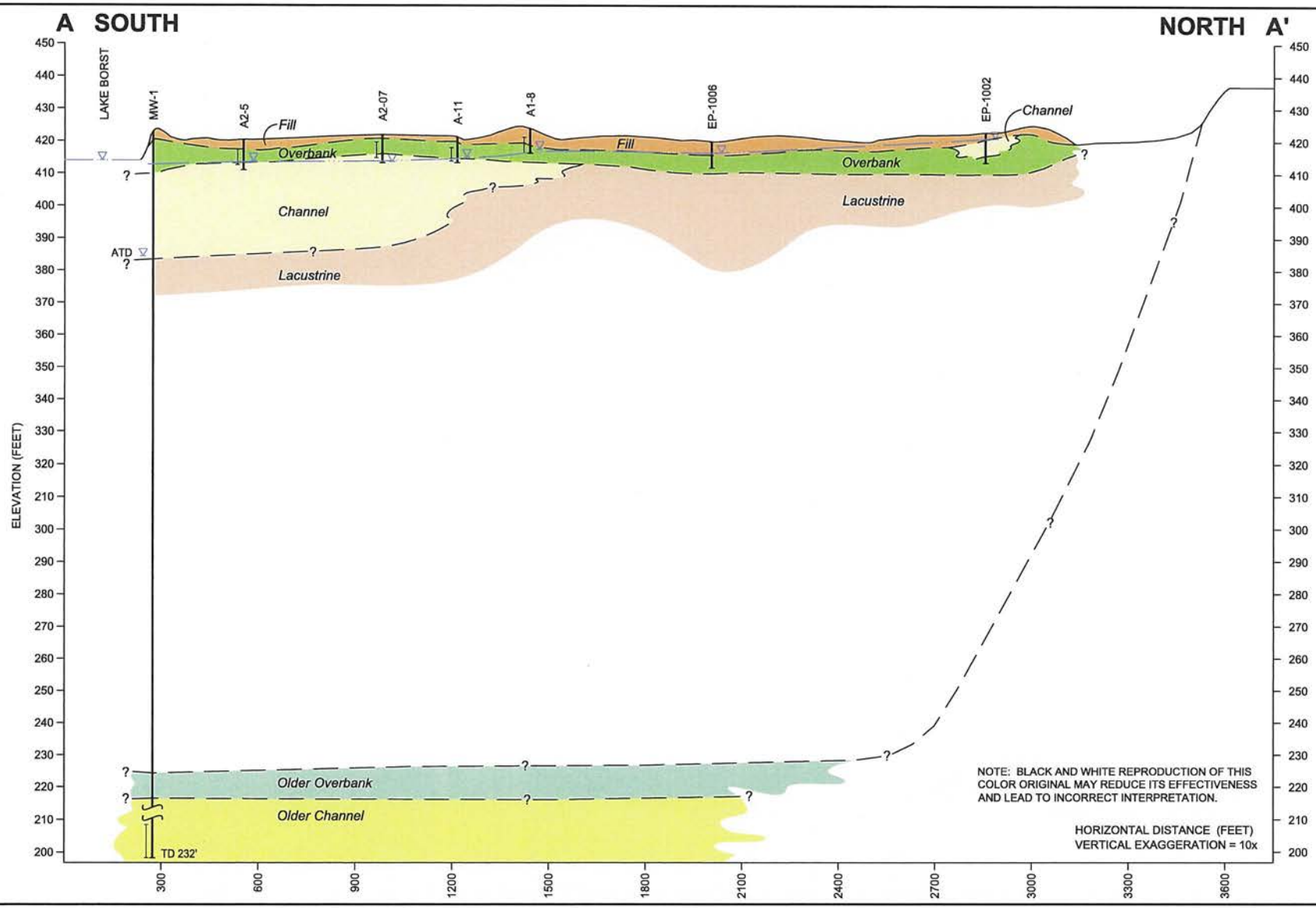
associated earth sciences incorporated

SITE AND EXPLORATION PLAN

SNOQUALMIE MILL SITE
SNOQUALMIOE, WASHINGTON

FIGURE 3
DATE 3/15
PROJ. NO. KV120126A

120126 Snoqualmie Mill Site \ 120126 F3 Site and Exploration Plan.cdr

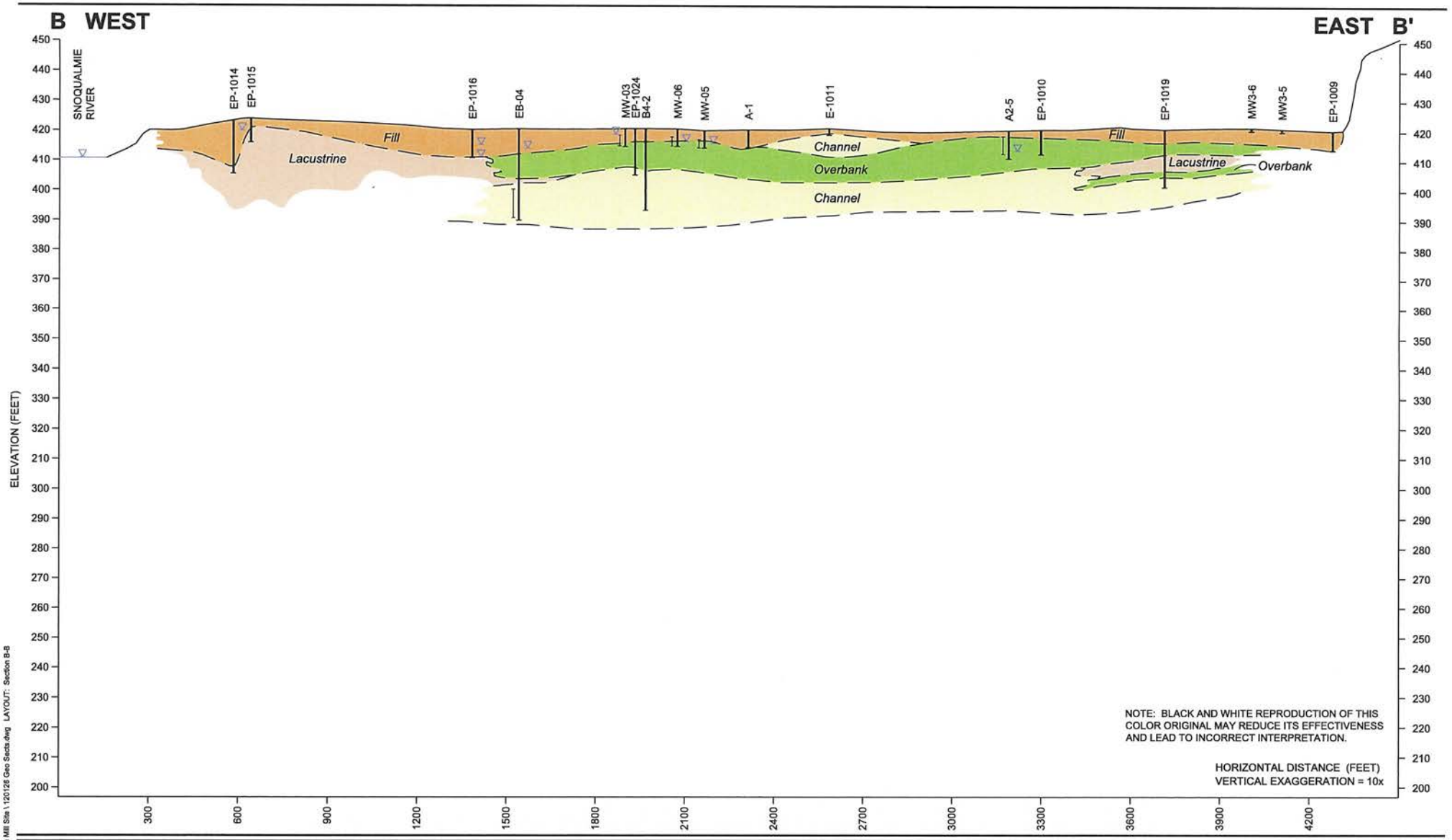


Associated Earth Sciences, Inc.

GEOLOGIC CROSS-SECTION A - A'
SNOQUALMIE MILL SITE
SNOQUALMIE, WASHINGTON

FIGURE 4
DATE 8/12
PROJECT NO. KV120126A

120126 Snoqualmie Mill Site \ 120126 Geo Sects.dwg LAYOUT: Section A-A



120126 Snoqualmie Mill Site \ 120126 Geo Sects.dwg LAYOUT: Section B-B

Associated Earth Sciences, Inc.

GEOLOGIC CROSS-SECTION B - B'
SNOQUALMIE MILL SITE
SNOQUALMIE, WASHINGTON

FIGURE 5
DATE 8/12
PROJECT NO. KV120126A

Table 1 Lumber Strap Area - Soil Test Results
Results in Milligrams per Kilogram (mg/kg)

Sample No.	Firm	Date	Location	Depth (ft)	TPH-D	TPH - MO
STRP-01	Delta	11/24/2003	Lumber Strap	0.5	1700	8300
T18-01	Delta	11/24/2003	Lumber Strap	1	180	400
T18-02	Delta	11/24/2003	Lumber Strap	1	**18000**	3500
T-18-03	Delta	11/24/2003	Lumber Strap	1	**9700**	2300
SB5-9-4	Delta	4/30/2004	Lumber Strapping	4	<67	<130
SB5-9-8	Delta	4/30/2004	Lumber Strapping	8	<67	<130
SB5-10-4	Delta	4/30/2004	Lumber Strapping	4	<67	4200
SB5-10-10	Delta	4/30/2004	Lumber Strapping	10	<67	550
SB5-12-4	Delta	4/30/2004	Lumber Strapping	4	<67	790
SB5-12-6	Delta	4/30/2004	Lumber Strapping	6	51	160
SB5-13-4	Delta	4/30/2004	Lumber Strapping	4	<67	<130
SB5-13-8	Delta	4/30/2004	Lumber Strapping	8	<67	<130
SB5-14-4	Delta	4/30/2004	Lumber Strapping	4	<67	<130
SB5-14-8	Delta	4/30/2004	Lumber Strapping	8	<67	<130
SB5-15-4	Delta	4/30/2004	Lumber Strapping	4	<67	<130
SB5-15-6	Delta	4/30/2004	Lumber Strapping	6	<67	<130
SB5-16-4	Delta	4/30/2004	Lumber Strapping	4	<67	<130
SB5-16-8	Delta	4/30/2004	Lumber Strapping	8	<67	<130
SB5-17-4	Delta	4/30/2004	Lumber Strapping	4	<67	<130
SB5-17-8	Delta	4/30/2004	Lumber Strapping	8	<67	<130
MTCA Method A Cleanup Level (ppm)					2,000	2,000
Site Specific Method B Cleanup Level					3,272	3,272

Bold = Concentrations above appropriate MTCA Cleanup Levels

Table 1A Lumber Strap Area - Groundwater Test Results
Results in micrograms per liter (ug/l)

Sample No.	Firm	Date	Location	Depth (ft)	TPH-D	TPH - MO
SB5-9	Delta	3/30/2005	Lumber Strap	3	<130	<250
SB5-11	Delta	3/30/2005	Lumber Strap	3	**770**	<250
SB5-17	Delta	3/31/2005	Lumber Strap	2	250	490
MTCA Method A Cleanup Level					500	500

Table 2 Powerhouse/Sawmill - Soil Test Results
Results in Milligrams per Kilogram (mg/kg)

Sample No.	Firm	Date	Location	Depth (ft)	TPH-D	TPH-Oil	Benzene	Ethylbenzene	Toluene	Xylene	Acenapthene	Antrhacene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)flouranthene
S1.1-1-10	Delta	4/29/2004	Powerhouse/SawMill	10	<12	<47									
S1.1-1-5	Delta	4/29/2004	Powerhouse/SawMill	5	42	230									
S1.1-2-10	Delta	4/29/2004	Powerhouse/SawMill	10	<15	<62									
S1.1-2-5	Delta	4/29/2004	Powerhouse/SawMill	5	110	380									
S1.1-3-10	Delta	4/29/2004	Powerhouse/SawMill	10	<17	<69									
S1.1-3-5	Delta	4/29/2004	Powerhouse/SawMill	5	64	470	<0.014	<0.014	<0.014	<0.014	<0.0046	<0.0046	0.0052	0.011	0.026
S1.1-4-10	Delta	4/29/2004	Powerhouse/SawMill	10	<17	<67									
S1.1-4-5	Delta	4/29/2004	Powerhouse/SawMill	5	88	240									
S1.1-5-10	Delta	4/29/2004	Powerhouse/SawMill	10	<16	<62									
S1.1-5-5	Delta	4/29/2004	Powerhouse/SawMill	5	<15	<120									
S1.1-6-10	Delta	4/29/2004	Powerhouse/SawMill	10	<14	<59									
S1.2-1-10	Delta	4/29/2004	Powerhouse/SawMill	10	<20	<79									
S1.2-1-5	Delta	4/29/2004	Powerhouse/SawMill	5	190	1200	<0.012	<0.012	<0.012	<0.012	0.0095	0.023	0.059	0.088	0.12
S1.2-2-10	Delta	4/29/2004	Powerhouse/SawMill	10	<16	<62									
S1.2-2-5	Delta	4/29/2004	Powerhouse/SawMill	5	200	890									
S1.2-3-10	Delta	4/29/2004	Powerhouse/SawMill	10	28	130									
S.1.2-3-5	Delta	4/29/2004	Powerhouse/SawMill	5	2600	8500	<0.012	<0.012	<0.012	<0.012	<0.0042	<0.0042	<0.0042	<0.042	0.0077
S1.2-4-10	Delta	4/29/2004	Powerhouse/SawMill	10	<20	<80									
S1.2-4-5	Delta	4/29/2004	Powerhouse/SawMill	5	<13	<52									
S.1.3-1-10	Delta	4/30/2004	Powerhouse/SawMill	10	<15	260									
S1.3-1-5	Delta	4/30/2004	Powerhouse/SawMill	5	200	820					<0.024	<0.024	<0.024	<0.024	0.022
S1.3-2-10	Delta	4/30/2004	Powerhouse/SawMill	10	<15	<59									
S1.3-2-5	Delta	4/30/2004	Powerhouse/SawMill	5	<16	<66									
S1.3-3-10	Delta	4/30/2004	Powerhouse/SawMill	10	<15	<61									
S1.3-3-5	Delta	4/30/2004	Powerhouse/SawMill	5	<19	<75									
S1.3-4-10	Delta	4/30/2004	Powerhouse/SawMill	10	<20	<79									
S1.3-4-5	Delta	4/30/2004	Powerhouse/SawMill	5	28	60									
MTCA Method A Cleanup Level					2000	2000	0.03	6	7	9			C	0.1	C
MTCA Method B Site Specific Cleanup Level					4,090										

C = Carcenogenic PAH Cleanup Level = 0.1 for Total Carcenogenic after including Toxicity Equivalency Factors(TEF)
Bold = Concentrations above appropriate MTCA Cleanup Levels

