Yesler Bridge Rehabilitation Project

APPENDIX 3

Question B. #13 – Historic and Cultural Preservation

CULTURAL RESOURCES ASSESEMENT REPORT

FINAL CULTURAL RESOURCES ASSESSMENT
FOR THE
YESLER WAY OVER 4TH AVENUE SOUTH BRIDGE
SEATTLE, WASHINGTON

REDACTED

January 22, 2015

Project Number 21266.01
Report Number 14-619

SWCA ENVIRONMENTAL CONSULTANTS
SEATTLE, WASHINGTON

FINAL CULTURAL RESOURCES ASSESSMENT FOR THE YESLER WAY OVER 4TH AVENUE SOUTH BRIDGE SEATTLE, WASHINGTON

Report Prepared for

HDR Engineering, Inc.
500 8th Ave NE
Bellevue, WA 98004
Phone 425 450-6200
Fax 425 453-7107

and

The Seattle Department of Transportation
700 Fifth Avenue, Suite 3900
P.O. Box 34996
Seattle, WA 98124-4996
Phone 206 684-7623

By

Eileen Heideman
Sharon Boswell
Brandy Rinck
Ann Sharley
and
Bob Krier

January 22, 2015

Project Number 21266.01
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REDACTED

SWCA Environmental Consultants
5418 - 20th Avenue NW, Suite 200
Seattle, Washington 98107

CULTURAL RESOURCES REPORT COVER SHEET

Author: Eileen Heideman, Sharon Boswell, Brandy Rinck, Ann Sharley, and Bob Krier

Title of Report: Final Cultural Resources Assessment for the Yesler Way over 4th Avenue South Bridge, Seattle, Washington

Date of Report: January 22, 2015

County(ies): King Section: 5 Township: 24N Range: 4E
Quad: Seattle South Acres: 5.5

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 #:

_____
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ABSTRACT

SWCA Environmental Consultants (SWCA) conducted a cultural resources assessment for the Yesler Way over 4th Avenue South Bridge project for the Seattle Department of Transportation (SDOT) in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended. The project is located at the intersection of Yesler Way and Terrace Street, spanning 4th Avenue South in downtown Seattle, Washington. SWCA completed two prior reports for this project: Historical and Cultural Resources Overview for the Yesler Way over Fourth Avenue South Bridge, Type, Size and Location Study (Heideman et al. 2012), and Historic Context for Yesler Way over Fourth Avenue South Bridge, King County, Washington (Boswell et al. 2012). The cultural resources overview contains information about known historic and archaeological resources in the project vicinity and summarizes the results of the archaeological monitoring of geotechnical borings. The detailed historic context for the bridge was completed at the request of the Pioneer Square Preservation Board. Information from these reports is included in the following document.

No archaeological sites were identified within the project area of potential effects (APE); however, geoarchaeological analysis of geotechnical boreholes identified potential for encountering cultural resources [redacted]. Limited archaeological monitoring of ground disturbing activities occurring [redacted] is recommended due to the heightened potential for the discovery of significant cultural materials within [redacted].

The project is within the boundaries of the Pioneer Square-Skid Road Historic District, which is listed in the National Register of Historic Places. The project is also located partially within two local historic districts: the Pioneer Square Preservation District and the International Special Review District. Resources that are considered eligible for the National Register of Historic Places and are located within local historic district boundaries should also be considered eligible for listing in those local districts. The area of potential effects (APE) for this project contains 15 buildings or structures over 50 years old. Eleven of these resources are listed in the National Register of Historic Places as part of the Pioneer Square-Skid Road Historic District. One additional structure is recommended eligible for the National Register and for local district listing.

Of the 12 individual built environment resources that are located within the APE and are eligible for or listed in the National Register, five will be adversely affected by the project. These resources include the King County Courthouse Tunnel Entrance, Yesler Way over 4th Avenue South Bridge, the Prefontaine Building, the MacRae Parking Garage, and the Prefontaine Building areaways. In addition to this, the Pioneer Square-Skid Road Historic District will be adversely affected by the project due to the removal of a contributing resource.

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INTRODUCTION

The City of Seattle Department of Transportation (SDOT) plans to rehabilitate the Yesler Way over 4th Avenue South Bridge at the south end of downtown Seattle. SWCA Environmental Consultants was retained by HDR Engineering, Inc. (HDR) to prepare a Cultural Resources Assessment of the project for SDOT, in compliance with federal environmental laws. This report builds on two previous documents prepared by SWCA: Historical and Cultural Resources Overview for the Yesler Way over Fourth Avenue South Bridge, Type, Size and Location Study. (Heideman et al. 2012) and Historic Context for the Yesler Way over Fourth Avenue South Bridge, King County, Washington (Boswell et al. 2012). In addition to information from these studies, the following document provides the results of the buildings and structures survey and assesses the potential for the project to have an adverse effect on cultural resources. Over time, 4th Avenue South has also been referred to as Fourth Avenue, but in this report it will be referred to by the common usage of 4th Avenue South.

Project Location and Description

The Area of Potential Effects (APE) is located in the northwest quarter of Section 5, Township 24 North, Range 4 East, Willamette Meridian (Figure 1). The bridge carries Yesler Way and the west end of Terrace Street over 4th Avenue South in a dense commercial and residential neighborhood and is partially within the boundaries of the Pioneer Square-Skid Road Historic District, a National Register of Historic Places (NRHP) property. Two Seattle historic districts, the Pioneer Square Special Review District and the International Special Review District also overlap the APE. The bridge itself is located within all three districts.

SDOT proposes to construct the following improvements as highlighted in Figure 2:

- Replace the existing three-span bridge superstructure with a new single-span superstructure
- Replace the existing west abutment wall with a new west abutment wall
- Rehabilitate the existing east abutment wall
- Remove and preserve the fascia girders and decorative pedestrian railings
- Reconstruct or rehabilitate adjacent walls, stairways, buildings, and areaways impacted by the project.

SDOT initiated a three-step screening process that included significant input from the Department of Neighborhoods (DON), the Pioneer Square Preservation Board (PSPB) and the International Special Review District Board (ISRDB). Based on the results of this process, a single-span steel plate I-girder superstructure with 3-foot-deep girders beneath the sidewalk slabs, 3.5-foot-deep girders beneath the deck slab and preservation of the existing pedestrian railings, fascia girders and fascia girder columns was selected as the preferred superstructure alternative.

The new west abutment will consist of four or five 4-foot-diameter drilled shafts that extend to the invert of the Burlington Northern Santa Fe Railway Company (BNSF) tunnel, which passes approximately 20 feet behind and 40 feet below the west abutment. A pile cap connecting the shafts will be constructed and the face of the new abutment wall will match the existing wall face. The top of the wall will receive the girders and the end diaphragm will be pinned using vertical dowels embedded in the wall. A determination was made that rehabilitation of the existing wall was infeasible due to concerns about placement of tiebacks above the BNSF tunnel and also the inability of the existing abutment to withstand the larger loads of a single-span superstructure.

The east abutment will be rehabilitated to address sliding and overturning instability of the existing structure. The rehabilitation will include removal of several feet from the top of the existing abutment in

Figure 1. Project location.

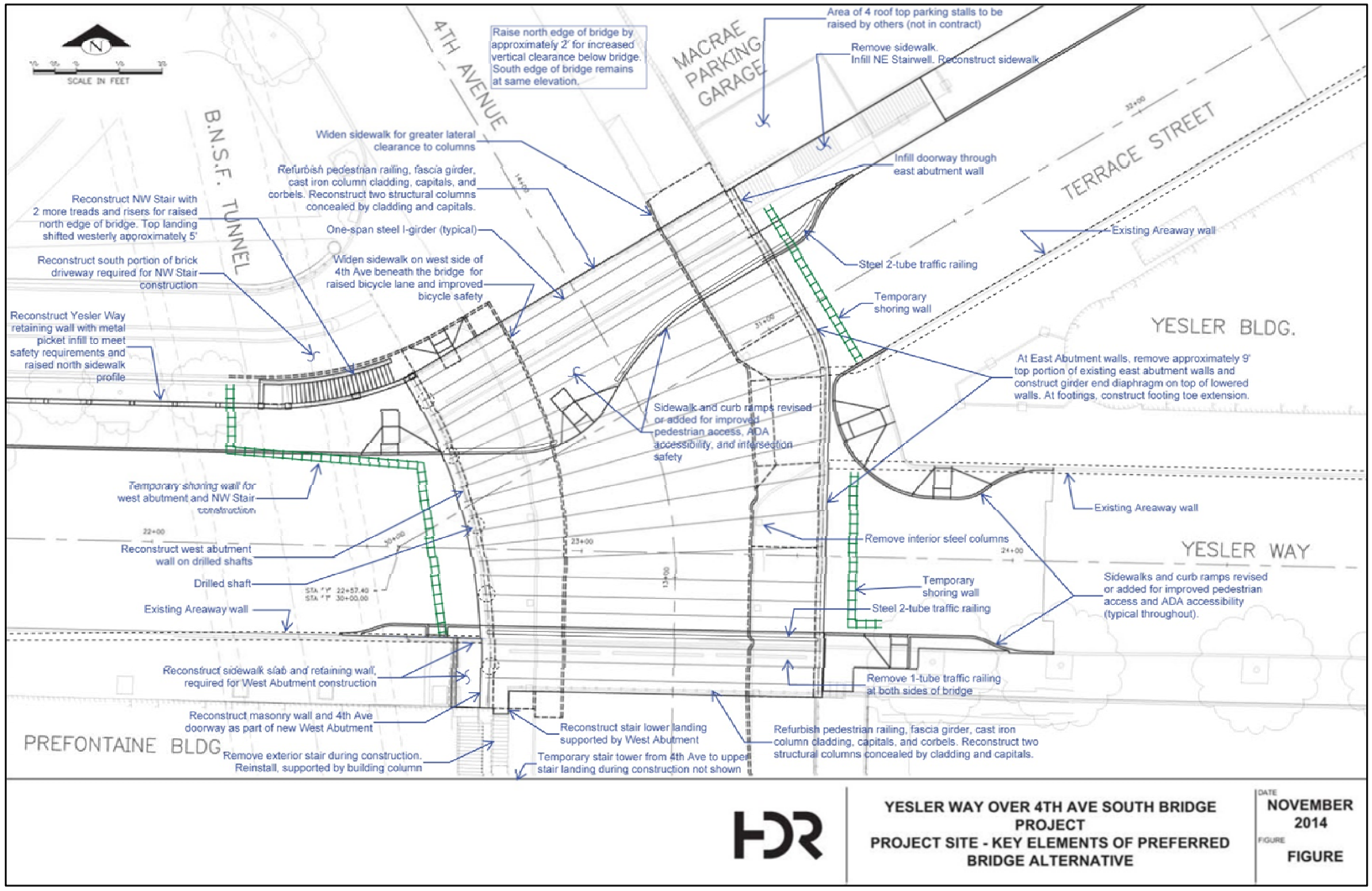

Figure 2. Key Elements of Preferred Bridge Alternative.

order to accommodate the deeper single-span girders that will be resting on it. The rehabilitation will impact areaway spaces, which are behind the abutment wall and make up the garage and second-level basements of the Yesler Building. The Yesler Building is owned by King County, which uses the areaways for storage, office space, and other operational needs.

Rehabilitation or reconstruction improvements are proposed for certain walls, stairways, areaways and buildings impacted by construction of the bridge superstructure and abutments. These proposed improvements include the following:

- Complete reconstruction of the northwest stairway connecting the west side of 4th Avenue to the north side of Yesler Way. This work will include reconstruction of the (brick-inlaid) concrete pedestrian barrier at the northwest end of the bridge and the top of the cracked wing wall.
- Potential use of the northeast stairway at the east abutment wall will be eliminated because the abutment wall will be reconstructed at the doorway as part of the abutment rehabilitation. This stairway passes through the east abutment wall at its north end and connects the east side of 4th Avenue with the north side of Terrace Street. Access to the stairway is currently blocked and the stairway has not been used for some time.
- Reconstruction of a small rooftop area at the southwest corner of the MacRae Parking Garage may be desired by the City to allow continued rooftop access to four existing parking spaces at this location.
- Repairs will be made to areaway spaces behind the east and west abutment walls that are impacted by construction.

Regulatory Context

A number of national, state, and local laws establish the regulatory context for the project. These laws are briefly summarized below.

The project is part of SDOT's Bridge Rehabilitation and Replacement Program and is being funded by the City's Bridging the Gap levy and the Federal Highway Bridge Program, through its designee the Washington State Department of Transportation (WSDOT), and is subject to the National Historic Preservation Act of 1966 (NHPA), as amended. Section 106 of NHPA requires the agency take into account the effect of an undertaking on any district, site, building, structure or object that is eligible for or included in the National Register of Historic Places.

Implementing regulations for Section 106 explicitly provide guidance for this process (36CFR800), including provisions for the identification of historic properties and assessment of the undertaking's effect in a manner consistent with existing NHPA regulations (Section 800.4 through 800.5). Eligible properties generally must be at least 50 years old, possess integrity of physical characteristics, and meet at least one of four criteria of significance. These criteria designate as significant those resources:

A. that are associated with events that have made a significant contribution to the broad patterns of our history; or
B. that are associated with the lives of persons significant in our past; or
C. that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction, or
D. that have yielded, or may be likely to yield, information important in prehistory or history.

The Washington State Environmental Policy Act (RCW 43 21C) and the rules for its implementation contained in the Washington Administrative Code (WAC 197-11) stipulate that the project proponent, in this case the City of Seattle, must identify any places or objects in or adjacent to the study area that are listed in, or eligible for, national, state, or local preservation registers as well as any sites of archaeological, scientific, or cultural importance in or adjacent to the study area. Proposed measures to reduce or control impacts to those places, objects, and sites must also be addressed.

Several Washington state laws specifically address archaeological sites and Native American burials. The Archaeological Sites and Resources Act (RCW 27.53) prohibits anyone from knowingly excavating or disturbing prehistoric or historical archaeological sites on public or private land without a permit from the Washington Department of Archaeology and Historic Preservation (DAHP). The Indian Graves and Records Act (RCW 27.44) prohibits destruction of American Indian graves and requires re-interment under supervision of the appropriate Indian tribe following inadvertent disturbance by construction or other activity. RCW 42.56.300 states that records, maps, or other information identifying the location of archaeological sites are exempt from public disclosure laws in order to avoid the looting or depredation of such sites.

On the local level, the City of Seattle's Historic Landmark Preservation Ordinance (Seattle Municipal Code 25.12) protects properties of historic and architectural significance. An object, site or improvement that is more than 25 years old may be designated for preservation as a landmark if it has significant character, interest or value as part of the development, heritage or cultural characteristics of the city, state, or nation, if it has integrity or the ability to convey its significance, and if it falls into one of six criteria:

A. It is the location of, or is associated in a significant way with, an historic event with a significant effect upon the community, city, state, or nation; or
B. It is associated in a significant way with the life of a person important in the history of the city, state, or nation; or
C. It is associated in a significant way with a significant aspect of the cultural, political, or economic heritage of the community, city, state, or nation; or
D. It embodies the distinctive visible characteristics of an architectural style, or period, or of a method of construction; or
E. It is an outstanding work of a designer or builder, or
F. Because of its prominence of spatial location, contrasts of siting, age, or scale, it is an easily identifiable visual feature of its neighborhood or the City and contributes to the distinctive quality or identity of such neighborhood or the City (Seattle Municipal Code 25.12.350).

Under the City of Seattle's SEPA regulations, properties that are likely to meet City Landmark criteria must be formally reviewed for designation before demolition. The Seattle Landmarks Preservation Board makes this determination and other review decisions concerning landmarks and districts.

Changes that take place within City of Seattle historic districts will require a Certificate of Approval from the respective district boards. Changes subject to review include the following:

- Any change to the exterior of any building or structure;
- Installation of any new sign or changes to existing signs;
- A change in the color the building or structure is painted;
- Any change in a public right-of-way or other public space, including parks and sidewalks and associated displays, street lights, etc.;

- New construction;
- Demolition of any building or structure;
- Changes to the interior that show from the street, changes to individual business spaces in the Pike Place Market, and changes to the interior of some landmark buildings;
- Site alterations in some cases, and
- A proposed new business or service or an expansion of current use in some cases (Seattle Department of Neighborhoods 2012).

Area of Potential Effects (APE)

An APE is identified based on the geographical extent of a project and the activities that may affect cultural, historic or archaeological resources. The Yesler Bridge APE extends approximately one block in each direction from the bridge and includes the full block defined by Yesler Way, 5th Avenue and Terrace Street; the full block defined by Yesler Way, Prefontaine Place and 4th Avenue South; the north half of the block defined by Prefontaine Place, South Washington Street and 3rd Avenue South; the building at the southwest corner of Yesler Way and 3rd Avenue South; all of City Hall Park, and the two buildings located in the south quarter of the block defined by Terrace Street, 4th Avenue, Jefferson Street and 5th Avenue (Figure 3). These boundaries incorporate historic resources that may be affected by ground disturbance, noise, vibrations, dust and other project elements and include nearby buildings and structures identified by the Pioneer Square Preservation District and International Special Review District coordinators as resources of concern.

The identification of archaeological resources is confined to areas of ground disturbance which are expected under the existing bridge abutments at Yesler Way and Terrace Street. Most of the ground disturbance will accommodate new roadway grades and will be less than 18 inches below street level. At most, these shallow excavations are expected to extend approximately 150 feet east and west of the bridge on Yesler Way, and 150 feet behind the east abutment on Terrace Street. Excavations occurring up to 10 feet behind the east abutment could extend to a depth of 10 feet below street level. Excavations occurring up to 10 feet behind the west abutment could extend to a depth of 70 feet below street level to install drilled shafts to support the new bridge girders.

Prior to bridge construction, utility relocation work will take place in the vicinity of the Yesler Way over 4th Avenue South Bridge. Seattle City Light (SCL) power lines under the Yesler Way over 4th Avenue South Bridge will be relocated to a vault in 5th Avenue South directly beneath the Yesler Way over 5th Avenue South Bridge and extending up the west abutment wall and along the north side of Yesler Way to a terminal vault in the sidewalk adjacent to the Yesler Way entrance of the Yesler Building. A Seattle Public Utilities (SPU) 12” water main that is currently attached to the underside of the bridge will be reconstructed as part of the project. The reconstructed water main will also be attached to the underside of the bridge. This utility relocation work will take place with local funding.

Tribal Coordination

SWCA sent informal contact letters during the initial project phase in November 2011 to Native American tribes that may have an interest in the project area, including the Duwamish Tribe, Suquamish Tribe, Muckleshoot Indian Tribe, Snoqualmie Nation, Tulalip Tribes, and Confederated Tribes and Bands of the Yakama Nation. The letters briefly described the proposed project and inquired about tribal heritage concerns, including traditional cultural properties that could be affected by the project (Appendix A). To date, SWCA has received no responses to these letters.

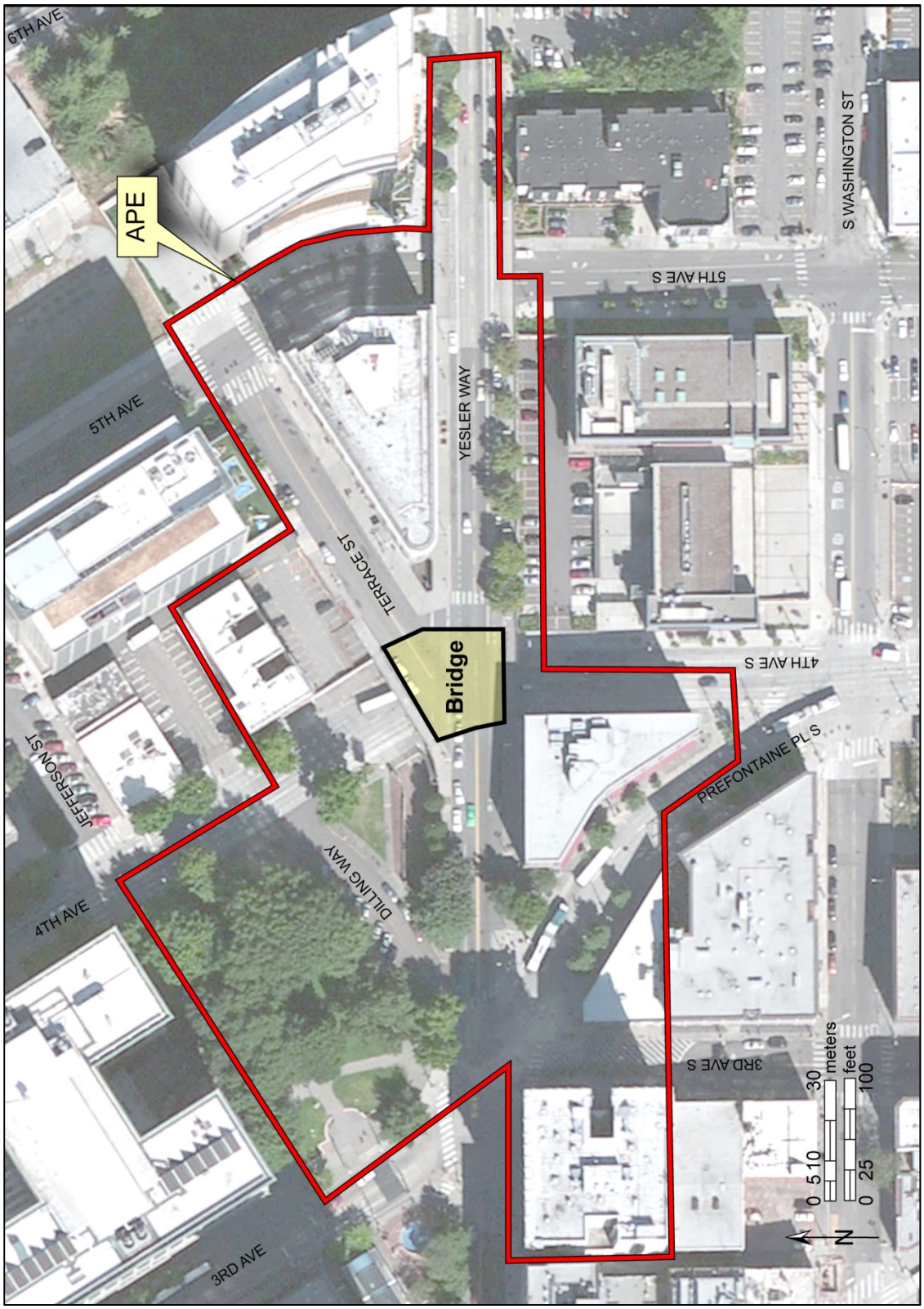

Figure 3. Area of Potential Effects.

METHODS

SWCA personnel identified potential archaeological and historic properties by conducting background research, monitoring geotechnical boreholes, and completing a field survey of the APE. This process began with a review of records at DAHP to gather information on earlier cultural resource surveys in the area as well as previously recorded archaeological sites and historical structures. Cultural resource assessment reports and research designs prepared by SWCA were also consulted. Additional historical research included review of scholarly publications, local history books and articles, historical maps and photographs, newspapers, and primary documents from government and private collections.

Repositories visited included the University of Washington libraries and the Special Collections Division; the National Archives and Records Administration, Pacific Alaska Region; the Seattle Municipal Archives; the Museum of History and Industry; the Seattle Public Library; City of Seattle Public Utilities, Engineering Records Vault, and the Washington State Archives, Puget Sound Regional Branch. Historical materials accessed online included property ownership and plat information from the City of Seattle and the King County Assessor's and Recorder's offices, and Sanborn Fire Insurance maps from the Seattle Public Library.

SWCA cultural resources staff for this project included architectural historian Eileen Heideman, historian Sharon Boswell, geoarchaeologist Brandy Rinck, and archaeologists Lorelea Hudson and Alicia Valentino. All of these individuals meet the Secretary of the Interior's Professional Qualifications Standards in their fields. Additional expertise was provided by bridge engineer Bob Krier.

Geotechnical Monitoring

Prior to fieldwork, the website GeoMap Northwest was consulted to find existing borelogs of geotechnical investigations that were previously conducted in the project vicinity. Seven previous geotechnical investigations were located, resulting in a total of 24 useful borelogs that were available online (Winter and Stauffer 2004, Unknown 1973, Shannon and Wilson, Inc. 1986 and 2005, Nelson 1967, Hart-Crowser and Associates 1977, Geotech Consultants, Inc. 1998). A geoarchaeologist transposed these 24 borelogs into the nomenclature system described below, and this information as well as the results of archaeological monitoring were included in the following analysis.

Three hollow-stem auger borings were archaeologically monitored by geoarchaeologist Brandy Rinck and archaeologist Alicia Valentino between December 19 and December 27, 2011. Concrete at the surface was cored and the upper 5 to 6 feet of fill was vactored to avoid utility damage prior to drilling. After vactoring was successfully completed at each borehole, the sediment was replaced and the hole was patched. During drilling, the boreholes were sampled at 5-foot intervals. Samples were generally collected using an 18-inch-long sampler with a 2-inch outer diameter and a 1 3/8-inch opening that was driven into the ground with a 140 pound hammer falling 30 feet. The hollow-stem auger borings were drilled to between 43 and 70 feet below the surface (fbs). The borings were archaeologically monitored until sterile glacial sediments were identified. SWCA personnel logged the lithology of the sediment encountered in the samples and the corresponding depths on standard forms and took photographs of the samples and borehole locations. They also completed separate daily work logs and recorded events that occurred during the coring process. Location information about each borehole was obtained from a handheld Trimble GPS unit. All the samples were visually inspected for cultural materials. A total of 116 linear feet of drilling was archaeologically monitored.

Table 1 shows the primary lithologic constituents recorded during boring as well as a list of secondary properties commonly used to describe them in further detail. The symbolism is used as shorthand for lithologic description in the graphics in this report. In this descriptive system, the modal grain size of a naturally deposited sedimentary unit is indicated with a capital letter. For example, a layer dominated by sandy texture would be designated with the letter "S." Secondary properties of the sediment are designated by lowercase letters, representing either secondary constituents of the deposit, or additional descriptor terms for the modal grain size. For example, fSz (silty fine sand), is broken down into "f," "S" and "z." The "S" indicates that sand is the primary constituent; the "f" indicates the grain size of that sand is fine with "z" (silt) as a secondary component of the deposit. Layers of fill are also described by their modal grain size or dominant component if the unit is composed of a man-made material. For example, a layer of fill that contains mostly sand with a little silt of gravels is called SAND. A unit composed of sandy concrete would be called CONCRETE. The sterile glacial deposits found at the base of the sequence in the project area are logged as Pleistocene.

Table 1. Primary Lithologic Constituents and Secondary Properties Used During this Analysis.

FILL DEPOSITS		
ASPHALT		
CONCRETE		
GRANITE		
WOOD		
GRAVEL		
SAND		
SILT		
CLAY		
PREFIXES FOR SAND	**HOLOCENE NATURAL SEDIMENT**	**SECONDARY PROPERTIES (SUFFIXES)**
f - fine	S - Sand	g - gravelly
m - medium	Z - Silt	z - silty
c - coarse		c - clayey
STERILE GLACIAL SEDIMENT		
Pleistocene		

After fieldwork was complete, the geoarchaeologist entered lithologic and stratigraphic data into the Rockware software program, Rockworks. This software program organizes and analyzes core data. Profiles and diagrams of the borelogs were compiled from the data in order to facilitate the following discussion. All the borelog data exported from Rockworks is included in Appendix B.

Buildings and Structures Survey

SWCA contacted the coordinator for the Pioneer Square Preservation District, Genna Nashem, and the coordinator for the International Special Review District, Rebecca Frestedt, to discuss any concerns that the Department of Neighborhoods had about historic resources in the two districts and to ask for suggestions on a tentative study area. Ms. Nashem recommended that three buildings (the Tashiro and Kaplan buildings and the Frye Hotel) be included in addition to the buildings immediately adjacent to the project because of concerns about potential regrading of area streets to improve bridge clearance. Areaways and associated prism lights were also mentioned as a district concern, as were the three-globe style street lights in the vicinity of the bridge (email, Genna Nashem, December 19, 2011). Ms. Frestedt noted that the northern boundary for the International Special Review District extends down the center of Yesler Way and that any work occurring on the south side of Yesler Way could be subject to ISRD approval (email, Rebecca Frestedt, December 16, 2011).

SWCA architectural historian Eileen Heideman conducted a visit to the project site with representatives from HDR and the City of Seattle on December 8, 2011. During the visit, the bridge and adjacent buildings and structures were photographed, and a portion of the areaway around the Yesler Building (referred to in this report by its historical name, the City Hall/Public Safety Building) was examined and photographed. The purpose of this site visit was to gather general information about the project location; no buildings or structures were recorded at this time. A second site visit was conducted on December 19, 2011, by Heideman and project archaeologist Lorelea Hudson with King County Facilities Management representatives Stephen Swinburne and Robert Renouard. The purpose of this visit was to investigate and photograph the King County Courthouse tunnel, the entrance of which forms a portion of the northwest approach wall and rail. Photographs of the tunnel were taken, but the tunnel was not recorded at this time. Information gathered during these site visits was used to develop a study area for the *Historical and Cultural Resources Overview for the Yesler Way Over Fourth Avenue South Bridge Type, Size and Location Study* (Heideman et.al 2012).

Following production of the overview, the Pioneer Square Preservation Board requested additional information about the bridge. Eileen Heideman, Sharon Boswell and Bob Krier visited the site on August 6, 2012, and reported on the results of this visit and additional research in the *Historic Context for Yesler Way Over Fourth Avenue South Bridge, King County, Washington* (Boswell et.al 2012).

