

3.1 CULTURAL RESOURCES

Blumen Consulting Group (BCG) retained Cultural Resource Consultants, Inc. (CRC) to evaluate potential impacts to cultural resources for the South Lake Union Height and Density EIS in accordance with the Washington State Environmental Policy Act (SEPA). The goal of this assessment was to identify any previously recorded archaeological resources within the study area, determine the potential for any as-yet unrecorded archaeological resources within the study area, and evaluate potential impacts of the proposal to archaeological resources. Assessment methods included a review of previous ethnographic and archaeological investigations in the local area; an online search of records maintained by the Washington Department of Archaeology and Historic Preservation (WA DAHP) for known sites in the immediate area; a review of relevant background literature and maps (including General Land Office (GLO), Sanborn, and Kroll maps); and the preparation of this report. This assessment utilized 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 study area, as well as other applicable laws, standards, and guidelines (per 36 CFR 800.4 (b)(1); WA DAHP 2010b).

3.1.1 Affected Environment

The South Lake Union neighborhood is located in the center of the City of Seattle, located immediately north of the Downtown, and adjoining the Uptown and Capitol Hill areas to the west and east. Consisting of about 340 acres, the study area is generally bounded on the east by Interstate 5, on the west by Aurora Avenue, on the south by Denny Way, and on the north by the Lake Union shoreline in the City of Seattle, King County, Washington (see **Figure 2-1**). The legal description for the study area encompasses numerous parcels located in E½ Sec. 30 and W½ Sec. 29, T. 25 N., R. 4 E., W. M. (**Figure 3.1-1**).

Four alternatives (three action alternatives and one no action alternative) are proposed as described in **Chapter 2**. Within the study area, three opportunity areas are addressed in further detail. For the purposes of this assessment, the area of potential impacts to cultural resources is considered to be the study area as described above. All proposed actions would occur within the boundaries of the study area.

Forty-three cultural resource assessments have previously been prepared within approximately one mile of the current project (**Table 3.1-1**). Many

of these were conducted within the study area. Of note are recent assessments that included subsurface archaeological investigations within the boundaries of the current study area. Durio and Bard (2008:4-10-4-11) conducted archaeological testing near Broad Avenue and Mercer Street in the vicinity of a Duwamish camp or longhouse (see **Ethnohistoric Context** below) and did not recover any archaeological evidence of pre-contact or historic-period habitation. Dellert and Larson (2004) reported archaeological monitoring of excavations to remove a tunnel boring machine north of Valley Street. Deposits observed consisted of fill up to 18 feet below surface, lakebed sands, and underlying peat; no archaeological sites were identified.

As a result of these assessments, one historic-period archaeological site has been recorded within the study area (**Table 3.1-2**). Site 45KI502 is a historic-period railroad segment east of Westlake Avenue from Aloha Street north to the Fremont Bridge (Cole 2000; Nelson 2001). It was supported on a wooden trestle built in 1911 over the steeply sloped margins of Lake Union. The site was recommended not eligible for the National Register of Historic Places (NRHP). Subsequent archaeological monitoring of construction excavations in and adjacent to the site did not identify any pre-contact archaeological materials. Historic-period and/or recent refuse items (e.g., bottle glass, wood debris) were observed during monitoring but their age could not confidently be assessed at 50 years or older; therefore, they were not considered archaeological or potentially eligible for the NRHP (Shong and Miss 2004).

No pre-contact archaeological sites have been identified within the study area (see **Table 3.1-2**). The nearest recorded pre-contact archaeological site is the Baba'k^wob site (45KI456) on Elliott Bay in Belltown (Lewarch 1998). The site was first identified as human skeletal elements encountered in construction excavations (Larson and Lewarch 1998). Archaeological testing and monitoring identified additional archaeological materials including shell midden, wood planks, charcoal, and a variety of historic-period personal, domestic, and commercial items (Lewarch 1998; Lewarch, et al. 2002:Table 4). Examination of stratigraphy in archaeological test units and construction trench exposures, along with artifacts dating from the 1830s to 1860s, indicated that the archaeological materials were contained within historic-period (1880s to 1912) and recent fill and landslide deposits, and dated to the historic period. Because the site did not retain depositional or locational integrity, it was recommended not eligible for the NRHP (Lewarch, et al. 2002:123).

Environmental and cultural information for the study area is presented here as context for evaluating the proposal's potential impacts to cultural

resources. The study area's geological setting and past human activities have shaped the potential for the proposal to impact cultural resources.

Geological Context

Archaeological evidence suggests human occupation in the Puget Sound region began following the last glacial retreat at the end of the Pleistocene, approximately 14,000-10,000 years ago. The environmental changes produced by deglaciation, including alterations to landscapes, climate, and vegetation significantly influenced the spatial distribution of human activities, based on the availability of resources and the suitability of certain landforms for occupation. The potential distribution of archaeological resources in the vicinity of the property, and the identification of conditions that may have affected contemporaneous preservation of these resources, are informed by understanding changes to the local environment over time.

The study area is geographically situated in the Puget Lowland south of Lake Union, in a depression between Capitol Hill to the east and Queen Anne Hill to the west. Denny Hill was formerly present southwest of the Lake Union Depression (Galster and Laprade 1991). Elevation within the study area ranges from approximately 25 to 95 feet above sea level. The western portion of the Lake Union Depression, between Seattle Center and the southwestern end of the lake, was a seasonally wet meadow in the early historic era (Waterman 1922). There was a stream that flowed roughly north-south for a short distance in the vicinity of present-day Fairview Avenue, entering Lake Union near the present-day intersection of Valley and Fairview. Forsman, et al. (1997:20) speculate that this stream may have supported salmon runs. In addition to salmon, a number of freshwater fish species were available in Lake Union.

The topography and geology of the area were formed during the Late Pleistocene, following the advance of several glaciations that originated from Canada and extended between the Cascade and Olympic mountain ranges into the Puget Lowland (Kruckeberg 1991:12). The most recent glacial event in the Puget Sound, termed the Vashon Stade, is largely responsible for the region's contemporary landscape; glacial advance and retreat scoured and compacted underlying geology while meltwaters carved drainage channels into glacial outwash deposits (Downing 1983; Booth, et al. 2003). Following rising temperatures, the glacier retreated rapidly to the north and left the regional landscape ice-free and suitable for inhabitants by approximately 11,000 years ago (Kruckeberg 1991:22). Lake Union formed in a glacial basin exposed after glacial retreat.

Following glacial retreat, land surfaces that had been covered by ice uplifted. This isostatic rebound varied locally and was much more subtle in the southern Puget Lowland than in the north (Thorson 1989). Marine waters began to fill Puget Sound once the Strait of Juan de Fuca and Admiralty Inlet were no longer blocked by ice. In southern and central Puget Sound, sea levels began to rise rapidly after 8,000 years ago (Eronen, et al. 1987) and then rates of increase slowed around 5,000 years ago (Booth, et al. 2003:26). Eustatic sea levels were within one meter of present-day levels by about 1,000 years ago (Eronen, et al. 1987). Prior to construction of Lake Washington Ship Canal, the elevation of Lake Union was 21 feet (6.4 meters) above sea level (Troost and Booth 2008:29), comparable to its present-day elevation. However, the mean level of Lake Union and Lake Washington previously fluctuated by as much as seven feet over time due to changes in hydrology and tectonic events that affected the lakes' outflow near Renton. Earthquakes throughout the past 7,000 years triggered underwater slumping, landslides, ground elevation changes, and tsunamis. Seiches associated with seismic activity in the twentieth century have been documented in Lake Union (Troost and Booth 2008:16-17); similar events likely affected the Lake Union shoreline in the past. A massive earthquake on the Seattle Fault 1,100 years ago caused slides and subsidence in the study area (Bucknam, et al. 1992; Jacoby, et al. 1992; Karlin and Abella 1992; Nelson, et al. 2002).

While sedimentation during glacial times was widespread and voluminous, active deposition in nonglacial periods including the present day has been more restricted, occurring in river valleys and at the base of steep slopes (Booth, et al. 2003:20-21). In the study area and environs, bedrock was eroded by the advancing and retreating late Pleistocene glaciers and was capped by glacial till. The Lake Union Depression was created by Vashon Stade ice flow and filled with a variety of sediments in the Holocene (Morgenstein and Blukis Onat 2003:23).

Surface geologic deposits mapped in the study area are composed of pre-Fraser glaciation age deposits in the vicinity of Terry Avenue between Denny Way and Harrison Street; landslide deposits north of Aloha Street between Aurora Avenue and Westlake Avenue; Vashon recessional lacustrine deposits and Holocene lake deposits north of Republican Street; Vashon till in the area bounded roughly by Republican, Aurora, Aloha, and Westlake, and in a small area near the intersection of Minor and Valley; and Vashon recessional outwash deposits in a narrow north-trending trough in the vicinity of Fairview Avenue (Troost, et al. 2005; WA DNR 2010). Large-scale landscape alterations since the 1880s have obscured and/or removed portions of these natural deposits as demonstrated by the presence of regraded land in most of the study area

south of Republican Street; artificial fill over Vashon and Holocene lacustrine deposits north of Valley Street; and modified land over Vashon lacustrine and ice-contact deposits in areas east of Fairview and between Republican and Valley Streets west of Fairview (Troost, et al. 2005; WA DNR 2010). These areas have been affected by human activities including cutting, filling, grading, leveling, regrading, sluicing, construction of artificial waterways, and shoreline protection. Fill as thick as 30 feet has been logged in geotechnical borings in the area south of Lake Union (Gillis, et al. 2005:3-2; Link EIS Team 1999:7). South of the former Lake Union shoreline, fill deposits are estimated to be about five feet thick in the area between about 9th Avenue on the west and Fairview Avenue on the east (Durio and Bard 2008:Exhibit 4-1; Lewarch, et al. 1999:Figure 3). The Denny Regrade projects begun in 1907 and 1927 removed soils from the southwestern portion of the study area, south of Valley Street and west of 9th Avenue North (Forsman, et al. 1997:Figure 2). As much as the upper 60 feet of earth was removed in high-elevation areas (Corley 1969). In present-day Denny Park, the maximum elevation was 155 feet (Hall 1927); it is now approximately 95 feet above sea level. Industrial development and construction of urban residential and commercial zones following the 1907 and 1927 regrades have also disturbed former natural land surfaces.