Sample No.	Firm	Date	Location	Depth (ft)	Chrysene	Dibenzo(a,h)anthracene	Dibenzofuran	Fluoranthene	Flourene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Napthalene	Pyrene	Benzp(g,h,i)perylene	Benzo(k)flouranthene
S1.1-1-10	Delta	4/29/2004	Powerhouse/SawMill	10											
S1.1-1-5	Delta	4/29/2004	Powerhouse/SawMill	5											
S1.1-2-10	Delta	4/29/2004	Powerhouse/SawMill	10											
S1.1-2-5	Delta	4/29/2004	Powerhouse/SawMill	5											
S1.1-3-10	Delta	4/29/2004	Powerhouse/SawMill	10											
S1.1-3-5	Delta	4/29/2004	Powerhouse/SawMill	5	0.023	0.0043	<0.0046	0.0068	<0.0046	0.0049	0.062	<0.0046	0.008	0.012	<0.0046
S1.1-4-10	Delta	4/29/2004	Powerhouse/SawMill	10											
S1.1-4-5	Delta	4/29/2004	Powerhouse/SawMill	5											
S1.1-5-10	Delta	4/29/2004	Powerhouse/SawMill	10											
S1.1-5-5	Delta	4/29/2004	Powerhouse/SawMill	5											
S1.1-6-10	Delta	4/29/2004	Powerhouse/SawMill	10											
S1.2-1-10	Delta	4/29/2004	Powerhouse/SawMill	10											
S1.2-1-5	Delta	4/29/2004	Powerhouse/SawMill	5	0.08	0.013	0.014	0.22	0.012	0.073	0.16	0.07	0.21	0.082	0.035
S1.2-2-10	Delta	4/29/2004	Powerhouse/SawMill	10											
S1.2-2-5	Delta	4/29/2004	Powerhouse/SawMill	5											
S1.2-3-10	Delta	4/29/2004	Powerhouse/SawMill	10											
S.1.2-3-5	Delta	4/29/2004	Powerhouse/SawMill	5	<0.0042	<0.0042	<0.0042	<0.0042	<0.0042	<0.0042	0.0061	<0.0042	<0.042	<0.0042	<0.0042
S1.2-4-10	Delta	4/29/2004	Powerhouse/SawMill	10											
S1.2-4-5	Delta	4/29/2004	Powerhouse/SawMill	5											
S.1.3-1-10	Delta	4/30/2004	Powerhouse/SawMill	10											
S1.3-1-5	Delta	4/30/2004	Powerhouse/SawMill	5	0.061	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	0.03	0.031
S1.3-2-10	Delta	4/30/2004	Powerhouse/SawMill	10											
S1.3-2-5	Delta	4/30/2004	Powerhouse/SawMill	5											
S1.3-3-10	Delta	4/30/2004	Powerhouse/SawMill	10											
S1.3-3-5	Delta	4/30/2004	Powerhouse/SawMill	5											
S1.3-4-10	Delta	4/30/2004	Powerhouse/SawMill	10											
S1.3-4-5	Delta	4/30/2004	Powerhouse/SawMill	5											
MTCA Method A Cleanup Level					C	C				C					C
MTCA Method B Site Specific Cleanup Level															

C = Carcenogenic PAH Cleanup Level = 0.1 for Total Carcenogenic after including Toxicity Equivalency Factors(TEF)
Bold = Concentrations above appropriate MTCA Cleanup Levels

Table 2A Powerhouse/Sawmill Area - Groundwater Test Results
Results in micrograms per liter (ug/l)

Sample No.	Firm	Date	Location	Depth (ft)	TPH-D	TPH - MO	Benzene	Ethylbenzene	Toluene	Xylene	Acenapthene	Antrhacene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)flouranthene
S1,1-4	Delta	4/29/2004	Powerhouse		0.13	0.21	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1
S1,2-4	Delta	4/29/2004	Powerhouse				<0.5	<0.5	0.4	<0.5					
S1,3-2	Delta	4//30/2004	Powerhouse		0.11		<0.5	<0.5	0.4	0.3	<0.1	<0.1	<0.1	<0.1	<0.1
MW003-001	Delta	4/22/2004	Sawmill		<0.05	<0.2	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1
MW003-003	Delta	4/22/2004	Sawmill		<0.05	0.31	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1
MW003-004	Delta	4/22/2004	Sawmill		<0.05	<0.2	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1
MW003-005	Delta	4/22/2004	Sawmill		<0.05	<0.2	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1
MW003-005	Delta	4/22/2004	Sawmill		<0.05	<0.2	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1
MW003-007	Delta	4/22/2004	Sawmill		<0.05	<0.2	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1
MTCA Method A Cleanup Level					500	500	5	700	1000	1000			C	0.1	C

C = Carcenogenic PAH Cleanup Level = 0.1 for Total Carcenogenic after including Toxicity Equivalency Factors(TEF)
Bold = Concentrations above appropriate MTCA Cleanup Levels

Sample No.	Firm	Date	Location	Depth (ft)	Benzp(q,h,l)perylene	Benzo(k)flouranthene	Chrysene	Dibenzo(a,h)anthracene	Dibenzofuran	Fluoranthene	Flourene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Napthalene	Pyrene	PCB
S1,1-4	Delta	4/29/2004	Powerhouse		<0.1	<0.1	<0.1	<0.1	<0.1	0.09	<0.1	<0.1	0.2	1	<0.1	<0.04
S1,2-4	Delta	4/29/2004	Powerhouse													
S1,3-2	Delta	4//30/2004	Powerhouse		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.04
MW003-001	Delta	4/22/2004	Sawmill		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	
MW003-003	Delta	4/22/2004	Sawmill		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	
MW003-004	Delta	4/22/2004	Sawmill		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
MW003-005	Delta	4/22/2004	Sawmill		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
MW003-006	Delta	4/22/2004	Sawmill		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
MW003-007	Delta	4/22/2004	Sawmill		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	
MTCA Method A Cleanup Level						C	C	C				C				0.1

C = Carcenogenic PAH Cleanup Level = 0.1 for Total Carcenogenic after including Toxicity Equivalency Factors(TEF)
Bold = Concentrations above appropriate MTCA Cleanup Levels

Table 3 UST/AST Area - Soil Test Results
Results in Milligrams per Kilogram (mg/kg)

Sample No.	Firm	Date	Location	Depth (ft)	TPH-D	TPH - MO	TPH-G	Benzene	Ethylbenzene	Toluene	Xylene
SB2-2-4	Delta	3/31/2005	UST/AST	4			28	**0.2**	0.1	<0.05	0.3
SB2-2-8	Delta	3/31/2005	UST/AST	8			80	**0.3**	0.2	<0.1	0.7
SB2-4-4	Delta	3/31/2005	UST/AST	4			<3	<0.03	<0.05	<0.05	<0.2
SB2-4-8	Delta	3/31/2005	UST/AST	8			<3	<0.03	<0.05	<0.05	<0.2
SB2-5-4	Delta	3/31/2005	UST/AST	4			570	**5.9**	**8.3**	9.6	**46**
SB2-5-8	Delta	3/31/2005	UST/AST	8			530	**5.5**	**8.7**	<2.5	**49**
SB2-6-8	Delta	3/31/2005	UST/AST	8			<3	<0.03	<0.05	<0.05	<0.2
SB2-8-8	Delta	3/31/2005	UST/AST	8			<3	<0.03	<0.05	<0.05	<0.2
SB2-9-6	Delta	3/31/2005	UST/AST	6			<3	<0.03	<0.05	<0.05	<0.2
SB2-10-4	Delta	4/1/2005	UST/AST	4			290	**1.4**	3.4	4.1	16
SB2-10-8	Delta	4/1/2005	UST/AST	8			90	**1.5**	1.4	1.8	6.8
SB2-10-12	Delta	4/1/2005	UST/AST	12			<3	<0.03	<0.05	<0.05	<0.2
SB2-13-4	Delta	4/1/2005	UST/AST	4			<3	<0.03	<0.05	<0.05	<0.2
SB2-13-8	Delta	4/1/2005	UST/AST	8			<3	<0.03	<0.05	<0.05	<0.2
SB2-14-4	Delta	4/1/2005	UST/AST	4			<3	**0.05**	<0.05	<0.05	<0.2
SB2-14-8	Delta	4/1/2005	UST/AST	8			<3	<0.03	<0.05	<0.05	<0.2
SB2-15-4	Delta	4/1/2005	UST/AST	4			240	**0.2**	0.4	<0.03	<0.8
SB2-17-4	Delta	4/1/2005	UST/AST	4			<3	<0.03	<0.05	<0.05	<0.2
A1-8	Emcon	9/16/1998	UST/AST	2.5-5.5	180	120	27	**0.063**	0.16	0.014	0.51
A1-9	Emcon	9/16/1998	UST/AST	5-5.5	88	310	45	0.012	0.027	0.012	0.068
A1-10	Emcon	9/16/1998	UST/AST	5-8	6.4	32	3.3	<0.001	<0.001	<0.001	<0.002
A1-11	Emcon	9/16/1998	UST/AST	2.5-3	13	58	3.5	0.001	<0.001	0.001	0.003
A2-5	Emcon	9/16/1998	UST/AST	5-5.6	17	140					
A2-6	Emcon	9/16/1998	UST/AST	5-5.5	**2100**	**6100**					
A2-7	Emcon	9/16/1998	UST/AST	5-5.5	<8.4	12					
A2-8	Emcon	9/16/1998	UST/AST	2.5-3	3.9	13					
GP-2-5	HDR	9/12/1997	UST	5-7	520	<140	**890**	<0.007	0.44	0.023	1.25
GP-2-7	HDR	9/12/1997	UST	7-9	28	<19	24	<0.003	<0.003	<0.003	0.006
GP-3-5	HDR	9/12/1997	UST	5-7	<8.9	<22	<6.9	<0.003	<0.003	<0.003	0.006
GP-4-9	HDR	9/12/1997	UST	9-10.3	<8.5	<21	<6.7	<0.003	<0.003	<0.003	0.006
GP-5-5	HDR	9/12/1997	UST	5-6.5	300	<95	**1000**	1.4	**12**	1.7	**63**
GP-5-7	HDR	9/12/1997	UST	7-8.5	120	<100	**110**	0.019	0.043	0.005	0.081
GP-6-5	HDR	9/12/1997	UST	5-7	<6.5	<16	<5.1	<0.003	<0.003	0.002	<5.1
MTCA Method A Cleanup Level (mg/kg)					2000	2000	30/100*	0.03	6	7	9
Site Specific Method B cleanup Level (mg/kg)					3,600	3,200					

Bold = Concentrations above appropriate MTCA Cleanup Levels

* = Cleanup level for gasoline is 100 mg/kg without benzen present and 30 mg/kg with benzene present

Table 3A												Page 2 of 3
Sample No.	Firm	Date	Location	Depth (ft)	TPH-D	TPH - MO	TPH-G	Benzene	Ethylbenzene	Toluene	Xylene	Lead
A1-9	Shaw	8/28/2001	UST		<78	<190	<50	0.7	<0.5	<0.5	<1.0	
A1-9	Shaw	2/19/2002	UST		<50	<200	65	8	0.8	<0.5	0.7	
A1-9	Shaw	9/4/2002	UST		<50	<200	83	3	<0.5	<0.5	<1.0	
A1-9	Shaw	3/26/2003	UST		<49	<190	<50	14	0.4	0.4	<0.8	
A1-9	Shaw	6/26/2003	UST		<48	<190	<50	2	<0.5	<0.5	<0.5	
A1-9	Shaw	9/9/2003	UST		<49	<190	<50	0.6	<0.5	<0.5	<0.5	
A1-9	Shaw	11/13/2003	UST		100	42	52	5	0.8	0.3	<1.0	
A1-9	Shaw	3/10/2004	UST		<50	<200	63	6	1	0.3	0.3	
A1-9	Shaw	6/23/2004	UST		<50	<200	65	7	1	0.3	0.4	
A1-9	Shaw	9/28/2004	UST		<50	<200	<50	5	0.5	0.4	0.3	
A1-9	Shaw	12/16/2004	UST		<50	<200	86	10	1	0.4	0.5	
A1-10	Emcon	9/24/1998	UST/AST		320	1800	<250	<0.5	<0.5	<0.5	<0.5	
A1-10	Shaw	12/8/1998	UST/AST		160	<200	<250	<0.5	<0.5	<0.5	<1.0	
A1-10	Shaw	3/31/1999	UST/AST		<400	<200	<250	<1	<1	<1	<2	
A1-10	Shaw	6/8/1999	UST/AST		<500	<200	<250	<0.5	<0.5	<0.5	<0.5	
A1-10	Shaw	8/18/1999	UST/AST		<400	<400	<250	<1	<1	<1	<2	
A1-10	Shaw	10/28/1999	UST/AST		<76	<190	<250	0.5	1	1	0.8	
A1-10	Shaw	2/15/2000	UST/AST		92	<190	<250	<0.5	0.4	1	2.8	
A1-10	Shaw	8/3/2000	UST/AST		<78	<190	<50	<0.5	<0.5	<0.5	<1.0	
A1-10	Shaw	2/21/2001	UST/AST		<80	<200	<50	<0.5	<0.5	<0.5	<1.0	
A1-10	Shaw	8/28/2001	UST/AST		<78	<190	<50	<0.5	<0.5	<0.5	<1.0	
A1-10	Shaw	2/19/2002	UST/AST		<50	<200	<50	<0.5	<0.5	<0.5	<0.5	
A1-10	Shaw	9/4/2002	UST/AST		<50	<200	<50	<0.5	<0.5	<0.5	<0.5	
A1-10	Shaw	3/26/2003	UST/AST		<48	<190	<50	<0.5	<0.5	<0.5	<0.5	
A1-10	Shaw	6/26/2003	UST/AST		<49	<190	<50	<0.5	<0.5	<0.5	<0.5	
A1-11	Emcon	9/24/1998	UST/AST		1900	4700	<250	<0.5	<0.5	0.6	0.2	
A1-11	Shaw	12/8/1998	UST/AST		180	210	<250	<0.5	<0.5	<0.5	<1.0	
A1-11	Shaw	3/31/1999	UST/AST		<400	270	<250	<1	<1	<1	<2	
A1-11	Shaw	6/8/1999	UST/AST		<500	240	<250	<0.5	<0.5	<0.5	<1.0	
A1-11	Shaw	8/18/1999	UST/AST		<400	<400	<250	<1	<1	<1	<2	
A1-11	Shaw	10/28/1999	UST/AST		400	410	<250	0.7	<1	2	1.2	
A1-11	Shaw	2/15/2000	UST/AST		85	<190	<250	<0.5	0.4	2	2.5	
A1-11	Shaw	8/3/2000	UST/AST		<130	<310	<50	<0.5	<0.5	<0.5	<1.0	
A1-11	Shaw	2/21/2001	UST/AST		<80	<200	<50	<0.5	<0.5	<0.5	<1.0	
A1-11	Shaw	8/28/2001	UST/AST		<78	<190	<50	<0.5	<0.5	<0.5	<1.0	
A1-11	Shaw	2/19/2002	UST/AST		<50	<200	<50	<0.5	<0.5	<0.5	<0.5	
A1-11	Shaw	9/4/2002	UST/AST		<50	<200	<50	<0.5	<0.5	<0.5	<0.5	
A1-11	Shaw	3/26/2003	UST/AST		<48	<190	<50	<0.5	<0.5	<0.5	<0.5	
A1-11	Shaw	6/26/2003	UST/AST		<49	<190	<50	<0.5	<0.5	<0.5	<0.5	
A2-1		3/1/1990	AST					<5	<5	<5	<5	
A2-1		12/1/1990	AST					<5	<5	<5	<5	
A2-1	S&W	Jul-91	AST				370	<1.0	<1.0	<1.0	<1.0	22
A2-1	S&W	Mar-92	AST				470	<1.0	<1.0	<1.0	<1.0	<2
A2-1	S&W	Sep-92	AST				260	<1.0	<1.0	<1.0	<1.0	30
A2-1	S&W	Apr-93	AST				590	<1.0	<1.0	<1.0	<1.0	13
A2-1		Apr-97	AST		92	<200	<50	<1.0	<1.0	<1.0	<1.0	<3
A2-1		Jul-97	AST		190	320	<50	<1.0	<1.0	<1.0	<1.0	
A2-2		3/1/1990	AST					<5	<5	<5	<5	
A2-2		12/1/1990	AST					<5	<5	<5	<5	
A2-2	S&W	Jul-91	AST				80	<1.0	<1.0	<1.0	<1.0	<5
A2-2	S&W	Mar-92	AST				<250	<1.0	<1.0	<1.0	<1.0	3
A2-2	S&W	Sep-92	AST				150	<1.0	<1.0	<1.0	<1.0	7
A2-2	S&W	Apr-93	AST				570	<1.0	<1.0	<1.0	<1.0	8
A2-2		Apr-97	AST		<80	<200	<50	<1.0	<1.0	<1.0	<1.0	<3
A2-2		Jul-97	AST		<100	<260	<50	<1.0	<1.0	<1.0	<1.0	
A2-3		3/1/1990	AST					<5	<5	<5	<5	
A2-3		12/1/1990	AST					<5	<5	<5	<5	
A2-3	S&W	Jul-91	AST				420	<1.0	<1.0	<1.0	<1.0	53
A2-3	S&W	Mar-92	AST				780	<1.0	<1.0	<1.0	<1.0	6
A2-3	S&W	Sep-92	AST				570	<1.0	<1.0	<1.0	<1.0	160
A2-3	S&W	Apr-93	AST				1100	<1.0	<1.0	<1.0	<1.0	62
A2-4		3/1/1990	AST					<5	<5	<5	<5	
A2-4		12/1/1990	AST					<5	<5	<5	<5	
A2-4	S&W	Jul-91	AST				270	<1.0	<1.0	<1.0	<1.0	7
A2-4	S&W	Mar-92	AST				420	<1.0	<1.0	<1.0	<1.0	<2
A2-4	S&W	Sep-92	AST				410	<1.0	<1.0	<1.0	<1.0	47
A2-4	S&W	Apr-93	AST				660	<1.0	<1.0	<1.0	<1.0	35
A2-4		Apr-97	AST		290	490	<50	<1.0	<1.0	<1.0	<1.0	<3
A2-4		Jul-97	AST		220	310	<50	<1.0	<1.0	<1.0	<1.0	
A2-5	Emcon	9/25/1998	AST		520	2600		<0.5	<0.5	0.5	<0.7	
A2-5	Shaw	12/8/1998	AST		380	<200						
A2-5	Shaw	3/31/1999	AST		<400	220						
A2-5	Shaw	6/8/1999	AST		<500	<200						
A2-5	Shaw	8/18/1999	AST		<400	<400						
A2-5	Shaw	10/28/1999	AST		<74	230						
A2-5	Shaw	2/15/2000	AST		<76	<190						
A2-5	Shaw	8/3/2000	AST		<75	<180						