Eileen Heideman conducted subsequent site visits on March 15, 2013, to record areaways at the City Hall/Public Safety Building and the Prefontaine Building and on May 20, 2013, to record the rest of the structures and objects in the APE. She photographed these resources and described them on field forms This information was then entered into DAHP's WISAARD database, and Washington State Historic Property Inventory Forms were generated (Appendix C).

SETTING

The shoreline and tideflats environment along Elliott Bay originally structured human habitation and subsistence in the APE vicinity. The variety and abundance of natural resources that were present in the area attracted both pre-contact Native American and early Euroamerican settlement. Knowledge of the natural and cultural history through time allows researchers to assess the probability of human occupation and activities, to predict cultural site preservation, and to explain observed site conditions.

Natural Setting

Geology

The project is in the central Puget Sound basin near the shoreline of Elliott Bay, which extends from Smith Cove on the north to the mouth of the Duwamish River on the south. The modern topography and surficial geology of the Puget Sound region are the result of multiple widespread continental glaciations that extended southward from British Columbia into the northern Puget Lowland and along the western flanks of the Cascade Range. The latest glacial maximum, known in this region as the Vashon Stade of the Fraser glaciation, reached its height about 18,000 years before the present (BP) and abruptly came to a close with the onset of climatic warming about 14,000 BP (Easterbrook 2003).

Deglaciation of the region occurred rapidly and was accompanied by a complex succession of meltwater channels and ice-marginal lakes that existed during a period which probably lasted less than 1,000 years. As the glaciers retreated, the land area formerly depressed under the weight of the ice experienced

isostatic rebound that raised the elevation of the land a few feet in the southern Puget Lowland to more than 250 feet in the northern Puget Lowland. Rebound appears to have stopped by about 9,000 BP, at which time ongoing global sea-level rise began to drown the early Holocene shorelines (Dragovich et al. 1994). Global sea levels rose rapidly between 13,000 and 7,000 BP. The rate of sea level rise then appreciably declined between about 7,000 and 5,000 BP (Easterbrook 2003). When sea levels rose, the marine incursion resulted in formation of deltas at Puget Sound embayment heads, such as the head of the Duwamish Valley near what is now Auburn. Relative sea level was within 16 feet of the modern shoreline around the Puget Sound by about 5,000 BP (Crandell 1963; Dragovich et al. 1994).

The Duwamish River delta experienced rapid growth beginning about 5,700 years BP, when a large-scale summit and flank collapse on Mt. Rainier resulted in the Osceola Mudflow. The flow passed down the White River drainage and spilled into the Green River and Puyallup River drainages. Following emplacement of the Osceola Mudflow, river aggradation (building up) and delta progradation (building out) filled the early Holocene Duwamish embayment of Puget Sound north from what is now Auburn. The aggradation and progradation were intensified by rapid incision into and erosion of the primary Osceola Mudflow deposit. The overall rate of delta growth has been estimated between 22 and 19 feet per year (6.7 and 5.8 meters) (Dragovich et al. 1994). Current research indicates the Duwamish delta arrived near Terminal 107 on the Duwamish River, approximately 3 miles south-southwest of the study area, between 1,520 and 2,120 BP. For example, marsh deposits set into Duwamish delta sands began forming between 780 and 930 BP (Zehfuss et al. 2003). The formation of marsh deposits is significant because marshes are found near shoreline and delta front environments.

The project is located along the northern splays of the Seattle fault zone. The fault, and its associated fault strands, extend from the Cascade Range foothills to Hood Canal and is one of several fault zones in the Puget Lowland that serve to absorb crustal foreshortening resulting from subduction of the Juan de Fuca plate under the North America plate (Nelson et al. 2003; Sherrod 2001). Coastal tectonic research has documented a large earthquake on the fault dating between 1,050 and 1,020 BP (Bucknam et al. 1992; Atwater and Moore 1992). During this event, Alki Point at the southern entrance to Elliott Bay was raised more than about 13 feet (4 meters) and Restoration Point on Bainbridge Island was uplifted about 16 feet (5 meters). At the same time, the West Point cuspate spit just north of Elliott Bay subsided approximately three feet (1 meter) (Atwater and Moore 1992). Delta topset beds composed of andesitic sand that underlie floodplain deposits at Terminal 107 probably predate this earthquake event because they contain animal burrows at elevations at or above modern high tides. The uplift associated with this earthquake raised the burrowed sands up to 16 feet (5 meters), forming a terrace that stood above the level of historical floods (Collins and Sheikh 2005a; Zehfuss et al. 2003; Sherrod 2001). Earthquakes in the Puget Lowland would have triggered landslides and other mass wasting events along the bluffs that backed the Puget Sound shoreline and also liquefaction of the unconsolidated intertidal alluvium of the beaches and tideflats below the bluffs.

The eastern shore of central Puget Sound is relatively straight and featureless, consisting almost entirely of high bluffs, broken only by Elliott Bay and Commencement Bay and by a number of streams in steep, narrow ravines (Collins and Sheikh 2005a). In the mid-1870s when Elliott Bay was first carefully mapped, its shoreline was characterized by bluffs and low wave cut banks backed by steep upland slopes. The historic shoreline consisted of relatively broad tide flats with a developed beach berm and a narrow back shore zone at the base of the bluffs (Downing 1983). The bluffs were dissected by ravines such as the ones at Bell and Seneca Streets. The original bluff, beach, and tideflat topography is now dominated by modified land that has been filled. The top of the former bluff line follows Elliott Avenue north of Pike Street and aligns approximately with Western Avenue south of Pike Street to Yesler Way.

Elliott Bay historically contained four tidal marshes. The closest to the project area is now covered by Occidental Square in downtown Seattle (Collins and Sheikh 2005a). The east side of this marsh complex had a lagoon that may have extended as far east as 3rd Avenue. The other three wetlands were at the mouth of the Duwamish River to the south, at West Point and at Smith Cove (Collins and Sheikh 2005a). A small creek or drainage area extended through the APE to drain into the tidal lagoon (United States Coast and Geodetic Survey Topographic Sheets, T-1406, Duwamish Bay, (part of) Washington Territory, 1875). Soils data for the project area is not available from the Soil Conservation Service due to the surface of the Seattle area being mapped as urban land and artificial fill. Prior to historic development of the project parcel, the soils were most likely gravelly and sandy, developed in glacial parent material. Fill was deposited on top of the glacial soils during numerous regrade and historic construction projects. Pre-Vashon glacial deposits are mapped on the steep hills surrounding the project area (Troost et al. 2005). Holocene-age colluvium or alluvium could also be present below historic fill.

Flora and Fauna

Elliott Bay and the Duwamish River delta provide important and diverse resources that influenced the locations and times of occupation for pre-contact period Native American people. The tidal flats, the shoreline below the bluffs and the heavily wooded slopes above the shoreline supported a wide range of habitats. The open water harbored squid, shrimp, various sea mammals and runs of anadromous fish, including sockeye and chinook salmon and steelhead trout. Bottom dwellers included ling cod, flounder, sole, rockfish and invertebrates such as clams, sea cucumbers, crabs and octopuses. The intertidal zone, which extended along the waterfront, included many invertebrates, among them crabs, shrimp, clams, oysters, mussels, chitons, barnacles and sea urchins. Portions of the relatively young tideflats were water-saturated, but above the mean high tide, were covered with salt-tolerant sedges, grasses and rushes. Theses tidal areas hosted migratory and resident birds, while the forest above the shoreline was inhabited by various mammals, large and small. Cedar trees and other plants proved useful for wood, fiber, food, tools, and medicines (Suttles 1990:21-29).

Cultural Setting

Native American people have made their homes in the Puget Sound area for countless generations. The first Europeans visited the area in the late eighteenth century and, within 60 years, Euroamerican and other non-Native settlers began to establish residences and businesses in the area. The following section summarizes the diverse peoples who have lived and worked in the project vicinity over the centuries.

Pre-Contact Period

Archaeological investigations provide a glimpse of pre-contact Native American cultures in the region. A small number of fluted projectile points, morphologically similar to styles dated between 12,000 and 11,000 BP, represent the earliest evidence of human occupation in the area. Fluted points have been recovered from ancient peat bogs in [redacted] and [redacted], the earliest known archaeological sites in the Seattle vicinity (Ames and Maschner 1999; Kopperl et al., 2010; Matson and Coupland 1995). These early residents were probably highly mobile big-game hunters who moved across the landscape in small family groups.

Olcott sites, characterized by large leaf-shaped projectile points and flake tools manufactured from locally available cobbles, have also been identified in the region. These sites, believed to date between 8,000 and 5,000 BP, are typically found along terrace edges, some distance from marine waterways. These sites may have been selected for their expansive views, which would have been beneficial to hunting peoples. Such locations may also have been chosen to avoid the wet bottomlands, meltwater-

swollen rivers, and fluctuating sea levels that occurred during the early post-glacial period. As sea levels rose following the Pleistocene, earlier shorelines were inundated, probably covering evidence of early human occupation in the area (Matson and Coupland 1995; Morgan 1999).

Sites dating after 5,000 years BP are more common in the region. During this period, populations increased dramatically and groups began to organize themselves in more complex ways. Archaeological evidence documents significant changes in technology, subsistence, and settlement patterns. The period between 3,000 BP and 1,000 BP saw the emergence of a semi-sedentary settlement pattern based on the central village, with specialized seasonal resource-procurement camps. Storage technology became increasingly sophisticated during this period and ranked societies emerged. The final 1,000 years of coast prehistory are characterized by permanent houses in central villages, a salmon-based economy and ascribed rather than achieved social status (Matson and Coupland 1995; Morgan 1999).

Ethnographic Period

At the time of European contact, numerous small autonomous groups of Lushootseed-speaking Coast Salish people inhabited the Puget Sound region. These Native American people generally made their homes along marine waterways, bays, lakes, or rivers, which served as convenient transportation corridors as well as rich resource-procurement areas. Primary residences usually consisted of substantial split-plank buildings at permanent village sites, while temporary camps provided shelter during seasonal fishing, hunting and gathering trips. Villages in the region retained political autonomy, but trade, marriage and mutual ceremonies created bonds between neighboring groups (Castile 1985; Suttles and Lane 1990).

The present project is in the ethnohistoric territory of the Duwamish, a Lushootseed-speaking group that resided along the shores of Elliott Bay, Lake Washington, Lake Union, and Salmon Bay as well as along the banks of the Duwamish, Black, and Cedar Rivers. Like other Puget Sound groups, the Duwamish traditionally followed a seasonal subsistence round tied to available resources. In spring and summer, people dispersed from their winter villages to fish, hunt land and sea mammals, and collect roots, berries, and other plant foods. The region has a mild climate and abundant resources, and enough salmon could generally be harvested in a few weeks to last the entire winter. During the winter months, people usually remained near the permanent villages, and important ceremonies such as public naming, puberty, and marriage rites were held. These events both demonstrated and elevated the sponsoring household's social standing. The more important the family, the more guests were invited, strengthening social bonds and creating reciprocal obligations (Miller 1999:20-21).

The first documented contact between Native American residents of the region and Europeans occurred in May 1792 as British sea captain George Vancouver led an exploratory party through Puget Sound, past the sites of present-day Seattle and Tacoma. Vancouver's journal documents numerous encounters with Native American people in the area, including a group of 80 to 100 men, women, and children who, while harvesting edible roots, were camped at Restoration Point, three miles across the Sound from present-day Seattle. Meetings with this group were amicable, with both sides offering gifts and attempting to communicate through gestures and pantomime (Blumenthal 2004:153-156). Although several decades probably passed before Europeans again visited the area, exotic epidemic diseases swept through the region during this period, decimating Native populations and creating profound disruptions in existing social and cultural patterns (Suttles and Lane 1990:499-501).

Numerous Lushootseed place names, recorded in the early twentieth century, attest to the Native presence in the Seattle area and represent the memory of a people intimately familiar with the local

landscape (Table 2, Figure 4). These locations are found throughout the region: along Smith Cove and the Elliott Bay shoreline, at the mouth of the Duwamish River, around Lake Union and Lake Washington, and from Shilshole Bay to the inland water and portage routes. Prior to regrading and filling of the tidelands, [redacted] was the location of an ethnographic village, Djidjilä'l3ltc, "the crossing over place." Other place names in the project vicinity include Tuxpa'ctEb, [redacted], Tul3a'ltu or "Herring House" on [redacted], and Tɛta'lks, a promontory on an unidentified island (Waterman 2001). Named locations are considered to have high potential for cultural remains except in areas where extensive land modification, such as regrading, has taken place.

A second set of Native American locations in the Seattle area has been gleaned from historical period documentation, particularly photographs and records of encampments, cemeteries, and work areas. Thrush (2002) is particularly valuable in this respect because of his extensive review of primary sources. These locations, listed in Table 3 and shown in Figure 5, are also site-specific, and some overlap the named ethnographic locations. Area 2, a trail from [redacted], followed approximately the same route as [redacted]. Area 9, a historic-period Native American community, [redacted] All of these locations are considered to have high potential for cultural remains.

Table 2. Ethnographic Sites in the Project Vicinity Based on Waterman (2001).

NO.	ORTHOGRAPHY: WATERMAN (LUSHOOTSEED)	TRANSLATION	DESCRIPTION
23	*Djidjilä'l^{3}ltc* (*dᶻidᶻəlalič*)	a little place where one crosses over	[redacted]
24	*^{Tux}pa'ctEb* (*dəx^{w}pačəb*)	place for setting things out	A little spit or beach [redacted]
25	*Tɛta'lks* (*tətalxqs*)	a little strong point	A small promontory on an island. The place is said to have been used as a lookout point by the Indians, who built a stockade there. [redacted]
26	*Slu'wiL* (*sluʔwiɬ*)	a perforation for a canoe, a short cut, a canoe pass	The slough passing [redacted] the word refers to a grassy marsh intersected with channels, into and through which canoes can be pushed.
27	*XwEq^{3}*	slough	[redacted]
28	*Q^{3}ulq^{3}ula'di* (*qəlqəladiʔ*)	shaggy, tangled; uprooted tree/stump	A place on the shore of the slough where there were a lot of snags so that no one could land.
29	*Ts^{3}E'kas* (*ćəqas*)	muddy; something dirty	[redacted], a flat surrounded by watercourses and rather marshy. George Si'towaL, an informant, lived in a float house here with his wife until they died in 1920.
29a	*Ha^{3}a'pus*	none	A small creek draining across a flat [redacted].
30	*Tul^{3}a'lt^{u}* (*ťuʔəlalʔtx^{w}*)	Herring's house; herring house	A village site [redacted]
31	*Tua'wi*	trout	[redacted]
32	*^{Cuxu}tsE'xud* (*səx^{w}učəxəd*)	something to split with; by means of splitting	A small creek draining down a little gully [redacted]

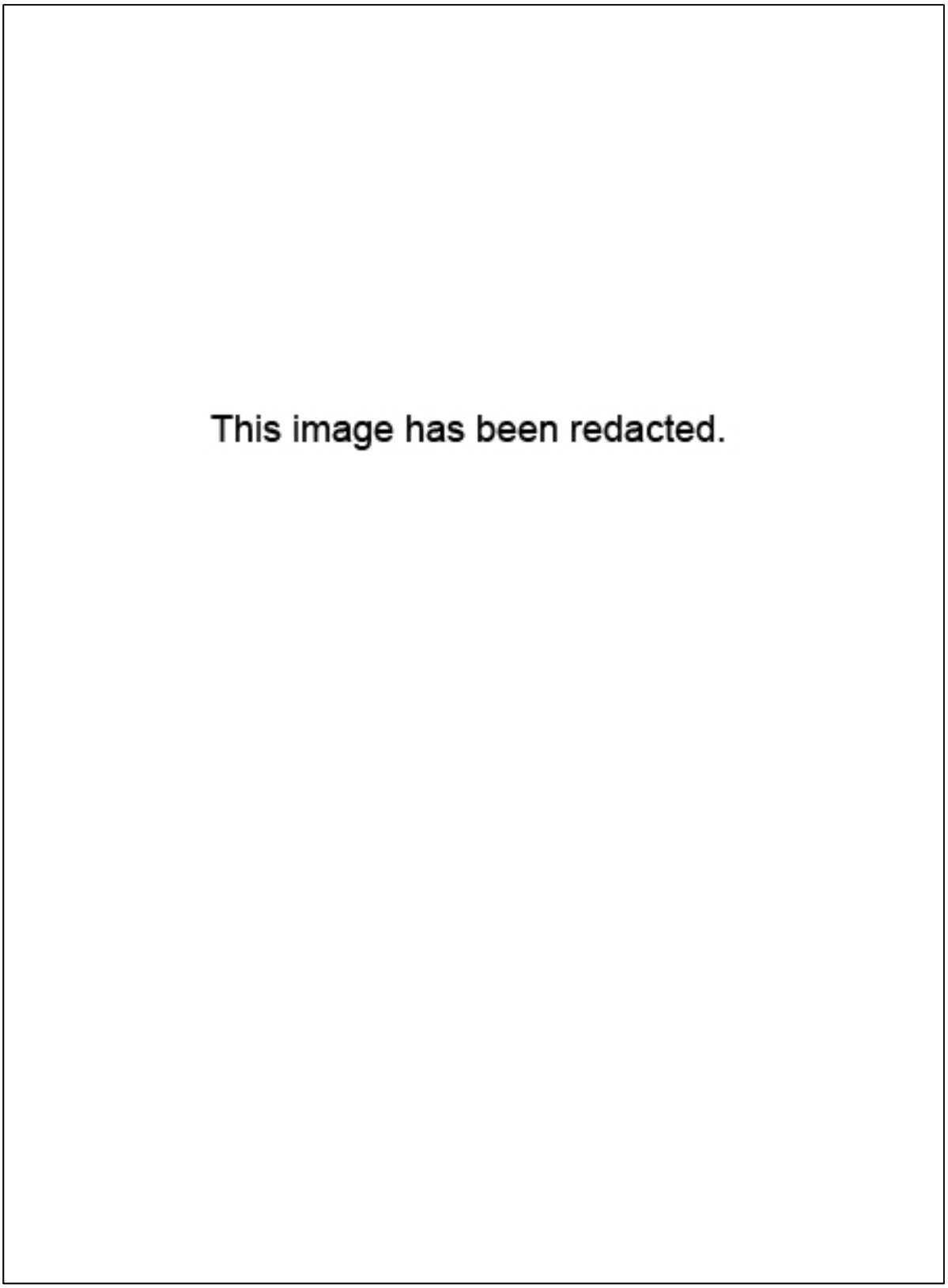

Figure 4. Ethnographic sites in the project vicinity (numbers key to Table 2).

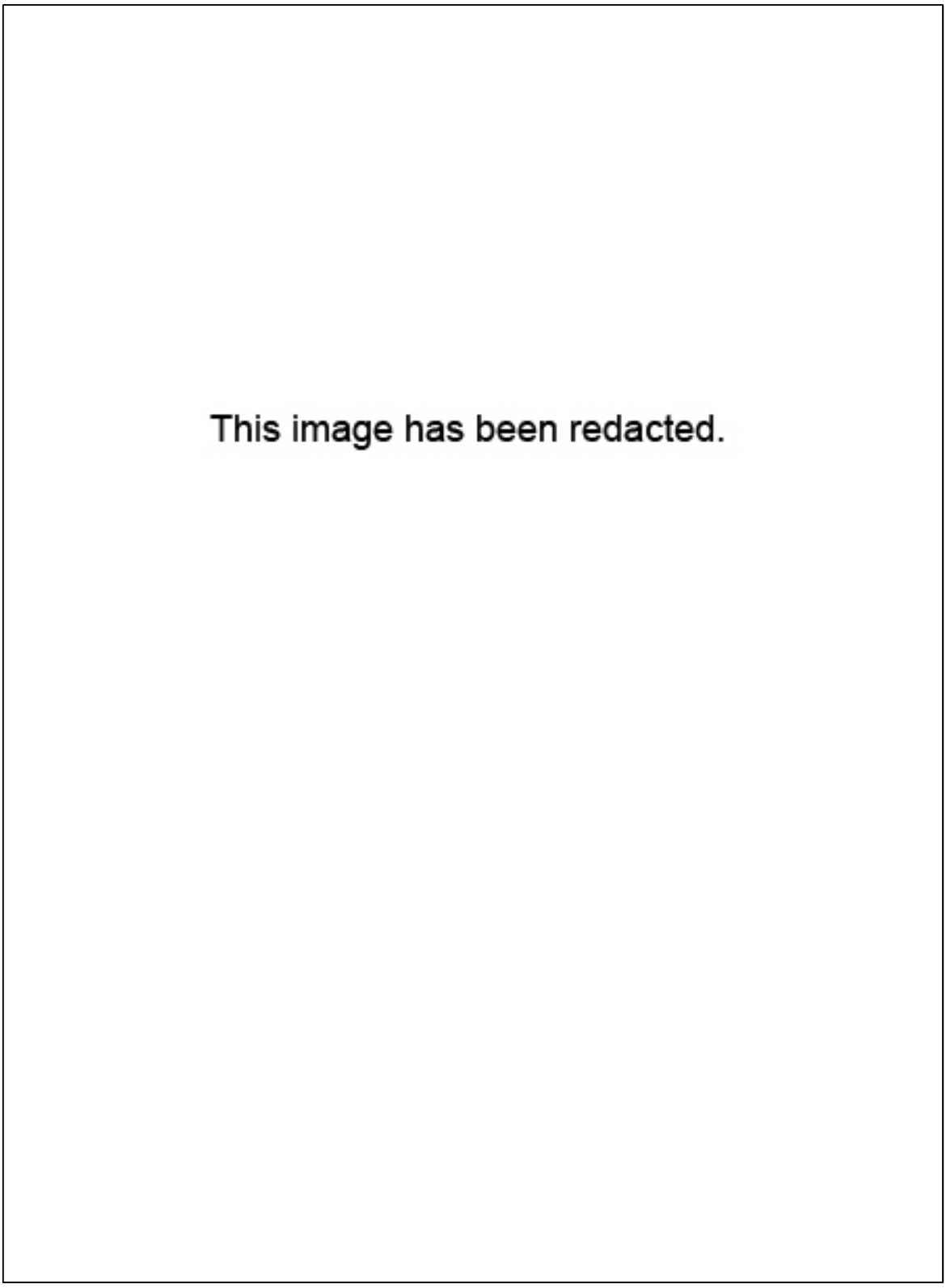

Figure 5. Probable locations of historically described Native American sites (numbers key to Table 3).

Table 3. Locations Named in Archival Sources.

NO.	NAME OR TYPE	CITATIONS	DESCRIPTION/COMMENT
1	Encampment	Phelps 1855-56	Native encampment between [redacted] The Phelps map marks this area as being "Curley Camp."
2	Trail	Buerge 1981	Trail from [redacted].
3	Trail	Kellogg 1912	Trail between [redacted]
4	Ballast Island	Dorpat 2006, Bass 1937:172 Sanborn Map Company (SMC) 1888: sheet 2 Soule ca. 1891	[redacted]. Native Americans would gather here before traveling inland to pick hops, 1866 and later. After 1900, primarily S'Klallam people occupied this area (Thrush 2002:192).
5	Encampment	Glover 1878	A Native encampment [redacted].
6	*Djidjdkila'lltc Tseettsal-al-ich*	Waterman 2001, Phelps1855-56; Kellogg 1912; Thrush 2002:69, 100	Encampment between [redacted]. Also shown on Phelps ca. 1856 map and described in letter by Vivian Carkeek. Watt (1931) quotes Denny as seeing the ruins of an Indian hut on [redacted]. BIA records from 1856 also describe an encampment of 40 people [redacted]
7	Dancehouse	Crow 1926 cited in LAAS 2004	May be related to *Djidjdkila'lltc*; reported to be [redacted]
8	Encampment	Thrush 2002:132	Seasonal hop pickers on the tidelands [redacted] in the 1880s
9	Encampment	Kellogg 1912; Thrush 2002:18	"Back behind the marsh at the beach was an Indian camp and a small stream of fresh water came down from the hill." Probably between about [redacted] In 1878, an encampment occupied a "sand reef" [redacted] at the edge of the sawdust flat (the filled lagoon).
10	Landing Place	Anderson 1898	Photograph shows a Native American woman with a basket standing near a canoe, captioned "This Indian squaw was photographed in 1898 by Oliver P. Anderson abou[redacted]." The view may be posed.
11	Encampment	SMC 1888, Sheet 8	A cluster of small rectangular buildings, labeled "Siwash huts," is shown on the shoreline [redacted]

Historical Period

The Yesler Way Bridge over 4th Avenue in the heart of downtown Seattle was built during a time of significant change in both transportation and urban development. By 1910 when the span was completed, the city had grown from a small frontier outpost to a world-wide trade and distribution hub. Its population had survived severe economic downturns and a disastrous fire to emerge a stronger community with a more substantial infrastructure. Local government officials hoped to continue the progress by putting Seattle at the forefront of innovative movements in engineering and city planning and integrating its street and rail systems as a means of promoting further growth. The Yesler Way Bridge served not only as a symbol of new and more modern transportation options but also as a gateway to broader civic development.

Early Seattle: Urban Development and Transportation to 1889

The founders of Seattle chose their settlement's location on Puget Sound for its deep, protected harbor as well as the large stands of trees close to the shore that could provide them with a ready source of income. There was also drinking water and grazing land for livestock nearby, but from the beginning these pioneers believed that it was business that would enable the community to grow, "as all were anxious to enlarge the settlement as much as possible," according to Arthur Denny, one of Seattle's

original residents (Denny 1979:39). With the establishment of the Yesler sawmill as an industrial base in 1853, the settlement did grow, but with steep bluffs limiting easy access to the waterfront, level lands for further commercial development were at a premium (Thrush 2007:36-37).

To the north and south of the new community were marshy tidal areas that were covered twice a day with nearly 16 of feet of water. Part of Yesler's sawmill was located on a thin strip of land that connected the mainland with a sand spit early settlers called Denny Island or Maynard's Point. The mill was built on pilings over the water, and sawdust, mill ends and other debris provided support for Yesler's dock as well as new wharves that were eventually constructed nearby. As mounds of sawdust from the mill operation grew, they were also used to fill in the nearby tidelands and lagoons around Denny Island. The salt lagoon to the east was known as Plummer's Cove, named for one of Seattle's early residents, Charles Plummer, whose home was located nearby. According to at least one Seattle visitor in the summer of 1853: "The lagoon presented an uninviting appearance and scent, where the process of filling with slabs and sawdust had already begun" (Meeker 1905:66). "Down on the sawdust" became a common phrase that referred to the reclaimed tidelands, which, though often flea-infested, became the site for new commercial construction as well as a variety of community activities (Buerge 1986:91-92; Bass 1937:18-19; Bagley 1929:55; Watt 1959:163).

The part of Maynard's Point that included the Plummer holdings was also near the encampments of Native peoples who had long lived along Puget Sound. There was said to be an Indian population of more than 500 around Elliott Bay soon after settlement began as well as many more living between present-day Renton and Shilshole Bay. Native peoples used the tidal areas for fishing and harvesting shellfish, and they developed a trade in salmon, clams and oysters with many of the new residents. They also supplied other important food items for the fledgling community and were increasingly hired as laborers to perform essential services. During its initial years, much of the work force at the Yesler mill was made up of Indians, and they were also employed by local residents for logging, building construction and for household help. Native peoples also provided most local transportation services as paddlers of freight and passenger canoes (Thrush 2007:36-37; Watt 1931:129; Klingle 2007:28; Andrews 2005:12).

Soon after Washington became a territory, Governor Isaac Ingalls Stevens negotiated a series of treaties with Puget Sound tribes. Throughout the territory, the treaty-making process angered many Indians who had already lost land to the growing number of settlers. Discontent with the terms of these agreements and continuing incursions on reservation lands led to warfare between the Yakama and the United States military in the fall of 1855. Hostilities escalated as other tribes, including some from the Puget Sound area, joined the uprisings in what became known collectively as the Treaty Wars (Denny 1979:68; Bancroft 1890:108-113; Eckrom 1989:90-95).

In January 1856, Seattle briefly came under assault in an incident that was later referred to as the Battle of Seattle. An early pioneer account suggests that in this skirmish Indians were arrayed in a semi-circle along what would become 3rd Avenue, where they could fire easily on the settlement. From offshore the crew of the United States warship, the *Decatur*, sent to Puget Sound to protect Seattle, shot their cannons toward this line. During the battle a large number of shells fell upon the benches between 3rd Street and the bluff beyond. Some buried themselves in the ground or in tree roots and were later exposed. Most of the settlers were protected in the community-built blockhouse, but two were killed, including one man standing at the south end of Denny Island (Jacobs 1908:142-145).

The battle was over by the end of the day, and although tensions continued, there was no more open warfare. Later in 1856, Henry Yesler traveled around the area talking to Native peoples, and he

persuaded 150 to move to the Port Madison reserve on Bainbridge Island. According to one source, by the end of the year only about 50 Indians remained in Seattle, living in small houses made of excess lumber Yesler had given them. Many settlers also left the area, never to return, and for a long time business in the small community was stagnant (Finger 1968:37, 40).

Despite years without further incidents, Seattle residents continued to be wary and in 1863 enacted a resolution that essentially prevented Native peoples from camping within the city limits, causing most remaining Indian workers still living at the Maynard's Point settlement to vacate the area. The unfilled tidelands continued to be used by Native peoples for some hunting and fishing, and seasonally many returned to camp at traditional spots along the shoreline. An early pioneer, Orange Jacobs, wrote of being invited to a potlatch held by Indian Jim on the tide flats just south of the city. The 1888 Sanborn Fire Insurance Map also shows a later Indian settlement that consisted of a number of small dwellings located along the edge of the tidelands on what would eventually become the northwest corner of 3rd Avenue South and South Jackson Street (Finger 1968:37-39; Dorpat 2006:23; Jacobs 1908:162; SMC 1888, sheet 8).