The current local soil survey does not map soil units in the study area (USDA NRCS 2010). In general, soil formation on uplands in the Seattle area has been slow, and undisturbed surfaces typically cap a poorly- to well-developed A horizon underlain by silty weathered Vashon till parent material within a meter of ground surface (Troost and Booth 2008:28). Although sedimentary profiles specific to conditions immediately preceding Euro-American settlement and logging of this location by the 1880s are not available, the hills and valleys in the study area were likely to have been composed of soils having a relatively limited potential for soil development, with steeper slopes subject to occasional, perhaps seasonal colluvial action. Archaeological deposits in such soils would be subjected to the same geophysical forces; preservation of the depositional integrity of archaeological deposits or anthropogenic sediments would vary based upon their specific physical characteristics.

Intact native soils are generally not expected to be present within the study area due to the long record of historic-period and modern disturbances. However, fill deposits may cap native soils in formerly low-elevation portions of the study area. There may be buried wetland soils under the filled southern shore of Lake Union and formerly low-elevation areas to the south (Blukis Onat 2009:19). There may be buried wetland soils under the filled southern shore of Lake Union and filled areas to the

south (Blukis Onat 2009:19). Specifically, the former stream in the vicinity of Fairview Avenue, a ravine centered near Westlake, and the former lake bed north of Republican Street could potentially contain pre-contact and early historic-period archaeological sites if intact former land surfaces are buried beneath historic-period and more recent fill.

Archaeological Context

Regional and local studies have provided an archaeological and historical synthesis of approximately the last 10,000 years of human occupation in Puget Sound (Nelson 1990). Upland terraces and ridges would have been available for occupation earlier than lower-elevation areas due to the effects of deglaciation described above; archaeological materials in the study area and similar settings could range in age from the early Holocene to the historic-period. The study is located on what were formerly a seasonally wet meadow, a ravine and stream, the northeastern flank of Denny Hill, and steeply sloped forested uplands adjacent to the Lake Union shoreline. Native American villages in this region were typically located very near or adjacent to water bodies (Suttles and Lane 1990). It is probable that the main pre-contact human activities in the study area were hunting and plant gathering based in associated seasonal camps. Historic-period Lakes Duwamish people continued to obtain resources from Lake Union and lived in the area southwest of the study area. Over the last approximately 130 years, activity in the study area has included logging, construction and demolition of residential and commercial structures, construction of manufacturing and other industrial facilities, shoreline filling and construction of artificial waterways, construction and regrading of roadways, and construction of buried water lines and other utilities. This suggests that undisturbed evidence of earlier human occupation is unlikely to be present in the study area.

Archaeological materials that could potentially be found in the study area would most likely date to the historic period.

Several previous cultural resource studies and overviews provide background information applicable to the study area (e.g., Blukis Onat 2009; Courtois, et al. 1999; Larson and Lewarch 1995; Miller and Blukis Onat 2004; Nelson 1990). Characteristic of the ethnographic pattern in Puget Sound, seasonal residence and logistical mobility occurred from about 3000 BP. Organic materials, including basketry, wood and foodstuffs, are more likely to be preserved in sites of this late pre-contact period, both in submerged, anaerobic sites and in sealed storage pits. Sites dating from this period represent specialized seasonal spring and summer fishing and root-gathering campsites and winter village locations. These kinds of sites have been identified in the Puget Sound lowlands, typically located adjacent to, or near, rivers or marine transportation

routes. Fish weirs and other permanent constructions are often associated with large occupation sites. Common artifact assemblages consist of a range of hunting, fishing and food processing tools, bone and shell implements and midden deposits. Similar economic and occupational trends persisted throughout the Puget Sound region until the arrival of European explorers.

Ethnohistoric Context

Ethnohistoric economies of people in the southern Puget Sound were structured upon a variable rotation of seasonally available resources. Permanent villages provided a central hub from which seasonal activities radiated. During the spring, summer and fall, temporary camps were utilized while traveling to obtain resources that included foodstuffs such as fish, shellfish, waterfowl, deer, roots and berries. Salmon was the single most important food source and was caught in weirs, traps, nets and other fashioned implements (Smith 1940). Local Indian people shared many broadly defined traditions with their inland Puget Sound neighbors, including subsistence emphasis on salmon and other fish, land game, and a wide variety of abundant vegetable foods, and household and village communities linked by family and exchange relations (Suttles and Lane 1990).

The South Lake Union Height and Density EIS study area is within the traditional territory of the Duwamish Tribe, a group of Coast Salish Southern Lushootseed speakers; historically, members of the Suquamish and Muckleshoot Tribes also utilized this vicinity (Suttles and Lane 1990; Waterman 2001). The Muckleshoot Indian Tribe is recognized as successors to the Duwamish for fishing and certain other treaty rights. The Suquamish Tribe also considers the local vicinity as a usual and accustomed place, but was denied recognition as successor of the Duwamish by District Court (Tulalip Tribes, et al. 1990). The Duwamish tribal organization does not currently have federal recognition.

The Suquamish occupied Kitsap Peninsula (Spier 1936:34), as well as Bainbridge and Whidbey Islands prior to implementation of the Point Elliot Treaty of 1855 (Ruby and Brown 1992:226). Pre-contact Suquamish settlements were often located on major waterways, and heads of bays or inlets. In the winter, the Suquamish lived at large permanent village settlements and they spent the summer hunting, fishing, and gathering at specialized, temporary camps. The Muckleshoot Tribe comprises groups who traditionally lived and used resources in the Green and White River valleys and adjacent plateaus (Suttles and Lane 1990:Figure 1, Table 1). A network of trails and waterways connected Muckleshoot villages on inland river valleys to the Puget Sound shoreline (Noel 1980:29).

Major Duwamish winter villages were formerly located on the Cedar, Duwamish, Sammamish, and Black Rivers, Lake Sammamish, Lake Washington, Lake Union, Elliott Bay, and Salmon Bay (Miller 1999; Smith 1941:207; Waterman ca. 1920, 1922), outside the current study area. Duwamish people who lived around Lake Union, Lake Washington, and Lake Sammamish were known as xa'tcoabc, "Lakes Duwamish." The Lakes Duwamish were more reliant on resources in the area's freshwater lakes, basins, and drainages, as well as wetlands and forests. Local streams and lakes provided habitat for anadromous fish. Travel by canoe and overland trails connected Lakes Duwamish groups to each other and to people throughout the Puget Sound region.

The Lakes people had several permanent and temporary settlements on all of the lakes. Ethnographic sources reviewed in this assessment (e.g., Smith 1940; U.S. Court of Claims 1927; Waterman ca. 1920, 1922, 2001) indicate that the winter village nearest to the study area was Baba'k^wob in present-day Belltown, named for a prairie and ravine between Belltown and Lake Union (Forsman, et al. 1997:Figure 3; Waterman 1922:188).

At the south end of Lake Union, ethnographers Harrington (ca. 1909) and Waterman (ca. 1920, 1922, 2001) recorded two place names: Cta'q^wcld and TL³pe'lgw1L (Miller and Onat 2004:69). The former refers to "where a trail descends to the water" at the southern end of Lake Union. From this point, a trail from the Seattle harbor descended the hill to Lake Union at the location of David Denny's sawmill (Waterman 1922:179). The latter is translated as "deep for canoes" and refers to a bluff at the foot of Lake Union on the southern shore (Waterman 2001:102-103).

According to Lane (1987:13, in Forsman, et al. 1997), there was likely a Lakes Duwamish camp or seasonal village southwest of Lake Union near the western border of the study area in the vicinity of Dexter Avenue and Mercer Street (Durio and Bard 2008:Exhibit 4-1). Thrush and Thompson (2007:225) identify the home of an indigenous man named Tsetseguis and his family at the south end of Lake Union near this location in the late 1800s; earlier Lakes Duwamish may also have made their homes in this area. The place was called scHákWsHud, translated as "the foot end of the beach," referring to its position at the end of a trail from Baba'k^wob. Tsetseguis was a close acquaintance of David Denny and his family. He lived at scHákWsHud when Denny's sawmill dominated the south end of Lake Union (Newell 1977, in Thrush and Thompson 2007:225). Bass (1937, in Nelson 2001:7) also describes an Indian settlement with a longhouse for several families on Lake Union near Westlake Avenue in the nineteenth century. Dorpat (1984:60) identifies the location of David Denny's house, west of the study area in what is now Seattle Center, as having been used

by Coast Salish peoples as a gathering place.