Table 3A												Page 3 of 3
Sample No.	Firm	Date	Location	Depth (ft)	TPH-D	TPH - MO	TPH-G	Benzene	Ethylbenzene	Toluene	Xylene	Lead
A2-5	Shaw	2/21/2001	AST		<80	420						
A2-5	Shaw	8/28/2001	AST		<78	<190						
A2-5	Shaw	2/19/2002	AST		<50	<200						
A2-5	Shaw	9/4/2002	AST		<50	<200						
A2-5	Shaw	3/26/2003	AST		<48	<190						
A2-5	Shaw	6/26/2003	AST		<48	<190						
A2-6	Emcon	9/25/1998	AST		2000	5000		0.3	0.4	0.8	3	
A2-6	Shaw	12/8/1998	AST		220	<200						
A2-6	Shaw	3/31/1999	AST		<400	<200						
A2-6	Shaw	6/8/1999	AST		<500	<200						
A2-6	Shaw	8/18/1999	AST		<400	<400						
A2-6	Shaw	10/28/1999	AST		130	300						
A2-6	Shaw	2/15/2000	AST		93	<190						
A2-6	Shaw	8/3/2000	AST		<100	<250						
A2-6	Shaw	2/21/2001	AST		<80	<200						
A2-6	Shaw	8/28/2001	AST		<78	<190						
A2-6	Shaw	2/19/2002	AST		<50	<200						
A2-6	Shaw	9/4/2002	AST		<50	<200						
A2-6	Shaw	3/26/2003	AST		<48	<190						
A2-6	Shaw	6/26/2003	AST		<47	<190						
A2-7	Emcon	9/25/1998	AST		190	750		<0.5	<0.5	1	0.8	
A2-7	Shaw	12/8/1998	AST		340	330						
A2-7	Shaw	3/31/1999	AST		<400	<200						
A2-7	Shaw	6/8/1999	AST		<500	<200						
A2-7	Shaw	8/18/1999	AST		<400	<400						
A2-7	Shaw	10/28/1999	AST		<73	<180						
A2-7	Shaw	2/15/2000	AST		<76	<190						
A2-7	Shaw	8/3/2000	AST		<76	<190						
A2-7	Shaw	2/21/2001	AST		<80	<200						
A2-7	Shaw	8/28/2001	AST		<78	<190						
A2-7	Shaw	2/19/2002	AST		<50	<200						
A2-7	Shaw	9/4/2002	AST		<50	<200						
A2-7	Shaw	3/26/2003	AST		<48	<190						
A2-7	Shaw	6/26/2003	AST		<48	<190						
A2-8	Emcon	9/25/1998	AST		90	340		<0.5	0.6	<0.5	<0.8	
A2-8	Shaw	12/8/1998	AST		350	<200						
A2-8	Shaw	3/31/1999	AST		<400	<200						
A2-8	Shaw	6/8/1999	AST		<500	<200						
A2-8	Shaw	8/18/1999	AST		<400	<400						
SB2-6	Delta	3/31/2005	UST				<50	<1	<1	<1	<3	
SB2-11	Delta	4/1/2005	UST				1,500	230	43	300	1600	
MTCA Method A Cleanup Level					500	500	800/1000	5	700	1000	1000	15

Table 3A UST/AST Area - Ground Water Test Results

Results in micrograms per liter (ug/l)

Sample No.	Firm	Date	Location	Depth (ft)	TPH-D	TPH - MO	TPH-G	Benzene	Ethylbenzene	Toluene	Xylene	Lead
A1-1		3/1/1990	UST					<5	<5	<5	<5	
A1-1		12/1/1990	UST					<1	<5	<5	<5	
A1-1	S&W	Jul-91	UST				120	<1.0	<1.0	<1.0	<1.0	24
A1-1	S&W	Mar-92	UST				260	<1.0	<1.0	<1.0	<1.0	6
A1-1	S&W	Sep-92	UST				190	<1.0	<1.0	<1.0	<1.0	25
A1-1	S&W	Apr-93	UST				600	<1.0	<1.0	<1.0	<1.0	33
A1-1		Apr-97	UST		100	<210	<50					5
A1-1		Jul-97	UST		130	<260	<250					
A1-2		3/1/1990	UST					<5	<5	<5	<5	
A1-2		12/1/1990	UST					<1	<5	<5	<5	
A1-2	S&W	Jul-91	UST				490	<1.0	<1.0	<1.0	<1.0	21
A1-2	S&W	Mar-92	UST				610	<1.0	<1.0	<1.0	<1.0	<2
A1-2	S&W	Sep-92	UST				490	<1.0	<1.0	<1.0	<1.0	12
A1-2	S&W	Apr-93	UST				1000	<1.0	<1.0	<1.0	<1.0	4
A1-2		Apr-97	UST		120	<210	<50	<1.0	<1.0	<1.0	<1.0	<3
A1-2		Jul-97	UST		150	<260	<50	<1.0	<1.0	<1.0	<1.0	
A1-3		3/1/1990	UST					1300	50	1800	2000	
A1-3		12/1/1990	UST					280	2	28	130	
A1-3	S&W	Jul-91	UST				1500	640	1700	200	1060	58
A1-3	S&W	Mar-92	UST				460	1200	1400	370	260	6
A1-3	S&W	Sep-92	UST				2800	1200	360	1100	1340	36
A1-3	S&W	Apr-93	UST				2000	160	110	62	403	21
A1-3		Apr-97	UST		1600	590	11000	1000	480	78	1200	32
A1-3		Jul-97	UST		1100	610	6200	940	370	200	920	
A1-4		3/1/1990	UST					<5	<5	<5	<5	
A1-4		12/1/1990	UST					<1	<5	<5	<5	
A1-4	S&W	Jul-91	UST				590	<1.0	<1.0	<1.0	<1.0	11
A1-4	S&W	Mar-92	UST				690	<1.0	<1.0	<1.0	<1.0	18
A1-4	S&W	Sep-92	UST				610	<1.0	<1.0	<1.0	<1.0	50
A1-4	S&W	Apr-93	UST				970	<1.0	<1.0	<1.0	<1.0	6
A1-4		Apr-97	UST		510	340	<50	<1.0	<1.0	<1.0	<1.0	5
A1-4		Jul-97	UST		330	<260	<250	<1.0	<1.0	<1.0	<1.0	
A1-5		12/1/1990	UST					<1	<5	<5	<5	
A1-5	S&W	Jul-91	UST				1100	14	<1.0	2.3	4	18
A1-5	S&W	Mar-92	UST				980	<1.0	<1.0	<1.0	<1.0	7
A1-5	S&W	Sep-92	UST				1200	14	1.1	21	9.3	22
A1-5	S&W	Apr-93	UST				1500	<1.0	<1.0	<1.0	<1.0	7
A1-5		Apr-97	UST		590	300	<50	<1.0	<1.0	<1.0	<1.0	<3
A1-5		Jul-97	UST		870	<260	<50	<1.0	<1.0	<1.0	<1.0	
A1-6		12/1/1990	UST					<1	<5	<5	<5	
A1-6	S&W	Jul-91	UST				750	<1.0	<1.0	<1.0	<1.0	<5
A1-6	S&W	Mar-92	UST				670	<1.0	<1.0	<1.0	<1.0	6
A1-6	S&W	Sep-92	UST				1200	2.1	<1.0	2.5	<1.0	34
A1-6	S&W	Apr-93	UST				1400	<1.0	<1.0	<1.0	<1.0	13
A1-6		Apr-97	UST		180	<200	<50	<1.0	<1.0	<1.0	<1.0	<3
A1-6		Jul-97	UST		210	<260	<50	<1.0	<1.0	<1.0	<1.0	
A1-7		12/1/1990	UST					<1	<5	<5	<5	
A1-7	S&W	Jul-91	UST				180	<1.0	<1.0	<1.0	<1.0	7
A1-7	S&W	Mar-92	UST				<250	<1.0	<1.0	<1.0	<1.0	<2
A1-7	S&W	Sep-92	UST				190	<1.0	<1.0	<1.0	<1.0	16
A1-7	S&W	Apr-93	UST				670	<1.0	<1.0	<1.0	<1.0	33
A1-7		Apr-97	UST		180	<210	<50	<1.0	<1.0	<1.0	<1.0	3
A1-7		Jul-97	UST		200	<260	<50	<1.0	<1.0	<1.0	<1.0	
A1-8	Emcon	9/24/1998	UST		330	<180	260	4	1	0.9	5.6	
A1-8	Shaw	12/8/1998	UST		490	300	<250	0.3	<0.5	<0.5	<1	
A1-8	Shaw	3/31/1999	UST		<400	<200	<250	<1	<1	<1	<2	
A1-8	Shaw	6/8/1999	UST		<500	<200	<250	<1	<1	<1	<2	
A1-8	Shaw	8/18/1999	UST		<400	<400	<250	<1	<1	<1	<2	
A1-8	Shaw	10/28/1999	UST		<75	<190	<250	0.2	1	<1	0.9	
A1-8	Shaw	2/15/2000	UST		<76	<190	<250	<0.5	<0.5	0.4	0.8	
A1-8	Shaw	8/3/2000	UST		<76	<190	<50	<0.5	<0.5	<0.5	<1.0	
A1-8	Shaw	2/21/2001	UST		<80	<200	<50	<0.5	<0.5	<0.5	<1.0	
A1-8	Shaw	8/28/2001	UST		<78	<190	<50	<0.5	<0.5	<0.5	<1.0	
A1-8	Shaw	2/19/2002	UST		<50	<200	<50	<0.5	<0.5	<0.5	<0.5	
A1-8	Shaw	9/4/2002	UST		<50	<200	<50	<0.5	<0.5	<0.5	<0.5	
A1-8	Shaw	3/26/2003	UST		<50	<180	<47	<0.5	<0.5	<0.5	<0.5	
A1-8	Shaw	6/26/2003	UST		<50	<200	<50	<0.5	<0.5	<0.5	<0.5	
A1-9	Emcon	9/24/1998	UST		150	180	590	12	0.4	2	2.8	
A1-9	Shaw	12/8/1998	UST		130	<200	<250	22	3	0.9	1	
A1-9	Shaw	3/31/1999	UST		<400	<200	<250	4	0.3	<1	<2	
A1-9	Shaw	6/8/1999	UST		<500	<200	<250	13	1.9	0.3	0.3	
A1-9	Shaw	8/18/1999	UST		<400	<400	<250	2	0.4	<1	<2	
A1-9	Shaw	10/28/1999	UST		<76	<190	<250	8	0.8	3	1.4	
A1-9	Shaw	2/15/2000	UST		<76	<190	<250	6	1	0.4	1	
A1-9	Shaw	8/3/2000	UST		<78	<190	57	2	<0.5	<0.5	<1.0	
A1-9	Shaw	2/21/2001	UST		<80	<200	<50	3	<0.5	<0.5	<1.0	

Table 4 Morbark Area - Soil Test Results
Results in Milligrams per Kilogram (mg/kg)

Sample No.	Firm	Date	Location	Depth (ft)	TPH-D	TPH - MO	TPH-G	Aromatics EC16-EC21	Aromatics EC21-EC35	Total CPAH
SW-1	Emcon	9/8/1998	Morbark	4	<420	<1100				
SW-2	Emcon	9/8/1998	Morbark	4	<320	<780				
SW-3	Emcon	9/8/1998	Morbark	4	560	**3400**				
SW-4	Emcon	9/8/1998	Morbark	4	990	790				
SW-5	Emcon	9/8/1998	Morbark	4	1000	5700				
SW-5-2	Emcon	9/8/1998	Morbark	4	**2500**	**12000**				
SW-5-3	Emcon	9/10/1998	Morbark	4	**2500**	**13000**				
SW-6	Emcon	9/8/1998	Morbark	4	860	<520				
SW-7	Emcon	9/9/1998	Morbark	4	910	**3400**		18	88.4	<0.35
SW-8	Emcon	9/9/1998	Morbark	4	890	1700				
SW-9	Emcon	9/8/1998	Morbark	4	700	**3600**				
SW-10	Emcon	9/8/1998	Morbark	4	510	<490				
SW-11	Emcon	9/8/1998	Morbark	4	<220	800				
B-1	Emcon	9/9/1998	Morbark	6	290	770				
A-1-2.5	Emcon	9/25/1998	Morbark	2.5	9.1	31				
A-2-1.0	Emcon	9/25/1998	Morbark	1	72	690				
A-4-5	Emcon	9/25/1998	Morbark	5	42	160				
A-5-2.5	Emcon	9/25/1998	Morbark	2.5	180	750				
MTCA Method A Cleanup Level (mg/kg)					2,000	2,000				
Site Specific Method B Cleanup Level					4,400	4,400				

Bold = Concentrations above appropriate MTCA Cleanup Levels

Table 4A- Morbark Area - Groundwater Test Results
Results in micrograms per liter (ug/l)

Sample No.	Firm	Date	Location	Depth (ft)	TPH-D	TPH - MO	Total CPAH
A-1	Emcon	9/25/1998	Morbark		**720**	**1300**	ND
A-2	Emcon	9/25/1998	Morbark		**560**	**1000**	ND
A-3	Emcon	9/25/1998	Morbark		190	180	ND
A-4	Emcon	9/25/1998	Morbark		190	420	ND
A-5	Emcon	9/25/1998	Morbark		**940**	**1200**	ND
MTCA Method A Cleanup Levels					500	500	

Bold = Concentrations above appropriate MTCA Cleanup Levels

Table 5 T-12 Transformer Area - Soil Test Results
Results in Milligrams per Kilogram (mg/kg)