Tideland Development

Tide flats formed a large part of the land around early Seattle (Figure 6), and from its very beginnings, filling and using these areas was a major priority of local settlers. Individuals claimed the right to access oysters, fish, and other resources on the tidal lands, and yet advocates for growth wanted to fill and utilize them for various kinds of development (Klingle 2001:39-40).

Plummer's Cove was among the first areas to be filled, beginning as early as the 1850s. Within a few years Jackson Street, which originally ended at the cove, was built across the marsh on a trestle, but gradually the land on either side was filled in and became available for development. By the 1870s much of the area had been reclaimed, as a local newspaper wrote: "Time was when the tide flowed all the way across our town site from Plummer's Cove by the Occidental Hotel and re-entering by Yesler's Mill. The steady deposition of sawdust through a long series of years have gradually shut off the tide and made block after block of real estate out of what used to be salt marsh" (*Daily Intelligencer*, June 22, 1878). In 1880 papers reported that over one hundred acres of tideland had been filled. The Plummer's Cove area was from 12 to 18 feet higher than it originally had been, but, even then, an additional three to six feet was needed to match the level of surrounding blocks (Dorpat 2006:48).

Grading and filling continued over the next few years, with Chinese workers providing much of the labor for these projects. In the city center, Pike and Union were graded in 1882, and some of the steep inclines of Jackson Street, which now extended all the way to Lake Washington, were regraded beginning in 1883. Additional smaller reclamation projects continued throughout the decade. Spoils from these earth-moving operations were used in a variety of ways: some of the fill was dumped into the steep ravines dropping down to the shoreline of Elliott Bay, while more was shoveled around the pilings of the city's wharves or flushed out onto the tide flats through pipelines (Buerge 1986:106; Chin 1977:51).

As long as Washington was a territory, the tidal areas were still under the control of the federal government and technically could not be sold. Despite this legal restriction, the land was often marketed for its speculative value, and the city itself also used the tide flats as an enticement for rail line construction. The Seattle and Walla Walla Railroad received a grant in 1873 and was given the choicest property on the waterfront along the city's original shoreline. Later this right-of-way was taken over by

Figure 6. Early Seattle, 1875, showing tidelands.

the Columbia and Puget Sound Railway, a subsidiary of the Oregon Improvement Company (Klingle 2001:42).

By 1888, however, as statehood approached, a speculative frenzy began. In that year Henry Yesler drove pilings for a new sawmill on tidal land that was claimed by the Oregon Railroad and Navigation Company, and neither the city nor the railroad initially challenged his right to the property. This action began a virtual land rush, in which individuals attempted to establish their claims to tidal property by initiating a variety of dubious enterprises. Some attempted to establish their claims by erecting their own pilings or building rough shacks that were floated out to selected areas. Others made claims as oyster farmers, since the law allowed access to tidal areas for shellfish cultivation. Competition was so fierce that fights erupted and some people guarded their squatter's rights with a gun (Klingle 2001:43-44).

Transportation Development: Railroads

Seattle's waterfront was at the heart of its initial growth, but early residents had long hoped for rail connections that would expand the city's ability to market the region's raw materials and finished products. Coal had been the impetus for Seattle's earliest railroad-building efforts. As mining expanded into the Newcastle area, the need for better transportation facilities became apparent. In 1870, the Seattle Coal Company developed a rather primitive system to bring its coal via mule-drawn cars to Seattle, where eventually a narrow-gauge steam railroad ran from Lake Union to company-owned coal bunkers at the base of Pike Street (Finger 1968:115-116; Armbruster 1999:49-51).

Seattleites had long hoped that the city would become the terminus of a transcontinental rail line. In 1870 construction began on the Northern Pacific Railroad, and Seattle vied with many other towns around Puget Sound to be the new line's end point on the Pacific Coast. The city offered generous land and monetary incentives to railroad officials, but despite heavy lobbying efforts, the Northern Pacific chose Tacoma as its terminus in July 1873 (Beaton 1914:37; Grant 1891:147-148; Reiff 1981:36, 47).

Despite their surprise and dismay, Seattle residents vowed to move forward by building their own railroad. The proposed line, the Seattle and Walla Walla, would cross Snoqualmie Pass and link Seattle with the mineral resources of the Cascades and the wheat lands of the interior. The city council granted all the tide flats south of King Street to the new venture as long as fifteen miles of line were completed within three years. Construction began in May 1874, and although progress was not as fast as hoped, the use of Chinese crews helped to push the work toward completion. Under the direction of Joe Surber, the head of Seattle's leading pile-driving firm, one group built a trestle that extended two miles through the tidal lands, while another team built six miles of bridges and pilings to carry the line to Steele's Landing on the Duwamish River (Armbruster 1999:51-52, 55-56; Hanford 1923:84-85).

By February 1877 the line was completed to Renton and early in 1878 was extended to Newcastle, making these coal mining areas much more accessible and increasing the ease with which products could be shipped to the Seattle waterfront. A large wharf and coal bunkers were also built at the foot of King Street in conjunction with railroad construction, and soon regular shipments to San Francisco caused coal to outpace lumber as Seattle's major export. New industries also got their start in the city to supply mining and transportation companies with everything from boilers to rail cars (Armbruster 1999:55-56; Andrews 2005:29-30; Hanford 1923:85).

The original trestle for the narrow gauge line extended directly across the tide flats, but the wood pilings were quickly eaten by boring pests called teredos. In 1879 a replacement trestle was built closer to the original shoreline from the south, curving as it entered the city near the site of the newly built gas plant

and then following directly east along the route of King Street to the coal bunkers and wharf. This route crossed the wharves that had been built on the south end of Denny Island and brought new railroad-related facilities and businesses to Seattle's south end (Dorpat 2006:49).

Connections eastward did not immediately materialize, and finally in 1881 Henry Villard, owner of the Oregon Transportation Company, bought out the Seattle and Walla Walla, which was renamed the Columbia and Puget Sound Railroad. He also purchased control of the Seattle Coal and Transportation Company, which owned the Newcastle coal mines. Villard's workers immediately expanded facilities at King Street, enlarging the coal bunkers, constructing a large engine house and a small depot. The depot, described as little more than "a shed on stilts," was nevertheless the city's first railroad station (Armbruster 1999:66-67; Crowley and Macintosh 1999:7).

Henry Villard assumed control of the Northern Pacific in the summer of 1881. He did not specifically promise Seattle a direct transcontinental connection, but he did agree to build a spur line connecting Seattle to the Northern Pacific line from Portland. In order to gain access to the Seattle waterfront, the Columbia and Puget Sound Railway Company asked the city to grant them the right of way for a track along West Street (later Western Avenue). The City Council agreed to a 30-foot right-of-way from King Street to the north end of the waterfront in March 1882, with a proviso that the connection to the Northern Pacific main lines be made within two years. The Northern Pacific tracks followed a winding course through the city along the meander line of Elliott Bay and soon got the nickname of the Ram's Horn (Armbruster 1999: 70-71; Hanford 1923:90; Jacobs 1908:182).

Villard fulfilled his agreement with the city before the deadline by finishing the portion of the Columbia and Puget Sound to Stuck Junction (present-day Auburn) and then building a seven-mile spur to Tacoma, where it connected with the Northern Pacific's main line. A final piece of the standard-gauge Puget Sound Shore Railroad to Seattle reached King Street in 1884 on a trestle that crossed the area of the tidelands near the Seattle Gas and Electric Light Company plant at 5th and Jackson, also known as Gas Cove. This site later became the location of Seattle's Union Station, built by the Union Pacific Railroad. In the meantime, Villard's financing collapsed, and he was forced from his position at the Northern Pacific early in that year. The company then virtually abandoned the Tacoma spur and Seattle essentially lost its "transcontinental" connection. Continued lobbying efforts and threats that the railroad might forfeit its federal land grants brought the city some satisfaction, and use of the line was revived, although service was poor (Bagley 1916:I-247, I-248; Dorpat 2006:12; Armbruster 1999:80-82).

Seattleites responded to the problems with the Northern Pacific by developing new plans for their own cross-country link, the Seattle, Lake Shore and Eastern (SLS&E), which was incorporated in 1885. The line would use Snoqualmie Pass to reach the eastern part of the state. Gilman and Burke were able to raise enough interest among Eastern capitalists to finance the survey work for the SLS&E in late 1886 and to begin actual construction in 1887. Built on a trestle to the west of the Ram's Horn, the new SLS&E line essentially sealed off the Northern Pacific from the Elliott Bay wharves. As more land was needed for tracks and storage, the city council passed an ordinance in January 1887 to create Railroad Avenue, which was to be 125 feet in width. The ordinance contained a "common user clause," which gave other railroads coming into Seattle equal access to the Railroad Avenue right-of-way, and the two-mile trestle was completed in the fall of 1887 (Armbruster 1999:51, 100-10, 122-123, 126-129; Hanford 1923:96; Bagley 1916:I-251; Beaton 1914:46).

The development of Railroad Avenue focused new railroad construction along the central waterfront, but the south end below King Street continued to grow with terminal and supply facilities. All of these new rail lines provided an important economic boost to the entire city. Companies hired local

contractors to build segments of the line and spawned a number of businesses to supply construction materials and provide needed services for workers and eventually passengers and shippers. Wagons and teams of horses clogged the narrow lanes leading to the railroad lines, transporting tons of merchandise to and from wharves and warehouses each month (Bass 1937:172-173; Magden 1991:22).

Transportation Development: Roads and Bridges

Seattle's road system also evolved as the city grew, but like many frontier towns, its major thoroughfares were dirt tracks or wood-planked roadways until automobile traffic became commonplace in the early twentieth century. Henry Yesler's skid road was certainly the city's first important thoroughfare and, as one historian has described it, "the industrial umbilical cord of an embryonic Seattle" (Klingle 2001:98). The original skid road to the Yesler mill extended along the narrow panhandle of Yesler's claim up the hill from the waterfront. To form the skid road, logs were laid next to each other on the ground and then greased so that larger timbers could be skidded from where they were logged to the sawmill. During the late 1850s, Yesler began to sell lots along the skid road, which soon became known as Mill Street, and then built his own commercial buildings on the lower portion of the road near the waterfront (Finger 1968:44, 155).

Once parts of the city were logged by its earliest residents, little was done to improve the rest of the dirt tracks that were used as roads. During the rainy season, the mud was so deep that horses and wagons often had to be pulled out of holes with ropes. In the 1870s, the city began to develop a street system, using cobblestones in some areas but planking more frequently. Yesler Way was planked as were some of the other major thoroughfares, although experiments were also made with wooden blocks, locally manufactured brick, and other new types of paving materials (Buerge 1986:100).

The early attempts to make it easier for wagons and other traffic to travel up and down Seattle's steep hillsides began in 1876 as the city passed ordinances establishing street grades and authorizing leveling work on 1st Avenue from Mill Street to Pike, and then on Mill from 1st to 8th. The work was difficult and earth slides on Mill Street caused the contractor to halt these initial grading efforts midway through the project (Bagley 1929: 373-374).

With all of the waterways and steep grades in and around Seattle, bridges were also a necessary part of the city's transportation system. Initially these spans were wood pile, but by the 1890s the city had begun to build timber trestles. The Grant Street bridge that stretched south across the tide flats from Jackson Street was the first of these structures, and a number of others were added during the city's later periods of growth (Phelps 1978:35-36).

Streetcars and the Yesler Way Cable Line

The difficulty of climbing the steep grades also slowed the development of public transportation in Seattle. Probably the earliest effort began in 1871 with a stage coach that ran from the city center to Lake Washington on a dirt trail that eventually became the extension of Yesler Way. By 1884 construction had begun on the city's initial horse-drawn street railway, but in 1888 several local businessmen, noting the success of the San Francisco system, built the first cable car line in the Northwest. The route began at 2nd and Mill Street (renamed Occidental Avenue and Yesler Way in that same year) and ran east on Mill to Lake Washington, where it turned south and returned via Jackson. The recreational lure of the lake as well as the potential for real estate speculation were the primary motivations for building the line, although with its fairly cheap construction costs it was initially profitable purely as a transportation network. The Yesler Way Cable, also known as the Belt Line for its

looping configuration, changed hands several times and underwent renovation before it fell on financial hard times (Blanchard 1968:15-16, 21, 26).

Seattle at a Crossroads: Urban and Transportation Development, 1889-1919

The year 1889 was a major turning point for Seattle, and in the decades that followed, the city moved into a new period of transportation and urban development. In early June of that year, a fire destroyed most of the city's business district as well as its wharves and railroad facilities. This calamity caused substantial economic loss and displaced many poorer residents who lived in the heart of the city, but it also provided Seattle with a unique opportunity to reshape itself into a modern urban center. Less than a month after the fire, the community came together to help those affected and begin the rebuilding process. The opportunity to start again allowed the city to put in place a new infrastructure of water and sewage lines, replat and widen streets and establish fire and health regulations as well as building codes that led to safer, planned urban development (Buerge 1986:113, 115; Warren 1989:44-48).

At the same time that a rebuilt Seattle rose out of the ashes of the fire, Washington attained statehood, and a series of new government policies regulating the use of the state's tidelands affected the city's growth patterns. Washington became the owner of all the tidelands, but the constitutional convention did not establish a policy on how the state might eventually distribute rights to the property. The first legislature decided the issue and gave the rights of purchase to "the littoral owners and to those who had made substantial and genuine improvements," but a Harbor Line Commission was also established to set aside harbor property to protect established ports. By 1890 most of the tidelands in Elliott Bay had come under private ownership except for Seattle's central waterfront area. More wharves extended out over some of these tidelands, and they proved to be a whole new arena for entrepreneurial development (Benoit 1979:25-26).

Other significant events throughout the next three decades also further molded the city's future. News of Klondike gold in 1897 brought thousands to Seattle and made it the major supply center and port of embarkation for the frenzied rush to the north by adventurers and fortune seekers. The city's commercial base was assured and new industries were added to provide supplies for its growing trade and the development of new transportation systems. In addition, America's involvement in both the Spanish-American and First World Wars expanded the local shipbuilding industry and contributed to Seattle's position as a worldwide commercial and shipping hub (Hines 1893:187).

Filling and Controlling the Tidelands

Much of the commercial and industrial expansion of the city required new land for development. It was not until the 1890s, after the Seattle Fire, that a comprehensive plan for filling the tide flats was initiated. When Washington finally became a state in 1889, the disposition of the tidal lands became a major point of contention. A provision in Washington's constitution gave the state ownership of all shore land, but no real mechanism to distribute rights to the property or deal with prior claims. In 1890 the first state legislature passed measures to set up a Harbor Line Commission, which would draw boundaries, protect established ports and oversee use of the waterfront along the entire Washington coast. The new law solidified the right of private landowners to purchase those tidelands if their holdings were adjacent to them or they had made genuine improvements (Benoit 1979:25-26; Klingle 2001:46-47).

In 1893 the legislature also passed an act that allowed private individuals or companies to dig waterways through public lands and to use excavated materials to reclaim them. Taking advantage of these provisions, the Seattle and Lake Washington Waterway Company, founded by former governors

John Ferry and Eugene Semple, initiated plans in June 1894 to dig a canal on the southern side of the city from Puget Sound to Lake Washington. Work on the South Canal, as the project came to be known, also included dredging two canals, the East and West Waterways, around a manmade land mass that later became Harbor Island. The dredge spoils from these waterway projects were originally used to fill the tide flats south of King Street, and over 175 acres were reclaimed until the company ran out of money (Bagley 1916: I-355-357; Hynding 1973:144-145; Dorpat and McCoy 1998:40-41; 171; Berner 1991:17-18).

Part of the project's financial troubles stemmed from the bitter competition between backers of the South Canal and those who favored a northern route for the canal between Puget Sound and Lake Washington. Litigation resulted, but the South Canal project was able to resume in 1901, and in just two months the Seattle and Lake Washington Waterway Company spread more than 85,000 cubic yards of fill in the area to the east of the present-day Harbor Island. The East Waterway was completed by the fall of 1902 and dredging of the West Waterway began in the summer of 1903 (Hynding 1973:153-154, 157).

Work on the South Canal once again became embroiled in controversy as protests grew over the use of city water to sluice away the steep slopes of Beacon Hill and to carry the earth to the nearby tide flats. By 1905 continuing troubles over this process brought the South Canal project quietly to an end. The completed portion of the canal was abandoned and later filled and replatted for development (Bagley 1916: 358, 363; Warren 1981: 96-97; Dorpat and McCoy 1998:171; Berner 1991:17-18).

The Seattle and Lake Washington Waterway Company continued with its state contract for filling the tidelands, although Semple, nearly broke, resigned from the company in 1905. During the next decade over 1400 acres were reclaimed, and by 1917 more than 90% of the fill was completed. During this period, speculation in the tidelands was at its peak. Investors like C. B. Bussell printed pamphlets on the benefits of tideland purchases and the increasing value that these lands were certain to have. "Business never climbs hills," he preached, and "the city of Seattle would grow out over these TIDE LANDS on account of their being adjacent to the business center, and because they were level." Investors were encouraged to "acquire the Tideland Habit" (Hynding 1973:161-162; Bussell c.1902:1, 16; Klingle 2001:81).

Transportation and the Reign of the Railroads

Railroad companies ultimately became some of the major purchasers of this reclaimed tidal land. Seattle residents had failed in early efforts to bring a transcontinental rail terminus to the city, but by the 1890s several major lines actively competed for its transportation business. As Seattle rebuilt after the fire, the railroads expanded their efforts to buy land and prepare for future growth. The city soon found itself in the middle of a bitter rivalry among several late nineteenth century railroad giants–Henry Villard, James J. Hill and Edward Harriman–who had finally recognized Seattle's potential. They competed to establish rail connections to the city and secure a foothold in the tidelands so that they could build large stations and other freight and maintenance buildings close to the city center. The railroads poured huge amounts of cash into the economy and provided a base for the city's growth as a major worldwide trade center.

Henry Villard of the Northern Pacific was among the first of the rail barons to focus his attention on Seattle after the fire. The railroad had recovered its financial strength and began to provide more direct service to the region with the opening of the Cascade Division in July 1887 and the completion of a tunnel through Stampede Pass in 1888. Villard had regained control of the Northern Pacific by October

1889 when the company announced that it would also take over the Puget Sound Shore Railroad, further improving service into Seattle. In 1891 the railroad also stepped up to purchase a majority interest in the city's home-grown line, the Seattle, Lakeshore and Eastern, and to complete its route to the international border. The railroad also took over SLS&E's depot, which was located on Railroad Avenue at the foot of Columbia (Andrews 2005:75; Grant 1891:376-377; Armbruster 1999:108-110, 136-137, 146; Crowley and MacIntosh 1999:15-16).

Part of the reason for the acquisition was the pending arrival in the Northwest of James J. Hill's line, the Great Northern. Hill, nicknamed the "Empire Builder," was not intimidated by the strong Northern Pacific presence in the region and pushed west from the Great Lakes to the Pacific with his privately financed railroad. He hired Seattle judge and former SLS&E owner Thomas Burke to be his agent, and through Burke's work, the railroad was able to secure very favorable concessions to make Seattle the terminus of this line. Burke not only obtained valuable property along Smith Cove and in the yet-to-be-filled tidelands south of the urban core, but also negotiated for some of the unused right of way of the SLS&E along Railroad Avenue and additional land on South Jackson Street for feeder lines and railroad outbuildings (Andrews 2005:64-65; Armbruster 1999:174).

Hill began developing the South Jackson Street site for a freight terminal in January 1896. He leveled the Great Northern's rail yard at Interbay, north of the city on Smith Cove, and carried the spoils by rail car to provide the 120,000 cubic yards of dirt needed to fill this portion of the tidelands. By October 1896 the new freight depot, which stretched for a full block east to west on South Jackson Street, was completed. Three spur tracks abutted the facility on the south, while several loading bays were located on the north side. Nearby, Hill also installed the latest railroad technology: a two-story mechanical interlocking tower with a series of levers and rods that controlled switching at the junction of the Northern Pacific, Great Northern and the Columbia and Puget Sound tracks at South King Street and Railroad Avenue (Armbruster 1999:175).

The struggle for dominance among the major lines continued into 1899 when representatives of the Northern Pacific quietly began to purchase land along the waterfront and then unveiled plans to build extensive new facilities in Seattle. Their proposal was opposed by the Seattle city engineer, R. H. Thomson, as well as rival railroads. The Great Northern and its advocate, Judge Thomas Burke, were particularly active and successfully lobbied the City Council to turn down the proposal. Ironically, by the next year Great Northern owner James J. Hill had taken over as director of the Northern Pacific after he and banker J.P. Morgan had worked to gain control of the bankrupt line (Beaton 1914:57).

Instead of a huge waterfront development, City Engineer Thomson had suggested that the railroads build a tunnel underneath the city, and he was able to convince Hill that it was a viable alternative. In 1903 the Great Northern, in partnership with the Northern Pacific, broke ground on a mile-long tunnel and the excavation proceeded rapidly, with more than 600 men working two shifts. The south portal was located near Washington Street between 3rd and 4th Avenues, and two parallel tracks extended under 4th Avenue to Spring Street, where it then headed to the west and intersected what is now Alaskan Way north of Stewart. Builders bored from 27 feet to as much as 125 feet below ground, creating a tunnel that was 50 feet wide. Soils that were removed during the excavation were loaded on a small, narrow-gauge electric railroad and carried to Northern Pacific-owned tidelands south of King Street or to the Railroad Avenue trestle for use as fill. Work was completed in 1905, and the new tunnel allowed rail traffic to move in and out of the city without adding to the already heavy congestion along Seattle's waterfront (Armbruster 1999:223-224; Andrews 2005:72; Phelps 1978:73).

In the meantime, Hill also agreed to build a grand passenger depot for the line at the southern end of the tunnel. He hired the architectural firm of Reed and Stem, the designers of Grand Central Station, to plan the building, which was constructed on the filled area south of Jackson Street between 2nd Avenue South and 3rd Avenue South and completed in 1906 (Andrews 2005:72; Phelps 1978:73; Crowley and Macintosh 1999:16; Schwantes 1993:226).

James J. Hill's new railroad depot was an imposing Italianate building of granite and brick with a 120-foot clock tower, purportedly modeled after the campanile of the Piazza San Marco in Venice. The 135-foot by 330-foot building was considerably more impressive than the railroad's previous station, a frame, shed-like structure at the foot of Columbia Street that was used jointly by the Great Northern and Northern Pacific. The two railroads continued to share the new facility, with the Great Northern using the east side of the depot and Northern Pacific trains arriving and departing on the south end. Originally called Union Depot, it soon became more widely known as King Street Station *(Pacific Building and Engineering Record*, August 11, 1906:3; Crowley and Macintosh 1999:16).

The Chicago, Milwaukee and St. Paul also announced the extension of their line from South Dakota to Puget Sound in 1905. The railroad absorbed local lines as construction moved west and faced enormous costs to complete its Pacific extension through Snoqualmie Pass. Freight traffic debuted in the Seattle area during the summer of 1909. The Milwaukee Road initially used King Street Station when it entered Seattle, but it soon switched to a new depot built by another railroad entrepreneur, Edward Harriman (Armbruster 1999:241-247; Schwantes 1993:152-154; 226).

Harriman entered the Seattle market with the Oregon-Washington Railway and Navigation Company, a subsidiary of the Union Pacific. He had reached an agreement with the Northern Pacific Railroad to share that line's tracks from Vancouver, Washington, to Seattle and used a temporary depot at Railroad Avenue and Dearborn Street when the first of the company's trains entered the city in January 1910. Harriman spent millions of dollars to purchase property in the tidelands where he developed a freight yard and warehouses and soon built a competing depot within a block of the rival King Street Station. Oregon and Washington Station, later known simply as Union Station, was completed in May 1911 (Armbruster 1999: 154; Beaton 1914:48; Andrews 2005:77).

Railroad Avenue along the central waterfront also remained a hub of railroad activity, but congestion made it an extremely crowded and dangerous part of the city. There was no real room to expand, so the tidelands around the new stations continued to be the primary location for a variety of new freight and storage facilities. The city hired Virgil Bogue, a civil engineer, to develop a plan that would better integrate the rail lines with harbor access. The City Council concurred with his proposals, but voters turned them down. Instead, the Port of Seattle was established during the same period, providing the city with a stronger means to deal with the railroads and develop a diversified plan for urban development along the waterfront (Bogue 1911:154 in Benoit 1979:18; Klingle 2001:52; Port of Seattle 1981:16, 19).

Industrial and Commercial Development

All of the transportation developments in the reclaimed tidelands had a significant impact on the direction and scope of Seattle's industrial and commercial expansion. Seattle's harbor had initially made it the commercial center for Puget Sound and western Canada. After the fire, when the rebuilding began, the city also developed a manufacturing base, which initially relied on the raw materials available in the region and provided goods for local use. Between 1890 and 1900 the number of manufacturing concerns in the city rose from 331 to 953, and the value of these products more than doubled. Lumber

and other wood products dominated the market, but shipbuilding, fish processing, and brick making were also important industries. Additional manufacturing concerns included foundries, boiler works, and machine tool makers, which provided products for the railroads and numerous industrial plants (Berner 1991:22, 27-29; Sale 1976:52).

The continued reclamation of the tidelands offered a whole new area for the location of many of these industrial and commercial enterprises. With access to a range of transportation options, an expanded southern industrial district emerged and gradually became the site for numerous manufacturing plants as well as warehouses and transportation-related businesses. The railroads also increased their facilities to the south of the central waterfront, adding a variety of storage and repair facilities as well as additional tracks along Spokane Street and several of the major north-south arterials that intersected it. A number of these new facilities replaced some of the original tideland enterprises (SMC 1904, sheets 17, 18).

Among the earliest industrial facilities to locate in the tidal area was the city's first gas company, started by some of Seattle's founders and most prominent citizens. In 1873, the group received an exclusive franchise to build a plant, install pipe lines and provide gas for city street lights and buildings as well as for private consumers. The plant was in operation by December 31, 1873, when Seattle's first gas street lamps were lit (Bagley 1916:I-443-445).

As the city's population grew, new technology, and particularly the advent of electric lighting, forced changes in both the company's products and its physical plant. The business was reorganized in late 1892 as the Seattle Gas Light and Electric Company (later shortened to Seattle Gas and Electric Company) and many improvements were made to the aging facility, including construction of the largest tank holder on the West Coast and the addition of a small water gas plant. Sam Hill, the son-in-law of railroad baron James J. Hill, became a major shareholder in the gas company and was a driving force behind many of these changes. There was increasing competition for the lighting business, however, and also for franchises awarded by the city. New electric plants, including one located on Jackson Street between 1st Avenue South and Occidental and another near Smith Cove, added to the city's capacity and challenged the dominance of gas (Bagley 1916:I-445-448; Tuhy 1983:92).

Hill and his investment group became embroiled in a lawsuit with the City of Seattle over the extension of the company's franchise after its expiration in 1898. The controversy was eventually settled in Hill's favor, with the court ruling that the franchise extended in perpetuity although its exclusivity did not. In 1902 the city also granted a franchise to another gas provider, Citizens Light and Power Company, which was headed by the typewriter magnate Lyman C. Smith. A major rivalry developed, leading to a price war as the new company began to lay its pipes throughout the city, sometimes paralleling the Seattle Gas Company's lines. Finally in 1904 the two competitors were purchased by Chicago bankers, who consolidated them into the Seattle Lighting Company. Soon thereafter, the firm sold the Seattle Gas and Electric Company site between King and Jackson Streets to the Harriman railroad interests for a reported one million dollars (Tuhy 1983:94-100).

Other businesses spread north from the edge of the tidelands. By 1884, the Seattle Brewery was established on Yesler Way (then known as Mill Street) between 3rd and 4th Avenues in the area now occupied by the King County Courthouse tunnel entrance. A Roman Catholic church was built on the block south of the brewery, and surrounding blocks had a variety of small hotels and residential buildings. A Chinese laundry operated at the southeast corner of the intersection of Yesler Way and 4th Avenue South. By 1888, a gymnasium and dance hall had been constructed immediately northwest of the Seattle Brewery, which was noted on the Sanborn Insurance Company map for that year as “to be

removed soon." Surrounding development was located just outside of the commercial center and thus remained largely residential until the first decade of the 20th century. Then buildings gradually shifted from single family houses to lodging and rooming houses, small residential hotels, and eventually larger mixed-use buildings with apartments above and commercial storefronts on the ground level (Baist 1905, 1912; SMC 1884, 1888, 1893, 1905).

Social and Residential Effects

The Great Fire of 1889 leveled much of the commercial center of Seattle and led to a massive rebuilding effort that ultimately shaped growth patterns and the nature of city's development. It not only destroyed Seattle's main business district, but also the homes of many of its poorest citizens. Once rebuilding began, most new residential construction in the downtown area consisted of boarding houses and other types of lodging for workers in the commercial and industrial enterprises that dominated the waterfront. Single-family homes ringed the city, extending up the hills to the east and north and into new suburbs reached by the streetcar. A few of the city's wealthy business and professional people still lived in the downtown area, but most chose to build their new homes on First Hill, Queen Anne Hill, or in suburban areas to the north of Seattle (Jacobs 1908:189-190; Greenberg 1972:35-37; Sale 1976:53-54; 59).