Historic Context

The first exploration and mapping of the Puget Sound is credited to Captain George Vancouver in 1792, under the auspices of the British Royal Navy. Vancouver surveyed much of the Sound, but the exploration did not extend inland and failed to recognize several waterways including the Puyallup, Nisqually and Fraser rivers (Morgan 1979:16). Decades later, in 1841, the Wilkes Expedition traveled to chart what was then called Oregon Territory. The territory was jointly occupied by the United States and Britain, particularly the British Hudson Bay Company, which established Fort Nisqually in 1834. In an attempt to increase American presence in Oregon Territory, the Wilkes Expedition produced the first detailed map of the area and promoted the region's potential for economic development (Morgan 1979). Four years after the arrival of the Wilkes party, more Americans began to settle in the Territory.

Euro-American settlement in Oregon Territory was further encouraged by the passage of the Donation Land Claims Act in 1850. In 1851, David Denny, John Low, and Lee Terry arrived at the mouth of the Duwamish River; Low and Terry soon filed land claims at Alki Point in West Seattle (Crowley 2003). Within a few years, more Euro-Americans had arrived in Seattle and filed Donation Land Claims (DLCs) between Elliott Bay and Lake Union. The earliest recorded Euro-American activity in the study area is the filing of DLCs by David Denny (DLCs 38 and 39; 323 acres in Sec. 25, T. 25 N., R. 3 E., and Sec. 30, T. 25 N., R. 4 E., W. M.) and Thomas Mercer (DLC 37; 160 acres in Sec. 30, T. 25 N., R. 4 E., W. M.) (BLM 2010; USSG 1861:535-544) (**Figure 3.1-2**). Denny's claim extended from the south end of Lake Union west to Elliott Bay between present-day Denny Way and Mercer Street. Mercer's claim was immediately to the north, including the area between Lake Union and 6th Avenue North between Highland Drive and Mercer Street (United States Surveyor General [USSG] 1863).

One GLO map (USSG 1856) shows two Euro-American residences within the study area (**Figure 3.1-3**). Thomas Mercer's residence is shown north of present-day Broad Street, in the vicinity of the block between Dexter Avenue and Aurora Avenue. Another residence is labeled "W. P. Smith" east of Fairview Avenue near Republican Street. Review of GLO notes and historical land patent data did not identify a DLC or other land claim by a W. P. Smith in the vicinity of the study area (BLM 2010; USSG 1861). Other cultural features mapped by the GLO in the study area consist of a trail west of Lake Union and a road from the south end of Lake Union to Elliott Bay (see **Figures 3.1-2 and 3.1-3**).

By the mid-1850s, British and American settlement on Puget Sound and the entire Northwest had drastically impacted local Native American groups and their traditions. In 1853, the United States organized Washington Territory and appointed Isaac I. Stevens as its governor. In 1855, the Duwamish and other Puget Sound tribes signed the Point Elliot Treaty, which forced local tribes onto reservations. The treaty called for cession of lands to the United States and the maintenance of fishing rights and annuities, as well as the concentration of Indian people living in western Washington upon reservation lands (Marino 1990). Individuals considered of the Suquamish Tribe were relocated to the Port Madison Indian Reservation, and the Muckleshoot reservation was established for people living in the White River valley and surrounding areas (Ruby and Brown 1992). The Duwamish were not assigned their own reservation, but rather were required to live on either the Port Madison Indian Reservation on the Kitsap Peninsula or the Muckleshoot Indian Reservation between Auburn and Enumclaw. Some Duwamish moved to the reservations but others remained in their homeland.

The treaty period was marked by heightened tension and violence between tribes and white settlers throughout Puget Sound. By 1855-1856, the federal government was using military force to contain Indian people dissatisfied with the poor quality of reservation lands. Many Indian groups in the Puget Sound area were relocated and interned during this period. Raids, attacks, and violent conflict occurred during this time throughout the Puget Sound region as Indian people attempted to discourage Euro-American settlement. The U.S. Marine Corps and U.S. Navy provided military support during attacks on Seattle (Phelps ca. 1856).

As Seattle expanded northward in the late 1800s, lands in the Lakes Duwamish territory were developed. The newly incorporated town of Seattle banned native urban residence in 1865, though Indians continued to live and work in the city. The Indian Homestead Act of 1875 allowed Indians to own land, provided they renounced tribal allegiance and adopted a Euro-American lifestyle (Blukis Onat, et al. 2005:25; Miller and Blukis Onat 2004:Table 1).

The study area is included in the area incorporated as the City of Seattle by act of the Territorial Legislature on December 2, 1869 (City of Seattle 2010). Denny allowed a 5-acre portion of his land claim to be used as a cemetery, Seattle City Cemetery, in the location of present-day Denny Park, in 1864. In 1884, burials were disinterred and some were moved to Lake View Cemetery on Capitol Hill and the land was repurposed for use as Seattle's first park (Corley 1969; Crowley 1998).

Comparison of historical and present-day maps (USC&GS 1875, 1899; USGS 1897, 1983; USSG 1856) illustrates patterns of urban development and changes in the position of the lakeshore over time (Chrzastowski 1983; PSRHP 2003a, 2003b) (**Figure 3.1-4**). In 1875 the southernmost extent of Lake Union was at the present-day intersection of Republican and Terry, where there was a ferry stop (Chrzastowski 1983; USC&GS 1875). A map from 1890 (Anderson 1890) shows the southern tip of Lake Union near the present-day intersection of Harrison Street and Boren Avenue. A landing for coal barges was present on the south end of the lake near the intersection of Westlake Avenue and Valley Street in the 1870s before the Seattle & Walla Walla Railroad was built to transport coal from Newcastle and Renton to Elliott Bay (Reinartz 1993:55, in Nelson 2001:10). The south end of Lake Union was shallow to begin with, and was filled to accommodate boat mooring (Chrzastowski 1983).

The study area saw an increase in development in the 1880s. By 1882, the west side of Lake Union had been logged and the Lake Union Lumber and Manufacturing Company sawmill had been built on pilings at the south end of the lake (Reinartz 1993, in Nelson, et al. 2001:9). Denny and other investors purchased the mill in 1884 and, until 1893, operated it as the Western Mill. In 1895, the mill changed hands again and became the Brace and Hergert Mill (Sanborn Map Company 1905). Industry and commerce in the study area were largely centered on the Lake Union shoreline during this period. Sparse single-family residences were present to the south (Sanborn Map Company 1888, 1893).

By 1884, the South Lake Union neighborhood was populated enough to create demand for a streetcar line. The Lake Union Road was built by Frank Osgood to connect Elliott Bay and the south end of Lake Union. This electric street railway was extended northward to Fremont in 1890 via a wooden trestle over the marshy slopes along the west side of the lake, in the present-day location of Westlake Avenue (Dorpat 1984:64). Growth, residential development in particular, continued through the 1890s and into the early twentieth century (Sanborn Map Company 1888, 1893, 1905). By the end of the nineteenth century, the neighborhood was served by a network of water mains (Seattle Engineering Department 1899). Elements of the present-day street grid had been established (Seattle Engineering Department 1900; USGS 1897) (**Figure 3.1-5**).

Public infrastructure improvements in the early twentieth century, including regrading and paving streets, made the study area more attractive to residents and businesses. By 1906, Lake Union's southernmost point was just south of Westlake Avenue and Mercer Street (Durio and Bard 2008:Exhibit 4-1). Along the eastern and western margins

of the south end of the lake, the shoreline had a naturally steep slope; filling at the toe of the slope made waterfront development possible in these areas (Weitkamp, et al. 2000). In 1909, the City of Seattle filled a portion of Lake Union with wood waste to create artificial peninsulas extending northward into the lake, providing land for new docking facilities on the south shore of Lake Union. The Northern Pacific Railroad (NPRR) built a belt line through the study area along the east side of Westlake Avenue in 1911-1912 (Cole 2000). South Lake Union was home to numerous industrial and commercial ventures including lumber mills, glass factories, an asphalt plant, and a floatplane service between the 1910s and 1950s. Multiple breweries, woodworking and furniture companies, automobile repair shops and a Ford manufacturing plant, laundries, bakeries, hardware stores, metalworkers, a NPRR freight yard, and public utility yards (e.g., Seattle Lighting Co. and Seattle Disposal Co.) were fixtures in the study area (Sanborn Map Company 1917, 1950). Residential neighborhoods dominated the area south of Mercer Street. Among the many single-family homes, duplexes, and an increasing number of apartment buildings stood shops (e.g., grocers and drugstores), churches, and Cascade Public School (Kroll Map Company 1920; King County 2010; Metsker Map Company 1936; Sanborn Map Company 1905, 1917, 1950) (**Figure 3.1-6**).

The military had a significant presence in South Lake Union in the mid- to late-twentieth century. In 1941, a Naval Reserve Center was built and designated by the federal government as a National Defense Project at the beginning of World War II (Moore, et al. 1998:10-11; Sanborn Map Company 1950). The facility remained in use for reserve training and community service activities until the 1990s.

Current land use along the Lake Union shoreline is still predominantly water-dependent, with a mix of commercial and industrial uses including marinas, commercial shipyards, and drydocks. Other businesses and a number of single and multi-family residences also border the shoreline (Weitkamp, et al. 2000). Inland from the lakefront, the South Lake Union neighborhood is characterized by urban residential and commercial development (**Figures 3.1-7 and 3.1-8**).