Sample No.	Firm	Date	Location	Depth (ft)	PCB	Tricholorobenzene
12-01	HDR	Feb-89	T-12	0	**150**	
12-02	HDR	Feb-89	T-12	0	**35**	
12-03	HDR	Feb-89	T-12	0	**99**	
12-03	HDR	Feb-89	T-12	1	**9**	
12-03	HDR	Feb-89	T-12	2	**4.9**	
12-04	HDR	Feb-89	T-12	0	**64**	
12-05A	HDR	Feb-89	T-12	0	**2500**	
12-06A	HDR	Feb-89	T-12	0	**120**	
12-07	HDR	Feb-89	T-12	0	**12**	
12-08	HDR	Feb-89	T-12	0	**16**	
12-08	HDR	Feb-89	T-12	1	**2200**	
12-08	HDR	Feb-89	T-12	2	**350**	
12-09	HDR	Feb-89	T-12	2	**84000**	
12-09A	HDR	Feb-89	T-12	2	**7300**	
12-09B	HDR	Feb-89	T-12	2	**16000**	
12-10	HDR	Feb-89	T-12	0	**5**	
12-10	HDR	Feb-89	T-12	1	**75**	
12-10	HDR	Feb-89	T-12	2	**38**	
12-11	HDR	Feb-89	T-12	0	<0.6	
12-12	HDR	Feb-89	T-12	0	**23**	
12-12	HDR	Feb-89	T-12	1	**1.8**	
12-12	HDR	Feb-89	T-12	2	**4.1**	
12-W10	HDR	Feb-89	T-12	0	**2.1**	
S-101	HDR	3/30/1989	T-12	5-6.5	**1.7**	<0.02
S-102	HDR	3/31/1989	T-17	7-8.5	0.18	<0.02
S-103	HDR	3/31/1989	T-17	5-5.5	<0.08	<0.02
S-104	HDR	3/31/1989	T-17	4-5.5	<0.08	<0.02
S-105	HDR	3/31/1989	T12	3.5-5	<0.08	<0.02
S-106	HDR	3/31/1989	T-12	5-6.5	<0.08	<0.02
S-107	HDR	3/31/1989	T-12	5-6.5	<0.08	<0.02
S-108	HDR	4/3/1989	T-12	5-6.5	<0.08	<0.02
S-109	HDR	4/3/1989	T-12	5-6.5	<0.08	<0.02
S-110	HDR	4/3/1989	T-17	5-6.5	<0.1	<0.02
BH1-01	HDR	9/6/1989	T-12	17.5-19	<0.05	<0.02
BH1-02	HDR	9/6/1989	T-12	20.5-22	<0.05	<0.02
BH-2-03	HDR	9/6/1989	T-12	8-9.5	<0.05	<0.02
BH2-04	HDR	9/6/1989	T-12	15-16.5	<0.05	<0.02
BH2-05	HDR	9/6/1989	T-12	17.5-19	<0.05	<0.02
BH3-06	HDR	9/11/1989	T-12	14-15.5	<0.05	<0.02
BH3-07	HDR	9/11/1989	T-12	15.5-17	<0.05	<0.02
BH3-08	HDR	9/11/1989	T-12	22.5-24	<0.05	<0.02
BH3-09	HDR	9/11/1989	T-12	27-28.5	<0.05	<0.02
BH4-10	HDR	9/13/1989	T-12	30-32	<0.05	<0.02
T12-13	HDR	10/12/1989	T-12	13	**34000**	**1400**
T12-14	HDR	10/12/1989	T-12	13	**1100**	**120**
T12-15	HDR	10/12/1989	T-12	13	**1600**	**300**
T12-16	HDR	10/12/1989	T-12	13	**1100**	**36**
T12-17	HDR	10/12/1989	T-12	13	<0.08	3
T12-18	HDR	10/12/1989	T-12	13	**33**	17
MTCA Method A Cleanup Level					1	35

Bold = Concentrations above appropriate MTCA Cleanup Levels

Table 6 T-17 Transformer Area - Soil Test Results
Results in Milligrams per Kilogram (mg/kg)

Sample No.	Firm	Date	Location	Depth (ft)	Total CPAH	PCB
17-01	HDR	Feb-89	T-17	0	4.2	
17-02	HDR	Feb-89	T-17	0	6.4	
17-03	HDR	Feb-89	T-17	0	20	
17-04	HDR	Feb-89	T-17	2	1.1	
17-05	HDR	Feb-89	T-17	2	36	
17-05A	HDR	Feb-89	T-17	0	170	
17-06	HDR	Feb-89	T-17	2	310	
17-06A	HDR	Feb-89	T-17	0	160	
17-07	HDR	Feb-89	T-17	0	18	
17-08	HDR	Feb-89	T-17	0	22	
17-08	HDR	Feb-89	T-17	1	1.6	
17-08	HDR	Feb-89	T-17	2	1.6	
17-09	HDR	Feb-89	T-17	2	4.7	
17-09	HDR	Feb-89	T-17	2.5	3300	
17-09A	HDR	Feb-89	T-17	2	270	
17-10	HDR	Feb-89	T-17	0	3.9	
17-10	HDR	Feb-89	T-17	1	0.7	
17-10	HDR	Feb-89	T-17	2	<0.6	
S-101	HDR	3/30/1989	T-17	5-6.5	1.7	<0.02
S-102	HDR	3/31/1989	T-17	7-8.5	0.18	<0.02
S-103	HDR	3/31/1989	T-17	5-5.5	<0.08	<0.02
S-104	HDR	3/31/1989	T-17	4-5.5	<0.08	<0.02
520	HDR	6/6/1989	T-17	6		<1
521	HDR	6/6/1989	T-17	6		<1
522	HDR	6/6/1989	T-17	6		<1
523	HDR	6/6/1989	T-17	6		**5**
524	HDR	6/6/1989	T-17	6		<1
525	HDR	6/6/1989	T-17	6		<1
526	HDR	6/6/1989	T-17	6		<1
527	HDR	6/6/1989	T-17	6		<1
528	HDR	6/6/1989	T-17	6		<1
529	HDR	6/6/1989	T-17	6		<1
530	HDR	6/6/1989	T-17	6		<1
531	HDR	6/6/1989	T-17	6		**59**
532	HDR	6/6/1989	T-17	6		<1
533	HDR	6/6/1989	T-17	6		<1
534	HDR	6/6/1989	T-17	6		**79**
535	HDR	6/6/1989	T-17	6.5		<1
536	HDR	6/6/1989	T-17	6.5		<1
537	HDR	6/6/1989	T-17	6		<0.6
538	HDR	6/6/1989	T-17	6		0.85
539	HDR	6/6/1989	T-17	6		<0.6
540	HDR	6/6/1989	T-17	6		<1
MTCA Method A Cleanup Level					0.1	1

Bold = Concentrations above appropriate MTCA Cleanup Levels

Table 6A T-12/T17 Transformer Area - Groundwater Test Results
Results in micrograms per liter (ug/l)

Sample No.	Firm	Date	Location	Depth (ft)	PCB	Trichlorobenzene
MW-01	HDR	3/30/1989	T-12	0.98	**14**	**3**
MW-02	HDR	3/31/1989	T-12	1.4	<1	<1
MW-03	HDR	4/3/1989	T-12	0.36	<1	<1
MW-04	HDR	3/31/1989	T-17	3.94	**4**	**4**
MW-05	HDR	3/31/1989	T-17	2.56	<1	<1
MW-06	HDR	4/3/1989	T-17	2.36	<1	<1
MTCA Method A Cleanup Level					0.1	
MTCA Method B Cleanup Level						1.5

Bold = Concentrations above appropriate MTCA Cleanup Levels

Table 7 Ash Fill - Soil Test Results
Results in Milligrams per Kilogram (mg/kg)

Sample No.	Firm	Date	Location	Depth (ft)	Arsenic	Cadmium	Chormium	Lead	Mercury	Acenapthene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)flouranthene	Benzo(e,h,i)perylene
A-01	Delta	11/24/2003	Ash Fill	0	160	2	62	90	<0.1	0.093	0.075	0.27	0.14	0.91	0.29
A-02	Delta	11/24/2003	Ash Fill	0	180	3	88	110	0.1	0.15	0.26	1.0	0.7	6.8	1.8
A-03	Delta	11/24/2003	Ash Fill	0	40	<1	142	50	<0.1	0.013	0.013	0.028	0.038	0.075	0.034
A-04	Delta	11/24/2003	Ash Fill	0	60	2	44	70	0.1	0.057	0.078	0.33	0.15	1	0.28
A-05	Delta	11/24/2003	Ash Fill	0	90	1	45	40	<0.1	0.038	0.04	0.088	0.05	0.26	0.073
MTCA Method A Cleanup Level					20	2	2000	250	2			C	0.1	C	

C = Carcinogenic PAH Cleanup Level = 0.1 for Total Carcinogenic after including Toxicity Equivalency Factors(TEF)
Bold = Concentrations above appropriate MTCA Cleanup Levels

Sample No.	Firm	Date	Location	Depth (ft)	Benzo(k)flouranthene	Chrysene	Dibenzo(a,h)anthracene	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Napthalene	Pyrene	TEF for cPAH Exceeded
A-01	Delta	11/24/2003	Ash Fill	0	0.28	0.93	0.32	0.2	1.8	0.001	0.32	0.98	0.21	1	Y
A-02	Delta	11/24/2003	Ash Fill	0	1.7	3.2	0.22	0.42	7	0.061	2.3	3.4	0.49	3.5	Y
A-03	Delta	11/24/2003	Ash Fill	0	0.022	0.044	<0.008	0.03	0.22	<0.005	0.026	0.14	0.038	0.15	N
A-04	Delta	11/24/2003	Ash Fill	0	0.33	0.64	0.036	0.19	3.5	0.015	0.38	1	0.23	1.6	Y
A-05	Delta	11/24/2003	Ash Fill	0	0.07	0.18	0.029	0.1	0.97	0.009	0.081	0.58	0.14	0.6	N
MTCA Method A Cleanup Level					C	C	C				C				0.1

C = Carcinogenic PAH Cleanup Level = 0.1 for Total Carcinogenic after including Toxicity Equivalency Factors(TEF)
Bold = Concentrations above appropriate MTCA Cleanup Levels

Table 7A Ash Fill - TEF Calculations for Soil
Results in Milligrams per Kilogram (mg/kg)

Sample No.	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)flouranthene	Benzo(k)flouranthene	Chrysene	Dibenzo(a,h)anthracene	Indeno(1,2,3-cd)pyrene	TEF
A-01	0.27	0.14	0.91	0.28	0.93	0.32	0.32	0.3553
A-02	1.1	0.7	6.8	1.7	3.2	0.22	2.3	1.644
A-03	0.028	0.038	0.075	0.022	0.044	0.008	0.026	0.04384
A-04	0.33	0.15	1	0.33	0.64	0.036	0.38	0.3622
A-05	0.088	0.05	0.26	0.07	0.18	0.029	0.081	0.10025
MTCA Method A Cleanup Level				C	C	C	C	0.1

C = Carcinogenic PAH Cleanup Level = 0.1 for Total Carcinogenic after including Toxicity Equivalency Factors(TEF)
Bold = Concentrations above appropriate MTCA Cleanup Levels

Table 8 Dip Tank Area Soil Test Results

Sample No.	Firm	Date	Location	Depth (ft)	2,4,5-Trichlorophenol	Pentachlorophenol	Total Tetrachlorophenols
S7.1-1-10	Delta	4/29/2004	DIP TANK AREA 1	10	<0.0076	0.2	0.067
S7.1-1-5	Delta	4/29/2004	DIP TANK AREA 1	5	<0.009	0.82	0.31
S7.1-2-10	Delta	4/29/2004	DIP TANK AREA 1	10	0.018	6.5	15
S7.1-2-5	Delta	4/29/2004	DIP TANK AREA 1	5	<0.0087	0.021	0.094
S7.2-1-10	Delta	4/30/2004	DIP TANK AREA 2	10	<0.0096	<0.0096	<0.019
S7.2-1-5	Delta	4/30/2004	DIP TANK AREA 2	5	<0.0061	<0.0061	<0.012
S7.2-2-10	Delta	4/30/2004	DIP TANK AREA 2	10	<0.0087	<0.0067	<0.017
S7.2-2-5	Delta	4/30/2004	DIP TANK AREA 2	5	<0.0071	<0.0071	<0.014
MTCA Method B Cleanup Level						2,500	2,400

Table 8A Dip Tank Area - Groundwater Test Results
Results in micrograms per liter (ug/l)

Sample No.	Firm	Date	Location	Depth (ft)	2,4-Dichlorophenol	2,6-Dichlorophenol	2,4,6-Trichlorophenol	2,4,5-Trichlorophenol	2,3,4,6-Tetrachlorophenol	Pentachlorophenol
SB1-1	Delta	3/30/2005	Dip Tank		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SB1-2	Delta	3/30/2005	Dip Tank		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SB1-3	Delta	3/30/2005	Dip Tank		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SB1-4	Delta	3/30/2005	Dip Tank		<0.5	<0.5	<0.5	<0.5	0.7	**1.1**
MTCA Method B Cleanup Level									480	0.22

Bold = Concentrations above appropriate MTCA Cleanup Levels

Table 9 Wash Pad - Soil Test Results
Results in Milligrams per Kilogram (mg/kg)

Sample No.	Firm	Date	Location	Depth (ft)	TPH-D	TPH - MO	TPH-G
S6-1-10	Delta	4/27/2004	VEHICLE WASH PAD	10	<12	<48	<7
S6-1-5	Delta	4/27/2004	VEHICLE WASH PAD	5	<16	<62	<6.8
S6-2-10	Delta	4/28/2004	VEHICLE WASH PAD	10	230	1400	<4.9
S6-2-5	Delta	4/28/2004	VEHICLE WASH PAD	5	<11	<45	<4.4
S6-3-10	Delta	4/28/2004	VEHICLE WASH PAD	10	<12	<47	<7
S6-3-5	Delta	4/28/2004	VEHICLE WASH PAD	5	180	1700	<5.4
MTCA Method A Cleanup Levels					2,000	2,000	30/100

* = Cleanup level for gasoline is 100 mg/kg without benzen present and 30 mg/kg with benzene present

Sample No.	Firm	Date	Location	Depth (ft)	Benzene	Ethylbenzene	Toluene	Xylene
S6-1-10	Delta	4/27/2004	VEHICLE WASH PAD	10	<14	<14	<14	<14
S6-1-5	Delta	4/27/2004	VEHICLE WASH PAD	5	<15	<15	<15	<15
S6-2-10	Delta	4/28/2004	VEHICLE WASH PAD	10				
S6-2-5	Delta	4/28/2004	VEHICLE WASH PAD	5				
S6-3-10	Delta	4/28/2004	VEHICLE WASH PAD	10	<15	<15	<15	<15
S6-3-5	Delta	4/28/2004	VEHICLE WASH PAD	5	<12	<12	<12	<12
MTCA Method A Cleanup Levels					0.03	6	7	9

* = Cleanup level for gasoline is 100 mg/kg without benzen present and 30 mg/kg with benzene present

Table 9A Wash Pad - Groundwaterl Test Results
Results in Micrograms per Liter (ug/l)

Sample No.	Firm	Date	Location	TPH-D	TPH - MO	TPH-G	Benzene	Ethylbenzene	Toluene	Xylene
S6-2	Delta	4/28/2004	VEHICLE WASH PAD	8,100	42,000	<0.05	<0.5	<0.5	0.3	<0.5
S6-3	Delta	4/28/2004	VEHICLE WASH PAD	330	1,200	<0.05	0.2	<0.5	0.7	<0.5
MTCA Method A Cleanup Levels				500	500	800/1,000	5	700	1,000	1,000

* = Cleanup level for gasoline is 1,000 ug/l without benzen present and 800 ug/l with benzene present

Table 10 T-18 Transformer

Soil Test Results
Results in Milligrams per Kilogram (mg/kg)

Sample No.	Firm	Date	Location	Depth (ft)	TPH-D	TPH - MO
T18-1	Delta	1/24/2003	T-18	1	180	400
T18-2	Delta	1/24/2003	T-18	1	18000	3500
T18-3	Delta	1/24/2003	T-18	1	9700	2300
S4-1-10	Delta	4/27/2004	T-18	10	<17	<67
S4-1-5	Delta	4/27/2004	T-18	5	<13	<52
S4-2-10	Delta	4/27/2004	T-18	10	<17	<66
S4-3-10	Delta	4/27/2004	T-18	10	<17	<66
S4-3-5	Delta	4/27/2004	T-18	5	<28	<100
MTCA Method A Cleanup Levels					2,000	2,000

* = Cleanup level for gasoline is 100 mg/kg without benzen present and 30 mg/kg with benzene present

Table 10 A Ground Water Test Results
Results in Micrograms per Liter (ug/l)

Sample No.	Firm	Date	Location	Depth (ft)	TPH-D	TPH - MO	Acenapthene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)flouranthene	Benzp(g,h,i)perylene	Benzo(k)flouranthene
S4-1	Delta	4/27/2004	T-18		0.11	0.28	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
S4-3	Delta	4/27/2004	T-18		<0.05	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
MTCA Method A Cleanup Levels					500	500				0.1			

Sample No.	Firm	Date	Location	Depth (ft)	Chrysene	Dibenzo(a,h)anthracene	Dibenzofuran	Fluoranthene	Flourene	leno(1,2,3-cd)pyre	Phenanthrene	Napthalene	Pyrene	PCB
S4-1	Delta	4/27/2004	T-18		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.04
S4-3	Delta	4/27/2004	T-18		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.04
MTCA Method A Cleanup Levels														0.1

Appendix A

Exploration Logs (AESI)

associated earth sciences incorporated

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH120126A	MW-1	1 of 6

Project Name	Snoqualmie Mill Site	Location	Snoqualmie, WA
Elevation (Top of Well Casing)		Surface Elevation (ft)	~419
Water Level Elevation	40.0 bgs on 5/3/12	Date Start/Finish	4/16/12,4/18/12
Drilling/Equipment	Aquatech / Air Rotary	Hole Diameter (in)	6 inches
Hammer Weight/Drop	140# / 30"		

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
		2'-foot stickup				**Fill**
		10-inch-diameter surface seal 0 to 18 feet; bentonite chips				**Overbank Deposits** Very moist, brown, silty fine SAND to sandy SILT, trace disseminated organics (wood fragments)
5						
10						Adding water.
						Adding water.
15						**River Channel Deposits** Driller reports possible saturated silty fine SAND.
						4 to 5 feet of water in boring after welding. Wet, grayish brown, micaceous silty fine SAND.
20		6-inch I.D. steel casing from 2 feet above ground surface to 223.3 feet				Wet, brown, micaceous fine SAND, few silt.
25						Wet, gray, fine to medium SAND, trace silt, trace organics (wood fragments).
						Wet, gray, fine to medium SAND, trace silt, trace organics.
30						Increased wood fragments.
35						Increased fine sand.
						Driller reports heave at 38 feet.