There was still some heterogeneity in the living arrangements within the urban core, and a city directory in 1897 estimated that out of the approximately 65,000 who made up the Seattle's population, nearly 15,000 resided downtown. Generally, it was the poor and transient populations who lived south of Yesler Way in lodging and boarding houses and in communities of shacks along the waterfront and even on the tidelands. Many other occupational groups tended to live near their places of work, although those patterns had begun to change as the streetcar enabled increasing numbers of working class people to move out of the city (Figure 7). At the turn of the century, sailors, fishermen, miners and many of the unemployed made their homes near the waterfront, west of 1st Avenue South, while cooks, waiters, hotel staff, office and retail clerks often lived on 1st, 2nd and 3rd Avenues or along alleys between blocks in small apartments, boarding houses or occasionally rooms on the upper floors of business buildings. In addition, there were clusters of rooming houses and small dwellings around sawmills, packing plants and the railroad in which much of their work force lived (Sale 1976: 54-55; SMC 1893; Polk 1897).

During the late 1880s and into the 1890s, a new influx of immigrants had also begun to change the face of the city's working classes. Most were transient male laborers of Japanese, Filipino, and southern European descent, who crowded into the areas near the waterfront. Many had responded to the need for workers after the passage of the Chinese Exclusion Act in May 1882. By this time the Chinese community had already begun to move slightly to the east of the Yesler and Commercial Street (later 1st Avenue South) in the area around Washington Street between 2nd and 4th Avenues. Lower real estate prices in this part of the city initially allowed a variety of businesses to develop in addition to the large Chinese merchant companies. With the influx of new workers from other Pacific Rim countries, it became an identifiable Asian district (Klingle 2001:112, 114-116; Chin 1977:51, 60-62).

Soon after the 1889 Seattle fire, most Chinese businesses had relocated to this area. Among the merchants who began reconstruction almost immediately was Chin Gee Hee, a labor contractor. His Quong Tuck Company moved to a new brick building on Washington Street, known as the Canton Building. The Wa Chong Company, which had already moved to Washington Street, also rebuilt in the same area. The center of Seattle's Japanese community, Nihonmachi, was established along Jackson

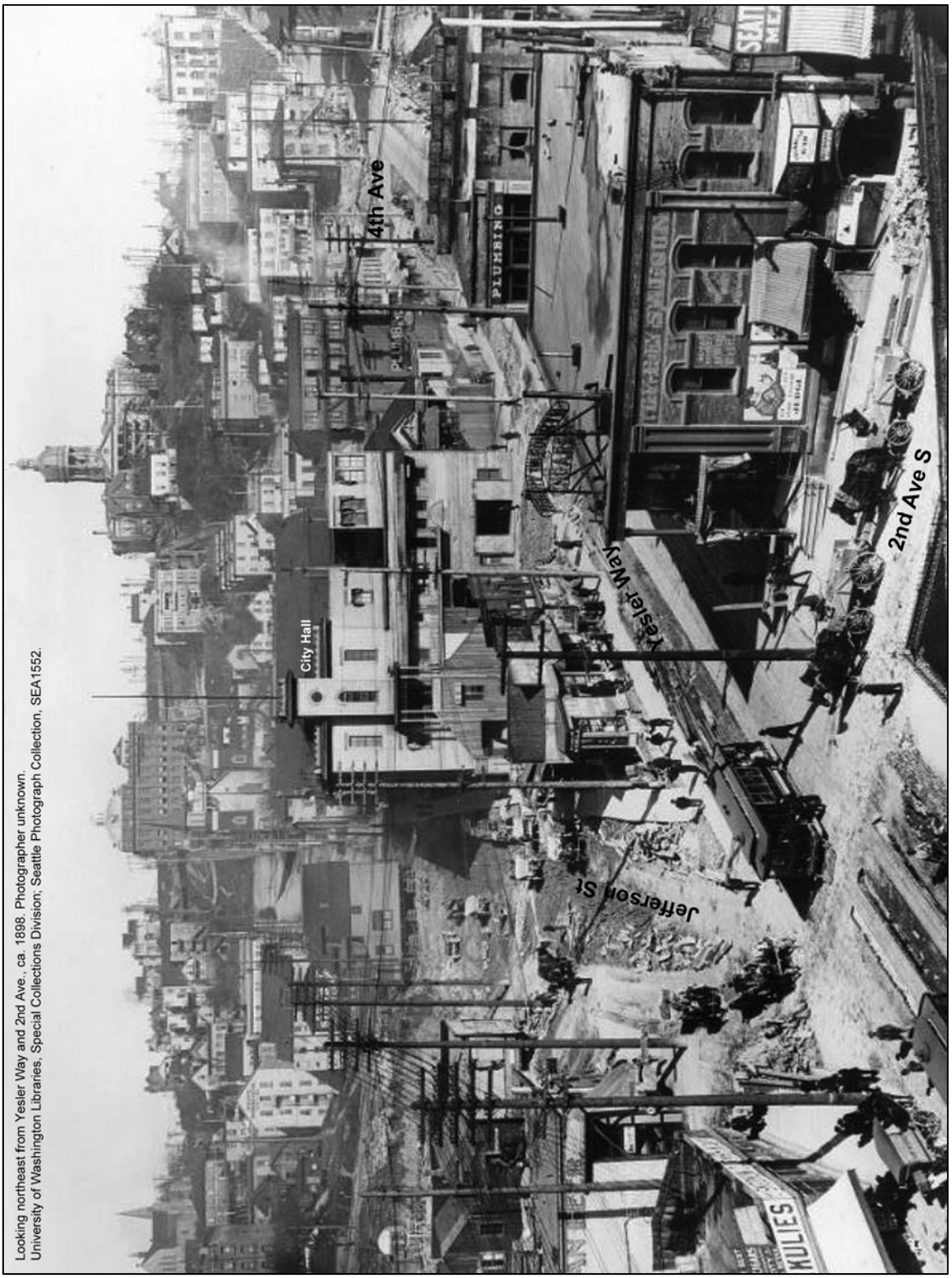

Figure 7. View of Yesler Way (to right) from 2nd Avenue, ca.1898. Note commercial development in foreground with lodging houses and residential development close to the current bridge location (upper right corner of image).

Street and South Main Street near the edge of the new Chinese district. Only a few Asian business owners still remained along the waterfront (Chin 1977: 60-61, 69-70; SMC 1904).

The further spread of what some have called the "new Chinatown" continued during the first decade of the twentieth century. A Chinese investment group constructed a number of buildings along the south side of lower King Street between Maynard Avenue and 8th Street, and by 1912 several of the largest Chinese merchants had also moved onto King Street, solidifying that area as the new commercial center of the Asian district (Chin 1977:96-97).

The Business of Vice

Yesler Way became the dividing line for another type of business district. The old Skid Road area nearer the waterfront became a battleground for the city's Progressive political proponents who wanted to clean up the area and rid it of vice and disease as part of their campaign for the "moral regeneration" of American life. They were opposed by the "open town" advocates who saw the financial benefits of saloons, brothels, and gambling establishments and fought to maintain them as an important part of Seattle's economy. The city had tried to clean up this part of town during the mayoral term of Judge Ronald in the mid-1890s. Despite these efforts, white middle class residents increasingly moved farther away from the urban core, establishing new suburbs and residential areas along the streetcar lines (Klingle 2001:114-115).

The coming of the railroads, the economic depression of 1893 and the Klondike Gold Rush all brought more single men to Seattle as a place where jobs could be found. Much like the first decades of its existence, Seattle had a notable imbalance between men and women, and this disparity served to re-energize the vice district. During the Gold Rush era, in particular, the so-called Tenderloin or Skid Road area once again became the rough and boisterous entertainment center of the community. The city attempted to contain most of its saloons, brothels, nightclubs and gambling establishments in a restricted area south of Yesler Way and east of 1st Avenue South. This district, which was served by the city's southernmost cable car line, was also referred to as "Below the Line" or below the "Deadline." Many of the buildings were cheaply constructed of wood and a few still extended over the tideflats on pilings (Morgan 1960:120-128; Andrews 2005:96; Broderick 1969:29).

Two areas that were particularly notorious for prostitution were Whitechapel and Blackchapel, located in the vicinity of today's Union and King Street Stations. Each district consisted of "chapels" made up of one or two blocks, which contained small rooms or cribs for prostitutes--Whitechapel for white women and Blackchapel for those of other races. According to historian Mildred Andrews: "There were white-only and black-only brothels and so-called 'pink' brothels that featured Asian prostitutes. The latter sometimes served an all-Asian clientele and sometimes only Caucasian men. The House of All Nations flaunted variety, advertising "six hundred women from seventy-five nations" (Andrews 2005:96-97).

The containment of the vice district was closely tied to politics and particularly the views and allegiances of the mayor and his appointees, including the chief of police. It was the police department that carried out enforcement of vice regulations, and the extent of corruption that occurred varied among the different mayoral administrations. In 1898, for example, the election of Mayor Thomas Hume brought in an era of lax restrictions to cater to the transient population of miners, and there was a proliferation of brothels and saloons, even above the deadline. A backlash led to tighter monitoring when Richard Ballinger was elected mayor in 1904, but in subsequent campaigns the issue of vice continued to play a primary role, as advocates of "a clean city" battled with the "forces of evil" and Seattle swung wildly back and forth (Berner 1991:5, 33-37, 115-121).

Urban Development: Engineering a New City

The appointment of Reginald Heber Thomson as the city engineer in 1892 also began an important phase in the design of the city. Thomson, whose career with the engineering department lasted nineteen very controversial years, was a proponent of redesigning Seattle to link "topography, planning public health and city development" in what one historian has called the "search for order." During this period, urban planning was heavily influenced not only by new engineering techniques, but also by the City Beautiful movement, which encouraged physical change in cities to make them both beautiful and functional. Following the lead of planners and landscape designers, proponents encouraged infrastructure improvements, civic centers and park systems to enhance the quality of urban life. These trends also had a political dimension by addressing Progressive-era dreams of making the city more efficient and orderly with the support of both citizen activists and planning professionals (Klingle 2001:103-106; Wilson 1989:1-3).

In Seattle, these trends also coincided with a period of significant growth, as Seattle's population tripled between 1900 and 1910 from approximately 22,000 to more than 67,000, and new ideas were needed to make future development easier. The economic depression of 1893, railroad construction and the Gold Rush had brought a preponderance of single men to Seattle as a place where jobs could be found, and many lived in cheap boarding houses, hotels and tenements in areas near the waterfront. A vice district, known as the Tenderloin, had also grown up south of Yesler and along Jackson Street, where numerous saloons, brothels, nightclubs and gambling establishments operated (Berner 1991: 61; Andrews 2005:96).

After the turn of the century a new professional class had emerged in Seattle, steeped in the tenets of Progressive reform, who hoped to put an end to this disorder and immorality and promote new and more managed growth. Leadership for this movement was provided by groups like the Municipal League, whose volunteer membership fought against forces that were "bad for smaller business, bad for morality, and bad for Seattle's reputation." Once corruption in government was removed, advocates believed that city leaders could focus on the task of building a workable and efficient city and overcoming its environmental impediments to create a model community. As part of these goals, many also advocated for municipal ownership of utilities and services, like the streetcar lines, to promote civic betterment (Klingle 2001:116-117).

Construction of new public buildings and other amenities to reflect the City's status also was underway at this time. Seattle's City Hall, nicknamed the "Katzenjammer Castle" because of its rambling, ramshackle appearance, was not only in disrepair, but could not accommodate many of its departments. In 1906, ground was broken on a new City Hall or Municipal Building (later also called the Public Safety Building), which was located on Yesler Way at 4th Avenue. By the time it was completed in 1909, however, it was already inadequate for City's needs, and planning for another building was underway. Following City Beautiful tenets, the land formerly occupied by the old City Hall (which had burned down soon after it was vacated) was turned into park, which hosted numerous civic events. Only a few years later a huge new County-City Building, which sat adjacent to the park on 3rd Avenue, was dedicated (Phelps 1978: 249-250).

In addition to these types of improvements, city leaders had also planned an ambitious cultural event, the Alaska-Yukon-Pacific Exposition, which was designed to bring Seattle worldwide exposure and showcase the city as an ambitious port and the commercial hub of Pacific Rim trade. For 138 days, beginning on June 1, 1909, more than 3.7 million people visited trade exhibits, national pavilions and the midway to see everything from timber industry displays to exotic dancing. The site of the fair was the

University of Washington campus, but its impact was widespread across the city, as new housing, stores, waterfront improvements and additional infrastructure were added to cater to fairgoers as well as new residents brought to the area by publicity the event generated (Warren 1981:102, 104-105; Boswell and McConaghy 1996:7).

Part of the new infrastructure necessary for fair visitors as well as the city's growing population was a better public transportation system. By 1900 at least ten private street railway companies operated in Seattle as a result of the economic boost that the Klondike Gold Rush brought to the city. Cutthroat competition and lack of standardization undercut the quality of service and limited profitability. Consolidation of many of these competing systems after 1899 generally improved their reliability, as aging systems were refurbished and new lines built. In December 1901, the Yesler Cable route was incorporated into the new Seattle Electric Company system run by Stone and Webster, a large East-Coast company. Seattle Electric added new cars, increased freight business along the Yesler line, but retained its steam propulsion system until 1912, although most other cable lines were converted to electricity (Blanchard 1968:66-67, 75).

The widespread movement for municipal ownership and the need for coordinated transportation systems with the onset of World War I convinced many that Seattle should assume control of the streetcar system. When purchases of some existing lines initially fell apart, the city began construction of its own line, known as the Seattle Municipal Railway. New routes to accommodate all of the defense workers were not completed until 1919 after the Armistice was signed, but in that year the city did take over the streetcar system previously operated by Stone and Webster and fulfilled its goal of municipal ownership (Blanchard 1968: 81-81, 92, 106-107).

The Seattle Engineering Department and Regrading

During this period, the Seattle Engineering Department took a leadership role in carrying out many of the infrastructure changes that were the underpinning of Progressive ideals. As one historian noted, Thomson, as an engineer, believed that "the physical environment was a source of energy that, properly exploited, could vanquish disease, repel vice and fortify the common good." He regarded his jobs as a means to harness that environment and shape it for civic benefit (Klingle 2007:118).

Regrading was probably the most visible, if not the most monumental, way that Thomson and his staff transformed the face of Seattle. Between 1898 and 1931, the Seattle Engineering Department began nearly sixty projects to reconstruct the topography of the city. Collectively called the regrades, these projects radically changed the elevation of more than twenty city streets. Seattle had already altered the grade of some of its major thoroughfares before the fire, but the new wave of regrades combined technological breakthroughs with new political tactics to provide economic support. Modern mining methods of the time, including sluicing, were adapted to the dirt removal efforts. City Engineer Thomson also utilized local improvement districts, which at that time were a new technique for municipal financing, as a means to carry out his regrading plans. A home rule bill in 1893 provided the impetus, as citizens could initiate improvements needed in their neighborhoods if 75 percent of those affected signed a petition in favor of the plan (Klingle 2001:95-96, 103-106, 110).

These projects were undertaken throughout the city. Huge efforts like the Denny Regrade on the north side of Seattle resulted in the removal of nearly 250 feet of the Denny Hill. On the south end the Jackson Street regrade, which began in April 1907 and was completed by February 1910, included the excavation of more than 1,810,656 cubic yards of earth. Most of these spoils were used to fill the adjacent tidelands, which were raised as much as 40 feet in some areas. Streets in the city center were not

neglected, as by 1910, regrading also extended along 2nd, 3rd, 4th, and 5th Avenues with Dearborn and Dexter and other nearby thoroughfares soon to follow. The scope of this work was not lost on the broader engineering community, which published in its journals all the technical details as "Seattle moved another mountain" (The Engineering Record 57 (20), May 16, 1908: 635-640; Pacific Builder and Engineer 7 (20): 202-204; Thomson 1950:91; Dimock 1928:729).

In some projects workers removed an average of more than 4000 cubic yards of earth per day, and the city created useable land in low areas for development. Much of this new land, especially in the tidelands, was close to the downtown core and in demand primarily for industrial and commercial purposes. Between 1895 and 1910, most of the area between Yesler Way and South Idaho Street (south of Spokane Street), and from Airport Way to the East Waterway was filled to the current street level, primarily using dredge spoils. The city condemned portions of the new land for roads and services, and blocks in the tidelands were platted and then frequently replatted. This process continued in a piecemeal fashion for several more decades (Phelps 1978: 39-41, 61-63; Dorpat and McCoy 1998:171).

4th Avenue and 4th Avenue South Regrade and the Yesler Bridge

The construction of the Yesler Way Bridge over 4th Avenue was part of the larger 4th Avenue and 4th Avenue South regrade project. Although sometimes considered part of the larger Denny Hill Regrade Project Number 1, which also included grade lowering on 2nd, 3rd, and 5th Avenues across the city, each of these projects was authorized separately. An ordinance passed by the Seattle City Council on December 5, 1905, established "the laying off, widening, extending and establishing of Fourth Avenue and Fourth Avenue South" from Westlake Avenue to Prefontaine Place and provided grade improvement from Union Street to Washington Street, including the intersecting, streets and alleys between 3rd and 5th Avenues. The latter process involved grading and regrading to conform to elevations established by the Seattle Engineering Department and also included the reconstruction and extension of the sewer system and the construction of a bridge to carry Yesler Way over 4th Avenue. To carry out this work, Local Improvement District 1310 was established In November 1906 by Ordinance 14784, which also authorized the sale of bonds to finance the work (Seattle City Council Ordinance 13074; Seattle City Council Ordinance 14784, Seattle Municipal Archives (SMA)).

The city sent out specifications for the project and requested proposals in February of 1907, with bids due the following month. Like the other major commercial streets that were undergoing regrading at the same time, 4th Avenue crossed the city over a series of hills and gullies that were difficult for horse teams to navigate. In the block between Washington Street and Yesler Way extending northbound, the original grade was 14.8 percent, although it was 8.7 percent between Marion and Madison streets. Portions of the southbound route also had equally difficult terrain. The specifications called for a grade reduction to 4.9 percent between Washington and Yesler and then a continuous 4.7 percent grade north on 4th Avenue all the way to Madison. In some places the cuts were as much as 28 feet deep and, in addition, the street was to be widened to 90 feet from 66 feet. This huge movement of earth required that most buildings along the roadway be moved or demolished and that all utilities as well as sidewalks and roadways be replaced (Thomson to H.S. Orr Co., April 29, 1907, LID 130-1-1312, SMA; Wilson 2009: 100-101).

In addition to the massive grade changes, the general description of the work in the bid documents included "the construction of a bridge at the intersection of Fourth Avenue, Terrace Street and Yesler Way, of steel beams and girder construction with steels posts, reinforced concrete floor system and concrete retaining walls and abutments. " Two stairways extending from the Yesler Way grade down to

4th Avenue and to Terrace Street were also part of the anticipated construction (City of Seattle, Department of Public Works, Specifications, Feb. 9, 1907, microfiche LID 1310-1-1312, specs: 2, SMA).

The Seattle Engineering Department adopted standards for both the bridge's materials and workmanship from specifications developed by the American Railway Engineering and Maintenance of Way Association. This professional group, which first met in 1898, was composed of railway officials who were responsible for both the technical and practical implementation of the engineering and maintenance of American railroads (American Railway Engineering and Maintenance-of-Way Association 1900:10-13).

At this time, poured concrete was the most common material used for new bridges in the city, and according to Seattle Engineering Department historian Myra Phelps, steel bridges were not even considered until 1911. In her book about the development of public works, she cites three steel spans that were built by the city in that year, including the Yesler Way Bridge over 5th Avenue, the Twelfth Avenue South Bridge and the Oxbow Bridge over the Duwamish River. Phelps evidently did not take into account the Yesler Way Bridge over 4th Avenue, which was constructed from 1909 to 1910 and thus was possibly the first permanent steel road bridge built by the City (Phelps 1978:35-36).

In a letter to a fellow engineer in May of 1909, Thomson seemed to take pride in the fact that once the Yesler Way Bridge over Fourth was built, "…we will be able to navigate on a steel bridge in front of the City Hall" (RH Thomson letter, May 20, 1909 in Thomson Collection, Acc. 89-1, Box 2, University of Washington (UW) Special Collections, Seattle). Presumably the Seattle Engineering Department also chose a steel bridge design because the Yesler Cable streetcar would use the bridge, and thus the structure needed to meet contemporary rail standards. The Seattle Electric Company, a subsidiary of Stone and Webster, operated the cable line that carried passengers along Yesler Way from the heart of the city at Pioneer Place all the way to Lake Washington (Fullerton 1982: 29, 45).

Bid documents also specified that all payments for metal work would be by the pound, with the bridge complete and in place. In addition, the City Engineer's office detailed the treatment of the steel to be used in the bridge, including an initial linseed oil treatment and coats of best red lead and oil as well as white lead and toned oil on all exposed surfaces (City of Seattle-Department of Public Works, Specifications for the Improvement of Fourth Ave, et al, Feb 9, 1907, LID 1310-1-1312, specs, p. 2, microfiche, SMA).

The contractor was also responsible for excavating the column footings and retaining walls to a depth authorized by the City Engineer, with any estimates for structural steel reinforcement included in the bids. Processes for waterproofing the concrete were also detailed in the specifications. In addition, lumber was included for any temporary sidewalks, bridges or other structures that were necessary to carry traffic or pedestrians through the work site during the construction process (City of Seattle-Department of Public Works, Specifications for the Improvement of Fourth Ave, et al, Feb 9, 1907, LID 1310-1-1312, specs, p. 2, microfiche, SMA).

As planning for the bridge continued into the summer of 1909, the city negotiated with Seattle Electric to contribute to the cost of the structure, in addition to the funds appropriated by LID 1310. In letters from R.H. Thomson to the contractor in September of that year, the City Engineer noted that the company had agreed to pay for their portion of the bridge, which included "all steel work supporting their tracks but not to include the pavement within the limits of their right-of way" (Thomson to C.J. Erickson, June 19, 1909; Thomson to C.J. Erickson, Sept. 3, 1909, 2608-01, SMA). In the set of plans for

the bridge, Drawing 1-AA specifically delineates the portion of the span that was to support Seattle Electric's Yesler line (Bridge Plans 1AA, Seattle Department of Transportation) (Appendix B).

Like many other similar projects during this era, the funding was primarily obtained through a local improvement district. According to City Engineer Thomson, "Recognizing the certainty of a widely distributed and unequally developed city here, the Local Improvement District method of performing work was adopted early in the life of Seattle and has aided wondrously in its upbuilding and development and in the giving of a metropolitan air to the entire community." From his perspective, the adoption of the "Local Improvement District" system did not undercut the need for the General Fund. Rather, he saw it as a means to cause "those persons who are separately, especially and particularly benefited, to bear the burden of those special benefits, leaving the General Fund to bear such burdens as are recognized as the proportionate cost of improvement conferring an undisputed benefit upon the entire community." As a result of his policies, approximately 78 improvement projects of this type were underway when the 4th Avenue South regrade began in late June 1907 (Seattle Engineering Department Annual Report, Dec 1, 1908:6-7 SMA).

The contractor with the winning bid for the 4th Avenue Regrade was C.J. Erickson, who had been involved in Seattle building construction and renovation for a number of years. Erickson had begun to do regrade work in 1894, soon after R.H. Thomson had become City Engineer, and had previously supervised the 2nd Avenue regrade as well as other major earth removal efforts. He was awarded the contract for the 4th Avenue Regrade on April 20, 1907, and was given the notice to proceed with the work on June 21st of that year. The 4th Avenue Regrade was the largest project he had undertaken, and he purchased new equipment to carry it out. The most important piece of machinery was a 60-ton Marion steam shovel that was able to dig an average of 1300 cubic yards of dirt per day. The huge shovel needed a crew of 7 to operate it, including an engineer, assistant, engineer and fireman as well as four laborers to work ahead and prepare for the advance of the machine. Originally 30 wagons and scrapers were used to transport the dirt but for better efficiency Erickson switched to a double-track narrow gauge railway, which was built on a wood viaduct that stretched for approximately one-half mile along 4th Avenue to the tide flats, where the excavation spoils were used as fill (LID 130-1-1312, microfiche, SMA; *Pacific Builder and Engineer*, March 9, 1907:14)(Figure 8).

Erickson planned to begin his work at Washington and 4th Avenue and proceed north, although the sequence of his excavations was, in part, dependent on the removal of electrical and sewer lines before his crews could begin. By March 1908 he was asked by Thomson to complete excavation in front of the new Municipal Building and finish construction of a temporary bridge at 4th Avenue and Yesler Way (Thomson to Erickson, Mar. 21, 1908, in LID 1310-1-1312, SMA).

Work on the permanent bridge was postponed until later in the project, although it remained part of the Local Improvement District for the 4th Avenue regrade. Despite the huge quantity of earth removed, Erickson had removed his tracks and engines on the temporary trestle by March of 1909 and had begun general clean-up in preparation for paving. The notice of final acceptance of the regrading work and closure of this portion of the contract was forwarded to the city comptroller by Thomson on November 2, 1909. This release document specified that supplemental estimates would be issued for the completion of the bridge in a form similar to a separate contract (C. George to R.H. Thomson, Mar. 11, 1909; Thomson to H.W. Carroll, Nov. 2, 1909, LID 1310-1-1312, microfiche, SMA).

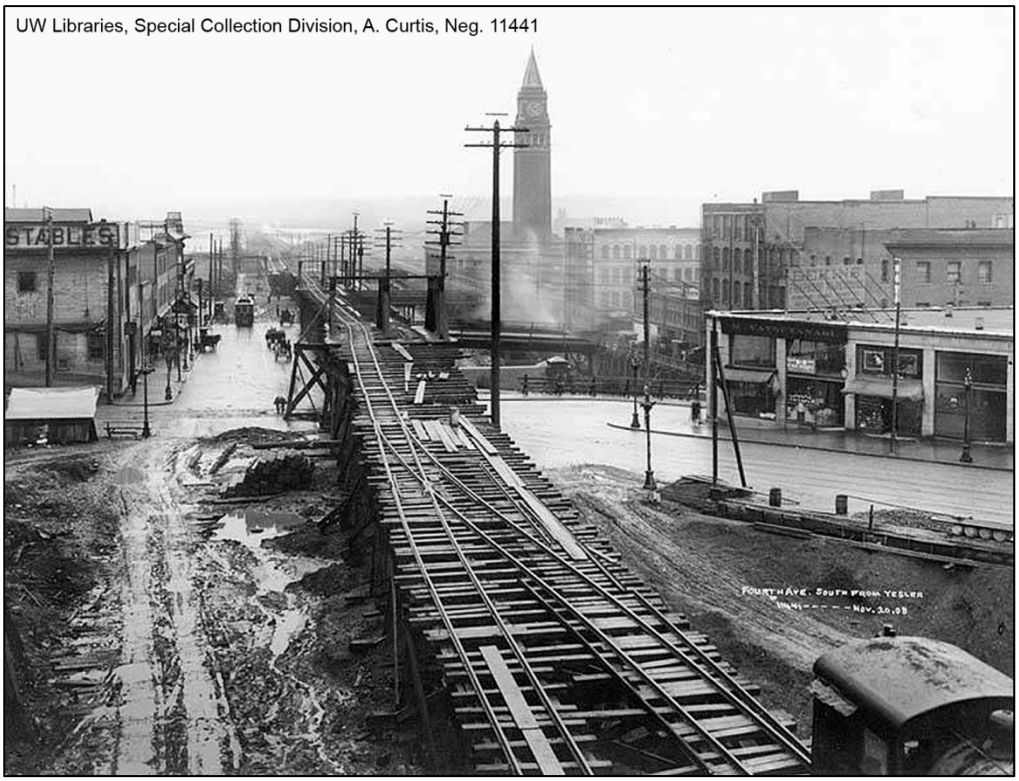

Figure 8. Rail trestle used by contractor C.H. Erickson to remove earth from the 4th Avenue Regrade Project, looking south on 4th from Yesler Way, 1908.

Bridge Plans

The final design and plans for the Yesler Way Bridge appear to have been the joint effort of several engineers and draftsman within the Seattle Engineering Department as well as from outside firms. According to a letter written by City Engineer R.H. Thomson in early May of 1907, Assistant City Engineer D.W. McMorris may have originally proposed the bridge across 4th Avenue, with Thomson following up with initial plans and specifications (Thomson to McMorris, May 4, 1907, in LID 130-1-13120).

In this type of situation, the bridge design process was evidently very fluid as the needs of various constituents were balanced with funding requirements and engineering practicalities. The Seattle Engineering Department maintained a staff of draftsmen at various grades as well as a chemist, materials tester and at least four inspectors. There were also several district engineers who oversaw projects in various portions of the city, and these men reported to the Principal Assistant City Engineer or to the City Engineer himself. For large, complicated or possibly controversial projects, the City Engineer often hired outside consultants to review or develop plans and to make recommendations to the department (Efficiency Report, Sept. 16, 1909, in 2600-04, Engineering Department, Reports of the City Engineer, vol. 5-222, SMA).

In the case of the Yesler Way Bridge, Thomson outlined briefly how the design and funding process evolved in a letter to a disgruntled consultant who believed his work on this project was undervalued. As Thomson wrote in February of 1909:

> Enough plans were prepared to secure unit prices; the width of the bridge and the probable character of it depending on the development of a number of things, some of which have not

> yet been fully determined because of the local complications which, from the beginning, have been surrounding the 4th Avenue regrade. When that bridge is built, it will not be built by the City of Seattle as a city, but will be paid for by a local improvement district, composed of a part of the 4th Avenue regrade district. The suggestions which you have made in the past as to the part of the cost which ought rightly to be borne by the street car companies passing underneath, were excellent suggestions, but, owing to the conditions of the various franchises in the city, impossible of application (Thomson to J.W. Carrier, Feb 8, 1909, Box 2, Acc. 89, part I, R.H. Thomson Collection, UW Library Special Collections, Seattle, WA).