Potential for Discovery of Archaeological Sites in the Study Area

Forsman, et al. (1997) identified two locations within the current study area that have higher archaeological potential than other portions of the study area. The first is a ravine south of Republican Street, centered roughly between Westlake Avenue and Terry Avenue (Tobin 1987:46, in Lewarch, et al. 1999:8). This low-elevation area, identifiable using contour

lines on historical maps (e.g., USC&GS 1875, 1899; USGS 1897), would have contained a seasonally wet meadow or prairie with numerous valuable plant and animal resources (Forsman, et al. 1997; Waterman 1922). Located just east of the eastern boundary of the Denny Regrade, it was filled with regrade spoils and other refuse and debris materials. The second is the pre-industrial shoreline of Lake Union. Lakes Duwamish and other Coast Salish peoples used the lakeshore and margins of Lake Union for hunting, fishing, and other resource extraction and processing activities. This part of the study area has also been heavily modified by emplacement of large volumes of fill including sawdust, regrade spoils, household refuse, and demolition debris. A third formerly low-elevation area is present in the vicinity of the Fairview Avenue Corridor (USC&GS 1899; USGS 1897; USSG 1856). In all three areas, archaeological sites could potentially be buried beneath the fill in intact native soils. Archaeological materials such as stone tools and flaking debris, shell midden deposits, faunal and botanical remains, fire-modified rock, charcoal, and postmolds, depressions, or other features could be present, reflecting a range of subsistence, domestic, and ceremonial activities. Such materials, if present, could be pre-contact or historic in age, and could potentially be eligible for the NRHP.

Historic-period archaeological sites could also be present in the study area. These could include domestic, commercial, and industrial materials such as personal ornamentation, food scraps and packaging, structural, mechanical, or manufacturing waste items. However, historic-period archaeological materials would be expected to be contained within historic and recent fill deposits and not in intact native soils. Such materials would lack aspects of integrity (e.g., association and location) and would not likely be eligible for the NRHP (NRHP 1991).

The long history of industrial and public works activities in the study area has disturbed most natural land surfaces. As a result of more than a century of urban development, undisturbed landforms are not available for inspection within the study area (see **Figures 3.1-7 and 3.1-8**). Therefore, archaeological survey was not conducted as a part of this assessment.

8th Avenue Corridor

The 8th Avenue Corridor, covering the area one-half block east and west of 8th Avenue between Republican and John Streets, is within the area cut during the Denny Regrade (Corley 1969; Forsman, et al. 1997:Figure 2; Seattle Engineering Department 1907, 1910). Up to 60 vertical feet of soils were removed in this area, just north of Denny Park (Corley 1969). Natural land surfaces that were exposed and available for human occupation from

the end of the Pleistocene to 1907 are no longer extant in this area. As a result, the 8th Avenue Corridor is considered to have no potential to contain pre-contact archaeological sites or historic-period archaeological sites from before 1907. The area is considered to have a low potential to contain intact historic-period archaeological sites postdating the Denny Regrade due to impacts of subsequent urban development. Historic-period debris items are expected to be contained within deposits previously impacted by construction and earthmoving activities. Such materials would lack aspects of integrity (e.g., association and location) and would not likely be eligible for the NRHP (NRHP 1991).

Fairview Avenue Corridor

The Fairview Avenue Corridor, covering the area one-half block east and west of Fairview Avenue between Mercer Street and Denny Way, is in a formerly low-elevation area with a stream that entered Lake Union near the present-day intersection of Valley Street and Fairview Avenue (USC&GS 1899; USSG 1856). This area was mapped as containing Vashon recessional outwash deposits in a narrow north-trending trough that curves to the northwest near Valley Street at the former Lake Union shoreline (Troost, et al. 2005). This is in approximately the same location as the stream mapped by the GLO (USSG 1856) (see **Figure 3.1-2**). The stream appears to be a relict outwash channel. This environment would have supported resources attractive to humans from deglaciation to the historic era. If land surfaces exposed from the end of the Pleistocene to the pre-urban historic era are preserved beneath fill deposits, then pre-contact and early historic-period archaeological sites could be present. Pre-contact archaeological sites could include the remains of fish weirs, basketry, stone implements, and other evidence of resource procurement and processing or domestic activities. Historic-period archaeological sites buried beneath fill could include remains of logging operations or deposits related to the residence of W. P. Smith, which was east of the corridor. Historic-period debris items are expected to be contained within fill and other deposits previously impacted by construction and earthmoving activities. Such materials would lack aspects of integrity (e.g., association and location) and would not likely be eligible for the NRHP (NRHP 1991).

Valley/Mercer Blocks

The Valley/Mercer Blocks, bounded by Valley Street on the north, 9th Avenue on the west, Mercer Street on the south, and Fairview Avenue on the east, is located atop filled lakeshore. The pre-industrial Lake Union shoreline extended to approximately Republican Street near Terry Avenue (Chrzastowski 1983; Durio and Bard 2008:Exhibit 4-1; USC&GS 1875). The

former shoreline and its margins would have contained a variety of plant and animal resources used by Coast Salish peoples. Archaeological sites in this part of the study area would likely be low-density, diffuse concentrations of materials lost or discarded in hunting, fishing, and other resource extraction and processing activities in the lake, such as fish weirs, basketry, stone tools, and wood or bone implements. This part of the study area now contains large volumes of fill including sawdust, regrade spoils, household refuse, and demolition debris, and has been affected by subsequent urban development. It is estimated that fill in the area containing the Valley/Mercer Blocks is 25 feet thick (Durio and Bard 2008:4-5). Historic-period debris items are expected to be contained within fill and other deposits previously impacted by construction and earthmoving activities. Such materials would lack aspects of integrity (e.g., association and location) and would not likely be eligible for the NRHP (NRHP 1991).

3.1.2 Significant Impacts

Because the study area is considered to have a low potential to contain intact archaeological deposits, no significant impacts to archaeological sites are anticipated. No pre-contact archaeological sites have been identified within the study area. One historic-period archaeological site (45KI502) has been recorded within the study area and was previously impacted by sewer line and trail construction. Further development is not anticipated to generate additional impacts to this site.

Impacts Common to All Alternatives

The potential for the South Lake Union Height and Density EIS study area to contain archaeological sites is generally considered to be low. This is due primarily to the long history of disturbance including construction and demolition of buildings, transportation developments, major earthmoving projects (i.e. Denny Regrade), and installation of buried utilities. While the area could have potentially been the location of repeated or regular pre-contact and early historic-period activities, extensive construction and landform modifications since the 1880s have most likely destroyed the integrity of any archaeological evidence of these activities that may have been present, seriously compromising their potential significance. There appears to be a low probability for intact pre-contact or historic-period archaeological deposits to be present within the study area.

Based on existing archaeological data for this region, pre-contact archaeological sites that might potentially have been present in the general vicinity prior to urbanization could have included the remains of

habitation sites, lithic scatters, fish weirs, trails, or similar features, which could represent a range of domestic, subsistence, and ceremonial activities. Site significance could potentially be related to changes in site types and use of environmental resources over time (Lewarch et al. 2002:16-17). Additionally, pre-contact sites may potentially have significance as Traditional Cultural Properties to one or more tribal and/or ethnic groups (Parker and King 1990).

The vicinity of the home of Tsetseguis may have been used by Lakes Duwamish people as a habitation site repeatedly or consistently for centuries or it may have been first occupied in the nineteenth century. However, any physical evidence of this occupation is not likely to have been preserved due to its location in the Denny Regrade area and the vicinity of the present-day Broad Street and Mercer Street roadways, where road construction has disturbed soils from 6 to 30 feet or more below surface (Durio and Bard 2008:Exhibit 4-1) . The trail connecting Lake Union and Belltown (Thrush and Thompson 2007; USSG 1856) most likely passed through the southwestern portion of the study area, but any physical evidence of this route also would have been removed by urban development.

Historic uses of the study area have included logging, transportation, and domestic, industrial, and commercial activities. These activities could potentially have resulted in deposition of archaeological materials; such deposits could arguably be significant if they retained depositional integrity and could result in data that would inform research questions regarding ethnicity, domestic behavior, or other facets of historical life relevant to the social, economic, or cultural development of Seattle (Weaver 1989). Frequencies of materials found at domestic artifact scatters may provide economic data relevant to larger historical trends, and potentially may be suggestive of relative economic status and possibly ethnicity. Structures may provide data on occupational specialization, construction styles, and agricultural/subsistence practices. Pre-structural remains could suggest early settlers' domestic, social, and commercial activities (Weaver 1989). However, such activities are unlikely to leave a distinctive archaeological signature that would be recognizable following major construction excavation and building episodes within the current study area over more than a century of urban development. Physical evidence of the residences of W. P. Smith and Thomas Mercer is not expected to persist due to the effects of earthmoving and construction activities in these locations.

Alternative 1

Under Alternative 1, construction excavations that reach buried native intact terminal Pleistocene or Holocene deposits may have the potential to disturb archaeological sites. However, the contact between near-surface fill deposits and underlying natural deposits has been previously disturbed by prior construction in most of the study area. Any as-yet unknown potentially NRHP-eligible archaeological sites, if discovered in construction, would be subject to mitigation.