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

- Water Level (5/3/12)
- Water Level at time of drilling (ATD)

Logged by: SST

Approved by:

NWWELL- B 120126.GPJ BORING.GDT 3/5/15

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Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH120126A	MW-1	2 of 6

Project Name	Snoqualmie Mill Site	Location	Snoqualmie, WA
Elevation (Top of Well Casing)		Surface Elevation (ft)	~419
Water Level Elevation	40.0 bgs on 5/3/12	Date Start/Finish	4/16/12,4/18/12
Drilling/Equipment	Aquatech / Air Rotary	Hole Diameter (in)	6 inches
Hammer Weight/Drop	140# / 30"		

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
		6-inch I.D. steel casing from 2 feet above ground surface to 223.3 feet				**Lacustrine Deposits** Soft, wet, gray, CLAY/SILT.
45						Soft, wet, gray, CLAY/SILT, scattered woody debris.
50						
55						Soft, wet, gray, CLAY/SILT, scattered woody debris.
60						No sample. CLAY/SILT washed through sieve.
						No sample. CLAY/SILT washed through sieve.
65						No sample. CLAY/SILT washed through sieve.
						Soft, wet, gray, CLAY/SILT.
70						
75						

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

Water Level (5/3/12)

Water Level at time of drilling (ATD)

Logged by: SST

Approved by:

NWWELL- B 120126.GPJ BORING.GDT 3/5/15

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Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH120126A	MW-1	3 of 6

Project Name: Snoqualmie Mill Site
Location: Snoqualmie, WA
Elevation (Top of Well Casing):
Surface Elevation (ft): ~419
Water Level Elevation: 40.0 bgs on 5/3/12
Date Start/Finish: 4/16/12,4/18/12
Drilling/Equipment: Aquatech / Air Rotary
Hole Diameter (in): 6 inches
Hammer Weight/Drop: 140# / 30"

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
		6-inch I.D. steel casing from 2 feet above ground surface to 223.3 feet				Soft, wet, gray, CLAY/SILT.
85						
90						
95						
100						Soft, wet, gray, CLAY/SILT.
105						
110						
115						

Sampler Type (ST):
- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture
Water Level (5/3/12)
Water Level at time of drilling (ATD)

Logged by: SST
Approved by:

NWWELL- B 120126.GPJ BORING.GDT 3/5/15

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Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH120126A	MW-1	4 of 6

Project Name	Snoqualmie Mill Site	Location	Snoqualmie, WA
Elevation (Top of Well Casing)		Surface Elevation (ft)	~419
Water Level Elevation	40.0 bgs on 5/3/12	Date Start/Finish	4/16/12,4/18/12
Drilling/Equipment	Aquatech / Air Rotary	Hole Diameter (in)	6 inches
Hammer Weight/Drop	140# / 30"		

Depth (ft)	Water Level	WELL CONSTRUCTION	S T	Blows/ 6"	Graphic Symbol	DESCRIPTION
		6-inch I.D. steel casing from 2 feet above ground surface to 223.3 feet				Soft, wet, gray, CLAY/SILT.
125						
130						
135						Soft, wet, gray, CLAY/SILT.
140						
145						
150						
155						Soft, wet, gray, CLAY/SILT.

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

- Water Level (5/3/12)
- Water Level at time of drilling (ATD)

Logged by: SST

Approved by:

NWWELL- B 120126.GPJ BORING.GDT 3/5/15

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Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH120126A	MW-1	5 of 6

Project Name: Snoqualmie Mill Site
Location: Snoqualmie, WA
Elevation (Top of Well Casing):
Surface Elevation (ft): ~419
Water Level Elevation: 40.0 bgs on 5/3/12
Date Start/Finish: 4/16/12,4/18/12
Drilling/Equipment: Aquatech / Air Rotary
Hole Diameter (in): 6 inches
Hammer Weight/Drop: 140# / 30"

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
		6-inch I.D. steel casing from 2 feet above ground surface to 223.3 feet				Soft, wet, gray, CLAY/SILT.
165						
170						Soft, wet, gray, CLAY/SILT.
175						
180						Soft, wet, gray, CLAY/SILT.
185						Wet, gray, CLAY.
190						Wet, gray, CLAY.
195						Wet, gray, CLAY, trace sand, trace wood fragments.

Sampler Type (ST):
- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture
Water Level (5/3/12)
Water Level at time of drilling (ATD)

Logged by: SST
Approved by:

NWWELL- B 120126.GPJ BORING.GDT 3/5/15

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Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
KH120126A	MW-1	6 of 6

Project Name	Snoqualmie Mill Site	Location	Snoqualmie, WA
Elevation (Top of Well Casing)		Surface Elevation (ft)	~419
Water Level Elevation	40.0 bgs on 5/3/12	Date Start/Finish	4/16/12,4/18/12
Drilling/Equipment	Aquatech / Air Rotary	Hole Diameter (in)	6 inches
Hammer Weight/Drop	140# / 30"		

Depth (ft)	WELL CONSTRUCTION	DESCRIPTION
	6-inch I.D. steel casing from 2 feet above ground surface to 223.3 feet	**Older Snoqualmie River Overbank Deposits** Wet, gray to trace brown, fine SAND, and silt/clay, trace wood chips, (silt/clay overstated due to clay coating of drill tooling).
205		At 206 feet, color changes from gray to brown in discharge water.
		Older Snoqualmie River Channel Deposits Wet, brown to grayish brown, fine SAND and gravel, with clay, trace wood chips.
210		Wet, grayish brown, GRAVEL, and fine sand, little clay (gray clasts inferred to be from drill tooling). Wet, brown, fine to medium SAND, and gravel, little silt/clay, trace wood chips. (Driller not adding water.)
		Wet, brown, fine to coarse GRAVEL, trace wood chips, water.
215		Gray in brown matrix, fine to coarse GRAVEL with fine to coarse sand, few silt, decreased wood chips.
220	5-inch O.D. K-packer 220.2 to 221 feet	Wet, brown, fine to coarse SAND, with fine to coarse gravel, trace silt (estimated); clast colors: gray, white, orange, brown, and green). Continuous heave as drilling is taking place.
225		Wet, brown, fine to coarse SAND, and fine to coarse gravel.
	5-inch O.D. stainless steel well screen: 0.010-inch slot width 221 to 231.1 feet	Approximately 6 inches of gray discharge (clay/silt layer?). Decreased flow.
230		Wet, brown, fine to coarse GRAVEL, with fine to coarse sand, trace silt (estimated). At 230 feet, cuttings include occasional brown, fine to medium sandy SILT clasts. Wet, brown, fine to coarse SAND, and fine to coarse gravel, few silt.
	6-inch borehole backfilled with native slough 231.3 to 232 feet.	Boring terminated at 232 feet. Well completed at 231.3 feet on 4/18/12.
235		

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

- Water Level (5/3/12)
- Water Level at time of drilling (ATD)

Logged by: SST

Approved by:

NWWELL- B 120126.GPJ BORING.GDT 3/5/15

LOG OF EXPLORATION PIT NO. EP-1000

Depth (ft)	DESCRIPTION
	This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.
1	**Fill** Loose, very moist, variable brown and gray, silty fine to medium SAND, with gravel. Encountered 12-inch galvanized culvert and 6-inch wood stave water pipe.
2	
3	**Vashon Lodgement Till**
4	Medium dense to dense, moist, blue gray, silty fine to medium SAND, little gravel.
5	
6	
7	Bottom of exploration pit at depth 7 feet No apparent seepage; water flowing in from galvanized culvert. Slight sloughing from 0 to 3 feet.
8	
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19	
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Snoqualmie Mill Site
Snoqualmie, WA

Logged by: SST

Approved by:

associated earth sciences incorporated

Project No. KV120126A

5/7/12

KCTP3 120126.GPJ March 5, 2015

LOG OF EXPLORATION PIT NO. EP-1001

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplfication of actual conditions encountered.

Depth (ft)	DESCRIPTION
	Fill
1	Gravel / crushed rock over 2-inch asphalt slab.
	Medium dense, wet, gray and blue gray, 3/4-inch minus CRUSHED ROCK.
2	
3	**Overbank Deposits**
4	Soft to medium stiff and loose to medium dense, moist, gray, fine sandy SILT / silty fine SAND, and gray, very fine sand.
5	4-inch diameter root
6	
7	
8	
9	Wood debris (appears in-place)
10	
11	**Lacustrine Deposits ?**
12	Loose, very moist, gray, silty CLAY, and very fine sandy SILT, trace scattered organic debris.
13	Bottom of exploration pit at depth 12 feet No seepage. Minor sloughing from 0 to 3 feet.
14	
15	
16	
17	
18	
19	
20	

Snoqualmie Mill Site
Snoqualmie, WA

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Project No. KV120126A

5/8/12

KCTP3 120126.GPJ March 5, 2015

LOG OF EXPLORATION PIT NO. EP-1002

Depth (ft)

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

DESCRIPTION

Fill

Medium dense, very moist, brown, fine to coarse SAND, with fine to coarse gravel, trace cobbles, trace silt.

1-inch black organic layer (original topsoil?) at 1.5 feet.

River Channel Deposits

Medium dense, moist to very moist, gray, fine to medium SAND, trace mica flakes.

Horizon of organics (peat, sticks, organic debris) at 6.5 feet.

Overbank Deposits

Soft, moist greenish gray, SILT / CLAY, abundant scattered organics.

Bottom of exploration pit at depth 9 feet
Slight seepage at 1.5 feet and at 3 feet. No sloughing.

Snoqualmie Mill Site
Snoqualmie, WA

Logged by: SST

Approved by:

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Project No. KV120126A

5/8/12

KCTP3 120126.GPJ March 5, 2015

LOG OF EXPLORATION PIT NO. EP-1003

Depth (ft)	This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered. **DESCRIPTION**
	Fill
1	Moist, brown, fine to coarse GRAVEL, with fine to coarse sand, few cobbles, abundant woody debris.
2	
3	
4	Woody debris, few fine to coarse GRAVEL, and fine to coarse SAND. Digs dense.
5	
6	
7	
8	
9	
10	**Lacustrine Deposits ?**
11	Soft, wet, gray with greenish gray mottling, SILT / CLAY, trace fine sand, trace rootlets.
12	
13	Bottom of exploration pit at depth 12 feet Seepage at 3.5 feet and at 5 feet. No sloughing.
14	
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Snoqualmie Mill Site
Snoqualmie, WA

Logged by: SST

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Project No. KV120126A

5/7/12

KCTP3 120126.GPJ March 5, 2015

LOG OF EXPLORATION PIT NO. EP-1004

Depth (ft)	This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered. **DESCRIPTION**
	Fill
1	Quarry spalls (to 6-inch diameter) with wood debris, logs, fine to coarse SAND, and fine to coarse GRAVEL, variable silt. Digs very dense.
2	
3	
4	
5	
6	
7	
8	
9	2-inch original topsoil horizon at 10 feet.
10	**Overbank Deposits**
11	Medium stiff, wet, gray to greenish gray, SILT, trace fine sand, trace organics.
12	
13	Bottom of exploration pit at depth 12 feet Seepage at 3 feet. Water flowing into excavation at 8.5 feet. Slight sloughing from 0 to 3 feet.
14	
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Snoqualmie Mill Site
Snoqualmie, WA

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Project No. KV120126A

5/7/12

KCTP3 120126.GPJ March 5, 2015

LOG OF EXPLORATION PIT NO. EP-1005

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplfication of actual conditions encountered.

Depth (ft)	DESCRIPTION
	Fill
1	Moist, gray, fine to coarse GRAVEL, with fine to coarse sand, few silt. Digs dense.
2	Moist, brown, WOODY DEBRIS, few fine to coarse gravel, and fine to coarse sand - primarily wood waste.
3	Tough digging.
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	Bottom of exploration pit at depth 15 feet Seepage at 12.5 feet. No sloughing.
17	
18	
19	
20	

Snoqualmie Mill Site
Snoqualmie, WA

Logged by: SST

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Project No. KV120126A

5/8/12

KCTP3 120126.GPJ March 5, 2015

LOG OF EXPLORATION PIT NO. EP-1006

Depth (ft)	This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplfication of actual conditions encountered. **DESCRIPTION**
1	**Fill** Moist to wet, brown to gray, fine to coarse GRAVEL, and fine to coarse SAND, with cobbles, asphalt refuse, roots.
2	
3	
4	1-inch topsoil horizon at 4 feet.
	Overbank Deposits
5	Medium stiff, black grading to light brown grading to gray with orange mottling, fine sandy SILT.
6	
7	
8	
9	Bottom of exploration pit at depth 8 feet Seepage from 2 to 4 feet. No sloughing.
10	
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Snoqualmie Mill Site
Snoqualmie, WA

Logged by: SST

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Project No. KV120126A

5/8/12

KCTP3 120126.GPJ March 5, 2015

LOG OF EXPLORATION PIT NO. EP-1007

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth (ft)	DESCRIPTION
	Fill
1	Medium dense, brown, fine to coarse SAND, with fine to coarse GRAVEL, little silt (Fill).
2	Filter fabric at 1.5 feet.
	River Channel Deposits
3	Dark gray stained, fine to coarse SAND, and fine to coarse GRAVEL, with silt.
4	6-inch wood staved water pipe at 4 feet.
5	
6	**Overbank Deposits**
7	Log and other woody debris at 6 feet.
8	Soft, moist, light greenish gray, SILT / CLAY, occasional brown sand stringer, trace organics.
9	
10	Bottom of exploration pit at depth 9 feet No seepage. Minor sloughing from 0 to 4 feet.
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Snoqualmie, WA

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Project No. KV120126A

5/8/12

KCTP3 120126.GPJ March 5, 2015

LOG OF EXPLORATION PIT NO. EP-1008

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplfication of actual conditions encountered.

Depth (ft)	DESCRIPTION
1	**Fill** Loose, wet, black, organic-rich silty fine to medium SAND, few gravel.
2	**River Channel Deposits** Loose, very moist to wet, brown, silty fine SAND, trace gravel.
3	Loose, wet, brown, fine to coarse SAND, trace fine to coarse gravel.
4	
5	
6	
7	Bottom of exploration pit at depth 6 feet 6-inch concrete drain line encountered at 4 feet which flooded excavation. Seepage at 3 feet. No sloughing.
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Snoqualmie, WA

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Project No. KV120126A

5/7/12

KCTP3 120126.GPJ March 5, 2015

LOG OF EXPLORATION PIT NO. EP-1009

Depth (ft)	This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered. **DESCRIPTION**
	Fill
1	Loose, wet, brown, fine to coarse GRAVEL, and fine to coarse SAND, trace to few sand (pit run fill).
2	
3	
4	
5	
6	
7	
8	Bottom of exploration pit at depth 7 feet Seepage at 32 inches. Ruptured water line at 4 feet which flooded excavation. Severe sloughing from 0 to 7 feet.
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Snoqualmie Mill Site
Snoqualmie, WA

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Project No. KV120126A

5/7/12

KCTP3 120126.GPJ March 5, 2015

LOG OF EXPLORATION PIT NO. EP-1010

Depth (ft)

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplfication of actual conditions encountered.

DESCRIPTION

Fill

1 — Loose, wet, brown, fine to coarse SAND, and fine to coarse GRAVEL; contains asphalt and woody debris.

2 — 2-inch black soot/ash horizon.

3

Overbank Deposits

4 — Soft to loose, brown to gray, fine sandy SILT / silty fine SAND, occasional thin stringer of wet, brown, fine sand.

5

6

7

8

9 — Bottom of exploration pit at depth 8 feet
Water flowing into excavation from 2 to 3 feet. Sever sloughing from 0 to 4 feet.