In addition to negotiations with the Seattle Electric Company over their share of the bridge cost, the Engineering Department also had to develop plans that would accommodate the tracks of the Seattle, Renton and Southern Company (SR&S) line that ran along 4th Avenue. SR&S was the inheritor of the first electric interurban line that ran from Seattle to Renton and was successfully managed for a number of years by Frank Osgood, Seattle's pioneer streetcar builder. After its sale in 1907 to W.R. Crawford, the line went into decline, plagued by poor economic conditions as well as litigation and mismanagement. By 1909 SR&S, through a letter from James D. Blackwell of the engineering firm of Hanford and Blackwell, suggested some design changes for the temporary bridge over 4th Avenue, including moving bents in order to allow sufficient clearance for the interurban tracks to be re-installed and operational. Although Thomson believed that it was a delaying tactic by Crawford because of his financial position, the City Engineer asked the district engineer, C.B. George, to comply with the request (Blanchard 1968: 43-44; Blackwell to Thomson, Apr. 19, 1909; Thomson to George, Apr. 20, 1909, in LID 1310-1-1312, SMA).

In mid-June of 1909, Thomson forwarded 18 sheets of bridge plans to C.J. Erickson, the contractor, for the 4th Avenue and Yesler Bridge. The basic specifications for the steel bridge had come from the American Railway Engineering and Maintenance of Right of Way Association, but the initial plans were drawn up in the City Engineer's office. It is not known what resemblance these 1909 drawings had to those Thomson had presented to Assistant City Engineer D.W. McMorris when the regrading project first began in 1907. The name of John A. Dunford, a 2nd grade draftsman in the department, was listed on the first sheets dealing with the basic plans for the bridge, primarily drawn up in May of 1909 (Thomson to Erickson, June 19, 1909, in LID 1310-1-1312; Bridge Plan I-A, Seattle Department of Transportation)(see Appendix B).

The more specific renderings of the girders, riveting plans and designs of abutments, piers and other miscellaneous details included the last names or initials of individuals who could not be identified in the roster of Seattle Engineering Department employees. There is no specific confirmation that "JWH," who was listed on the designs for the iron railings and other ornamental details, or "Miller," whose name was on many of the plans for the girders as well as the abutments and piers, worked for the City Engineer or for independent engineers hired to assist the city with the bridge design. Consulting engineer J. W. Bowerman of Bowerman and McCloy did provide an estimate of potential Yesler Way Bridge costs to Thomson in June 1909. McCloy's name appears as a reviewer of several of the plans, and Miller may be Harry F. Miller, a draftsman for Bowerman and McCloy firm (Bridge Plans, Seattle Department of Transportation; Estimate of 4th Avenue and Yesler Bridge, June 5, 1909; 2600-04, Reports of the City Engineer, Box 1, vol. 4; Polk 1910).

At the time that contractor C.H. Erickson was given these plans, Seattle Electric and the City of Seattle were still negotiating over cost distribution, but it was already agreed that the bridge's steel work would be built as a whole to these specifications. Once the City made some modifications to the plans for the gravity retaining wall, Erickson was authorized to begin construction of the bridge retaining walls and

foundation piers as quickly as possible in order to have them ready for the arrival of the steel (Thomson to Erickson, June 19, 1909, in LID 1310-1-1312, SMA) (Figure 9).

A list of C.J. Erickson's sub-contractors for the bridge construction has not been found, but correspondence indicates that the Moran Company of Seattle provided the steel and fabricated the bridge, which was put in place by a separate erecting firm, Gordon, White and Company. The Moran Company was best known as a shipbuilder, but it also offered foundry services as well as engineering, boilermaking, coppersmithing, galvanizing and sawmilling. Company president J.V. Paterson served as the liaison with the Engineering Department for the Yesler Bridge, which required more than 358,000 pounds of steel. The Moran Company also constructed the two steel stairways from Yesler Way to 4th Avenue and Terrace Street as called for in the project specifications (Thomson to Patterson, May 10, 1910; Agreement of January 15, 1910, Thomson to Paterson, May 18, 1910; Paterson to George, Sept. 15, 1910, in LID 1310-1-1312-sheet 3 microfiche, SMA).

As construction on the bridge continued into 1910, Thomson tried to expedite the process by petitioning the mayor to allow crews to work on Sundays as an emergency measure for "public safety and convenience" (Thomson to John H. Miller, Feb. 11, 19, 1910, in LID 1310-1-1312-sheet 3 microfiche, SMA). When preparations for installing the steel bridge were completed, the Board of Public Works notified Seattle Electric Company that the line would have to cease operations on February 25, 1910, and resume them again when construction warranted it. Local newspapers, however, informed the public that several thousand people would have to suffer inconvenience for two days and walk to another intersecting track as the line was shut down for removal of the old planking and installation of the steel bridge. A second closing was required on May 2, 1910, to allow the concrete in the bridge

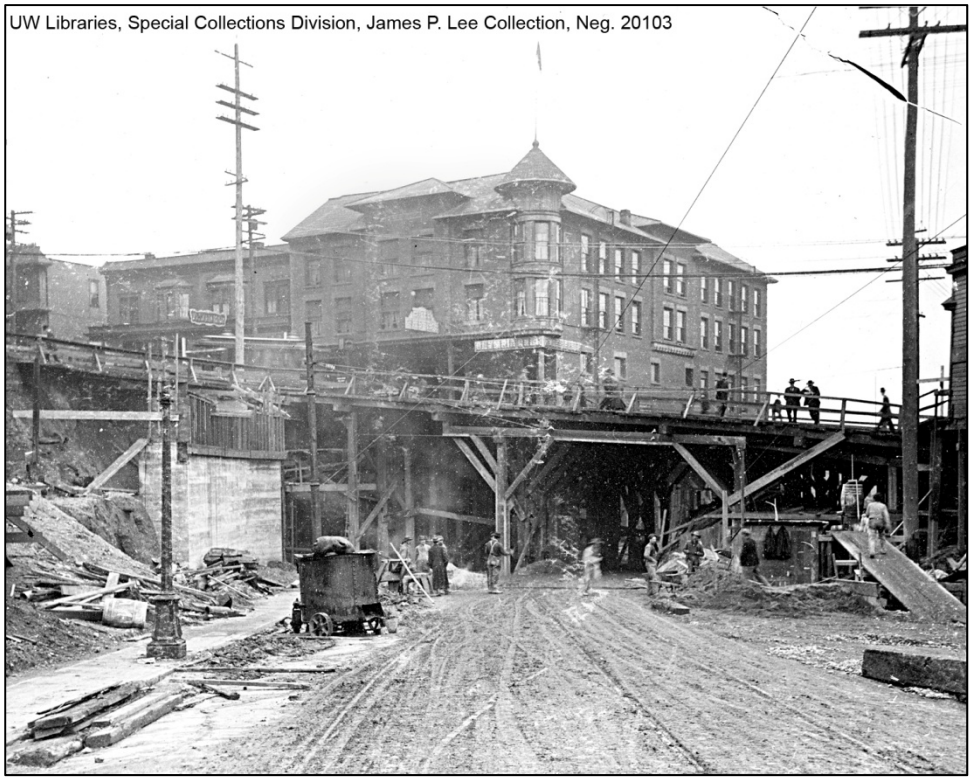

Figure 9. Construction of the Yesler Bridge over 4th Avenue showing temporary bridge structure and new abutments being poured, ca. 1909.

decking to set before permanent paving was put in place. Full operation of the Seattle, Renton and Southern Railway underneath the Yesler Bridge resumed on March 2, 1910 (Board of Public Works to the Seattle Electric Company, Feb 25, 1910; Thomson to Seattle Electric Co., Apr, 28, 1910; Department of Public Utilities to W.R. Crawford, Mar. 1, 1910, in LID 1310-1-1312-sheet 3 microfiche, SMA; *Seattle Times,* Feb 22, 1910:11).

The construction of two steel stairways to Yesler and Terrace were part of the original specifications (Figure 10). A suspended sidewalk was also added to the Grand Union Hotel, which was located on 4th Avenue along the southeast corner of the bridge. Contractors for the hotel installed steel columns with the necessary brackets to anchor it in place along the side of the hotel and the bridge. Moran Company was asked to provide a supplemental bid for manufacturing the stairway and railing for the project. Their quotation was accepted, and the company finished this addition by September of 1910 (D.W. McMorris to John Cannon, July 29, 1909, in LID 1310-1-1312, SMA; D.W. McMorris to C.B. George, Jan. 11, 1910, in LID 1310-1-1312-sheet 3 microfiche, SMA).

Other final construction details were completed in late June and July of 1910. The City Engineer's assistant, D.W. McMorris, suggested the bridge's color scheme to Thomson, who agreed to the choice. The final coat of paint on the exposed steel was shade No. 39, which was a dark olive in the color palette. Shade 49, called Ecru, was chosen for the underside of the bridge to maximize the light (McMorris to Thomson, June 2, 1910, in LID 1310-1-1312-sheet 3 microfiche, SMA). Erickson was also asked to finish several other tasks, which included painting the railing and using cement to fill the gap between the stairway and landing built along the Grand Union Hotel (also referred to as the Cannon Building for its owner, John Cannon). The contractor was also asked to repair leaks in the east wall by chipping out bad concrete and filling with a fairly dry mixture of cement and sand. Thomson issued the final acceptance of the bridge in early August of 1910 (Thomson to Erickson, July 23, 1910, in LID 1310-1-1312-sheet 3 microfiche, SMA).

Iron Railing

The project specifications listed iron railing in the section with bulkheads and retaining walls, and its use was to be shown on plans or under the direction of the City Engineer. Bids for the railing were to be based on a price per linear foot that would include furnishing all necessary ironwork, installing it in a concrete base and then painting it with two coats of enamel paint in a color to be determined by the City Engineer. The city estimated the need for over 13,000 pounds of cast iron, with the winning bid at seven cents per pound (City of Seattle-Department of Public Works, Specifications for the Improvement of 4th Ave, et al, Feb 9, 1907; Contract for Local Improvement, Nov. 28, 1906, LID 1310-1-1312, specs-2, SMA).

The iron railing that extended along either side of the Yesler Bridge over 4th as detailed on Plan 4-18 was similar in pattern to the railing that was added to the stairways that led from the bridge as drawn in Plan 18-18 and subsequent revisions (Figure 11). This railing design replicated the iron railing that extended along the west side of 4th Avenue south as it crossed both Washington and Main Streets (Figure 12). In this area the Great Northern Railway tunnel had recently been completed, and the railing provided a barrier between the concrete sidewalks on 4th and the long, open entry to the tunnel. The south portal of the tunnel was located at Washington Street and tracks extended at grade from the new station at King Street to that point. The same railing was also used on Washington Street as it continued over the portal and on the South Main Street Bridge that crossed the tunnel access. In addition, the railing ran along Jackson Street south of 4th Avenue near the station (Figure 13).

Figure 10. View of the Yesler Way Bridge over 4th Avenue looking east toward the new Municipal Building. At the left of the image are the two stairways that were also manufactured by the Moran Company. 1915.

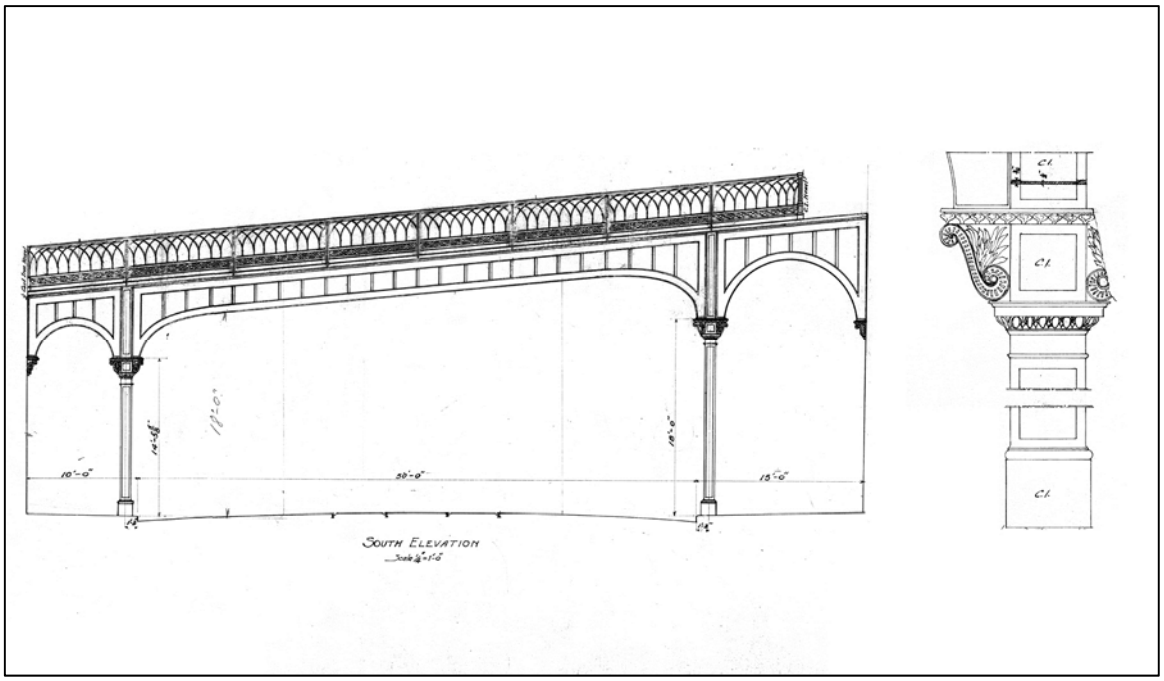

Figure 11. A detail of the bridge plans showing the decorative design elements and iron railing. Plan 4-18. 1909. Seattle Department of Transportation.

Figure 12. Iron railing lined 4th Avenue South along the west sidewalk bordering the railroad tunnel entrance, 1937.

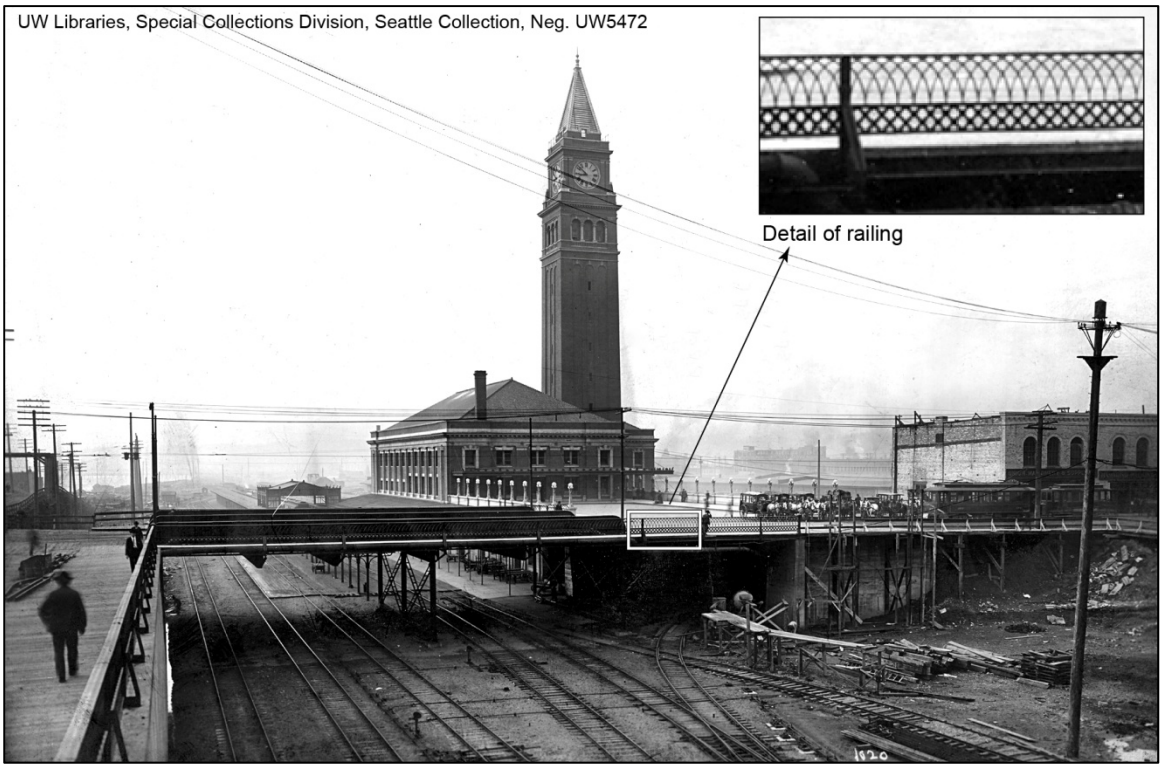

Figure 13. Iron railing was also used across the Jackson Street Bridge in front of the newly built King Street Station, view looking south, ca. 1909.

It is not currently known whether this railing was installed when the Great Northern tunnel project and the depot construction were completed around 1906 or whether it was added by the city as the 4th Avenue regrade project came to a close in 1909. In either case, the railing provided a unifying element along 4th Avenue, linking the city's new south-end transportation hub with its government and commercial districts to the north. City engineers apparently made a conscious effort to include the same design element on the Yesler Way Bridge, which was a steel span based on railroad designs and highly visible to traffic moving north into the city on 4th Avenue as well as streetcar users heading to eastern residential suburbs.

The Moran Company provided the railing for the stairways and platforms connected to the Yesler Way Bridge, although it is not known whether they manufactured it themselves or contracted with another ironworking facility. A year later, however, the city purchased from the Great Northern Railroad a small piece of land on the southwest side of Washington Street near the tunnel portal. At that time, the City Engineer authorized Artistic Ornamental Iron and Wire Works of Seattle to reconstruct the iron fence and manufacture additional railing of the same design to be added along this property where it fronted Washington Street (Thomson to Artistic Ornamental Iron and Wire Works, Mar. 23, 1911, in 2608-01,LID Letterpress Books, Box 4, Book 31:23, SMA).

Other Bridge and Roadway Features

Some additional elements of the 4th Avenue and Yesler Way bridge construction efforts were included in other projects. A contract for paving 4th Avenue from Washington to Madison was let in early 1909 as part of a separate Local Improvement District. The replanking of parts of Yesler Way outside of the bridge deck as well as the regrade of other portions was carried out in 1908 and 1909. In addition, the

City installed a series of cluster lights designed by the Engineering Department on a number of streets, including Prefontaine Place from Yesler Way to Washington in 1909 (Thomson to Erickson, Jan. 25, 1909, LID 1310-1-1312, microfiche, SMA; Board of Public Works, March 2, 1907; Thomson to Board of Public Works, Jan. 5, 1909 in 2608-01, Engineering Department, Local Improvement Letterpress Books, Box 1).

The original 1909 bridge plans specified, in addition to the railings, cast iron decorative elements on some of the bridge piers. Despite these features, the Seattle Times reported in October of 1915 that the City Engineer at the time, A.W. Dimock, planned to increase the ornamentation on the Yesler Way over 4th Avenue Bridge. According to the article:

> Many complaints have been made of the appearance of this bridge, poorly lighted and without ornamentation, and the further use of the entrance to the city hall for the storage of garbage cans and other refuse and the use of the space under the sidewalk approaches from 4th Avenue for the storage of tools used by the street and park departments.
>
> Poor Impression
>
> Property owners on 4th Avenue are the principal complainants and they claim that inasmuch as more than half a million people arrive in Seattle through the railway station each year, they should be given a better impression of the city than is now possible if the Yesler Way bridge, crossing the principal street leading from the railway stations, was properly lighted and needed repairs made where the concrete has broken away from the steel supports (Seattle Times, Oct. 14, 1915:14).

At the time City Engineer Dimock promised that needed upgrades would be made to the bridge in conjunction with the construction of a tunnel to the new County-City Building and improvements to City Hall Park, which abutted both 4th Avenue and Yesler Way to the northwest of the bridge. No plans for any of the changes to the bridge during this era have been located. The ornamental lighting fixtures that currently hang from the structure were not detailed in the original plans and may have been additions made by Dimock (Figure 14).

As part of the tunnel project, however, a new brick staircase and wall with bandings of red tile were added to replace the original metal staircase from the Yesler Bridge to Terrace Avenue. A short, curved road, Dilling Way, was also constructed along the edge of the park to provide a connection between 3rd and 4th Avenues (Courtois 1983:2) (Figure 15).

Post-World War I Developments and the Yesler Bridge: 1919-1976

In the post-World War I era, economic upheaval and technological innovations altered the means of moving both people and goods. The increasing importance of motorized vehicles and updated methods of packaging and shipping cargo dictated the addition of new streets and highways, the redesign of ships and pier, as well as a diminished role for railroads. Seattle's central waterfront and its south end were forced to adapt to the new functions that met the demands of a growing city (Dorpat 2006:194).

For several decades, the city's commercial activity had slowly moved to the north while industrial and transportation facilities were consolidated in the south. Despite efforts to keep the center of the city's business district near its original location in the Pioneer Square area, including the construction of the new city hall building in 1909 at the east end of the Yesler Way over 4th Avenue South bridge, regrading activities and new construction had shifted the focus of activity. In particular, the leveling of 4th Avenue in 1907 and 1908 had led to the redevelopment of the former site of the Territorial University by the

Metropolitan Building Company. This ten-acre parcel, which soon became more widely known as the Metropolitan Tract, was divided into lots and leased for new buildings. As construction proceeded over the next decade, the area increasingly became the city's commercial center. Pioneer Square was no longer considered the heart of Seattle, but rather became part of its south end (Hines 1980:64, 68; Link 2005:8-30, 8-34, 8-35).

Figure 14. Modern view of ornamental lighting fixture on the north side of the Yesler Way Bridge over Fourth Avenue, 2012.

As the focus of the city's main commercial district moved to the north, planners also recognized the need to provide a better link between the city's grand railroad entry in the south and the business center. Part of the solution was Prefontaine Place, constructed as an extension of 3rd Avenue prior to 1912, and the 2nd Avenue Extension, which was built between 1928 and 1929. Construction resulted in major alterations to Pioneer Square buildings in the path of these new roads as well as to a number of streets that intersected them (Baist 1912; Link 2005:8-35, 8-37).

During this period, Seattle's growing population became more decentralized as new roads also enabled people to live farther from the city center. The decline of earlier forms of public transportation like the streetcar also affected urban planning, as the city was forced to improve automobile access and provide parking for commuters in the face of huge traffic problems. Construction of the Alaskan Way Viaduct, an elevated roadway along the waterfront, was part of this process. Its completion in the 1950s offered a new means for north-south traffic to avoid the city center. Within two decades the construction of Interstate 5 two blocks east of the project bridge cut off many smaller streets and solidified Yesler Way as one of the major east-west routes into downtown Seattle (Meier 1980:43, 47-48).

Later Bridge Improvement Efforts

Overlapping jurisdictions among several of the city departments related to infrastructure development and particularly building and bridge supervision led to a clarification of responsibilities in the 1920s. According to then-City Engineer J.D. Blackwell, the construction of municipal buildings was removed

Figure 15. Yesler Way Bridge over 4th Avenue, 1920, showing tunnel entrance to County-City Building and new concrete staircase replacing the original steel structure. City Hall Park is in the foreground.

from the City Engineer and put under the supervision of the Superintendent of Buildings. The City Engineer retained the duty "to superintend and have management and control of bridges and wharves and of the construction and repair thereof" (Phelps 1978:257). Since the maintenance of streets was under the Street Department, city officials developed a list of bridges that the City Engineer would continue to maintain as opposed to those that were considered part of street maintenance. This list contained more than 25 major spans including the Yesler Way Bridge over 4th Avenue (Phelps 1978: 257-258).

Specific maintenance and inspection reports for the Yesler Way over 4th Avenue Bridge may not exist for the period from construction to the mid-1960s when reports held now by the Seattle Department of Transportation begin. Early indications that the Engineering Department had begun to consider replacement of the Yesler Way Bridge over 4th as well as the bridge on Yesler Way over 5th Avenue surfaced in records from the early 1970s. In June of 1972 City Engineer Robert Gulino asked the City Council for funds from the Arterial City Street Fund to develop plans, specifications and estimates for bridge replacement. A portion of this money would be reimbursed under the Federal Aid Urban Metropolitan program of the Federal Highway Administration. Ordinance 101309, approved in August 10, 1972, authorized the funds for preparation of these plans (Gulino to the City Council, June 28, 1972, in 2613-02-2-2782-1972 microfiche, SMA; Ordinance 101309, Aug. 10, 1972, SMA).

As the process moved forward, the Engineering Office was also asked to coordinate with the newly expanding Pioneer Square Historic District. At this time preliminary engineering suggested that the bridge replacement would involve "changing the grades of 4th Avenue and Yesler Way to improve undesirable profiles and improve vertical clearance" (Gulino to Carle Salley, Dec. 10, 1973). An additional issue was the condition of the Roberts Hotel (formerly the Grand Union Hotel), which was located on the southeast side of the bridge. The Building Department had found the building to be structurally unsound and advocated its demolition, while its new owners and the Pioneer Square District manager hoped to preserve the historic hotel. The Engineering Department later determined that one of the Roberts Hotel walls was supporting the roadway fill at the east end of the Yesler Way Bridge, and the City would have to build a new retaining wall to replace it (Wes Uhlman to Robert J. Gulino, July 17, 1973; Intermediate and Final Inspection Report, July 9, 1974, in 2613-02-2-2782-1972 microfiche, SMA)(Figure 16).

Ordinance 102245 of June 8, 1973, authorized the city to use some of its previously appropriated funds to hire consultants to review alternatives for the Yesler Bridge over 4th Avenue. Makers Associated presented their preliminary findings in a report dated February 1, 1973. Their general recommendations were to restore the Yesler Bridge, which they described as "one of the city's best examples of "Catalog"

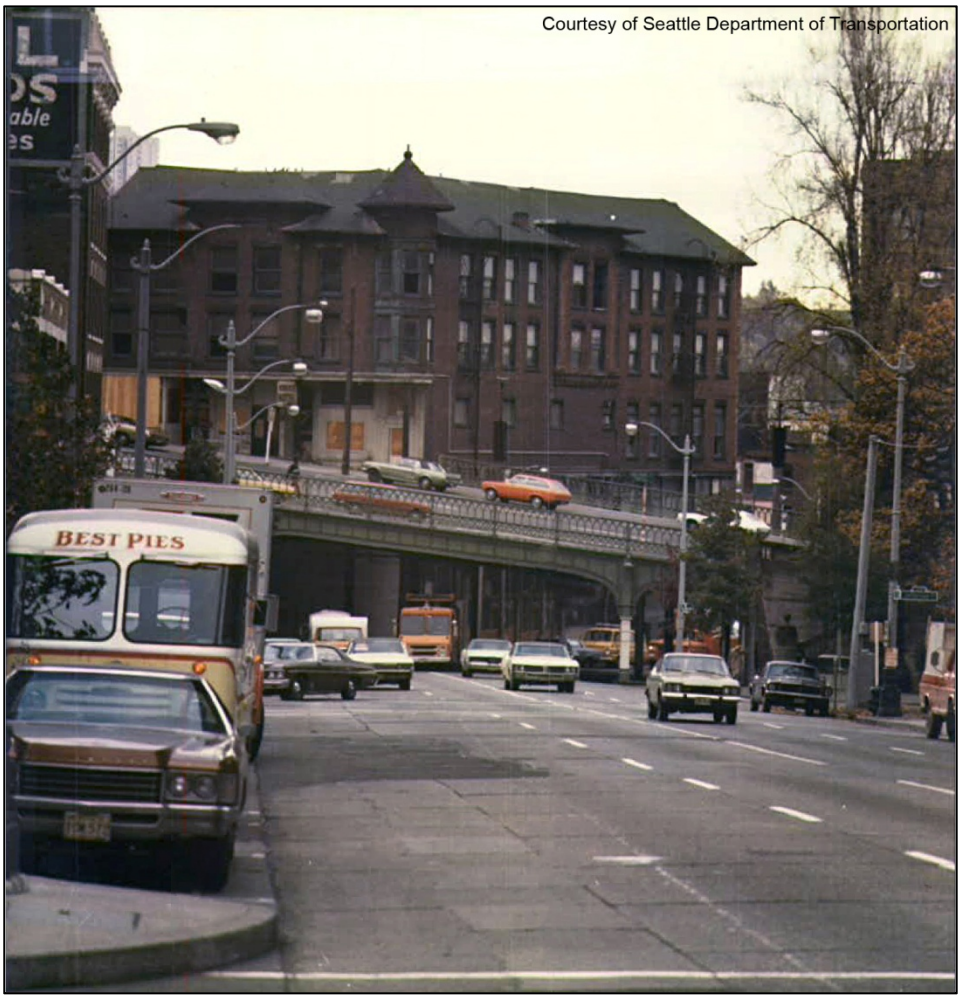

Figure 16. Before demolition, the Roberts Hotel looms above the Yesler Way Bridge, looking south on 4th Avenue South, ca. 1970s.

iron structure so prevalent in our Nation's history. The unique 'Y' shape lends a special geometric and 'home town' personality to this widely noticed component of our urban landscape." More specifically they suggested the adoption of design criteria for restoration that would maintain the bridge "as a component of the Pioneer Square ensemble and as an important neighbor to the old city hall and the Courthouse grounds…" (Makers Associated, Overview Recommendation, Feb. 1, 1973: 4a in 2615-02-2-2783, microfiche, SMA).

By the time a more detailed report, Architectural and Design Comments, was issued by Makers in early April 1974, the Seattle Engineering Department had decided to rehabilitate the Yesler Way Bridge over 4th Avenue. A primary goal was to regrade 4th Avenue in order to provide more clearance under the bridge, and other planned renovations included repair of bridge girders and concrete abutments and railings as well as lighting and landscape refurbishment. Several ordinances were passed to authorize funds for the rehabilitation project from state, federal and local programs. With additional input from the Seattle Design Commission and other interested parties, the restoration work and regrading was completed in 1976 (Gulino to Charles Odegaard, Mar. 13, 1974; Seattle Design Commission, Request for Review, May 15, 1975: Ordinances 104632, 104636 and 104637 in 2615-02-2-2783, microfiche, SMA).