Alternative 2

Although the proposed changes to building heights and densities are different under Alternative 2, their potential impacts to cultural resources are the same as for Alternative 1. Construction excavations that reach buried native intact terminal Pleistocene or Holocene deposits may have the potential to disturb archaeological sites. However, the contact between near-surface fill deposits and underlying natural deposits has been previously disturbed by prior construction in most of the study area.

Alternative 3

Under Alternative 3, although the specifics of height and density changes are different, potential impacts to cultural resources are expected to be the same as for Alternatives 1 and 2. Construction excavations that reach buried native intact terminal Pleistocene or Holocene deposits may have the potential to disturb archaeological sites. However, the contact between near-surface fill deposits and underlying natural deposits has been previously disturbed by prior construction in most of the study area.

Alternative 4 (No Action)

Because no action is proposed under Alternative 4, no impacts to cultural resources would be generated. Continued development of South Lake Union within current zoning regulations is not anticipated to affect any recorded archaeological sites. As for Alternatives 1, 2, and 3, construction excavations that reach buried native intact terminal Pleistocene or Holocene deposits may have the potential to disturb archaeological sites. However, the contact between near-surface fill deposits and underlying natural deposits has been previously disturbed by prior construction in most of the study area.

3.1.3 Mitigation Measures

Should any potentially significant archaeological sites be encountered in implementation of the proposal and it is not possible to avoid them, impacts would be generated. These impacts could potentially be minimized through development and implementation of mitigation

measures appropriate to the nature and extent of discovered sites. Mitigation measures could potentially include archaeological monitoring, testing, or data recovery excavations; development of interpretive signs, markers, or exhibits; and/or minimization or avoidance of further impacts through redesign.

3.1.4 Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts to cultural resources are anticipated to be generated by the proposal. One historic-period archaeological site (45KI502) has previously been recorded in the study area. Its integrity has been affected by prior construction activities and it has been recommended not eligible for the NRHP. As a result, further development in the site area generated by the current proposal would not cause significant unavoidable adverse impacts.

Should any potentially significant archaeological sites be discovered in construction and it is not possible to avoid them, significant unavoidable adverse impacts would be generated. These impacts could potentially be minimized through development and implementation of mitigation measures appropriate to the nature and extent of discovered sites.

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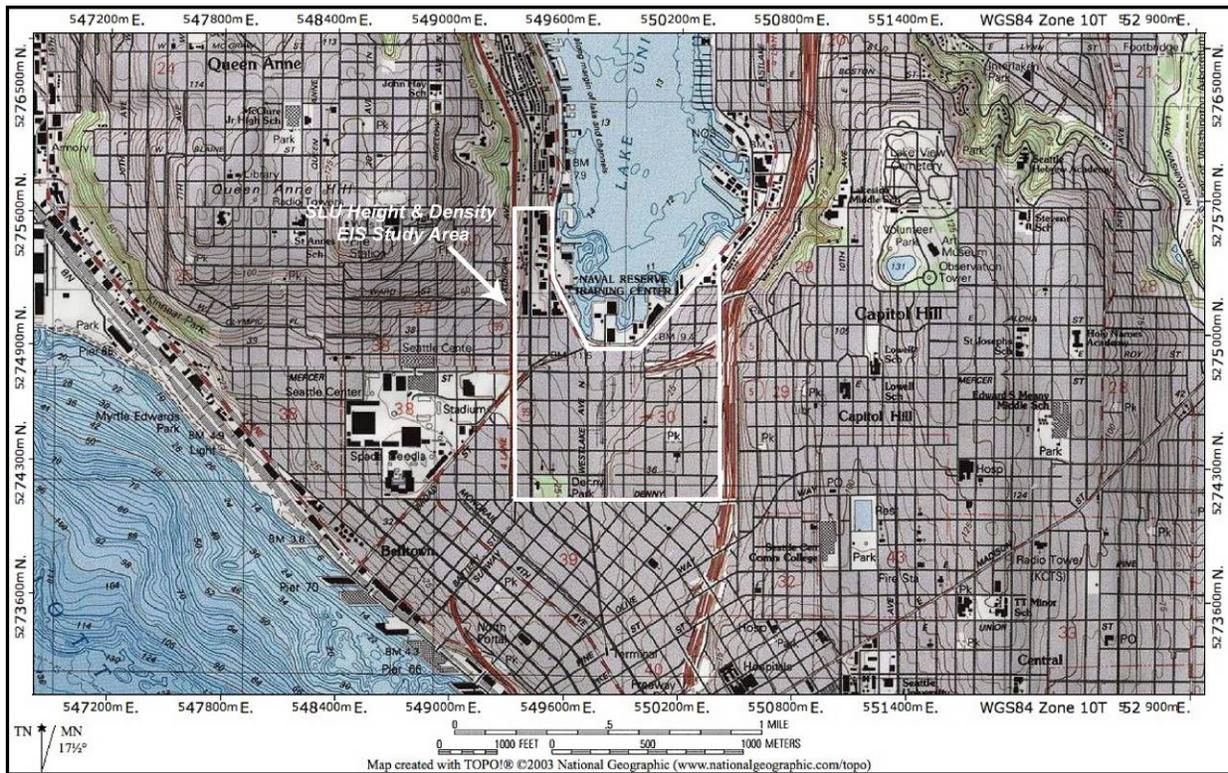


Figure 3.1-1. Portion of Seattle South, WA (USGS 1983) topographic quadrangle showing the boundaries of the study area (white outline).

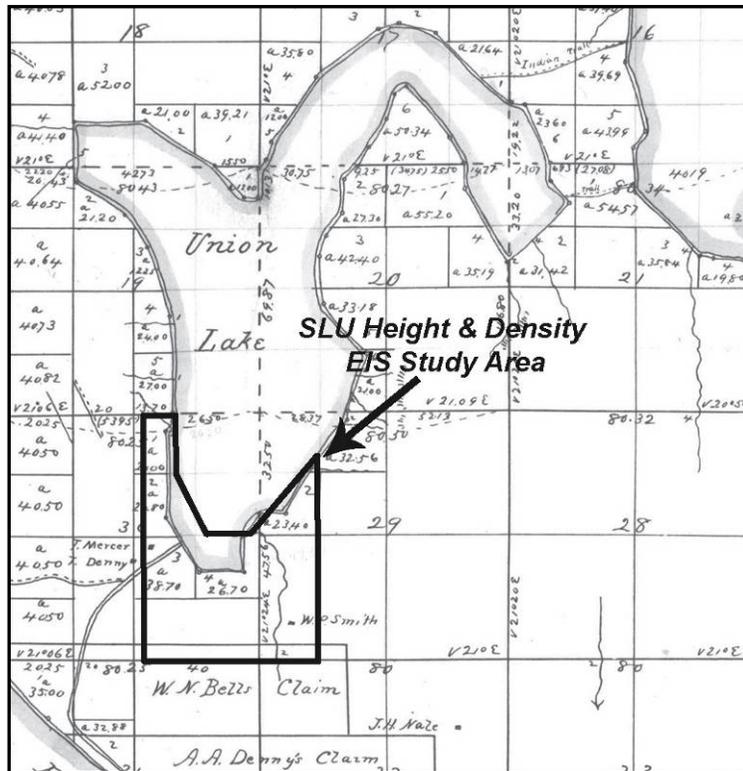


Figure 3.1-2. Portion of GLO map (USSG 1856) showing the study area. The road from the south end of Lake Union towards Elliott Bay is in the approximate alignment of present-day Broad Street. It joined an Indian trail connecting Elliott Bay and Lake Union. The residence of "D. Denny" was located just west of the study area. A small stream is shown in the eastern portion of the study area near present-day Fairview Avenue. The residence of "W. P. Smith" is mapped near the intersection of Minor and Harrison, and the residence of and "T. Mercer" is present north of Broad Street between Dexter and Aurora.

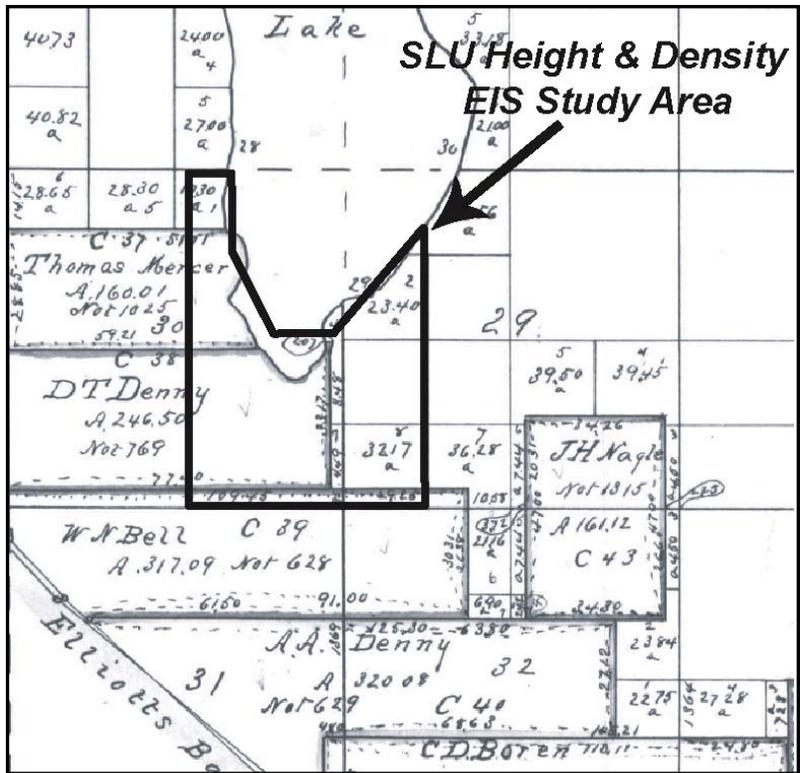


Figure 3.1-3. Portion of GLO map (USSG 1863) showing DLCs in the study area and vicinity.