10

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KCTP3 120126.GPJ March 5, 2015

Snoqualmie Mill Site
Snoqualmie, WA

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Project No. KV120126A

5/8/12

LOG OF EXPLORATION PIT NO. EP-1011

Depth (ft)	This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered. **DESCRIPTION**
	Fill
1	Moist, brown, fine to coarse SAND, and fine to coarse GRAVEL.
2	
	River Channel Deposits
3	Medium dense, moist, brown, fine to medium SAND, trace silt (weathered).
4	Becomes gray.
5	
6	
7	Becomes wet at 7 feet.
8	Bottom of exploration pit at depth 7.5 feet No seepage. Slight sloughing at 6 feet.
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Snoqualmie, WA

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Project No. KV120126A

5/8/12

KCTP3 120126.GPJ March 5, 2015

LOG OF EXPLORATION PIT NO. EP-1013

Depth (ft)	DESCRIPTION
	This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.
	Fill
1	Quarry spalls (to 10 inches diameter), crushed rock. Digs dense.
2	
3	
4	Becomes brown, moist, WOOD DEBRIS / LOG DEBRIS, with gravel and sand. Digs dense.
5	
6	
7	
8	
9	**Lacustrine Deposits ?**
10	Soft, wet, gray with brown mottling, fine sandy SILT.
11	Soft, wet, greenish gray with brown mottling, fine sandy SILT, trace clay.
12	
13	Includes trace fine sand.
14	
15	
16	
17	**Overbank Deposits**
18	Medium dense, wet, gray with some brown mottling, fine SAND, trace to few silt, trace mica.
19	Bottom of exploration pit at depth 18 feet Seepage at 3 feet and at 10 feet. Slight to moderate sloughing from 0 to 9 feet.
20	

Snoqualmie Mill Site
Snoqualmie, WA

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Project No. KV120126A

5/7/12

KCTP3 120126.GPJ March 5, 2015

LOG OF EXPLORATION PIT NO. EP-1014

Depth (ft)	This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered. **DESCRIPTION**
	Fill
1	Quarry spalls (to 6-inch diameter), with fine to coarse gravel, and fine to coarse sand, few silt. Digs dense.
2	
3	Filter fabric at 3 feet Medium dense, wet, brown, fine to coarse GRAVEL, and fine to coarse SAND, with woody debris.
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	**Lacustrine Deposits ?**
17	Soft, gray with greenish brown mottling, SILT / CLAY
18	Bottom of exploration pit at depth 17 feet Water flowing into excavation at 3 feet on top of filter fabric. Moderate sloughing from 0 to 3 feet.
19	
20	

Snoqualmie Mill Site
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Project No. KV120126A

5/7/12

KCTP3 120126.GPJ March 5, 2015

LOG OF EXPLORATION PIT NO. EP-1015

Depth (ft)

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

DESCRIPTION

Fill

1 — Wet, brown, COBBLES, little fine to coarse sand, and fine gravel.

Lacustrine Deposits ?

2 — Soft, wet, gray, CLAY / SILT.

3

4

5

6

7

Bottom of exploration pit at depth 7 feet
8 — Minor seepage at 1.5 feet. No sloughing.

9

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KCTP3 120126.GPJ March 5, 2015

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Snoqualmie, WA

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Project No. KV120126A

5/8/12

LOG OF EXPLORATION PIT NO. EP-1016

Depth (ft)

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

DESCRIPTION

Fill

1 — Moist, gray, fine to coarse GRAVEL, and fine to coarse SAND, little cobbles, occasional boulder. Digs dense.

2

3

4 — Moist, grayish brown, silty fine SAND.

5 — Abandoned 2-inch steel pipe encountered at 5 feet.

6

7

8

9

Lacustrine Deposits ?

10 — Soft, wet, gray with greenish brown mottling, SILT / CLAY.

11

12

13

14 — Thin stringer of brown fine SAND.

15

16 — Bottom of exploration pit at depth 15 feet
Seepage at 5 feet and at 9.5 feet. Slight sloughing at 9.5 feet.

17

18

19

20

KCTP3 120126.GPJ March 5, 2015

Snoqualmie Mill Site
Snoqualmie, WA

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Project No. KV120126A

5/8/12

LOG OF EXPLORATION PIT NO. EP-1017

Depth (ft)

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplfication of actual conditions encountered.

DESCRIPTION

Fill

1 Wet, brown, fine to coarse GRAVEL, and fine to coarse SAND, few silt, trace cobbles, occasional boulder.

2

3

4

Overbank Deposits

5 Soft, very moist, gray, CLAY / SILT, occasional brown fine sand stringer, trace organics

6

7 Bottom of exploration pit at depth 6 feet
Water piping at 4 feet through clean gravel fill. No sloughing.

8

9

10

11

12

13

14

15

16

17

18

19

20

KCTP3 120126.GPJ March 5, 2015

Snoqualmie Mill Site
Snoqualmie, WA

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Project No. KV120126A

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LOG OF EXPLORATION PIT NO. EP-1018

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplfication of actual conditions encountered.

Depth (ft)	DESCRIPTION
1	**Fill**
2	Construction debris (concrete debris, rebar, metal debris, etc.), with fine to coarse SAND, and fine to coarse gravel.
3	
4	**Overbank Deposits**
5	Soft, moist to very moist, brown, SILT / CLAY, trace very fine sand, trace organics.
6	**Lacustrine Deposits ?**
7	Soft very moist, gray, CLAY.
8	
9	Bottom of exploration pit at depth 8 feet No seepage. No sloughing.
10	
11	
12	
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19	
20	

Snoqualmie Mill Site
Snoqualmie, WA

Logged by: SST

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Project No. KV120126A

5/8/12

KCTP3 120126.GPJ March 5, 2015

LOG OF EXPLORATION PIT NO. EP-1019

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplfication of actual conditions encountered.

Depth (ft)	DESCRIPTION
	Fill
1	Soft, very moist, black, ash.
2	
3	Loose, very moist, brown, fine to coarse GRAVEL, and fine to coarse SAND, few silt.
4	**Overbank Deposits**
5	Soft to medium stiff, moist, gray with brown mottling, sandy SILT, trace organics.
6	
7	
8	**Lacustrine Deposits ?**
9	Soft, very moist, fine sandy SILT / CLAY.
10	
11	
12	Becomes mottled brown.
13	
14	
15	**Overbank Deposits**
	Loose to medium dense, wet, silty fine SAND / fine sandy SILT, trace organics (rushes).
16	**River Channel Deposits**
17	Wet, gray, fine to medium SAND.
18	
19	Bottom of exploration pit at depth 19 feet
20	Seepage from 9 to 11 feet, and from 8.5 to 9 feet. Slight to moderate sloughing from 5 to 19 feet.

Bottom of exploration pit at depth 19 feet

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Snoqualmie, WA

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Project No. KV120126A

5/7/12

LOG OF EXPLORATION PIT NO. EP-1019

Depth (ft)	This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplfication of actual conditions encountered. **DESCRIPTION**	
	Seepage from 3 to 4 feet, and from 8.5 to 9 feet. Slight to moderate sloughing from 5 to 19 feet.	
21		
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40		

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Project No. KV120126A

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KCTP3 120126.GPJ March 5, 2015

LOG OF EXPLORATION PIT NO. EP-1020

Depth (ft)	DESCRIPTION
	This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplfication of actual conditions encountered.
	Fill
1	Medium dense, moist, brown, fine to coarse SAND, with fine to coarse gravel, few silt; debris includes 6-foot steel rail, geotextile fabric at 2 feet.
2	Wood debris. 1-foot thick wedge of gray, wet, fine to coarse GRAVEL, and fine to coarse SAND, little silt.
3	
	Overbank Deposits
4	Soft, wet, brown, SILT, trace organics.
5	
6	
7	
8	
9	Medium dense, wet, brown, fine to coarse SAND, with silt, trace organics.
10	
11	
12	**River Channel Deposits**
13	Medium dense, wet, gray, fine to coarse SAND, with fine to coarse gravel, trace silt.
14	
15	
16	
17	
18	
19	Bottom of exploration pit at depth 18 feet Seepage at 9 feet. Hit abandoned fire line at 4 feet, water poured into excavation. Slight sloughing from 9 to 18 feet.
20	

Snoqualmie Mill Site
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Project No. KV120126A

5/7/12

KCTP3 120126.GPJ March 5, 2015

LOG OF EXPLORATION PIT NO. EP-1021

Depth (ft)

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplfication of actual conditions encountered.

DESCRIPTION

Fill

1 Very moist, gray, fine to medium SAND, and fine to coarse GRAVEL, few silt.
2 Dark brown to black, organic layer.
3

Overbank Deposits

4 Soft, very moist to wet, greenish gray, SILT / CLAY, slight brown mottling, trace organics, occasional
5 thin fine sand stringer.
6
7

8 Bottom of exploration pit at depth 7 feet
Slight seepage at 1.5 feet. No sloughing.
9
10
11
12
13
14
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16
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19
20

Snoqualmie Mill Site
Snoqualmie, WA

Logged by: SST
Approved by:

associated earth sciences incorporated

Project No. KV120126A

5/8/12

KCTP3 120126.GPJ March 5, 2015

LOG OF EXPLORATION PIT NO. EP-1022

Depth (ft)

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

DESCRIPTION

Fill

1 — Medium dense, moist, gray, fine to coarse GRAVEL, with fine to coarse sand, trace silt.

2 — WOODY DEBRIS, with fine to coarse gravel, and fine to coarse sand, few silt; woody debris includes
3 — dimensional lumber. Digs dense.

4

5

6

7

8

9

10 —

Lacustrine Deposits ?

11 — Soft, light gray with slight greenish gray mottling, SILT / CLAY.

Bottom of exploration pit at depth 11 feet
12 — Water flowing into excavation at 6 feet. Slight sloughing from 0 to 3 feet.

13

14

15

16

17

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KCTP3 120126.GPJ March 5, 2015

Snoqualmie Mill Site
Snoqualmie, WA

Logged by: SST

Approved by:

associated earth sciences incorporated

Project No. KV120126A

5/7/12

LOG OF EXPLORATION PIT NO. EP-1023

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplfication of actual conditions encountered.

Depth (ft)	DESCRIPTION
	Fill
1	Moist, gray, QUARRY SPALLS (to 6-inch diameter), with fine to medium sand, and fine to coarse gravel, trace to few silt, occasional woody debris.
2	
3	Wet, brown, WOOD DEBRIS, LOGS, with fine to coarse gravel, and fine to coarse gravel.
4	
5	
6	
7	
8	
9	
10	**Overbank Deposits**
11	Soft to medium stiff, wet, tan to gray with reddish mottling, SILT, few fine sand, trace organics.
12	
13	
14	
15	
16	
17	**Lacustrine Deposits ?**
18	Soft, wet, gray with brown mottling, SILT / CLAY, few fine sand.
19	Bottom of exploration pit at depth 18 feet Seepage at 5 feet. Water pouring into excavation at 6.5 feet. Slight sloughing from 0 to 18 feet.
20	

Snoqualmie Mill Site
Snoqualmie, WA

Logged by: SST

Approved by:

associated earth sciences incorporated

Project No. KV120126A

5/7/12

KCTP3 120126.GPJ March 5, 2015

LOG OF EXPLORATION PIT NO. EP-1024

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

Depth (ft)	DESCRIPTION
	Fill
1	Wood chips
2	Loose to medium dense, very moist, gray, fine to coarse SAND, and fine to coarse GRAVEL, few to little silt.
3	
4	**Overbank Deposits**
5	Loose, wet, brown, SILT / CLAY, with wood debris.
6	
7	
8	
9	
10	**Peat**
	Overbank Deposits
11	Loose to medium stiff, gray with brown mottling, SILT / CLAY, abundant rootlets, leave, mica flakes.
12	
13	
14	**River Channel Deposits**
	Medium dense, wet, very fine SAND, stratified, trace rootlets, leaves, mica flakes.
15	
16	
17	Bottom of exploration pit at depth 16 feet Abundant seepage from 1 to 1.5 feet. No sloughing.
18	
19	
20	

Snoqualmie Mill Site
Snoqualmie, WA

Logged by: SST

Approved by:

associated earth sciences incorporated

Project No. KV120126A

5/7/12

KCTP3 120126.GPJ March 5, 2015

LOG OF EXPLORATION PIT NO. EP-1025

Depth (ft)	This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered. **DESCRIPTION**
1	**Grass / Weeds over Fill**
2	3 inch layer of black ash at base of fill.
3	**Overbank Deposits** Loose to medium dense, moist, gray with slight black mottling, fine SAND, few silt, slightly stratified, trace plant material (rushes).
4	
5	**Lacustrine Sediments ?**
6	Soft, very moist, gray, SILT / CLAY, trace fine sand, trace rushes and grasses.
7	
8	
9	
10	
11	Bottom of exploration pit at depth 10.5 feet Water seeping from approximately 5 to 5.5 feet. Moderate sloughing from 2 to 5 feet.
12	
13	
14	
15	
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19	
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Snoqualmie Mill Site
Snoqualmie, WA

Logged by:

Approved by:

associated earth sciences incorporated

Project No. KV120126A

7/24/12

KCTP3 120126.GPJ March 5, 2015

LOG OF EXPLORATION PIT NO. EP-1026

Depth (ft)

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplfication of actual conditions encountered.

DESCRIPTION

Fill

1 — Primarily wood chips.

2 — 4 inch layer of black ash at base of fill.

Lacustrine Sediments ?

3 — Soft, very moist, gray with brown mottling, SILT, few clay.

4

5

6

7 — Bottom of exploration pit at depth 6 feet
Slight sloughing from 0 to 2.5 feet.

8

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KCTP3 120126.GPJ March 5, 2015

Snoqualmie Mill Site
Snoqualmie, WA

Logged by:

Approved by:

associated earth sciences incorporated

Project No. KV120126A

7/24/12

LOG OF EXPLORATION PIT NO. EP-1027

Depth (ft)

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplification of actual conditions encountered.

DESCRIPTION

Fill

Includes wood chips, cobbles, boulders.

8 inch layer of black ash at base of fill.

Overbank Deposits

Loose to medium stiff, moist to very moist, gravelly SILT, trace fine sand, trace clay, abundant disseminated organics.

Lacustrine Sediments ?

Medium stiff, moist, gray with brown mottling, SILT, few to little clay.

Bottom of exploration pit at depth 7 feet
Seepage from 2.5 to 3 feet. no sloughing.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Snoqualmie Mill Site
Snoqualmie, WA

Logged by:

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Project No. KV120126A

7/24/12

KCTP3 120126.GPJ March 5, 2015

LOG OF EXPLORATION PIT NO. EP-1028

Depth (ft)	This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplfication of actual conditions encountered. **DESCRIPTION**
1	**Fill** Brown to gray, SAND, gravel cobbles, boulders.
2	
3	
4	**Overbank Deposits**
5	Medium stiff, moist, gray with brown mottling SILT, trace very fine sand, trace clay, scattered plant material, rhizospheres (red ox occuring - hydric).
6	At west end of pit at 4.5 feet: Medium stiff, very moist, light brown with reddish brown mottling, SILT, little very fine sand (redox).
7	
8	Bottom of exploration pit at depth 7 feet No seepage. No sloughing.
9	
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KCTP3 120126.GPJ March 5, 2015

Snoqualmie Mill Site
Snoqualmie, WA

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Project No. KV120126A

7/24/12

LOG OF EXPLORATION PIT NO. EP-1029

Depth (ft)	This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplfication of actual conditions encountered. **DESCRIPTION**
1	**Fill**
2	
3	
4	**River Channel Deposits** Medium dense, moist to very moist, gray, fine to medium SAND, trace scattered organics.
5	
6	**Overbank Deposits** Loose to medium dense, very moist, gray, SILT, scattered grasses, rushes, pockets of peat.
7	
8	Bottom of exploration pit at depth 7 feet Seepage at 5 feet. Slight sloughing from 4 to 5.5 feet.
9	
10	
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12	
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14	
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19	
20	

Snoqualmie Mill Site
Snoqualmie, WA

Logged by:

Approved by:

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Project No. KV120126A

7/24/12

KCTP3 120126.GPJ March 5, 2015

LOG OF EXPLORATION PIT NO. EP-1030

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplfication of actual conditions encountered.