Archaeological and Built Environment Resources

Previous Cultural Resource Studies

Numerous cultural resources studies have been conducted in the present project vicinity, most in compliance with the National Historic Preservation Act and other cultural resources legislation. Among the most important of these investigations are studies employing both archival and geotechnical data to assess the potential for intact buried cultural deposits in this highly urbanized environment. The most recent of these were the Alaskan Way Viaduct Replacement Program and Elliott Bay Seawall Replacement Project (Table 4).

Table 4. Selected Previous Cultural Resource Investigations in the Project Vicinity.

AUTHOR	DATE	PROJECT	RELATION TO BRIDGE	RESULTS*
Robinson	1982	Sites of Recreational, Cultural, Historic and Archaeological Significance for I-90 Access Project	0.2 mi S	None
Earth Technology Corporation	1984	Archeological Resources Assessment for the Downtown Seattle Transit Tunnel Project	Adjacent	Overview
Metro	1985	106 Documentation: Downtown Seattle Transit Project	Adjacent	Effects on historic buildings
Hart Crowser	1986	Research Design for Archeological Test Excavations Downtown Seattle Transit Project	0.25 mi S	Overview
Holstine	1996	Historic Resources Discipline Report: Washington State Department of Transportation's Proposed SR 519 Kingdome Area Intermodal Access Project, Seattle, Washington	0.25 mi S	Historic buildings
Courtois et al.	1998	Sound Transit Central Link Light Rail Draft EIS Historic and Archaeological Resources Technical Report	Adjacent	Historic buildings
Nelson	1998	Letter Report: Recent Excavation for Seismic Retrofitting at the King County Administration Building	0.1 mi N	None
Courtois et al.	1999	Central Link Light Rail Transit Project Final Environmental Impact Statement Historic and Prehistoric Archaeological Sites, Historic Resources, Native American Traditional Cultural Properties, Paleontological Sites	Adjacent	Historic buildings
Murphy et al.	2000	Fiber Optic Line Between Portland and Seattle Cultural Resources Assessment Clark, Cowlitz, Lewis, Thurston, Pierce and King Counties, Washington, and Multnomah County, Oregon	0.2 mi S	Historic buildings

Table 4. Selected Previous Cultural Resource Investigations in the Project Vicinity.

AUTHOR	DATE	PROJECT	RELATION TO BRIDGE	RESULTS*
Lewarch and Larson	2003	Revised Draft Historic Context Statement, Hunter-Fisher-Gatherer Resources, King County Cultural Resource Protection Project	Encompasses	Overview
Blukis Onat et al.	2004	Archaeological Resources Monitoring and Treatment Plans Central Link Light Rail Transit Project Initial Segment	Adjacent	Probability areas
LAAS	2004	SR 99:Alaskan Way Viaduct & Seawall Replacement Project, Draft EIS Appendix M, Archaeological Resources and Traditional Cultural Places	0.15 mi W	Probability areas
Miller and Blukis Onat	2004	Winds, Waterways, and Weirs: Ethnographic Study of the Central Link Light Rail Corridor	Adjacent	Ethnographic place names
Wickwire	2005	Seattle Parks and Recreation's Historic Resources Plan	0.2 mi SE	Overview
Miss and Hodges	2007	Alaskan Way Viaduct & Seawall Replacement Project: Research Design, Part I:Native American Properties	0.15 mi W	Context; probability areas
Miss et al.	2007a	Alaskan Way Viaduct & Seawall Replacement Project: Research Design, Part II: Historical Properties	0.15 mi W	Context; probability areas
Miss et al.	2007b	SR 99: Alaskan Way Viaduct Replacement Program: Results of the Archaeological Core Collection Program, Phase 1	0.15 mi W	Probability areas
Zuccotti	2008	Central Link Light Rail Project Initial Segment Monitoring of Construction Phase Excavations	Adjacent	None
Miss and Sheridan	2010	Alaskan Way Viaduct Replacement Project: Appendix I, Section 106: Historic, Cultural & Archaeological Resources Discipline Report	0.15 mi W	Five sites, numerous buildings
Berger	2010	Archaeological Assessment of the Yesler Terrace Redevelopment Project, Seattle, King County, Washington	0.2 mi E	None
BOLA Architecture + Planning	2010	Yesler Terrace Redevelopment Historic Resources	0.2 mi E	None
Huber et al.	2010	SR 99 Alaskan Way Viaduct and Seawall Replacement Program, Synthesis of Archaeological Coring Programs, Bored Tunnel Alternative	0.15 mi W	No new sites
Merrill et al.	2011	Cultural Resources Monitoring at King Street Station, King County, Washington: 2010 Results	0.2 mi S	[redacted]
Phillips and Lockwood	2011	Letter Report: Cultural Resources Monitoring of Geothermal Wells at King Street Station Parking Plaza, Seattle, Washington	0.2 mi S	[redacted]
Marcotte et al.	2012	Underwater Archaeological Survey, Elliott Bay Seawall Replacement Project.	0.2 mi W	[redacted]
Hudson et al.	2013	Elliott Bay Seawall Replacement Project Cultural Resources Assessment	0.2 mi W	Summary of underwater and geoarchaeological studies

*Newly recorded cultural material identified within ¼ mile of project area.

Archaeological Resources

Nine historical archaeological resources were previously recorded in the vicinity of the bridge (Table 5). The historical archaeological sites include structural remains such as a buried railroad grade (45KI930) and submerged remnants of [redacted] (45KI1011). Historical debris and structural elements surrounded [redacted], including a site related to commercial properties (45KI1016). The remaining sites are historical period debris concentrations representing industrial, commercial, and residential development of the filled Seattle waterfront tideflats. The latter sites may be an indicator of potential archaeological deposits in the project area.

Table 5 Previously Recorded Archaeological Sites in Project Vicinity.

SITE NO.	COMPILER/DATE	AGE	DESCRIPTION	RELATION TO BRIDGE
45KI685	Lewarch and Kaeler 2003	1889-1890	Sinking Ship Areaway; mosaic tile floor	[redacted]
45KI765	Fallon 2006	1890 - 1923	[redacted] Refuse Deposit	[redacted]
45KI923	Shong 2009	ca. 1900-1950	[redacted] Tideland Site	[redacted]
45KI924	Shong and Valentino 2009; Miss et al. 2009	ca.1895-1950	[redacted] Tideland Site	[redacted]
45KI930	Gilpin and Butler 2009	Pre-1959	Buried railroad grade	[redacted]
45KI1011	Roberts 2011a; Marcotte et al. 2012	Early to mid-20th century	Debris scatter	[redacted]
45KI1012	Roberts 2011b; Marcotte et al. 2012	Mid-19th to mid- 20th century	[redacted]; debris scatter	[redacted]
45KI1013	Roberts 2011c; Marcotte et al. 2012	Late-19th to mid-20th century	Debris scatter and concentrations	[redacted]
45KI1016	Merrill 2011	1889-1904	Historic footings and artifacts	[redacted]

Built Environment Resources

Two NRHP districts and two local preservation districts are located in or near the APE. Eleven previously recorded buildings, structures and objects are located within the APE, all of which are contributing resources in the Pioneer Square-Skid Road National Historic District.

Historic Districts

Four historic districts (two NRHP-listed and two local special review districts) have also been identified in the project vicinity; one of the NRHP districts and the two local districts overlap the study area (Table 6, Figure 17). The bridge itself is located within one of the NRHP districts and is located partially or entirely within both of the special review districts.

Table 6. Historic Districts in the Project Vicinity.

DISTRICT NAME	COMPILER/DATE	STATUS	RELATION TO BRIDGE	RELATION TO APE
Pioneer Square-Skid Road National Historic District	Potter 1976, Link 2005	National Register of Historic Places	Encompasses	In
Seattle Chinatown Historic District	Kreisman 1986	National Register of Historic Places	Two blocks southeast	Two blocks southeast
Pioneer Square Preservation District	N/A	Local Designation	Encompasses	In
International Special Review District	N/A	Local Designation	North border on center line of bridge	In

Pioneer Square-Skid Road Historic District

The NRHP-listed Pioneer Square-Skid Road Historic District (PSSR) encompasses the earliest portion of downtown Seattle and contains 131 contributing resources (Link 2005). The APE is located on the northeast edge of the PSSR district and includes eleven historic contributing resources (Table 7). The Yesler Way over 4th Avenue South Bridge is one of the contributing resources and was also determined individually eligible for the NRHP in 1984 (Courtois 1984). One building, the City Hall/Public Safety Building, is also individually listed in the NRHP. Several of these resources stand adjacent to the bridge and may have structural ties to the structure. The east abutment forks at the west end of the City Hall/Public Safety Building, and abuts the southeast wall of the MacRae Parking Garage. Portions of the King County Courthouse Tunnel Entrance walls also form part of the rail on the north side of the bridge

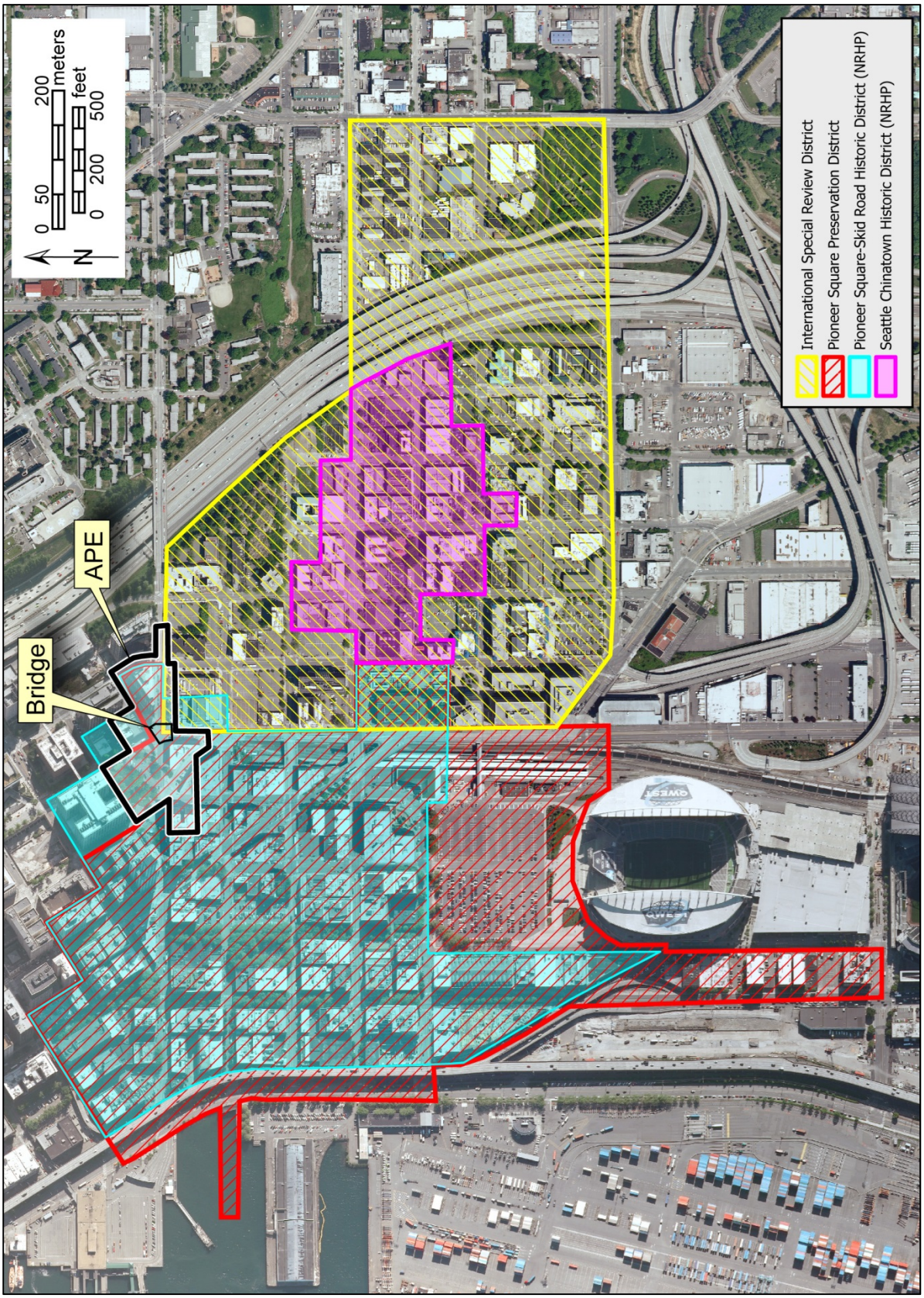

Figure 17. Historic Districts in project vicinity.

Table 7. Previously Recorded Buildings, Structures, and Objects in APE.

PSSR ID NUMBER	RESOURCE NAME	COMPILER/DATE	RELATION TO BRIDGE	AGE	NRHP STATUS	CITY DISTRICT
171	Frye Hotel	Link 2005	1 block west	1908	PSSR Contributing	PSPD
181	Dilling Park/City Hall Park	Link 2004a; 2005	Adjacent	1911, 1917, late 20th Century	PSSR Contributing	PSPD
182	Battle of Seattle Site Marker	Corley 1969; Link 2005	1 block northwest	1916	PSSR Contributing, Individual Listing	PSPD
183	King County Courthouse Tunnel Entrance	Link 2005	Adjacent	1917	PSSR Contributing	PSPD
184	Tashiro Building	Link 2004h; 2005	½ block southwest	1908	PSSR Contributing	PSPD
193	Yesler Way over 4th Avenue South Bridge	Courtois 1983b; Link 2005	Bridge	1909	PSSR Contributing, Determined Eligible	PSPD ISRD
194	Prefontaine Building	Link 2004g	Adjacent	1909	PSSR Contributing	PSPD
195*	Great Northern Railway Tunnel	Courtois 1983a;1984; Link 2005	Approximately 41 feet beneath Yesler Way, west of bridge**	1903-1905	PSSR Contributing, Determined Eligible	PSPD
202	Crouley Building/Reynolds Hotel	Link 2004d; 2005	½ block north	1909-1910	PSSR Contributing	None
203	MacRae Parking Garage	Link 2004e; 2005	Adjacent	1927	PSSR Contributing	None
204	City Hall/Public Safety Building	Corley 1973; Link 2004f; 2005	Adjacent	1909	PSSR Contributing, Individual Listing	PSPD

* This number refers to the tunnel entrance and opening above tracks one block south of bridge; however, the entire tunnel has been determined eligible for the NRHP.
** Location and depth are estimates and have not been confirmed.

at the west abutment, and a stairway leading from the Yesler Way grade to 4th Avenue South is attached to the northeast corner of the Prefontaine Building. The Great Northern and Northern Pacific Railroad Tunnel entrance is located one block south of the bridge, but historical maps indicate that the tunnel extends under Yesler Way just west of the bridge (Baist 1905 and 1912). All buildings and structures in the APE are within the boundaries of the PSSR district.

Seattle Chinatown Historic District

The NRHP-listed Seattle Chinatown Historic District (SC) covers the majority of the International District neighborhood, an area historically associated with Seattle's Asian community. The district contains 42 contributing buildings and is roughly bounded by Interstate 5 to the east, South Main Street to the north, South 5th Street to the west and South Weller Street to the south. The northern boundary of this district is two blocks southeast of the bridge (Kreisman 1986).

Pioneer Square Preservation District

The Pioneer Square Preservation District (PSPD) is a local historic and special review district established by city ordinance (Seattle Municipal Code 23.66.100) to preserve the historical and architectural character of the Pioneer Square area. The PSPD extends south from Cherry Street to South Royal Brougham Way and west from Alaskan Way to 4th Avenue South. It includes most of the PSSR as well as areas outside the National Register District. The PSPD includes all portions of the study area, with the exception of the block north of Terrace Street and east of 4th Avenue South, which includes the MacRae Parking Garage (203) and the Crowley Building/Reynolds Hotel (202).

International Special Review District

The International Special Review District (ISRD) incorporates all of the Seattle Chinatown Historic District and several blocks around it. This area, like the PSPD, is one of seven locally designated historic districts in Seattle and has a similar purpose in protecting the historic character of the district (Seattle Municipal Code 23.66.302, Seattle Department of Neighborhoods 2010). The district is bounded by Yesler Way and South Jackson Street to the north, Interstate 5 and Twelfth Avenue South to the east, South Dearborn Street and Airport Way South to the south, and 4th Avenue South to the west. The APE is adjacent to the northwest corner of the ISRD.

Buildings, Structures and Objects

Eleven previously recorded buildings, structures and objects are located within the APE (Table 7), and all of these resources either contribute to the Pioneer Square-Skid Road National Historic District or have been determined eligible for the NRHP (Link 2005). In addition, the City Hall/Public Safety Building (204) and Battle of Seattle Site Marker (182) are also individually listed in the NRHP (Corley 1969; ibid 1973). The Great Northern/Northern Pacific Railroad Tunnel portal (195), located one block south of the bridge, is a contributing resource in the PSSR, but it is unclear if the tunnel itself is considered a contributing resource in the district; however, the entire tunnel has been determined eligible for the NRHP (Courtois 1983a). Maps indicate that this tunnel is located under the west abutment of the bridge, and the determination of eligibility mentions that the tunnel is 41 feet below grade at Yesler Way, although the source of this information is unclear (Baist 1905 and 1912; Courtois 1983a).

Expectations

Expectations for cultural resources in the project vicinity are based on geoarchaeological and other environmental data, ethnographic information and archival documents, and previous cultural resource investigations in the project vicinity. The following sections summarize these predictions.

Archaeological Resources

The project is in an archaeologically sensitive area. A number of project vicinity landforms have potential for multi-component sites with archaeological materials dating from the pre-contact, through ethnographic, to the historic periods, including the lagoon and tideflats to the south (and fill), the historic beaches and shorelines, the uplands and the wetlands. Ethnographic and historical accounts place a Native American village or camp around a lagoon that may have extended [redacted]. [redacted] was known to have been constructed following a portion of a Native American trail that ran between [redacted], and a small creek that crossed the trail in the project vicinity would have been utilized by Native Americans. There is potential for pre-contact cultural materials at the boundary between the Pleistocene and overlying deposit, whether it be Holocene alluvium/colluvium or fill. The fill has potential for historical stable surfaces, with potential increasing towards the base of the fill, where it becomes more stratified and contains woody debris and charcoal. This potential is evidenced by recently recorded sites 45KI765, 45KI923, and 45KI924, [redacted] (Table 5). These historical-period debris concentrations are related to late nineteenth/early twentieth century commercial and residential activity in the vicinity of the study area.

Today the project vicinity is an area of dense urban development. Buildings, roads, and parking lots obscure most of the ground surface, although City Hall Park is one of few open spaces in this area of downtown Seattle. Development activity and tunneling has undoubtedly disturbed sub-surface

sediments, and the regrading of Yesler Way may have removed the historical surface and any associated cultural materials. In other areas, filling was more common than sediment removal and fill episodes may have capped evidence for earlier cultural activity, leaving the sites intact beneath the imported sediments. Remnants of roads, industrial and commercial operations, houses, and other buildings and structures, as well as discarded refuse, could feasibly be found [redacted].

Historical maps document features that could be encountered as archaeological remains in the project area. In 1884, a brewery is shown [redacted], and a variety of domestic and mixed domestic and commercial buildings are shown in the study area in subsequent years. The block [redacted] was the location of the county court house and jail in 1884, which by the following decade was used as Seattle's City Hall and jail until the construction of the new city hall (the City Hall/Public Safety Building) and new Yesler Way over 4th Avenue South bridge in 1909 (Baist 1905, 1912; SMC 1884, 1888, 1893, 1905).

Built Environment Resources

Eleven resources within the APE are contributing resources in the Pioneer Square-Skid Road Historic District, including the Yesler Way over 4th Avenue South Bridge, and many of these are also located within the Pioneer Square Special Review District, a local historic district. In addition to these resources, the Pioneer Square Preservation District coordinator also expressed concerns about several areaways located within the APE and their associated prism lights, as well as a number of globe-style street lights in the vicinity of the bridge (email, Genna Nashem, December 19, 2011).

IDENTIFICATION OF HISTORIC PROPERTIES

Archaeological Resources

Three stratigraphic units were identified during the archaeologically monitored coring and analysis of existing geotechnical data (Figure 18 and 19). They are, from bottom to top, Pleistocene, Holocene, and fill. No significant cultural materials were identified during archaeological monitoring of the three boreholes and no significant cultural materials were mentioned on the reviewed geotechnical borelogs. Charcoal and organic debris were identified between [redacted] and an interesting layer of wood was identified at [redacted].

The glacial and interglacial Pleistocene stratum that composes the base of the sequence was identified in all three of the archaeologically monitored borings and in 16 of the 24 previously completed geotechnical investigations. The eight geotechnical investigations that did not reach the Pleistocene stratum were very shallow excavations. Within the APE, sandy and gravelly glacial outwash is usually encountered below an average of 29 fbs (Figure 20). Other sterile glacial sediments below an average of 13 fbs, described on the geotechnical borelogs as till-like, are compact, silty, and clayey. The Pleistocene stratum sediments were deposited prior to human occupation of the project area, and will not be discussed further.

Holocene deposits in the project area are not typical. They were defined in all the three archaeologically monitored borings and in at least six of the previously completed geotechnical investigations. Where present, the Holocene units were identified between an average of 19 and 27 fbs. Holocene units generally consist of sometimes clayey or gravelly, usually silty, sand beds of various grain sizes.

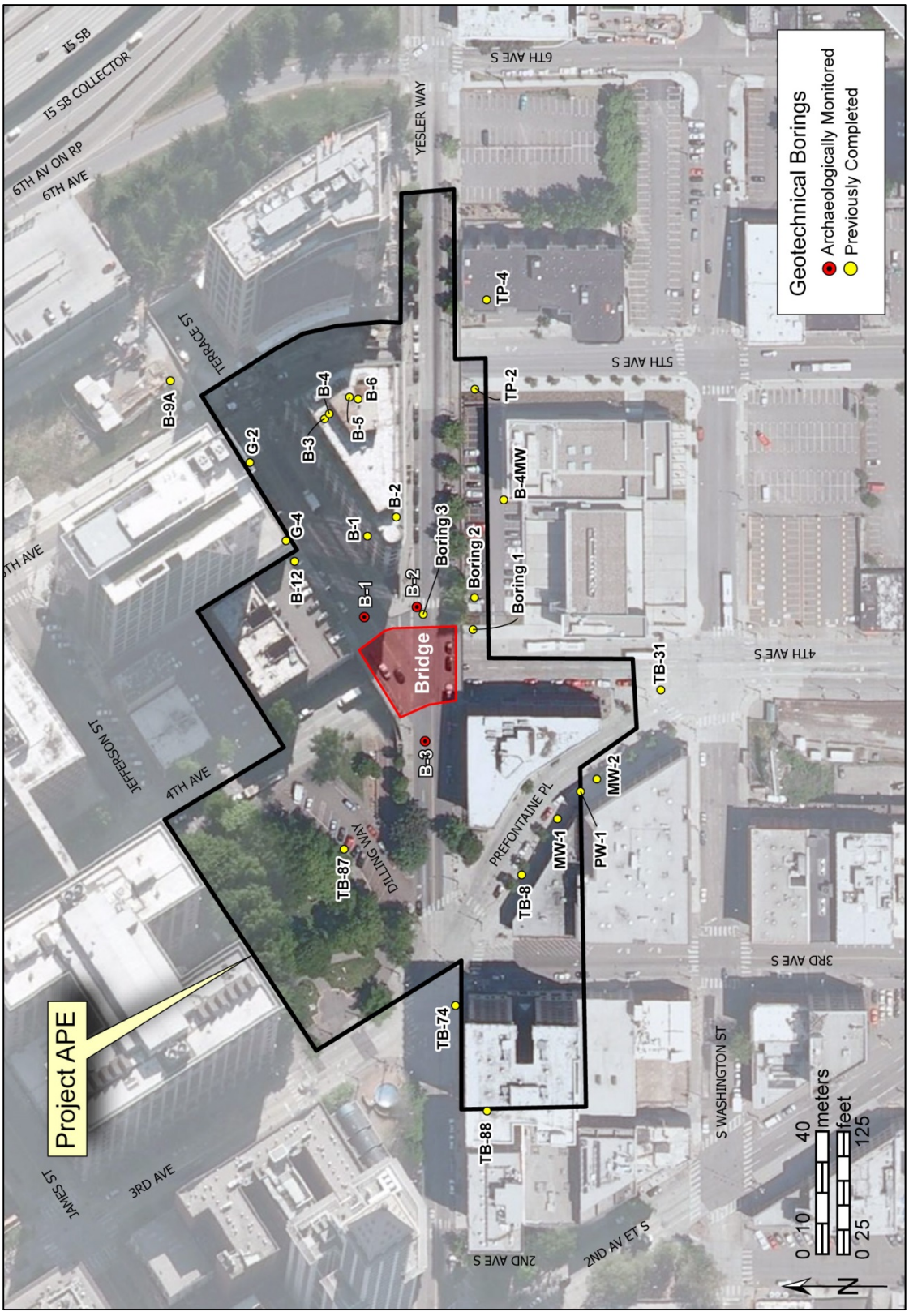

Figure 18. Archaeologically monitored geotechnical borings and previously completed geotechnical borings.

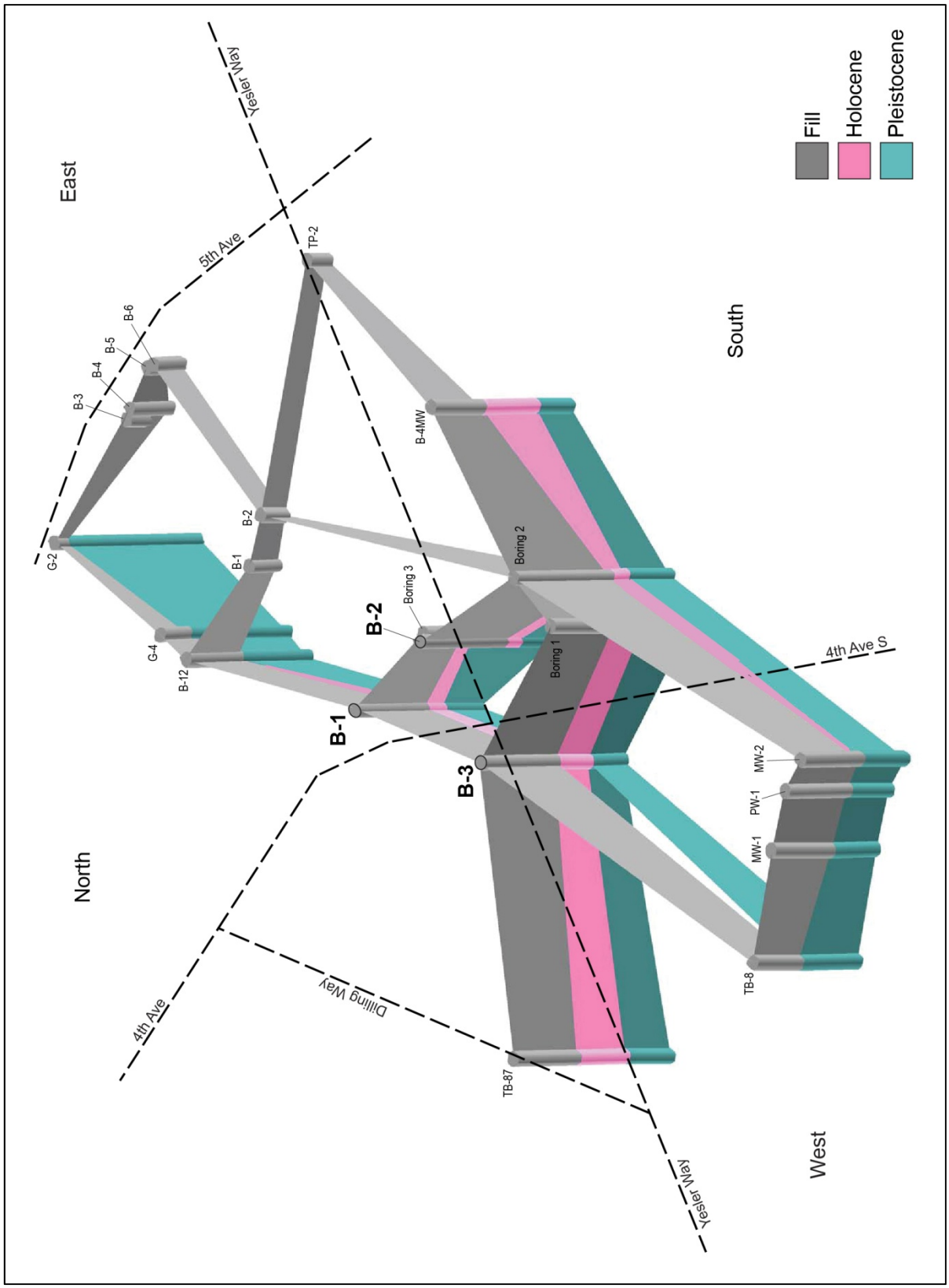

Figure 19. Stratigraphic Fence Diagram of the Yesler Way over 4th Avenue Bridge study area using data from previously drilled borings and archaeologically monitored cores.

Figure 20. Pleistocene deposit from 40 fbs at B-3.

Fill is at the surface in all of the archaeologically monitored and previous geotechnical borings. The fill is variable, consisting of road construction materials at the surface overlying thick deposits of sandy fill (Figure 21). The layers of sand commonly overlie silty fill that is interbedded with woody debris, gravel, and clay. The fill is mostly associated with regrading, road construction, and utility installation.