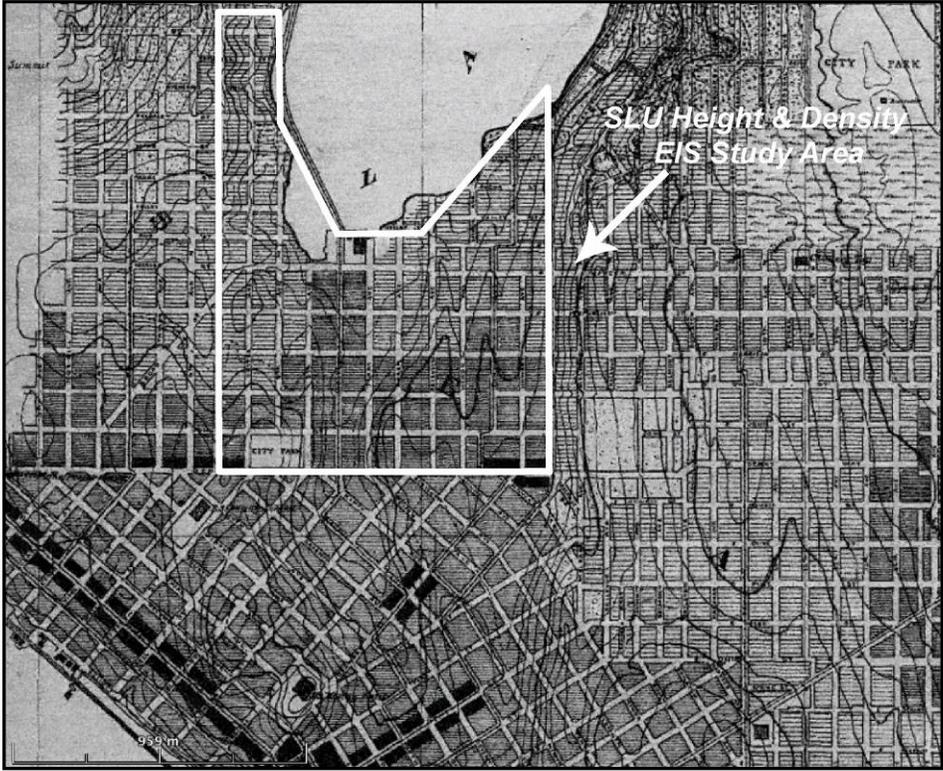


Figure 3.1-4. Portion of coast survey chart (Fox 2009; USC&GS 1899) marked with the study area.



Figure 3.1-5. Portion of historical land classification map (USGS 1897) marked with the study area.

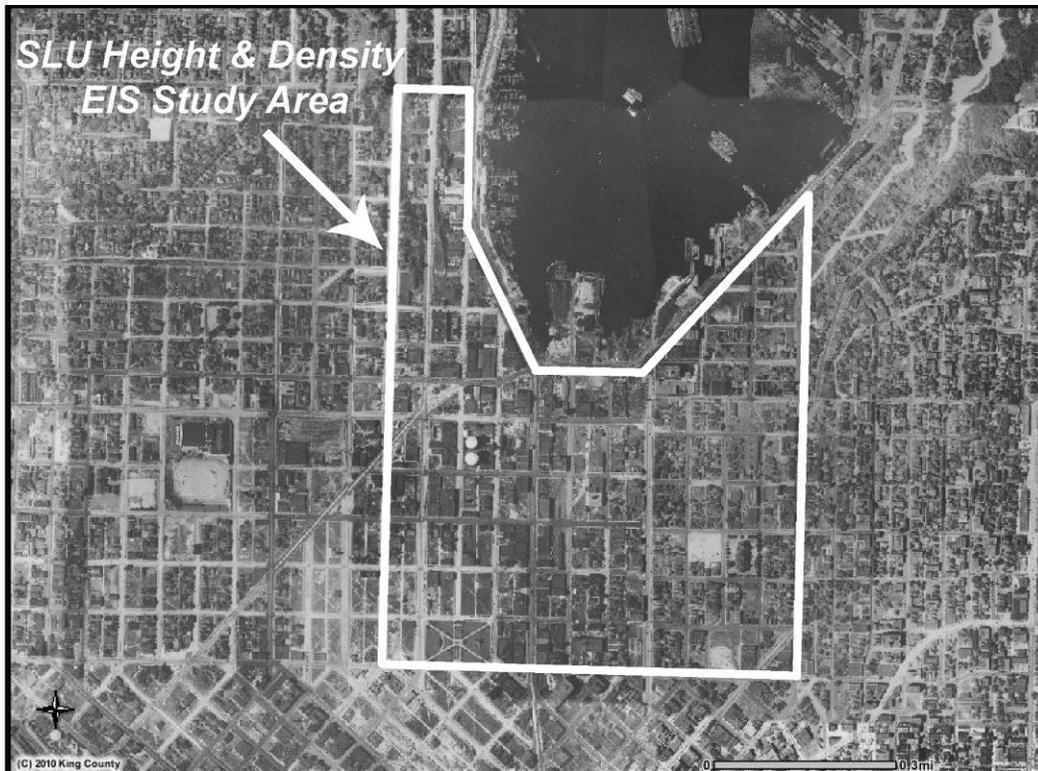


Figure 3.1-6. Aerial imagery from 1936 (King County 2010) marked with the study area. Urban development characterized the area and few lots remained vacant.

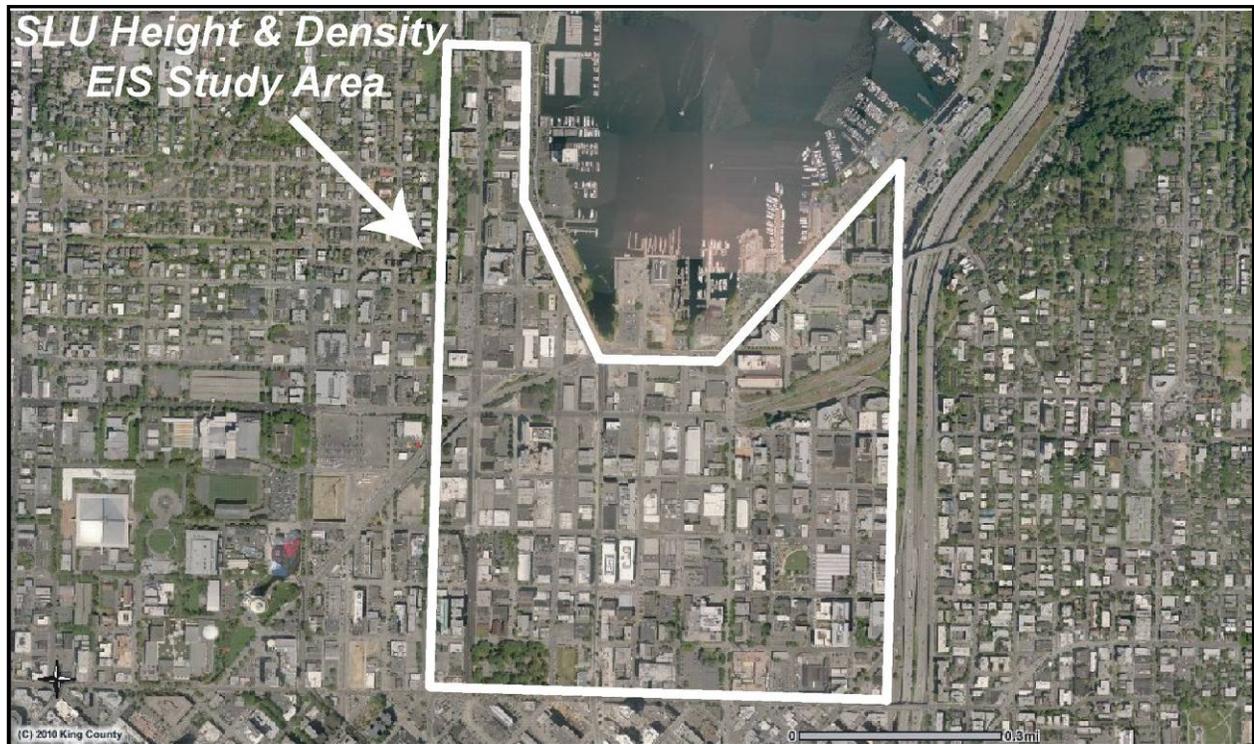


Figure 3.1-7. Aerial imagery from 2007 (King County 2010) marked with the study area.



Figure 3.1-8. Typical conditions in the South Lake Union Height and Density EIS study area. Photograph views north from intersection of 9th Avenue and Harrison Street.

Table 3.1-1. Cultural resources assessments previously conducted within an approximately 1-mile radius of the study area (WA DAHP 2010a).