Depth (ft)	DESCRIPTION
1	**Fill** Brown / black / gray, SAND, and gravel.
2	
3	**River Channel Deposits** Medium dense, moist, gray, very fine SAND, few to little silt.
4	
5	Few clasts of dense, brownish gray, silty fine to medium SAND, trace fine to coarse gravel, unsorted (diamict) at 5 feet. Tree roots at 5.5 feet.
6	**Overbank Deposits**
7	Medium stiff, moist, gray with brown mottling, SILT, trace to few fine SAND, trace scattered organics, trace clay; twin horizons of peat.
8	Bottom of exploration pit at depth 7.5 feet No seepage. No sloughing.
9	
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Snoqualmie Mill Site
Snoqualmie, WA

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Project No. KV120126A

7/24/12

KCTP3 120126.GPJ March 5, 2015

LOG OF EXPLORATION PIT NO. EP-1031

Depth (ft)	This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplfication of actual conditions encountered. **DESCRIPTION**
1	**Fill** Includes gravel, cobbles, boulders, debris.
2	
3	
4	**Overbank Deposits**
5	Soft, very moist, gray / brown, SILT, trace to few very fine sand, trace scattered organics (rushes, grasses); (not hydric soil).
6	Loose, very moist grading to wet, light brown, very fine SAND, few silt, trace mica, and organics.
7	
8	
9	
10	
11	Bottom of exploration pit at depth 10 feet No seepage. Sloughing from 4 feet to 10 feet.
12	
13	
14	
15	
16	
17	
18	
19	
20	

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Snoqualmie Mill Site
Snoqualmie, WA

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Project No. KV120126A

7/24/12

LOG OF EXPLORATION PIT NO. EP-1032

Depth (ft)

This log is part of the report prepared by Associated Earth Sciences, Inc. (AESI) for the named project and should be read together with that report for complete interpretation. This summary applies only to the location of this trench at the time of excavation. Subsurface conditions may change at this location with the passage of time. The data presented are a simplfication of actual conditions encountered.

DESCRIPTION

Fill

Includes, sand, gravel, ash deposits, cobbles.

Overbank Deposits

Soft to medium stiff, moist to very moist, brownish gray, SILT, few very fine sand, trace scattered organics.

Medium stiff, very moist to wet, gray with brown mottling, SILT, little clay, trace very fine sand.

Stratified with lenses of gray, fine to medium SAND at 8 feet.

Bottom of exploration pit at depth 10 feet
No seepage. No sloughing.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Snoqualmie Mill Site
Snoqualmie, WA

Logged by:

Approved by:

associated earth sciences incorporated

Project No. KV120126A

7/24/12

KCTP3 120126.GPJ March 5, 2015

Appendix 8

Technical Memorandum – Water System Capacity Analysis

Gray & Osborne, Inc.
CONSULTING ENGINEERS

TECHNICAL MEMORANDUM

TO:	DANIEL MARCINKO, PUBLIC WORKS DIRECTOR NANCY DAVIDSON, OPERATIONS MANAGER, STREET & STORM SUPERINTENDENT
FROM:	CORINNE TRAVIS, P.E. RUSSELL PORTER, P.E.
DATE:	JUNE 27, 2016
SUBJECT:	WATER SYSTEM CAPACITY ANALYSIS REVISION 1 CITY OF SNOQUALMIE, KING COUNTY, WASHINGTON G&O #15578.00

REVISIONS

The Water System Capacity Analysis technical memorandum dated June 2, 2016, has been revised following further examination of several calculations. The updated content is noted in the text below.

The primary change made in this revised memorandum is the backwash percentage used for projections and ERU calculations. The memo dated June 2 used a value of 12 percent, which corresponds to the average backwash volume of wellfield production only. This update uses a value of 8 percent, which is the average backwash volume of total system production, including Canyon Springs. Using the higher percentage was artificially increasing the production ERU value and overestimating future allocated water demand.

The portions of the memorandum that have been changed are highlighted in yellow. By using 8 percent backwash, the ERU values changed from 256 gpd/ERU average day production and 614 gpd/ERU maximum day production to 244 gpd/ERU average day production and 586 gpd/ERU maximum day production. This impacted ERU calculations throughout the memorandum, including the estimates of how many ERUs could be regained by curtailing potable water to Eagle Lake and developing the two groundwater claims.

The change also revised instantaneous withdrawal capacity (shown in Table 17), improving it from a 98 gpm and 229 ERU deficit to a 62 gpm and 152 ERU deficit using

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existing developed sources. When considering all water rights, the revision resulted in approximately an additional 100 ERUs of capacity.

In addition, several sentences about DSL have been removed, as they incorrectly described how average and maximum day DSL were projected.

INTRODUCTION

The City of Snoqualmie has contracted with Gray & Osborne to perform an updated capacity analysis of the City's water system to determine how much excess capacity currently exists beyond what has been allocated to planned development. The City's 2013 *Water System Plan* (WSP) includes detailed system capacity analyses. This memorandum builds upon the water right and source capacity analyses with updated planning and water use data. Storage and booster station capacity analyses are not updated.

The City has allocated water to the Snoqualmie Ridge Phases I and II (SR I and SR II) developments, including Kimball Creek, and to the Salish Lodge expansion. Additionally, Mount Si High School is undergoing an expansion and will require additional water to serve a larger student and staff population. The City has indicated that the number of homes at buildout in SR II has been reduced from the initial planning estimates. This memorandum includes analysis of current water demands, water needed to meet the additional demands of approved development, and the remaining capacity available for additional development.

The data presented in this report is based on planning data provided by the City, including current and remaining development information for SR II, Kimball Creek, and the Salish Lodge, as well as metered water production records, and billed and unbilled water consumption records. High school water use and expansion information is based on historic consumption records and student population information from the Snoqualmie Valley School District website.

WATER CONNECTIONS

The number of active water service connections per customer class are shown in Table 1. The values are the average of the number of active connections each year. The City differentiates between Canyon Springs (CS) customers, which are in the historic City, and Snoqualmie Ridge customers across some classes.

TABLE 1

Historic Water Connections

Customer Class	Average Number of Connections		
	2013	2014	2015 (1)
City of Snoqualmie	46	48	47
City Park Irrigation	16	17	15
Commercial – CS	83	85	84
Commercial – SR	133	135	141
Commercial Irrigation – CS	2	2	2
Commercial Irrigation – SR	26	24	28
Hydrants	4	6	4
Multifamily	60	61	66
Multifamily Irrigation	19	20	18
Municipal Irrigation	6	6	6
Outside City (Tribe)	2	3	4
Residential – CS	956	956	958
Residential – SR	3,332	3,366	3,478
Residential Irrigation	30	30	28
Salish Lodge	6	6	6
Schools	22	21	21
Snoqualmie Hospital	3	5	5
Annual Total	**4,746**	**4,791**	**4,911**

(1) As of July 31, 2015.

The 2013 WSP reported a total of 4,117 connections in 2010. The system has experienced approximately 19 percent connection growth since 2010, with residential growth in Snoqualmie Ridge accounting for the majority of new connections.

WATER PRODUCTION

Water production and consumption data has been provided for January 2013 through September 2015.

Table 2 summarizes source water withdrawals from each of the City's three sources in million gallons (MG) and gallons per day (gpd). The data is from meters entering the treatment plants.

TABLE 2

Historic Source Withdrawals

Year	Canyon Springs		North Wellfield		South Wellfield		Total	
	MG	gpd	MG	gpd	MG	gpd	MG	gpd
2013	143.0	391,748	297.2	814,293	66.1	181,093	506.3	1,387,134
2014	156.1	427,542	300.7	823,755	79.3	217,144	536.1	1,468,441
2015 (1)	263.4	964,927	133.8	490,029	29.8	109,167	427.0	1,564,123

(1) Data is for the 273-day period of January through September 2015.

The North and South Water Treatment Plants (WTPs) require treated water for backwash. Backwash volumes are metered at both treatment plants. Average rates of backwash for the North and South Wellfields for 2013 and 2014 are 11.7 and 6.5 percent, respectively. Data from 2015 is not used in calculating average backwash since a full year of data is not currently available. The average total backwash compared to total source production (including Canyon Springs) for that same time period is 7.6 percent.

The City is planning to install a holding basin for backwash at the North Wellfield WTP so it can be treated and reused. This project will make more water available for potable use. However, since it is not yet known how much of the backwash water will be reusable, backwash rates are projected at a rounded rate of 8.0 percent in this report.

Peaking Factors

From 2003 to 2010 and 2013 to 2014, the maximum day demand (MDD) to average day demand (ADD) ratio has averaged 2.4, as shown in Table 3. This value is based on a 3-day peak day average. The 2013 WSP used a peaking factor of 2.5. The 2.4 peaking factor will be used for projections in this analysis.

TABLE 3

Historic Maximum Day Peaking Factors

Year	ADD (gpd)	MDD (gpd)	Ratio
2003	808,896	2,309,186	2.9
2004	837,259	2,124,885	2.5
2005	853,688	2,013,681	2.4
2006	994,188	2,229,845	2.2
2007	1,040,500	2,711,341	2.6
2008	1,190,926	2,605,452	2.2
2009	1,347,607	3,380,957	2.5
2010	1,165,542	2,781,901	2.4
2011	Not Available	Not Available	NA
2012	Not Available	Not Available	NA
2013	1,387,135	2,866,167	2.1
2014	1,468,441	3,653,033	2.5
Average			**2.4**

WATER CONSUMPTION

The City tracks water consumption by customer class. Table 4 summarizes consumption for 2013 through October 2015.

TABLE 4

Historic Consumption

Customer Class	Metered Consumption (gpd)		
	2013	2014	2015 (1)
Residential Classes			
Multifamily	28,856	28,406	34,141
Residential – CS	159,363	152,371	161,333
Residential – SR	642,042	666,562	785,657
Residential Classes Total	**830,261**	**847,339**	**981,131**
Commercial Classes			
Commercial – SR	53,010	55,922	64,002
Commercial – CS	34,664	32,021	26,965
Salish Lodge	26,621	29,635	26,889
Snoqualmie Hospital	3,269	3,914	3,858
Commercial Classes Total	**117,564**	**121,492**	**121,714**
Governmental/Institutional Classes			
City of Snoqualmie	109,380	131,156	72,758
Schools	39,298	25,684	31,327
Governmental/Institutional Classes Total	**148,678**	**156,840**	**104,085**
Irrigation Classes			
City Park Irrigation	2,394	1,041	1,753
Commercial Irrigation – CS	0	0	0
Commercial Irrigation – SR	17,263	15,632	19,576
Multifamily Irrigation	11,845	11,671	15,822
Municipal Irrigation – Potable	0	0	0
Residential Irrigation	16,054	14,036	18,643
Potable Water to Eagle Lake	0	28,705	34,707
Irrigation Classes Total	**47,556**	**71,085**	**90,501**
Other Classes			
Hydrants	3,379	1,275	1,728
Outside City	195	244	992
Unbilled City Use (Tracked)	23,238	30,499	3,233
Filter Backwash	101,959	114,817	88,221
Other Classes Total	**128,771**	**146,835**	**94,174**
Grand Total	**1,272,830**	**1,343,591**	**1,391,605**

(1) Consumption for January through October 2015.

The majority of the City's consumption is within the residential customer classes. Snoqualmie Ridge customers account for approximately 70 percent of total consumption.

DISTRIBUTION SYSTEM LEAKAGE

Distribution system leakage (DSL) is defined as the difference between metered source production and metered consumption. DSL includes any water loss due to leaks or unauthorized uses such as illegal service connections, accounting errors, inaccurate source and service meters, and water leaving the system for unmetered uses.

Table 5 shows calculations of DSL for 2013 through October 2015.

TABLE 5

Distribution System Leakage

Year	Metered Production (gpd)	Authorized Consumption (gpd)	DSL (gpd)	DSL (%)
2013	1,387,135	1,272,830	114,305	8.2%
2014	1,468,441	1,343,589	124,853	8.5%
2015	1,564,122 (1)	1,391,606 (2)	172,516	11.0%

(1) Production through September 2015.
(2) Consumption through October 2015.

The average DSL from 2013 to 2015 is 9.3 percent; however, a rate of 10 percent will be used for projections included later in this report. The 2014 WSP showed an average DSL of 14.2 percent, indicating that the City has decreased DSL since the 2013 WSP.

EQUIVALENT RESIDENTIAL UNITS

Use of Equivalent Residential Units (ERUs) is a way to express water use by non-residential customers as an equivalent number of residential customers. ERUs are calculated by dividing the total volume of water utilized in the single-family residential customer class by the total number of active residential connections. This number defines the average single-family residential water use. The volume of water used by other customer classes can then be divided by the average single-family residential water use to determine the total number of ERUs utilized by other customer classes (i.e., commercial, schools, etc.).

The average single-family residential water use for the Canyon Springs and Snoqualmie Ridge areas from 2013 and 2014 (which is equivalent to one ERU) is shown in Table 6. Data from 2015 is excluded because full annual data was not available when this analysis was completed.

TABLE 6

Equivalent Residential Unit Calculations

	2013	2014
Canyon Springs Service Area		
SFR Consumption (gpd)	159,363	152,371
SFR Connections (ERU)	969	969
ERU Value (gpd/ERU)	165	158
Snoqualmie Ridge Service Area		
SFR Consumption (gpd)	642,042	666,562
SFR Connections	3,332	3,366
ERU Value (gpd/ERU)	193	199
Entire System		
SFR Consumption (gpd)	801,405	818,933
SFR Connections	4,301	4,335
ERU Value (gpd/ERU)	187	189

ERU data calculated as part of the WSP had average ERU values of 195 gpd/ERU in the Canyon Springs service area, 206 gpd/ERU in the Snoqualmie Ridge service area, and 202 gpd/ERU for the entire system. The Canyon Springs service area has seen a decrease in the annual ERU value since the WSP, which has lowered the ERU value for the entire system. The ERU value in Snoqualmie Ridge has remained decreased slightly from 206 gpd/ERU reported in the WSP, with 193 gpd/ERU in 2013 and 199 gpd/ERU in 2014, but in general has remained fairly consistent over the past several years.

Considering the higher ERU value for Snoqualmie Ridge reported in the WSP combined with recent data, a value of 200 gpd/ERU will be used for forecasting average day demand for remaining approved development, and a value of 480 gpd/ERU (200 gpd/ERU x 2.4 peaking factor) will be used for forecasting maximum day demands. Based on the maximum day ERU value, the City had approximately 7,610 ERUs in 2014. Approximately 6,368 ERUs are attributed to potable, billed, or unbilled authorized consumption. Backwash accounts for 595 ERUs and DSL accounts for 647 ERUs.

ALLOCATED WATER DEMANDS

The City has currently allocated water toward three development projects; the buildout of SR II and Kimball Creek, the Salish Lodge expansion, and the high school expansion. Additionally, the City has an agreement with the Lake Alice Community Association to provide the Association with water service should the North Wellfield adversely affect their water supply; thus service to the Lake Alice Community Association is included in this analysis. The following sections discuss the water demand for each remaining development.

Snoqualmie Ridge Phases I and II

Projections for future water production requirements within the Snoqualmie Ridge area are based on projections provided by Earth Tech and updated buildout information provided by the City's Community Development Department. An ERU value of 200 gpd/ERU is used to project residential water use based on historical water consumption data. Irrigation projections are based on estimates provided by Earth Tech and scaled back by a factor corresponding to the number of existing homes built versus how many remain to be built. Backwash projections are based on 8 percent of total production. This is consistent with backwash usage observed from 2013 to 2014.

System loss or DSL is included at 10 percent of the total production. This value is slightly higher than the 9 percent seen over the past few years described above, but below the 14 percent from the WSP.

Production projections associated with the Developable Land analysis for the Snoqualmie Ridge area are shown in Table 6. Current planned buildout for SR II is 1,753 homes and two schools or 1,840 homes and one school. Original buildout was 1,850 homes and two schools. It is currently estimated that 461 homes remain to be built based on the buildout of 1,840 homes and one school, which has the higher total demand than the alternate scenario.

The estimate of 461 remaining homes is derived from planning data of how many permits have not yet been issued relative to buildout numbers. This value excludes the number of units built with permits issued that are not yet occupied, which are also not represented in historic water production and consumption data. To estimate the number of permitted uninhabited homes, real estate sale history for Snoqualmie Ridge was examined for the past 6 months. Zillow reported 4 homes sold in that time period that were constructed in 2015 or later, and 14 homes currently for sale constructed since 2015. A total of 20 homes will be used for this analysis.