The lithologic units encountered in the three strata are included in Table 8, along with their typical descriptions. The fill is composed of 8 discrete depositional units, shown on the archaeologically monitored borelogs (Figure 22). They are CONCRETE, ASPHALT, GRANITE, GRAVEL, SAND, SILT, CLAY, and WOOD. The Holocene stratum is composed of 6 discrete units, from coarse to fine, they are f-cSgz, f-mS, fSzg, fSz, fSzc, and Zc. All the deposits logged in the Pleistocene stratum pre-date the arrival of humans to the region and are logged as "Pleistocene," but additional lithologic data for the Pleistocene deposits is available in Appendix B.

The stratigraphy and lithology encountered in the archaeologically monitored borings, in conjunction with the soil and sediment descriptions from the previously completed borelogs, suggests variable potential for buried cultural materials exists within the Holocene and fill strata. Potential for identification of cultural materials is low within the Holocene stratum. No evidence for buried stable surfaces was identified. In fact, the Holocene deposits appear disturbed, as if they are composed of landslide colluvium. Although there are a few instances of natural woody debris and organic matter within the units of the Holocene stratum, the wood or organic matter do not represent a transition to a depositional environment that would have been favorable for human occupation, such as a shoreline. Natural organic debris was present in Borings 1, 2, and 3, as well as in B-3 between 24 and 31 fbs within fSzg, fSz, f-mS, and f-cSgz units in the Holocene stratum (Figure 23). It is difficult to further interpret the debris because of the large sampling interval through the Holocene stratum. It is unlikely that humans would have lived along an active landslide, but a landslide could bury and preserve any evidence of human occupation or other activity at the base of the slope. No cultural materials were identified in the Holocene deposits in the archaeologically monitored boreholes.

Figure 21. Uppermost fill in vactored portion of B-3 showing ASPHALT, CONCRETE, and SAND units from 0 to 5.2 fbs.

Table 8. Lithologies and Strata Present in the Previously Drilled and Archaeologically Monitored Borings.

STRATUM	LITHOLOGY	TYPICAL DESCRIPTION
Fill	CONCRETE	Light gray concrete containing many pebbles.
	ASPHALT	Black road top; asphalt surface.
	GRANITE	White and black granite stone; likely originated as ship ballast and used as paving stone.
	GRAVEL	Brown, fine to medium sandy, small to medium pebbles.
	SAND	Reddish brown to gray, occasionally clayey, sometimes gravelly, usually silty, fine to coarse sand; may contain scattered woody or organic debris, or charcoal.
	SILT	Mottled brown and gray, gravelly, clayey, sandy silt, usually with scattered organic debris.
	CLAY	Gray, sometimes fine sandy, silty, clay with a few, small pebbles and a trace of organic debris.
	WOOD	Dark brown, medium, woody debris.
Holocene	f-cSgz	Brown, occasionally clayey, silty, gravelly, fine to coarse sand; gravels are usually common to many, angular to sub-rounded, very small to medium pebbles.
	f-mS	Yellowish brown, fine to medium sand with a few, small, iron oxide mottles and a trace of organic debris.
	fSzg	Brown or gray, gravelly, silty sand with scattered organic debris; gravels are few to common, sub-angular, small pebbles.
	fSz	Brownish gray, silty sand with scattered woody and organic debris.
	fSzc	Grayish brown, clayey, silty, fine sand.
	Zc	Brown, clayey silt.
Pleistocene	Pleistocene	Glacial and interglacial sediment; top 10 feet of which is usually highly weathered.

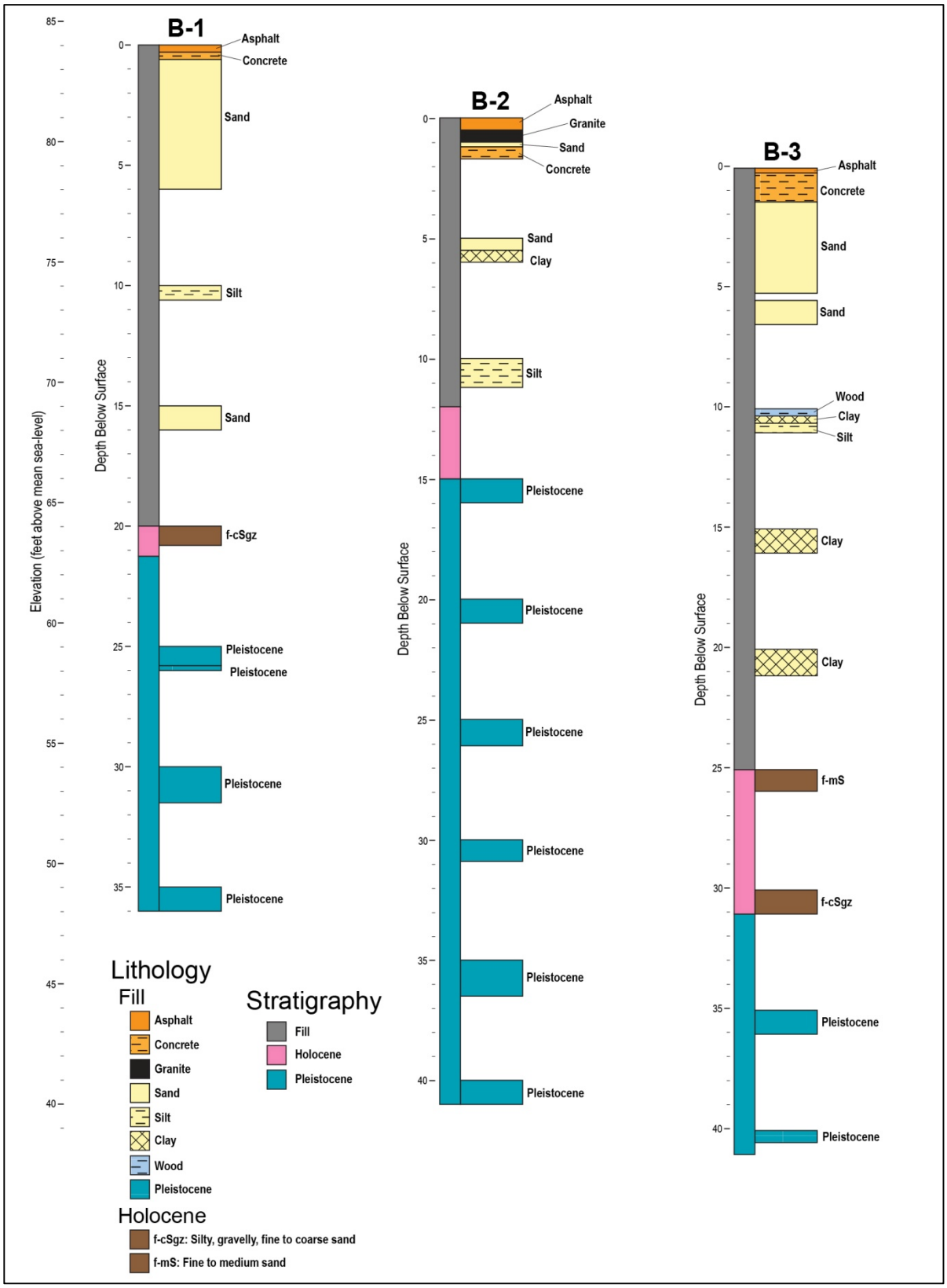

Figure 22. Archaeologically monitored core logs B-1, B-2, and B-3 drilled for geotechnical purposes at the Yesler Way over 4th Avenue South bridge.

Figure 23. Deposit of f-mS from the Holocene stratum at 25 to 26 fbs in B-3.

Potential for encountering cultural materials increases [redacted]. Significant resources, if present, would most likely be encountered [redacted]; , especially where evidence of human alteration is suggested by the presence of milled wood and charcoal. For example, woody fibers and charcoal were identified with a SAND unit in [redacted] (Figure 24). Charcoal was also recorded between [redacted]. Wood and organics without the inclusion of charcoal were also noted in a number of borings, such as between [redacted]. Wood and concrete were identified in [redacted]. Scattered organic debris, not necessarily an indicator of humans, was identified between 0 and 12 fbs within a SAND unit in TB-87 and between 5 and 17 fbs within a SAND unit at MW-1. Brick fragments were noted within a [redacted] Concrete and bricks are [redacted] and cultural "debris" was noted on the geotechnical borelog within [redacted]. Deposits with the highest potential for harboring cultural materials [redacted]. The charcoal recorded in [redacted] is particularly noteworthy.

Geoarchaeological analysis concludes potential for cultural materials is strongest around [redacted], where charcoal and organic, woody debris were identified. Archaeological monitoring of ground-disturbing construction within the fill is recommended [redacted]

Figure 24. Deposit of SAND collected from the fill stratum at [redacted], which contains fragments of wood charcoal.

Built Environment Resources

The majority of the 11 previously-recorded resources located within the APE were recorded on Washington State Historic Property Inventory Forms within the past 10 years and retained sufficient integrity to preclude further recordation. Previously recorded resources that required completion of inventory forms are the Yesler Way over 4th Avenue South Bridge, the King County Courthouse tunnel, the Battle of Seattle Site Marker, and the Great Northern Railway tunnel. Inventory forms were also completed for areaways associated with City Hall/Public Safety Building, the Prefontaine Building, the Tashiro Building, and the Frye Hotel (Appendix C). The globe-style street lights were found to be less than 40 years old and were therefore not recorded.

Eleven resources are currently listed on the NRHP and retain sufficient integrity to remain listed, one newly-recorded resource is recommended eligible (areaways associated with the Prefontaine Building), and three newly-recorded resources are recommended not eligible due to loss of integrity (the Frye Hotel areaway, the Tashiro Building areaway, and the City Hall/Public Safety Building areaways). All of these resources are listed below in Table 9, followed by a discussion and NRHP evaluation recommendation for the newly-recorded resources (Figure 25).

Table 9. Buildings, structures and objects over 40 years old within APE.

PSSR ID NUMBER	RESOURCE NAME	COMPILER/DATE	AGE	NRHP STATUS	LOCAL DISTRICT
171	Frye Hotel	Link 2005	1908	PSSR Contributing	PSPD
181	Dilling Park/City Hall Park	Link 2004a; 2005	1911, 1917, late 20th Century	PSSR Contributing	PSPD
182	Battle of Seattle Site Marker	Corley 1969; Link 2005; SWCA 2013	1916	PSSR Contributing, Individual Listing	PSPD
183	King County Courthouse Tunnel Entrance	Link 2005; SWCA 2013	1917	PSSR Contributing	PSPD
184	Tashiro Building	Link 2004h; 2005	1908	PSSR Contributing	PSPD
193	Yesler Way over 4th Avenue South Bridge	Courtois 1983b; Link 2005	1909	PSSR Contributing, Determined Eligible	PSPD ISRD
194	Prefontaine Building	Link 2004g	1909	PSSR Contributing	PSPD
195*	Great Northern Railway Tunnel	Courtois 1983a;1984; Link 2005; SWCA 2013	1903-1905	PSSR Contributing, Determined Eligible	PSPD
202	Crouley Building/Reynolds Hotel	Link 2004d; 2005	1909-1910	PSSR Contributing	None
203	MacRae Parking Garage	Link 2004e; 2005	1927	PSSR Contributing	None
204	City Hall/Public Safety Building	Corley 1973; Link 2004f; 2005	1909	PSSR Contributing, Individual Listing	PSPD
N/A	Prefontaine Building Areaways	SWCA 2013	1909	Recommended eligible	PSPD
N/A	Tashiro Building Areaways	SWCA 2013	1908	Recommended not eligible	PSPD
N/A	City Hall/Public Safety Building Areaways	SWCA 2013	1909	Recommended not eligible	PSPD
N/A	Frye Hotel Areaways	SWCA 2013	1908	Recommended not eligible	PSPD

Inventory forms were completed for resources in highlighted fields.
* This number refers to the tunnel entrance and opening above tracks one block south of bridge; however, the entire tunnel has been determined eligible for the NRHP.

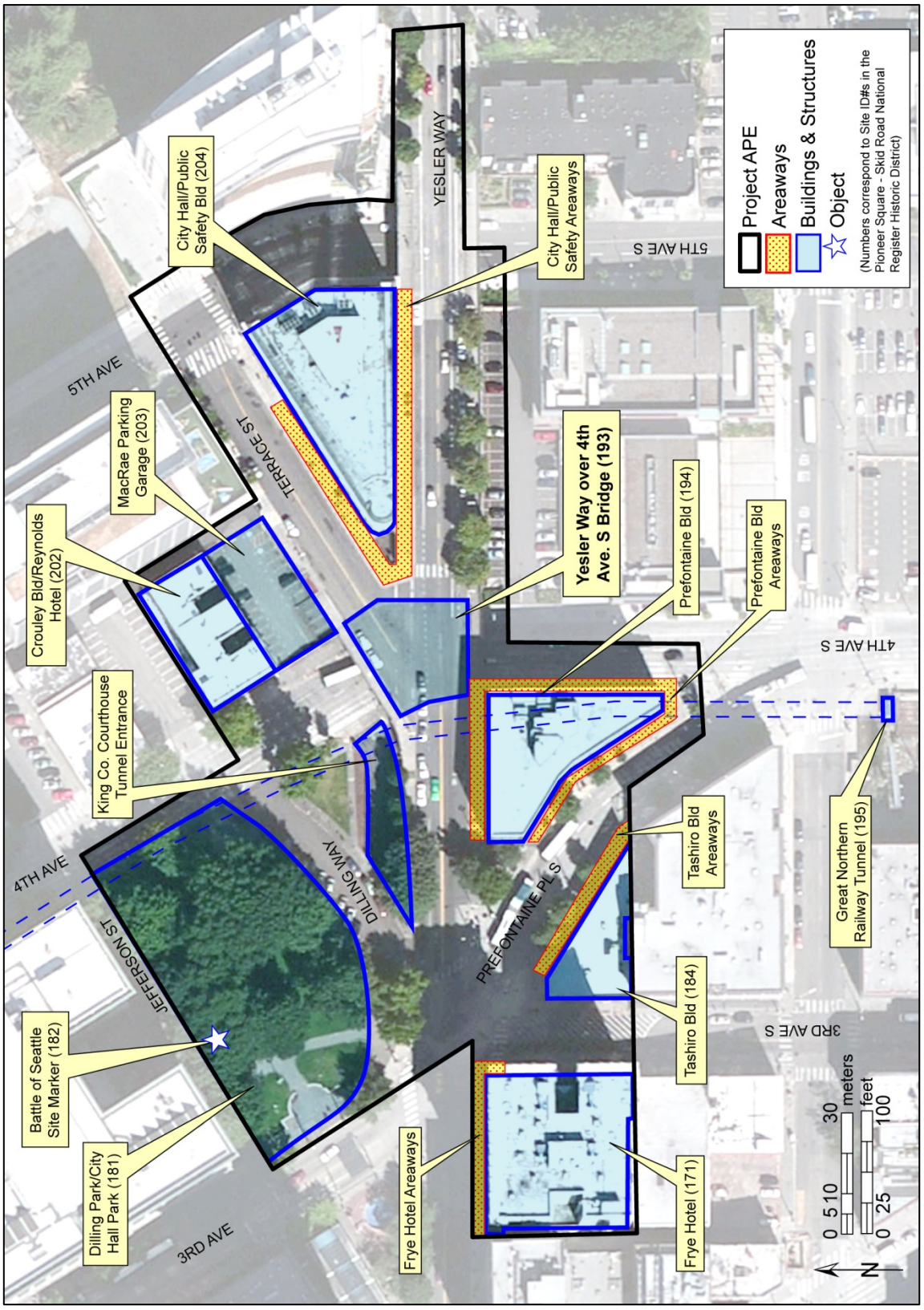

Figure 25. Buildings, structures and objects over 40 years old within APE.

Yesler Way over 4th Avenue South Bridge (No. 193)

This bridge carries Yesler Way and the west end of Terrace Street over 4th Avenue South. It is located at the east edge of the Pioneer Square neighborhood at the south end of downtown Seattle.

Superstructure

The superstructure of the bridge consists of steel, riveted, fabricated built-up plate girders. It is referred to as a deck girder bridge where the floor system rests on the top of the flanges of the girders as opposed to a through girder bridge where the deck is located between the girders, and the girders extend above the roadway surface. This type of structure was developed by the railroads in the mid-nineteenth century and began its use on highways at about the beginning of the twentieth century (Parsons Brinkerhoff and Engineering and Industrial Heritage 2005). Archival research indicates that this bridge is the earliest of its type built by the city and is also one of very few remaining structures of this kind in Seattle. The metal used in the structural components is not specified on the plans, but it is assumed to be steel as opposed to wrought iron.

The bridge consists of 21 lines of girders (Figure 26). The span lengths vary due to the skewed alignment of the piers and abutments to accommodate the 4th Avenue curvature and the Terrace Street alignment. For the center main span the length varies from approximately 52 feet 6 inches to 56 feet 6 inches and consists of the fabricated built-up plate girders. They vary in depth from approximately 2.5 feet to 4.0 feet. For the two end spans the lengths vary from approximately 10 feet to 17 feet and consist of standard, rolled, steel I-beams, partially encased in concrete. They vary in depth from 12 to 18 inches. The spans do not integrate structurally with each other; that is, they are considered simply supported and not continuous. Each girder is designed on the basis of its own span length. The center

Figure 26. Girders, exterior columns and northeast abutment, view to the northeast.

(main span) girders are supported at each end by attachments to the steel beams that extend between the columns. The I-beams of the end spans are supported at one end by attachment to the steel beam between the columns and at the other end by the abutments.

The steel girders for these types of bridges with the short span lengths were commonly fabricated and riveted completely in the shop, under ideal working conditions and resulted in accurate measurements and quality control. While the fabrication was underway, the on-site construction of the footings, columns and abutments was taking place. The completely finished girders at the shop were then transported to the site to be erected on the columns and abutments.

The top flanges of the girders are embedded in a 7 inch thick concrete slab, reinforced with wire mesh. The slab is then overlaid with a layer of 1/8 inch waterproofing, another 1-1/2 inch layer of concrete topped with a 1-1/2 inch sand cushion and then paved with 6 inch thick setts. The roadway deck consists of granite setts, which are quarried rectangular blocks that were laid in a pre-determined, as opposed to a random pattern. The roadway has since been resurfaced with an asphalt overlay. The original design plans specified sandstone blocks, but construction records indicate that a change order was made to use granite blocks instead of sandstone. Some of these setts are visible on the Terrace Street portion of the bridge (Figure 27).

Substructure

The east abutment consists of two gravity walls, one each to support the alignment of the Terrace Street I-beams and the other for the Yesler Way I-beams. A tunnel opening between the walls was provided for vehicular access from 4th Avenue into the areaways surrounding the Yesler Building. The original design plans are lacking details of the opening and the overhead support system for the bridge girders. The on-site review of the gravity wall, both, inside and outside of the Yesler Building provided a visual observation of this feature (Figure 28).

The gravity type abutment wall is a rather elementary, structural type of foundation that provides vertical support for the bridge I-beams and lateral stability for the mass of soil behind the wall. The width at the bottom is 14 feet and the height approximately 30 feet. The thickness of the wall is decreased gradually through a progression of steps, starting at the bottom, until it is two feet thick at the top. It relies on its own weight and the weight of the soil bearing on the horizontal steps for its stability. No reinforcement is necessary except usually a nominal number of reinforcing bars are placed near the exposed faces to prevent surface cracking due to temperature changes and shrinkage of the concrete. The design plans did not show any reinforcing steel for these walls. These types of walls are generally less expensive to construct and mostly used on smaller bridges. A visual appearance on the southeast exposed vertical face seen when standing on 4th Avenue shows the outline, described above, of the progression of the steps on the backside of the wall (Figure 29).

The west abutment is a continuous wall from end to end. It is structurally referred to as a cantilever wall as opposed to the east abutment being a gravity wall. Like the east abutment it provides vertical support for the bridge I-beams and lateral stability for the mass of soil behind the wall. However, it consists of a concrete stem (wall) and a concrete base slab, both relatively thin and fully reinforced to resist the moments and shears to which they are subjected (Figure 30). A standard detail is given on the design plan of the wall with a structural formulation for determining the dimensions of the wall for the varying heights (Appendix D).

The intermediate piers each consist of six, riveted, fabricated built-up steel columns varying in length from 18 feet to 27 feet. Like the girders, the columns are fabricated in a shop and arrive at the site ready

Figure 27. Detail of granite setts on Terrace Street portion of bridge, view to the south.

Figure 28. Northeast gravity wall abutment (left) and areaway access (right), view to the east.

Figure 29. South face of southeast abutment (center), view to the north.

Figure 30. South end of west abutment from inside the Prefontaine Building areaway, view to the northeast.

for erection. A special steel base is fabricated for each column consisting of steel plates and stiffeners to form a grillage to distribute the heavy column loads to the concrete foundations. Each column is supported by an individual concrete footing. Four of the columns on the east side have a tapered footing that is three feet in height and either 7.5 or 6.5 feet square at the base. The other two columns and all six of the columns at the west side each bear on a concrete tapered shaft that extends approximately 12 to 16 feet below the ground surface, and is either 4.5 or 5.0 feet square at the bottom. The design plans do not show any steel reinforcement for the footings or the shafts.

An interesting structural feature at the west pier is that the concrete shafts are bearing on a raft foundation that covers the entire length beneath the columns. It is 6.0 feet wide, 2.0 feet deep and approximately 85 feet long. It is similar to a reinforced-concrete continuous flat slab, and the reinforcement is shown on the design plans.

The original structural components appear to remain in the as-built configuration. It is not clear at this time which of the changes occurred during the renovation project that took place in 1975. It was observed there were utility additions, such as electrical conduits, lighting, and drainage that are not shown on the original design plans. Also, a heavy, steel tubular traffic barrier was added along both curbs for the length of the bridge. Stairways at the NW, NE and SE corners of the bridge have been removed. An asphalt overlay of the original deck was added at some unknown date. Spalls in the overlay, observed during the on-site review, revealed the granite setts (Figure 31). The original plans do not show the details for the expansion joints at each end of the bridge. It is assumed the current, elastic material in the joints is not the original. Due to the asphalt overlay it was not possible to confirm whether the cable car tracks, shown on the design plans, have been removed along with the hardware associated with its operation.

Figure 31. Expansion joint at east end of bridge; note granite setts. View to the southeast.

Design Features and Ornamentation

This bridge contains unusual design features and ornamental embellishments that are exceptional enhancements to the visual appearance to the structure. The soffits of the fascia girders were provided with a combination of circular and parabolic curvatures. The four-foot-high unique railing was apparently developed as a standard for the structures within the Pioneer Square area (Figure 32), and can be seen on other structures in the general vicinity. The lower portion of the railing is composed of steel flat bars, 2 x ¼ inches and 1 x ¼ inches, arranged in a crisscross or lattice type configuration. The upper portion is composed of steel angles, 1 x 1 x ¼ inches combined in a unique configuration to form architectural Gothic Arches (Figure 33). The four exterior columns were outfitted with cast iron ornamental castings for the capitals and casings for the vertical surfaces of the columns to cover the I-shape of the rolled steel sections (Figure 34).

Figure 32. Bridge rail at South Main Street with Great Northern Railway tunnel portal and Yesler Bridge in background; view to the north.

Significance

The Yesler Way bridge displays unique design elements that include the railing, the parabolic and circular embellishments of the fascia girders, and the ornamental capitals and casings of the columns, all of which demonstrate a high regard for the artistic importance of the setting by the designer. The integrity of the structure has been maintained and represents an example of one method of bridge construction used in the early development of Seattle. It also appears that many of the stone setts are still intact under the asphalt overlay. Perhaps most importantly, research indicates that this structure may have been the first permanent steel roadway bridge constructed by the city.

The Yesler Way over 4th Avenue South Bridge was determined eligible for the NRHP in 1984, and has retained integrity of location, design, setting, materials, workmanship, feeling and association.

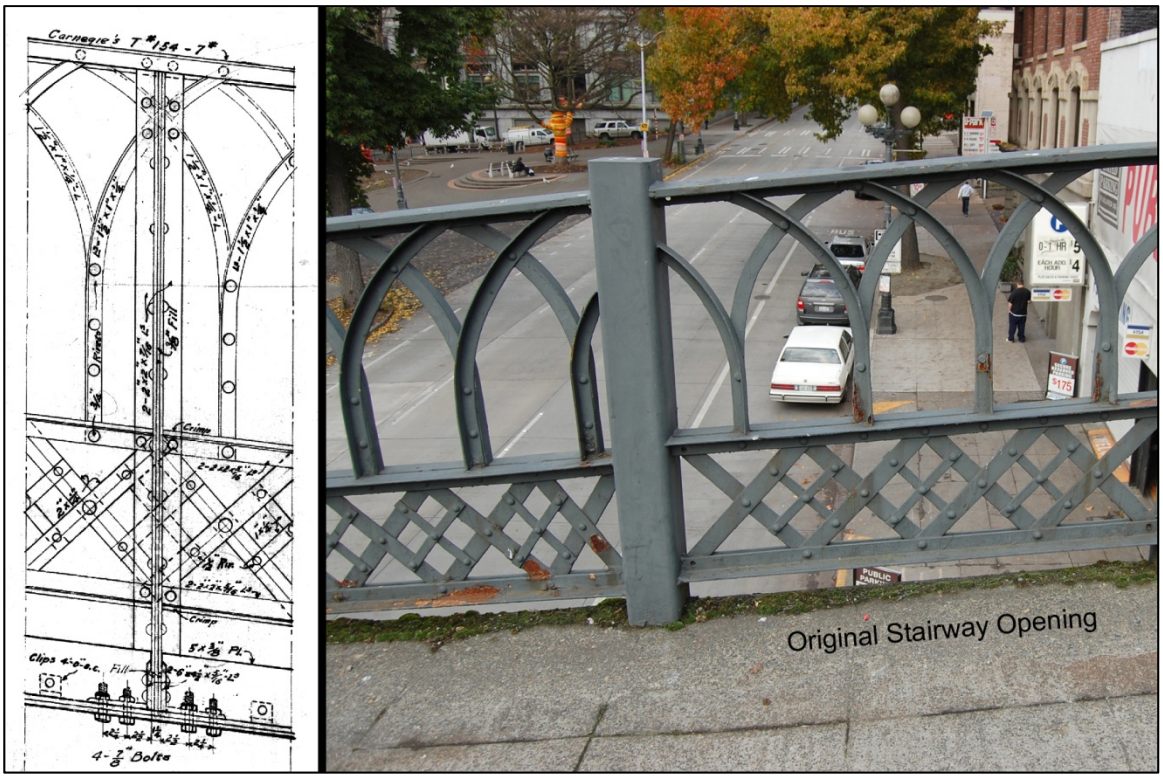

Figure 33. Detail of railing with original plans, view to the northwest.

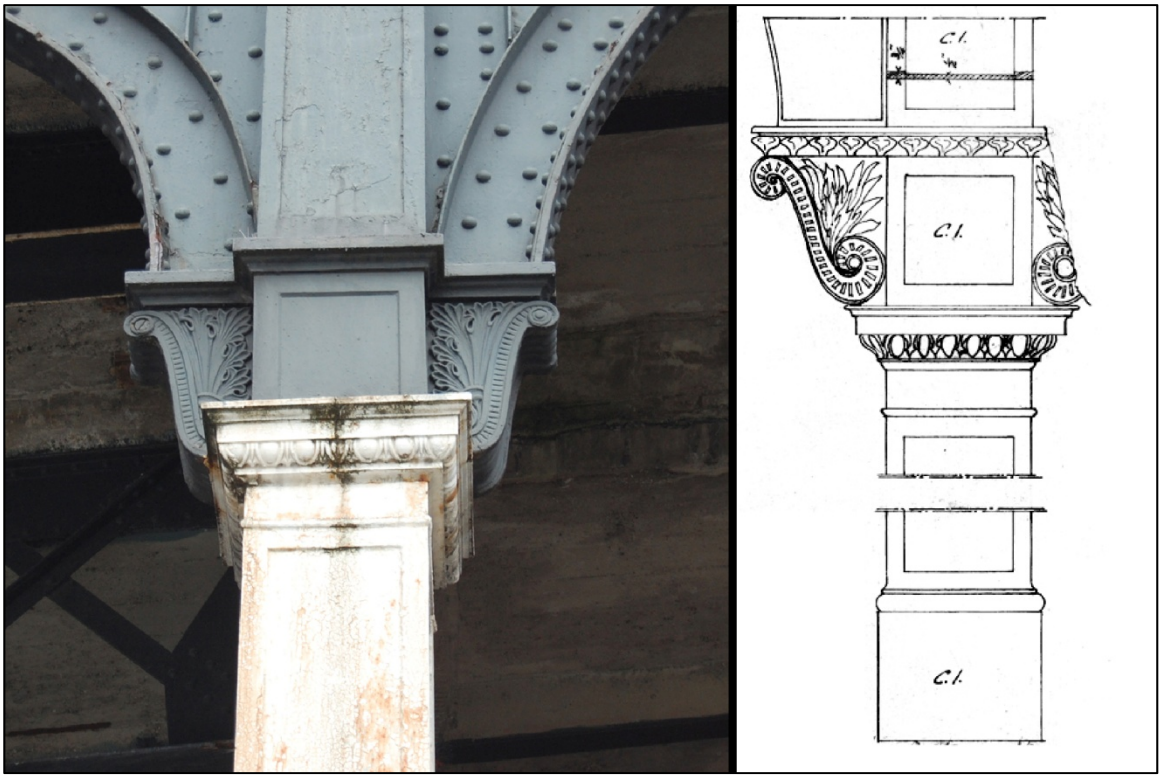

Figure 34. Detail of southeast column and original plans, view to the south.