Author	Date	Title	Results and Recommendations
Kelly	1987	Cultural Resources Survey for the U.S. Sprint Fiber Optic Cable Project Seattle, Washington to Spokane, Washington	Found four historic sites and one archaeological site in proposed cable route. Recommended additional historical research to assess potential impacts to one site. Recommended monitoring at select locations along proposed route. Did not identify any cultural resources in vicinity of current study area.
Nelson, et al.	1996	Report on the Cultural Resources Inventory Completed for the Proposed WorldCom Seattle to Salt Lake City Fiber Optic Line, Part 4, Washington	Identified six historic sites and 19 historic-period archaeological sites in proposed cable route. Recommended confining construction to previously disturbed sediments or routing cable around sites potentially eligible for NRHP to avoid effects. Recommended monitoring in vicinity of recorded sites. No cultural resources identified in vicinity of current study area.
Forsman, et al.	1997	Denny Way/Lake Union Combined Sewer Overflow Control Project Seattle, King County Cultural Resources Assessment	Identified areas of high probability for archaeological resources and assessed potential project impacts to archaeological sites. No archaeological sites were identified. Within the current study area, the Lake Union shoreline and a former ravine have higher potential to contain archaeological sites. Recommended archaeological monitoring during construction excavations in the current study area between Dexter Avenue and Fairview Avenue.
Courtois, et al.	1998	Sound Transit Central Link Light Rail Draft Environmental Impact Statement: Historic and Archaeological Technical Report	Assessed potential impacts to cultural resources for light rail route, station, and maintenance alternatives. No archaeological sites identified near current Project, but Portage Bay shorelines identified as high-sensitivity areas for archaeology. Recommended review of preferred alternative plans, when available, to identify locations for additional subsurface testing and/or monitoring.

Author	Date	Title	Results and Recommendations
Forsman, et al.	1998	Wall Street Project Cultural Resource Overview, Seattle	Provided archaeological, historical, and ethnographic overview of proposed construction location. Archaeological testing was not possible due to complete coverage by pavement. Recommended archaeological monitoring of construction due to high probability for archaeological sites to be present in project location.
Larson and Lewarch	1998	Letter to Doug Hotchkiss Re: A burial site within a construction job site for the World Trade Center complex on Alaskan Way between Bell and Lenora Streets	Described discovery of an archaeological site during construction. Recorded site (45KI456) and obtained archaeological excavation recovery permit from WA DAHP for testing to evaluate site significance. Recommended archaeological monitoring of further construction excavations in proximity to the discovery.
Moore, et al.	1998	Cultural Resources Survey and Assessment of Naval Reserve Readiness Center, Seattle	Evaluated potential significance of Naval Reserve Readiness Center (NRRC) at 860 Terry Avenue. Described history of land use in NRRC Seattle property, design and construction of buildings, and purpose and use of NRRC Seattle facility. Recommended property as eligible for the NRHP. No further investigations recommended.
Courtois, et al.	1999	Sound Transit Central Link Light Rail Final Environmental Impact Statement Final Technical Report: Historic and Prehistoric Archaeological Sites, Historic Resources, Native American Traditional Cultural Properties, Paleontological Sites	Identified potential impacts to cultural resources including historic buildings and archaeological sites. Identified high probability for archaeology on margins of Portage Bay southwest of current Project, buried beneath fill. Recommended archaeological monitoring of construction excavations.

Author	Date	Title	Results and Recommendations
Lewarch, et al.	1999	Denny/Lake Union Combined Sewer Overflow Control Project Seattle, King County Archaeological Resources Treatment and Monitoring Plans	Proposed treatment and monitoring plans to guide mitigation (i.e., archaeological evaluation and recovery) in the event that archaeological sites were encountered by the project. Included list of known NRHP-eligible archaeological sites and expected adverse effects; a proposed research design; and recommended methods of treatment and data recovery for kinds of archaeological resources expected in project area.
Liddle	1999	Letter to Hamilton Hazelhurst Regarding Results of Cultural Resource Monitoring for the World Trade Center North	Described methods and results of archaeological monitoring of construction excavations on property near a recorded site (45KI456). Identified historic-period archaeological materials (e.g., bottle glass, ceramics, metal items) in a layer of fill. Recorded the identified historic debris as archaeological site 45KI482. No further investigations recommended.
Forsman, et al.	2000	Proposed Aspen Murray Hotel/Condominium Project Archaeological and Traditional Cultural Places Overview, Seattle, King County, Washington	Provided archaeological, historical, and ethnographic overview of proposed construction location. Archaeological testing was not possible due to coverage by structures. Project area considered to have a low probability for intact pre-contact archaeological sites. Recommended archaeological monitoring of construction excavations due to moderate probability for intact historic-period archaeological sites to be present in project location.
Juell, et al.	2000	Cultural Resources Inventory of the Proposed Washington Light Lanes Project, Route 2 Backbone: Downtown Seattle to Interstate-5 (MP 164), Interstate-5 Seattle to Blaine (MP 164 to MP 276), and Blaine to the Canadian Border	Background research did not locate any previously recorded cultural resources in proposed cable route. Survey did not identify any historic or archaeological sites in vicinity of current Project. Because route avoided cultural resources and construction would occur predominantly in the interstate and previously disturbed urban areas, no further investigations recommended.

Author	Date	Title	Results and Recommendations
Dugas and Robbins	2001	Letter to Wade Metz Regarding Cultural Resource Monitoring for the Bellora Condominium Project, Seattle	Described results of archaeological monitoring of construction excavations on property near a recorded archaeological site (45KI456). Shell midden and fire-modified rock identified in exposure adjacent to Bellora project. No potentially significant cultural resources recommended. No further investigations recommended.
Nelson	2001	Cultural Resource Investigations for the West Lake Union Improvement Project, Seattle, Washington	Evaluated potential effects of project to cultural resources. Identified two ethnographic place names and historic sites (i.e. structures) on west shore of Lake Union. Conducted aboveground survey and recorded a segment of Northern Pacific railroad as historic-period archaeological site 45KI502; recommended site not eligible for NRHP. Recommended archaeological monitoring of construction excavations in the current study area (between Highland and Aloha) if native soils would be impacted.
Lewarch, et al.	2002	Archaeological Evaluation and Construction Excavation Monitoring At The World Trade Center, Baba'k ^w ob Site (45KI456), Seattle	Described results of archaeological monitoring of construction excavations and archaeological test excavations to evaluate archaeological site (45KI456) discovered during construction. Due to compromised depositional integrity and absence of temporally diagnostic artifacts, site recommended not eligible for NRHP.
Rooke	2002	Letter report describing the procedures and results of a cultural resources survey of Cingular Wireless tower site WA-482 (Cowden Building)	Conducted cultural resources survey for proposed cell tower atop a building 1 mile east-northeast of study area. No archaeological sites identified in vicinity of study area. No further investigations recommended.
Rooke	2002	Letter Report: Procedures and results of a cultural resources survey of Cingular Wireless Project Site WA-799 (Nettleton)	Conducted cultural resources survey for proposed cell tower atop a building 0.7 miles south of study area. No archaeological sites identified in vicinity of study area. No further investigations recommended.

Author	Date	Title	Results and Recommendations
Rooke	2002	Letter Report: Procedures and results of a cultural resources survey of Cingular Wireless project site WA-795 (Gatewood)	Conducted cultural resources survey for proposed cell tower atop a building 0.6 miles southwest of study area. No archaeological sites identified in vicinity of study area. No further investigations recommended.
Rooke	2002	Letter Report: Procedures and results of a cultural resources survey of Cingular Wireless project site WA-792-06 (Broadway Associates)	Conducted cultural resources survey for proposed cell tower atop a building 0.5 miles southeast of study area. No archaeological sites identified in vicinity of study area. No further investigations recommended.
Rooke	2002	Letter to Jay Grenfell Regarding WA-794 (Securities Bldg)	Conducted cultural resources survey for proposed cell tower atop a building 0.5 miles south of study area. No archaeological sites identified in vicinity of study area. No further investigations recommended.
Billat	2004	Letter to Greg Griffith Regarding Request for Consultation and Concurrence Regarding a Proposed Collocation of a Wireless Telecommunication Service Facility to be Located on the Roof of a Building at 904 Elliott Avenue West, in Seattle	Conducted cultural resources survey for proposed installation of wireless telecommunication facility atop a building 1 mile west of study area. No archaeological sites identified in vicinity of study area. No further investigations recommended.
Dellert and Larson	2004	Letter to Joe Claire Re: Valley Street Tunnel, South Lake Union Pipelines Phase 3/4, Denny Way/Lake Union Combined Sewer Overflow Project Archaeological Resources Construction Monitoring	Described results of archaeological monitoring of construction excavations. No archaeological sites identified during monitoring. No further investigations recommended.