TABLE 7

Snoqualmie Ridge Developable Lands Analysis and Production Projections

Category	Unit	No. of Units	Projected Water Use (gpd/unit)	Projected ADD (gpd)	Projected MDD (gpd) [1]
Snoqualmie Ridge Phase I					
Mixed Use (Residential)	each	30	200	6,000	14,400
Mixed Use (Retail)	acres	2	1,000	2,000	4,800
Employees	each	37	30	1,110	2,664
Mixed Use (Office Park)	acres	8.0	436	3,488	8,371
Employees	each	184	30	5,520	13,248
Mixed Use (Light Industrial)	acres	3	1,000	3,000	7,200
Employees	each	68	30	2,040	4,896
Mixed Use (Public/Institutional)					
Employees	each	10	30	300	720
Snoqualmie Ridge Phase II [2]					
Mixed Use (Residential) – Permits Issued, Not Yet Occupied	each	20	200	4,000	9,600
Mixed Use (Residential) – Permits Not Yet Issued	each	461	200	92,200	221,280
Schools [3]	each	1	3,900	3,900	9,360
Irrigation (Potable) [4]				40,839	98,013
Mixed Use (Retail)	acres	6	1,000	6,000	14,400
Employees	each	70	30	2,100	5,040
Mixed Use (Office Park)	acres	1	436	436	1,046
Employees	each	14	30	420	1,008
Mixed Use (Public/Institutional)	acres	51	1,000	51,000	122,400
Employees	each	63	30	1,890	4,536
Subtotal				226,243	542,982
System Loss (10%)				27,591	66,217
WTP Backwash Supply (8%)				22,072	52,974
Total Snoqualmie Ridge Planned Development				**275,906**	**662,173**

(1) Based on a ratio of ADD to MDD of 2.4 from Table 3.
(2) Snoqualmie Ridge II will consist of 1,753 homes and two schools or 1,840 homes and one school. Estimate of 1,840 homes and one school generates more demand.
(3) Based on Cascade View Elementary school consumption.
(4) Based on irrigation estimate from Earth Tech and ratio of remaining development to buildout total.

Kimball Creek

The Kimball Creek development has been allocated water supply as part of the Snoqualmie Ridge development. Table 8 summarizes remaining development in this area.

TABLE 8

Kimball Creek Production Projections

Category	Unit	No. of Units	Projected Water Use (gpd/unit)	Projected ADD (gpd)	Projected MDD (gpd) [1]
Mixed Use (Residential)	each	40	200	8,000	19,200
System Loss (10%)				976	2,341
WTP Backwash Supply (8%)				780	1,873
Total Kimball Creek Planned Development				**9,756**	**23,415**

(1) Based on a ratio of ADD to MDD of 2.4 from Table 3.

Salish Lodge Expansion

The City entered into the Salish Expansion Development Agreement with Gateway Cascades, LLC in 2004 concerning the expansion of the Salish Lodge. The agreement outlines the amount of water reserved for the development, totaling 69 acre-feet per year (ac-ft/yr) and 104 gpm maximum daily supply. Table 9 summarizes the expansion and projected water demand.

TABLE 9

Salish Lodge Expansion Production Projections

Category	Unit	No. of Units	Projected Water Use (gpd/unit)	Projected ADD (gpd)	Projected MDD (gpd) (1)
Planned Residential	each	175	NA	61,595 (2)	149,760 (3)
Mixed Use (Hotel)	rooms	250			
Employees	each	300			
System Loss (10%)				7,512	18,263
WTP Backwash Supply (8%)				6,009	14,611
Total Salish Lodge Expansion				**75,116**	**182,634**

(1) Based on a ratio of ADD to MDD of 2.4 from Table 3.
(2) Equivalent to 69 acre-feet per year from the Salish Expansion Development Agreement.
(3) Equivalent to 104 gpm from the Salish Expansion Development Agreement.

High School Expansion

Mount Si High School is in preliminary design phases of significant renovations and expansion of the student capacity. Currently, the Snoqualmie Valley School District website reports that the high school has 1,600 students. At the time of this report, the best information available from the school district indicated that the renovations will expand the capacity to 2,300 students. Historic water use at the school has been analyzed to help estimate future requirements with an additional 700 students. Table 10 summarizes water use data for the existing high school and freshman campus for the years 2013 to 2015.

TABLE 10

High School Water Consumption

Year	Domestic Consumption (gpd)	Irrigation (gpd)	Total Consumption (gpd)	Students	Domestic Consumption (gpd/student)	Irrigation (gpd/student)
2013	5,925 (1)	8,585	14,510	1,600	4	6
2014	7,100	15,290	22,390	1,600	5	10
2015	6,927	15,875	22,801	1,600	5	10

(1) Meter serving portables had a large leak in 2013. Consumption data for the year 2014 was used to normalize the data.

Total consumption across an entire 365-day year has ranged from 10 to 15 gpd per student, which is consistent with industry data. The District's website includes a preliminary design plan of the renovated high school. It appears as though the number and area of sports fields will remain about the same as what is currently there, and thus that irrigation demand will not change significantly.

A projected use of 7 gpd per student will be used for this analysis for the additional students. With limited years' consumption data and inexact student population figures, this value provides a conservative estimate that will account for any possible discrepancies in data. It also allows for a marginal increase in irrigation. Table 11 summarizes projected demand from the additional 700 students.

TABLE 11

High School Expansion Production Projections

Category	Unit	No. of Units	Projected Water Use (gpd/unit)	Projected ADD (gpd)	Projected MDD (gpd) (1)
Students	each	700	7	4,900	16,660
System Loss (10%)				598	2,032
WTP Backwash Supply (8%)				478	1,625
Total High School Expansion				**5,976**	**20,317**

(1) MDD is estimated using historic ADD to Maximum Month Average Day Demand (MMADD) peaking factor of 2.0 for the school and DOH standard factor of MMADD to MDD of 1.7.

Lake Alice Community Association

The City has provided a letter of assurance to the Lake Alice Community Association regarding provision service to the community in the future if the Snoqualmie Ridge development adversely affects their water supply. In order to determine if development has had an impact on wells in the Lake Alice community, the City has conducted groundwater monitoring and will continue to do so until 2018. Additional demands for the community are shown in Table 12. Projections are based on serving up to 133 homes, using the City's system-wide average ERU value of 200 gpd/ERU and 8 percent backwash, and a DSL rate of 20 percent (used in the absence of meter data since it is the DOH DSL target for small systems).

TABLE 12

Lake Alice Community Association Production Projections

Category	Unit	No. of Approved Homes	Projected Water Use (gpd/unit)	Projected ADD (gpd)	Projected MDD (gpd)
Residential	each	133	188	25,004	60,010
System Loss (20%)				6,946	16,669
WTP Backwash Supply (8%)				2,778	6,668
Total Lake Alice Community				**34,728**	**83,347**

Summary

Table 13 presents a summary of the allocated demands discussed above.

TABLE 13

Allocated Demands Summary

Remaining Development with Allocated Water	Projected ADD (gpd)	Projected Annual Use (ac-ft/yr)	Projected MDD (gpd)	Projected MDD (gpm)
Snoqualmie Ridge Phases I and II	275,906	309.1	662,173	460
Kimball Creek	9,756	10.9	23,415	16
Salish Lodge	75,116	84.1	182,634	127
Mount Si High School	5,976	6.7	20,317	14
Lake Alice	34,728	38.9	83,347	58
Total	**401,481**	**449.7**	**971,886**	**675**

WATER SYSTEM CAPACITY ANALYSIS

Per the WSP, the City has water rights allowing 2,372 ac-ft/yr in annual withdrawals and 3,328 gpm in instantaneous withdrawals. The City holds rights for two groundwater sources that are not currently in use. Currently, the City's developed sources have rights allowing for 2,172 ac-ft/yr annual and 3,150 gpm instantaneous withdrawals.

Annual Withdrawals

Tables 14 summarizes annual withdrawals from each source for 2013 and 2014. Data for 2015 is not included because the full year of data is not yet available.

TABLE 14

Annual Withdrawals per Source 2013 to 2014

Developed Sources	Annual Water Right (ac-ft/yr)	2013 Annual		2014 Annual	
		Withdrawal (ac-ft/yr)	Surplus/ (Deficit) (ac-ft/yr)	Withdrawal (ac-ft/yr)	Surplus/ (Deficit) (ac-ft/yr)
Canyon Springs	1,448	439	1,009	479	969
North Wellfield	724	912	(188)	923	(199)
South Wellfield	500 (1)	203	297	243	257
Total	**2,172**	**1,554**	**618**	**1,645**	**527**

(1) Annual rights at the South Wellfield are supplemental to all other rights, meaning total system withdrawal is limited to 2,172 acre-feet (1,448 acre-feet + 724 acre-feet), but up to 500 acre-feet of that may be withdrawn from the South Wellfield.

Between the three sources, the City currently has a 527 ac-ft/yr surplus in annual withdrawal water rights. The 2014 withdrawal of 1,645 acre-feet is used in subsequent tables for existing demand.

Table 14 shows a deficit at the North Wellfield. In 2015, the City shifted source operation to maximize withdrawals at Canyon Springs and reduce withdrawals at the North Wellfield in order to adhere to water right limits and optimize system operation.

Table 15 presents existing and allocated annual demand and the remaining capacity of the City's annual water rights.

TABLE 15

Annual Withdrawal Capacity Analysis

Parameter	Quantity (ac-ft/yr)	ERUs (1)
Historic Demand	1,645	6,018
Projected Allocated Water Demand	450	1,645
Total Existing and Allocated Annual Demand	2,095	7,664
Developed Sources		
Annual Withdrawal Water Rights	2,172	7,946
Water Right Surplus/(Deficit)	77	283
All Water Rights		
Annual Withdrawal Water Rights	2,372	8,678
Water Right Surplus/(Deficit)	277	1,014

(1) Based on the production ERU value of 244 gpd (200 gpd/ERU consumption + 20 gpd/ERU backwash + 24 ERU/day DSL), equivalent to 0.27 ac-ft/yr.

With the existing sources, the City has 77 ac-ft/yr, equivalent to 283 ERUs, available through the City's annual water rights as developed to date.

Instantaneous Withdrawals

Table 16 summarizes maximum instantaneous withdrawals for each source in 2014 and 2015. The maximum withdrawal from each source did not occur on the same day. The "Entire System" withdrawal rate represents the single maximum day of withdrawal for the entire system.

TABLE 16

Instantaneous Withdrawals per Source 2014 to 2015

Developed Sources	Instantaneous Water Right (gpm)	2014 Instantaneous		2015 Instantaneous	
		Withdrawal (gpm)	Surplus/ (Deficit) (gpm)	Withdrawal (gpm)	Surplus/ (Deficit) (gpm)
Canyon Springs	900	482	418	895	5
North Wellfield	1,650	1,617	33	1,455	195
South Wellfield	600	597	3	603	(3)
Entire System	**3,150**	**2,537**	**613**	**2,325**	**825**

As mentioned above, the City shifted operation in 2015 to more fully utilize Canyon Springs. This change can be seen in Table 15 when comparing withdrawal at Canyon Springs from 2014 to 2015. The full system maximum day demand was greater in 2014 than in 2015. As a result, the 2014 withdrawal rate of 2,537 gpm will be used in subsequent tables for existing maximum day demand.

Table 17 presents existing and allocated maximum day/instantaneous withdrawal demand and the remaining capacity of the City's instantaneous water rights.

TABLE 17

Instantaneous Withdrawal Capacity Analysis

Parameter	Quantity (gpm)	ERUs (1)
Historic MDD	2,537	6,238
Projected Allocated Water MDD	675	1,660
Total Existing and Allocated MDD	3,212	7,898
Developed Sources		
Instantaneous Withdrawal Water Rights	3,150	7,746
Water Right Surplus/(Deficit)	(62)	(152)
All Water Rights		
Instantaneous Withdrawal Water Rights	3,330	8,189
Water Right Surplus/(Deficit)	118	291

(1) Based on the MDD ERU value of 586 gpd/ERU (480 gpd/ERU consumption + 47 gpd/ERU backwash + 59 gpd/ERU DSL), equivalent to 0.41 gpm.

The City's developed sources do not have adequate capacity to meet current demands plus additional demand from allocated water. However, if the decommissioned wells are redeveloped, the City will have surplus capacity of 118 gpm on a maximum day, which equates to 291 additional ERUs.

Potential Water Savings

There are several operational changes that could result in water being available for developments which are described below.

Irrigation

In recent years, the City has supplied Eagle Lake in Snoqualmie Ridge with up to 12.67 MG of potable water to supplement reclaimed water for irrigation of public areas

within Snoqualmie Ridge as well as at the golf course. This water use occurs during the summer and thus increases the instantaneous withdrawals during peak periods. Table 18 summarizes potable water supplied to Eagle Lake.

TABLE 18

Potable Water to Eagle Lake

Month	2014			2015		
	gal	gpd	ERUs (1)	gal	gpd	ERUs (1)
June	1,099,560	36,652	63	5,265,920	175,531	300
July	4,115,428	132,756	227	5,710,232	184,201	315
August	5,262,180	169,748	290	1,691,976	54,580	93
Total	**10,477,168**	**113,882**	**194**	**12,668,128**	**137,697**	**235**

(1) Based on the MDD ERU value of 586 gpd/ERU (480 gpd/ERU consumption + 47 gpd/ERU backwash + 59 gpd/ERU DSL).

The potable water supplied to Eagle Lake has represented between 63 and 315 ERUs based on the maximum day ERU value of 586 gpd, which includes DSL and backwash. Since the reclaimed water is only augmented for 3 months of the year, the effect on the annual water rights is not as significant. The 12.67 MG used in 2015 represents approximately 142 ERUs for annual withdrawal using 244 gpd/ERU (200 gpd/ERU consumption + 20 gpd/ERU backwash + 24 gpd/ERU DSL). The primary supply to Eagle Lake is reclaimed water. Potable water is only used to augment when sufficient reclaimed water is not available for the irrigation needs. The reclaimed water treatment and distribution system capacity is summarized in the *Reclaimed Water Reuse Plan* (May 2015). In order to utilize the treated potable water for potable use and development, the City should take steps to ensure that the full amount of reclaimed water that is produced can be supplied to Eagle Lake. Reducing or eliminating potable contributions to Eagle Lake would delay the need for additional potable source development.

Backwash Reuse

As previously discussed, the North and South WTPs require water for backwash for the filters. Currently, the backwash water is sent to waste; however, it is still counted against the water right withdrawals. The City plans to install a holding basin at the North Wellfield WTP to allow backwash water to be treated and sent to the distribution system.

The calculations and projects included in this memorandum do not take into account a lower wasted backwash volume. With the holding basin and backwash reuse, additional water right capacity will be made available for potable use.

In 2014, backwash volumes represented approximately 525 ERUs at the North Wellfield WTP and 70 ERUs at the South Wellfield WTP. The City holds instantaneous water rights of 1,650 and 600 gpm at the North and South Wellfields, respectively. For 24-hour operation at the instantaneous water right, the expected backwash, assuming 11.7 and 6.5 percent of production at the North and South Wellfields, is 276,810 and 56,474 gpd, respectively. This corresponds to 473 and 96 ERUs at the two facilities, respectively, of maximum day production demand at 586 gpd/ERU.

The proposed backwash decant facility at the North Wellfield will allow water that is currently sent to waste to be used for potable use. The exact amount of backwash recycle will not be known until the facility has been designed and constructed. Even if the facility is only able to recycle 50 percent of the backwash, it would provide capacity for approximately 285 additional ERUs during maximum day demand.

CONCLUSION

The City has adequate annual water rights to provide all allocated water. However, the City currently lacks developed instantaneous water rights and source capacity to serve all customers to whom water has already been allocated. If the two groundwater claims are considered, the City has adequate instantaneous water rights to serve the allocated water and approximately 290 additional ERUs.

The City's capacity to serve additional connections could be increased by the following measures:

- If the City uses the two groundwater right claims and fully develops sources for those rights, the City could serve 290 ERUs in addition to the existing demands and the demands already allocated for current development.

- If the City were to curtail the augmentation of potable water to Eagle Lake and the reclaimed Class A irrigation systems, the City could regain up to approximately 315 ERUs of maximum day demand (corresponding to instantaneous withdrawal, Qi).

- The construction of a backwash decant and recycle facility at the North Wellfield will allow the City to more efficiently use the existing

water rights by decreasing the amount of wasted backwash water. If the backwash recycle system is able to recycle at least 50 percent of the backwash, the City could regain up to approximately 285 ERUs of maximum day demand (corresponding to instantaneous withdrawal, Qi).