Author	Date	Title	Results and Recommendations
Miller and Blukis Onat	2004	Winds, Waterways, and Weirs: Ethnographic Study of the Central Link Light Rail Corridor	Reviewed historical and ethnographic reports and archival materials, and conducted interviews to provide ethnographic background and cultural landscape model for area that includes the study area. Included information about Lakes Duwamish use of Lake Union, particularly Portage Bay. Documented one TCP on the Duwamish River.
Shong and Miss	2004	Results of Cultural Resources Monitoring for the City of Seattle West Lake Union Trail Improvement Project King County, Washington	Described results of archaeological monitoring of construction excavations. Historic-period and/or recent debris items observed. No archaeological sites identified. No further investigations recommended.
Gillis, et al.	2005	SR 99 Alaskan Way Viaduct & Seawall Replacement Project, Archaeological Monitoring and Review of Geotechnical Borings from South Spokane Street to Battery Street Tunnel	Described results of archaeological monitoring of geotechnical testing. No archaeological sites identified, but eight locations with possible pre-contact archaeological materials and six locations with possible historic-period archaeological materials were observed. Recommended further monitoring if geotechnical testing anticipated to intersect possible archaeological deposits.
Gillis, et al.	2005	Archaeological Resources Monitoring and Review of Geotechnical Borings from Harrison Street to Valley Street, SR 99: Alaskan Way Viaduct & Seawall Replacement Project	Described results of archaeological monitoring of geotechnical testing. No archaeological sites identified. Location considered to have low probability for intact archaeological sites due to prior grading activities. No further investigations recommended.
Gillis, et al.	2005	South Lake Union Park Development Cultural Resources and Traditional Cultural Places Overview	Provided cultural resources overview, identified potentially significant historic sites, and updated literature review prepared for an existing EIS. Identified former lakeshore and adjacent marsh covered by fill as high-probability area for pre-contact archaeological sites. Archaeological monitoring recommended in the event that construction required excavation in native soils.

Author	Date	Title	Results and Recommendations
Lewarch, et al.	2005	Seattle Monorail Project Green Line, Seattle, King County, Washington Archaeological Resources Treatment and Monitoring Plans	Provided cultural resources overview and proposed treatment and monitoring plans to guide mitigation (i.e., archaeological evaluation and recovery) in the event that archaeological sites were encountered by the project. Included a proposed research design and recommended methods of treatment and data recovery for kinds of archaeological resources expected in project area No archaeological sites identified in the vicinity of the current study area.
Juell	2006	Archaeological Site Assessment of Sound Transit's Sounder: Everett to Seattle Commuter Rail System, King and Snohomish Counties	Conducted archaeological assessment of proposed rail improvements. No archaeological sites identified in vicinity of current study area. Archaeological testing and monitoring recommended in high-probability areas for archaeological sites. No high-probability areas identified in vicinity of study area.
NWAA	2006	Geoarchaeological Examination of Solid-Core Geoprobes: Alaskan Way Viaduct and Seawall Replacement Project	Described results of analysis of geoprobe cores. Goal of analysis was to identify and characterize fill deposits along the Seattle waterfront, and locate contact between fill material and underlying intact native soils. No archaeological sites identified.
Flathman, et al.	2007	Archaeological and Historical Resources Survey of 635 Elliott Avenue West, Seattle	Provided cultural resources overview, conducted archaeological reconnaissance, and evaluated one historic building for potential listing as a Seattle City Landmark. Building determined not eligible for SCL listing. No archaeological sites identified. Recommended archaeological monitoring of construction excavations anticipated to intersect native soils due to proximity of Elliott Bay shoreline and previously recorded archaeological sites (45KI456 and 45KI482).
Gilpin	2007	Draft: Archaeological Monitoring at the South Lake Union Streetcar Maintenance Facility, Seattle	Described the results of archaeological monitoring of construction activities on property at intersection of Harrison Street and Fairview Avenue. No archaeological sites identified. No further investigations recommended.

Author	Date	Title	Results and Recommendations
Schumacher	2007	Archaeological Monitoring for 333 Elliott Avenue W, Seattle	Described results of archaeological monitoring of construction excavations. No archaeological sites identified. No further investigations recommended.
Bundy and Walker Gray	2008	Cultural Resources Assessment, Alaskan Way Viaduct & Seawall Replacement Program, Battery Street Tunnel Fire and Safety Upgrades Project	Reviewed historical and archaeological information and monitored geotechnical testing to evaluate potential impacts to archaeological sites. No archaeological sites identified. Project expected to be contained within limits of deposits disturbed by regrading and filling. No further investigations recommended.
Durio and Bard	2008	Mercer Corridor Improvements Environmental Assessment Historic, Cultural, and Archaeological Resources Discipline Report	Provided cultural resources overview and conducted archaeological and historic resource survey for a portion of current study area, between Dexter Avenue and Fairview Avenue from Republican Street north to Valley Street. Archaeological testing was conducted within the current study area and did not identify any archaeological sites. Project considered to have low potential to affect pre-contact archaeological sites because construction not anticipated to intersect undisturbed native soils. Archaeological monitoring of geotechnical testing in fill zones recommended.
Gillespie, et al.	2008	Historical Resources Assessment for the Queen Anne Post Office at 415 1st Avenue North, Seattle	Assessed project's potential effects to historic and archaeological sites. Inventoried one historic site and recommended it not eligible for NRHP. Location considered to have low potential for archaeological sites due to past landscape alterations. No archaeological sites identified. No further investigations recommended.
Hamilton, et al.	2008	Cultural Resources Monitoring of Mass Excavation at 635 Elliott Avenue West	Described results of archaeological monitoring of construction excavations. No archaeological sites identified. No further investigations recommended.

Author	Date	Title	Results and Recommendations
Miss, et al.	2008	The Alaskan Way Viaduct & Seawall Replacement Project, Results of the Archaeological Core Collection Program: Phase 1	Examined drilled sonicore samples to examine subsurface stratigraphy in the project corridor, identify archaeological materials, and gain information about past land use, landscape setting, and archaeological preservation and site formation processes in the corridor. No archaeological sites identified. Continued monitoring of geotechnical testing and construction excavations recommended in all areas of the corridor except those known to contain mass deposits of historic-period or recent fill.
Witt	2008	Letter to William E. Hogg RE: Cultural Resources Review of 2500 Block of First Avenue, Seattle for the KeyBank National Real Estate Transaction and Modernization Program	Provided cultural resources overview of proposed construction site. Evaluated potential effects to archaeological and historic sites. No archaeological sites identified. No further investigations recommended.
Blukis Onat	2009	University Link Archaeological Resources Monitoring and Treatment Plan	Described archaeological monitoring methods for high-probability areas and provided protocol for actions in event of discovery of archaeological resources and human remains.
CH2M Hill	2009	Supplemental Draft EIS and Section 4(f) Evaluation, SR 520 Bridge Replacement and HOV Program, SR 520: I-5 to Medina Bridge Replacement and HOV Project Cultural Resources Discipline Report.	Identified one recorded archaeological site (45KI760), one TCP (Foster Island), and over 200 historic sites. Made NRHP eligibility recommendations and evaluated potential effects of design alternatives to archaeological sites, traditional cultural properties, and historic properties. Provided options for mitigating, minimizing, and avoiding effects.
Valentino and Rinck	2009	Assessment for the West Thomas Street Pedestrian Overpass Project, Seattle, King County, Washington	Reviewed archaeological and historical background information and monitored geotechnical testing to evaluate project's potential effects to archaeological and historic sites. No archaeological sites identified. Archaeological monitoring of select construction activities recommended.

Author	Date	Title	Results and Recommendations
Gallacci	2010	Letter to Greg Griffith RE: Wireless Proposal #SA1209 1904 3rd Avenue, Seattle (Stewart and 4th)	Assessed project's potential effects to historic sites. Inventoried one historic site and recommended it eligible for NRHP. No archaeological sites identified. No further investigations recommended.

Table 3.1-2. Archaeological sites recorded within an approximately 1-mile radius of the study area (WA DAHP 2010a).

Site Number	Site Name	Site Type	Location Relative to Study Area	Evaluation Status	Potential Impacts due to Proposal	Recommended Mitigation
45KI405	--	Historic Maritime Properties, Pre Contact and Historic Components	1 mile west-southwest	Site has not been evaluated for NRHP.	None.	N/A
45KI456	Baba'k ^w ob Site	Historic Object(s), Pre Contact Camp; Pre Contact Shell Midden	0.6 miles south-southwest	Site recommended not eligible for NRHP.	None.	N/A
45KI482	World Trade Center North Historic Site	Historic Object(s), Pre Contact Burial	0.5 miles southwest	Site recommended not eligible for NRHP.	None.	N/A

Site Number	Site Name	Site Type	Location Relative to Study Area	Evaluation Status	Potential Impacts due to Proposal	Recommended Mitigation
45KI502	Northern Pacific Railroad Belt Line	Historic Railroad Properties	Within the study area along the east side of Westlake Avenue between Galer Street and Aloha Street (Cole 2000:4)	Site recommended not eligible for NRHP.	None. Prior construction has compromised this site. Construction in the site area under the current proposal not anticipated to generate additional impacts to this site.	None.
45KI737	Old Pine Street Stub Tunnel Site	Historic Commercial Properties, Historic Object(s), Historic Road, Historic Structures Not Specified	0.2 miles south	Site has not been evaluated for NRHP but is considered potentially eligible.	None.	N/A
45KI809	Great Northern Railroad Tunnel	Historic Railroad Properties	0.75 miles south	Determined eligible for NRHP.	None.	N/A
45KI946	--	Historic Commercial Properties, Historic Residential Structures	0.3 miles east	Site has not been evaluated for NRHP but is considered potentially eligible.	None.	N/A

Site Number	Site Name	Site Type	Location Relative to Study Area	Evaluation Status	Potential Impacts due to Proposal	Recommended Mitigation
45KI958	SDOT Maintenance Yard	Historic Commercial Properties, Historic Object(s), Historic Residential Structures, Pre Contact and Historic Components, Pre Contact Lithic Material	100 feet west	Site has not been evaluated for NRHP but is considered potentially eligible.	None.	N/A