King County Courthouse Tunnel (No. 183)

The King County Courthouse tunnel entrance is located at the southeast corner of City Hall Park, northwest of Yesler Way and 4th Avenue and south of Dilling Way (Figure 35). The entrance consists of two narrow, brick-paved lanes that are divided by a concrete curb. The entrance drive roughly parallels Yesler Way and leads down to two rolling overhead doors. Beyond these doors, the drive curves to the northwest, continuing to slope down until it reaches the level of the courthouse basement. The lanes within the tunnel are paved with bricks near the entrance and transition to concrete as the floor slopes downward. The tunnel lanes are divided by concrete posts that support the reinforced concrete roof, and concrete curbs are located between the lanes and along the walls. The tunnel was originally lit with light bulbs at the top of each post, but these have been replaced with florescent tube fixtures.

The tunnel entrance is surrounded by a reinforced concrete wall with red clay tile inlay and cylindrical concrete posts at the northeast and northwest corners. These walls extend not only around the tunnel entrance, but also continue around a poured concrete stairway that provides pedestrian access between 4th Avenue and Yesler Way at the northwest corner of the adjacent bridge. The walls extend along the south side of the tunnel entrance and the north side of the sidewalk on Yesler Way to meet up with the decorative rail of the adjacent bridge. The wall along the sidewalk consists of square concrete posts with a heavy chain linking the posts above a lower wall that is stepped between posts as it continues up the slope to the bridge.

The courthouse tunnel was constructed between 1916 and 1917 to provide vehicle access to a basement parking area in what was then the County-City Building (now King County Courthouse). The walls were designed by A.H. Dimock, City Engineer, Timotheus Josenhans, Superintendent of Buildings, and D.R. Huntington, City Architect. Construction was undertaken by the Jahn Contracting Company.

Figure 35. Courthouse tunnel entrance, view to the south-southwest.

Huntington's design for the tunnel entrance walls were well-received for their decorative nature. ("City May Move Quarters May 1," Seattle Daily Times, Monday Evening, February 28, 1916:4; Link 2005:267-268; "Seattle Gets Beauty Touches," *Seattle Sunday Times*, July 13, 1919:15).

This structure is a contributing feature in the Pioneer Square-Skid Road Historic District. Although a portion of the wall on the north side of the tunnel entrance has suffered damage and was subsequently removed, the majority of the structure is intact and this damage does not significantly alter the integrity of the structure.

Great Northern Railway Tunnel (No. 195)

The Great Northern Railway tunnel entrance is located just south of South Washington Street on the west side of 4th Avenue South. The tunnel has an arched portal and is constructed of reinforced concrete (Figure 36). The portal is flanked with square concrete pillars with pyramidal caps and a decorative keystone is located at the top of the arch. A plain frieze over the portal has the date of 1904 in raised numerals. The tunnel contains two tracks and crosses the length of downtown Seattle, emerging under the Alaskan Way Viaduct west of the foot of Stewart Street.

The tunnel portal is visible from above from Washington Street and south along 4th Avenue, but the tunnel is actively used by freight and passenger trains and was not accessible due to safety concerns and trespassing issues.

This tunnel was built at the suggestion of City Engineer Thomson, who was concerned about the uncoordinated development of Great Northern and Northern Pacific facilities in Seattle. He suggested that the railroads work together to build a tunnel underneath the city, and he was able to convince James J. Hill that it was a viable alternative. In 1903 the Great Northern in partnership with the Northern Pacific broke ground on a mile-long tunnel and with more than 600 men working two shifts, the excavation proceeded rapidly. The south portal was located near Washington Street between 3rd and 4th Avenues and two parallel tracks extended under

Figure 36. Tunnel portal, view to the north.

4th Avenue to Spring Street, where it then headed to the west and intersected what is now Alaskan Way north of Stewart. Builders bored from 27 feet to as much as 125 feet below ground, creating a tunnel that was fifty feet wide. Soils that were removed during the excavation were loaded on a small, narrow-gauge electric railroad and carried to the depot site or the Railroad Avenue trestle for use as fill. Work was completed in 1905 and the new tunnel allowed rail traffic to move in and out of the city without adding to the already heavy congestion along Seattle's waterfront (Beaton 1914:57; Armbruster 1999:223-224; Andrews 2005: 72; Phelps 1978: 73).

The tunnel was determined eligible for the NRHP in 1983 and the portal is a contributing feature in the Pioneer Square-Skid Road Historic District (Courtois 1983a; Link 2005). Although the tunnel itself could not be accessed to assess its integrity, the portal retains its integrity of location, design, setting, materials, workmanship, feeling and association.

Battle of Seattle Site Marker (No. 182)

The Battle of Seattle site marker is a naturally-formed, rough-sided granite boulder containing two metal plaques, a chiseled inscription with the words "Patriotism Reverence Remembrance" on the top of the stone, and a small pile of cannon shot (Figure 37). The top of the boulder also contains an empty circular hollow that was chiseled out with the apparent intent to contain an unknown object.

The southwest-facing plaque contains the inscription: "The Battle of Seattle was fought on this ground, Jan. 26th 1856 – This commemorative boulder is erected by Lady Stirling Chapter, Daughters of the American Revolution, August 15th, 1916," and contains the image of a ship with sails in the lower right corner and the ship's wheel symbol for the Daughters of the American Revolution (DAR) in the upper left corner.

Figure 37. Battle of Seattle Site Marker, view to the northeast.

A plaque on the northeast side of the boulder memorializes the sinking of the U.S.S. Maine and contains the figure with a bowed head and an arm raised toward a palm branch on the left side of the plaque. Below the arm is the scene of a sinking ship. A circular shield in front of the figure is inscribed with the words "patriotism" and "devotion," and the center has a classic-form stars and stripes shield with an eagle above and olive branches below. The plaque is inscribed with the words: "In Memoriam, U.S.S. Maine, destroyed in Havana Harbor February 15th, 1898." At the bottom of the plaque is the note that "This tablet is cast from metal recovered from the U.S.S. Maine."

The DAR received permission in 1914 to place a boulder with a bronze tablet commemorating the Battle of Seattle at the north end of Pioneer Place, the triangular section of land formed by the junction of 1st Avenue and Yesler Way ("Memorial Font Still in Abeyance, *"The Seattle Sunday Times,* February 8, 1914:4). The monument was apparently delayed, but was eventually placed up the street in City Hall Park in August 1916. A newspaper article published prior to the unveiling described the monument in some detail:

> The Battle of Seattle memorial tablet is to be 14 ½ inches high and 21 inches long and will be made of bronze cast and moulded entirely in Seattle. The metal for the tablet was contributed by the woman of Lady Stirling Chapter in the form of all sorts of bronze and brass trinkets.
>
> In the upper left hand corner of the tablet will be the insignia of the Daughters of the American Revolution. In the lower right hand corner will be an engraved likeness of the sloop Decatur, whose guns proved the determining factor in the famous battle in which the Indians were repulsed and the city saved. The engraving of the sloop was made from a photograph. It will be more than five inches high.
>
> In the center of the tablet will be the inscription: "The Battle of Seattle was fought on this ground, January 26, 1956. This memorial tablet is erected by Lady Stirling Chapter, Daughters of the American Revolution, August 15, 1916."
>
> In the center of the memorial tablet will be inlaid an old copper cent, coined in 1856 and donated for the purpose by Mrs. A. J. Tumbull, past regent of Lady Stirling Chapter. Just beyond the border of the tablet will be cut into the stone the state motto, "Patriotism, Reverence, Remembrance," which was proposed by Lady Stirling Chapter and later accepted as the official state maxim.

The U.S.S. Maine tablet is described in the article as well:

> On the north side of the boulder will be a Maine memorial tablet, donated by the government at the request of Mrs. A.J. Trumbull and Mrs. H.T. Bredes, whose pleas for the tablet were forwarded by Congressman Will E. Humphrey. The tablet is commemorative of the battleship Maine tragedy, and is handsomely engraved with a special design prepared by Charles Keck, a New York sculptor. It is twenty-two inches long and eighteen inches high, and is made from metal collected in the raising of the Maine from Havana harbor. The tablets are manufactured by the government and presented on request for patriotic memorials.

The article also notes that the boulder was obtained from the grounds of the Seattle Golf Club, but it makes no note of the pile of shot or the chiseled hollow on top of the boulder ("Memorial of Battle of Seattle Will be Unveiled by G.A.R.," The Seattle Sunday Times, August 6, 1916:11).

This monument is a contributing feature in the Pioneer Square-Skid Road Historic District and is also individually listed in the NRHP, although only the Battle of Seattle plaque is mentioned in that document (Corley 1969; Link 2005).

Prefontaine Building Areaways

The Prefontaine Building Areaways surround the building and are located on three levels due to the slope of the ground outside the building. The highest level is located under the Yesler Way sidewalk on the north side of the building and is accessed via an entrance off of 4th Avenue South immediately south of the west abutment of the Yesler Way bridge. This areaway is lit with four intact prism light panels (Figure 38). Areaways under the 4th Avenue South and Prefontaine Place sidewalks, are accessed through the basement via an entrance off of 4th Avenue. This areaways wraps around nearly the entire building and extends under a portion of the Yesler Way areaway. These areaways are largely unaltered and have seen few partitions added, although concrete panels in the sidewalk show that prism light panels may have originally lit the 4th Avenue and Prefontaine Place areaways. Stamps in these panels show that they were poured by Hans Pederson, the same contractor that constructed the building (Figure 39). Historic photos show that these concrete panels were poured early in the history of this building, so it is unknown if prism lights existed at this location or if they were removed soon after installation (Figure 40). This areaway level originally contained a service entrance located at the southern tip of the building. The concrete ramp for this entrance can still be seen in the areaway, although the entrance has been blocked. A third areaway level underneath the 4th Avenue areaway is accessible via a manhole located the floor of this areaway. The full extent of this areaway level and its configuration is unknown, as it was not accessed due to safety concerns.

The Prefontaine Building, named for the founder of Seattle's nearby earliest Catholic church, was built in 1909 by contractor Hans Pederson. Due to the presence of the Great Northern Railway Tunnel directly below the lot, innovative engineering was required during building design. Newspaper accounts of the period report installation of eighteen massive steel girders, the largest used to that date in Seattle, atop concrete piers driven 50 feet below street grade. This substantial foundation, constructed at a cost of approximately $55,000, supported a seven-foot-thick slab of concrete, which formed the new building's basement floor (Link 2005:7-278,279; Seattle Times 1909:April 25, September 5). Although construction dates for the building areaways are unknown, they were presumably built around the same time as the building.

The areaways surrounding the Prefontaine Building are recommended eligible for the NRHP under Criterion C as contributing resources in the Pioneer Square-Skid Road Historic District. The replacement of some prism light panels happened within a few years of the building's construction and does not affect the integrity of these areaways.

City Hall/Public Safety Building Areaways

The areaways around the City Hall/Public Safety Building are located on three levels. The lowest is at street level for 4th Avenue South, with areaway access via a garage door opening directly to the street underneath the Yesler Way bridge. This portion of the areaway has tall ceilings, a sloping floor, and is wide enough to admit a vehicle into the area closest to the street entrance (Figure 41). The areaway splits around the western tip of Old City Hall, and the coursed ashlar rubbed stone wall can be seen behind two reinforced concrete support columns. The areaway connects directly to the lowest basement level of the building immediately to the east of this area: the upper floors are partially supported by reinforced concrete columns with open space between to allow this access. Steel stairs located west of the building foundation provide access to the next level, a mezzanine level that includes

Figure 38. Prism light panel over north areaway of Prefontaine Building, view to the east.

Figure 39. Concrete panels in sidewalk over Prefontaine Building areaway, showing it was poured by Hans Pederson; view to the northwest.

Figure 40. View of Prefontaine Place on July 14, 1941, showing concrete panels in sidewalk over areaway.

Figure 41. The 4th Avenue South level of City Hall/Public Safety Building areaway, view to the east from 4th Avenue entrance. Yesler Way street wall is on the right.

a room overlooking 4th Avenue South underneath the Yesler Way bridge. The stairs continue up to the main basement level of the Yesler building, where the areaways serve as an extension of this space and are located directly underneath the sidewalks on Yesler Way and Terrace Street. Due to the slope of the ground in the surrounding areas, the lower levels of the areaways are located further west than the Terrace Street and Yesler Way areaways. The sidewalks on Terrace and Yesler have been rebuilt using corrugated metal panels to support the span of the sidewalks over the areaways. Any prism light panels that may have been installed here have been removed, although it was not confirmed that prism lights ever existed in these areaways. A section of the Yesler Way areaway has been walled off with concrete blocks for use as a Seattle City Light vault.

The Old City Hall, completed in 1909, was constructed to house the City of Seattle municipal offices. The building was designed ca. 1906 by Clayton Wilson, an independent architect selected competitively for the City contract. Although the City had its own architectural staff, the contract was put out for bid following an episode of unspecified discord between the City architectural group and a local chapter of the American Institute of Architects. The building, as designed by Wilson, was apparently a "more carefully rendered version" of an earlier design produced by the City Assistant Building Inspector (Link 2005:7-278, 279). Although construction dates for the building areaways are unknown, they were probably built around the same time as the building.

Although the areaway at the 4th Avenue South level is fairly intact, the areaways immediately below the sidewalks have undergone numerous alterations. Due to the replacement of the sidewalks and numerous walls and infill in these areaways, these resources have lost their integrity of design, materials and workmanship and are therefore recommended not eligible for the NRHP.

Tashiro Building Areaway

The Tashiro Building was constructed with areaways under sidewalks on the northeast and west sides of the building, opening directly into the basement for use as an extension of that space. The west areaway has been filled in, but the northeast areaway is still accessible via an interior stairway and side entrance. The sidewalk above the areaway on the northeast side of the building has been rebuilt and any original prism light panels located here have been removed. Two prism light panels are located in the new sidewalk on this side of the building, but these are modern reproductions that were placed here ca.2005 (Doug Vann, personal communication May 20, 2013).

This parcel was originally deemed unbuildable due to the presence of the Great Northern Railway Tunnel directly below. Within a few years, however, the parcel was developed: the present building, a typical utilitarian commercial structure, was completed in 1908. Although earlier building tenants are not known, the Tashiro Hardware Company occupied the structure from 1919 into the 1980s, a store that offered Japanese tools and served as a community center (Link 2005:7-268, 269). Although construction dates for the building's areaways have not been located, the features were probably built around the same time as the building.

The replacement of sidewalks and removal of prism light panels, as well as the filling of the west areaway has caused loss of integrity of design, materials, workmanship, feeling and association. The remaining areaway is recommended not eligible for the NRHP due to loss of integrity.

Frye Hotel Areaway

The Frye Hotel has a single areaway that extends the full width of the building's north side and extends a short distance around the northeast corner of the building. This areaway contains three prism light panels on the east side of the northeast corner that have been mostly covered with a smear of cement, presumably to serve as waterproofing due to cracks or leaks in the lights (Figures 42 and 43). These panels are placed adjacent to each other, separated only by reinforced concrete structural supports for the sidewalk. The prisms appear from underneath to be largely intact, aside from the concrete layer covering them. A rectangular section of sidewalk immediately north of these three prism lights indicates that a fourth panel was removed from this location. Several long, rectangular sections of similar width are located along the north side of the building, indicating that these areas once contained a large number of prism light panels that have been removed.

The prominent Bebb and Mendel architectural firm designed the Frye Hotel for entrepreneur Charles Frye, who made his fortune in the meat-packing industry. Mr. Frye subsequently contracted with Hans Pederson for construction work, and the building was completed in 1908. The hotel was one of the tallest steel-frame buildings in Seattle as well as a notable example of the Beaux Arts architectural style (Link 2005:7-268, 269). While construction dates for the building's areaways are not known, the features were probably built around the same time as the building.

This areaway has lost integrity of design, materials and workmanship due to the removal of a large number of prism lights. The Frye Hotel areaway is recommended not eligible for the NRHP.

Globe-Style Streetlights

Historic images show that over the past century, several different styles of streetlights have stood along streets and within City Hall Park. Bridge inspection photos from the 1970s show cobra-head style streetlights where many of the globe-style streetlights currently stand (see Figure 17). Site visits also

Figure 42. View of prism light panels in sidewalk above Frye Hotel areaway, view to the south.

Figure 43. Underside of prism light panels in Frye Hotel areaway, view to the east.

showed that the streetlights are constructed of several cast-metal sections that are fastened together with Allen-head screws. These lights were installed no earlier than the 1970s and are therefore less than 50 years old. For this reason, they were not recorded on Historic Property Inventory Forms.

Traditional Cultural Properties

There are no known traditional cultural properties (TCPs) within or immediately adjacent to the APE. Ethnographic, ethnohistoric, historical and other recent studies have discussed the occupation and use of the tidelands and surrounding area by Indian peoples (Miss and Sheridan 2010; Miss and Hodges 2007). WSDOT continues to consult with affected tribes regarding potential TCPs and other issues.

ASSESSMENT OF EFFECTS

Under Section 106 of the NHPA, significant cultural resources (i.e. historic properties) are subject to additional determinations of effects and design of mitigation measures, if appropriate. The Yesler Bridge project will have an effect on historic properties if it changes the characteristics that qualify those resources for inclusion in the NRHP. The effect is adverse if it diminishes the integrity of such characteristics. Potential effects to historic resources are of two types: direct physical effects due to deliberate or inadvertent destruction of any part of the resource, and more widespread effects caused by construction. These broader effects can include (but are not limited to): noise, dust, loss or limitation of building access, loss of parking, traffic diversion or congestion, and construction traffic. While these effects occur to some degree in all construction and demolition zones, the effects to historic properties are adverse under Section 106 of the NHPA only if they are so severe that they threaten the ability of the property owner to adequately maintain the property, potentially leading to loss of the resource or its significant features through deterioration. Alterations to a significant building, structure, or historic district's location, design, setting, materials, workmanship, feeling or association were analyzed using the Secretary of the Interior's Standards for Historic Preservation to determine the degree to which the alterations would affect the historic significance of the resource.

Archaeological Resources

No known archaeological sites are located within or adjacent to the APE, so there will be no effect to known archaeological resources. However, as discussed in the Identification of Historic Properties section, there is potential for cultural materials [redacted]. Archaeological monitoring of ground disturbing activities within [redacted] is recommended.

Built Environment Resources

The APE is within a National Register historic district and contains 12 resources that are listed in or eligible for listing in the NHRP. The project will have an adverse effect on five of these resources (Table 10).

Table 10. Effects on Historic Properties Within the APE.

ID NUMBER	RESOURCE NAME	NRHP STATUS	EFFECT
N/A	Pioneer Square-Skid Road National Historic District	District	Adverse Effect
171	Frye Hotel	PSSR Contributing	No Effect
181	Dilling Park/City Hall Park	PSSR Contributing	No Adverse Effect
182	Battle of Seattle Site Marker	PSSR Contributing Individual Listing	No Effect

Table 10. Effects on Historic Properties Within the APE.

ID NUMBER	RESOURCE NAME	NRHP STATUS	EFFECT
183	King County Courthouse Tunnel Entrance	PSSR Contributing	Adverse Effect
184	Tashiro Building	PSSR Contributing	No Adverse Effect
193	Yesler Way over 4th Avenue South Bridge	PSSR Contributing, Determined Eligible	Adverse Effect
194	Prefontaine Building	PSSR Contributing	Adverse Effect
195	Great Northern Railway Tunnel	PSSR Contributing, Determined Eligible	No Adverse Effect
202	Crouley Building/Reynolds Hotel	PSSR Contributing	No Adverse Effect
203	MacRae Parking Garage	PSSR Contributing	Adverse Effect
204	City Hall/Public Safety Building	PSSR Contributing, Individual Listing	No Adverse Effect
N/A	Prefontaine Building Areaways	Recommended eligible	Adverse Effect
N/A	Tashiro Building Areaways	Recommended not eligible	No Effect
N/A	City Hall/Public Safety Building Areaways	Recommended not eligible	No Effect
N/A	Frye Hotel Areaways	Recommended not eligible	No Effect

Inventory forms were completed for resources in highlighted fields.

Adverse effects are anticipated for five individual resources and one historic district: the King County Courthouse Tunnel Entrance, Yesler Way over 4th Avenue South Bridge, the Prefontaine Building, the MacRae Parking Garage, the Prefontaine Building areaways, and the Pioneer Square-Skid Road National Historic District. With the exception of the MacRae Parking Garage, these adverse effects are due to direct changes to the resources. The removal of the bridge will have an adverse effect on the integrity of that structure, as will demolishing and rebuilding the stairway at the southeast corner of the King County Courthouse tunnel entrance. The landing and upper stair of the exterior stairway on the Prefontaine Building will be removed during project construction, causing alterations to that feature. The Prefontaine Building areaways will be affected by the removal of the bridge abutment that forms part of the north areaway wall and the construction of the new bridge abutment. The MacRae Parking Garage will be adversely affected by restriction of vehicle access during construction. The bridge is a contributing element in the Pioneer Square-Skid Road Historic District, so the removal of the bridge constitutes an adverse effect under Section 106 of the NHPA.

No adverse effects are anticipated for Dilling Park/City Hall Park, the Tashiro Building, the Great Northern Railway Tunnel, the Crouley Building/Reynolds Hotel, and City Hall/Public Safety Building. City Hall Park, the Tashiro Building and Crouley Building/Reynolds Hotel may see widespread effects from dust, noise, traffic diversion, or loss of parking, but these are not anticipated to result in damage to the integrity of these resources. The Great Northern Railway Tunnel may be affected by vibration during construction, but this is unlikely to affect the integrity of this resource. The City Hall/Public Safety Building may see effects from vibration, but it is not anticipated that these will alter the integrity of the building.

No effect is anticipated for the Frye Hotel and the Battle of Seattle Site Marker due to distance from the project. Areaways for the Tashiro Building, City Hall/Public Safety Building, and the Frye Hotel are recommended not eligible for the NRHP, so the project will not alter the integrity or the eligibility of these structures.

REFERENCES

American Railway Engineering and Maintenance-of-Way Association

1900 *Proceedings of the First Annual Convention*. American Railway Engineering and Maintenance-of-Way Association, Chicago, Illinois.

1903 *Proceedings of the 4th Annual Convention*. Committee of Publications, American Railway Engineering and Maintenance-of-Way Association, Chicago, Illinois.

Ames, K. M. and H. D. Maschner

1999 *Peoples of the Northwest Coast: Their Archaeology and Prehistory*. Thames and Hudson, New York, New York.

Anderson, O.

1898 Photo # 321, MacDonald Collection. Museum of History and Industry, Seattle, Washington.

Andrews, Mildred (editor)

2005 *Pioneer Square Seattle's Oldest Neighborhood*. University of Washington Press, Seattle, Washington.

Armbruster, K. E.

1999 *Orphan Road: The Railroad Comes to Seattle, 1835-1911*. Washington State University Press, Pullman, Washington.

Atwater, Brian F., and Andrew L. Moore

1992 A Tsunami about 1000 Years Ago in Puget Sound, Washington. *Science* 258:1614-1617.

Bagley, Clarence

1916 *History of Seattle from the Earliest Settlement to the Present Time*. Vol. I-III. S.J. Clarke Publishing Co., Chicago, Illinois.

1929 *History of King County Washington*. S.J. Clarke Publishing Co., Chicago, Illinois and Seattle, Washington.

Baist, G. Wm.

1905 Baist's Real Estate Atlas of Surveys of Seattle. Plate 1. G. Wm. Baist, Philadelphia, Pennsylvania.

1912 Baist's Real Estate Atlas of Surveys of Seattle. G. Wm. Baist, Philadelphia, Pennsylvania.

Bancroft, Hubert Howe

1890 History of Washington, Idaho and Montana, vol. 31, in *Works of Hubert Howe Bancroft*. The History Company, San Francisco, California.

Bass, Sophie Frye

1937 *Pigtail Days in Old Seattle*. Binfords and Mort Publishers, Portland, Oregon.

Beaton, Welford

1914 *The City That Made Itself*. Terminal Publishing Company, Seattle, Washington.

Benoit, Paul
1979 The Man-Induced Topographic Change of Seattle's Elliott Bay Shoreline from 1852 to 1930 as an Early Form of Coastal Resource Use and Management. Unpublished Master's Thesis, Institute for Marine Studies, University of Washington, Seattle, Washington.

Berger, Margaret
2010 Archaeological Assessment of the Yesler Terrace Redevelopment Project, Seattle, King County, Washington. Prepared for Collins Woerman. Cultural Resource Consultants, Inc., Bainbridge Island, Washington.

Berner, Richard
1991 *Seattle 1900-1920*. Charles Press, Seattle, Washington.

Blanchard, Leslie
1968 *The Street Railway Era in Seattle: A Chronicle of Six Decades*. Harold Cox, Forty Fort, Pennsylvania.

Blukis Onat, Astrida, Lee A. Bennett, Philippe D. LeTourneau, and Maury E. Morgenstein
2004 Archaeological Resources Monitoring and Treatment Plans Central Link Light Rail Transit Project Initial Segment. Submitted to Sound Transit, Central Link Light Rail. BOAS, Inc., Seattle, Washington.

Blumenthal, Richard W. (editor)
2004 *The Early Exploration of Inland Washington Waters: Journals and Logs from Six Expeditions, 1786-1792*. McFarland & Company, Jefferson, North Carolina.

BOLA Architecture + Planning
2010 Yesler Terrace Redevelopment Historic Resources. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.

Boswell, Sharon, Robert Krier and Eileen Heideman
2013 Historic Context for Yesler Way over 4th Avenue South Bridge, King County, Washington. Draft August 2012. Prepared for HDR Engineering, Inc., Bellevue, Washington.

Boswell, Sharon and Lorraine McConaghy
1996 *100 Years of a Newspaper and Its Region*. The *Seattle Times*, Seattle, Washington.

Broderick, Henry
1969 *The 'HB' Story*. Frank McCaffrey Publishers, Seattle, Washington.

Bucknam, Robert C., Eileen Hemphill-Haley, and Estella Leopold
1992 Abrupt Uplift within the Past 1700 Years at Southern Puget Sound, Washington. *Science* 258:1611-1614.

Buerge, David M.
1981 From Whulji the Chu'ba: A Guide to Tracing the Tracks of the First Seattlelites. *Seattle Weekly* May 20.
1986 *Seattle in the 1880's.* The Historical Society of Seattle and King County, Seattle, Washington.

Bussell, C. B.
c.1902 *Tide Lands: Their Story*. Self-published, Seattle, Washington.

Castile, George Pierre (editor)
1985 *The Indians of Puget Sound: The Notebooks of Myron Eells*. University of Washington Press, Seattle, Washington.

Chin, Art
1977 *Golden Tassels: A History of the Chinese in Washington, 1857-1977*. Art Chin, Seattle, WA.

Collins, Brian and Amir Sheikh
2005a *Historical Reconstruction, Classification and Change Analysis of Puget Sound Tidal Marshes*. Washington Department of Natural Resources, Olympia, Washington.
2005b *Historical Aquatic Habitats in the Green and Duwamish River Valleys and the Elliott Bay Nearshore, King County, Washington*. Department of Earth and Space Sciences, University of Washington, Seattle, Washington.

Corley, Margaret
1973 National Register of Historic Places Inventory/Nomination Form, 45KI122, Old Public Safety Building. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.

Courtois, Shirley
1983a Historic Property Inventory Form, 45KI809, Great Northern RR Tunnel. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.
1983b Historic Property Inventory Form, Yesler Way Bridge over 4th Avenue. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.
1984 Yesler Way Bridge over 4th Avenue. Request for Determination of Eligibility. Prepared for METRO, Seattle, Washington. On file at the Washington State Department of Archaeology and Historic Preservation, Olympia, Washington.

Courtois, Shirley, Kathryn Krafft, Catherine Wickwire, James Bard, Robin McClintock
1998 Central Link Light Rail Transit Project Draft Environmental Impact Statement Historic and Archaeological Technical Report. Prepared for Central Puget Sound Regional Transit Authority. Courtois and Associates, Seattle, Washington, and CH2MHill, Inc., Bellevue, Washington.
1999 Central Link Light Rail Transit Project Final Environmental Impact Statement Historic and Prehistoric Archaeological Sites, Historic Resources, Native American Traditional Cultural Properties, Paleontological Sites. Prepared for Central Puget Sound Regional Transit Authority. Courtois and Associates, Seattle, Washington, and CH2MHill, Inc., Bellevue, Washington.

Crandell, Dwight R.
1963 Surficial Geology and Geomorphology of the Lake Tapps Quadrangle, Washington. Professional Paper 388-A. U.S. Geological Survey, Washington, D.C.

Crowley, Walt and Heather MacIntosh
1999 *The Story of Union Station in Seattle*. Sound Transit, Seattle, Washington.

Darby, Melissa
2002 Cultural Resources Assessment of the Proposed Dexter Horton Rooftop Antenna Installation, Seattle, King County, Washington. Prepared for Sprint PCS. ATC Associates, Tigard, Oregon.

Denny, Arthur
1979 *Pioneer Days on Puget Sound*. Ye Galleon Press, Fairfield, Washington.

Dimock, A. H.
1928 Preparing the Groundwork for a City: The Regrading of Seattle, Washington. *Transactions* 92. American Society of Civil Engineers, New York, New York.

Dorpat, Paul
2006 *Our Seattle Waterfront: An Illustrated History*. Seattle City Council, Seattle, Washington.

Dorpat, Paul and Genevieve McCoy
1998 *Building Washington. A History of Washington State Public Works*. Tartu Publications, Seattle, Washington.

Downing, J.
1983 *The Coast of Puget Sound: Its Processes and Development*. The University of Washington Press, Seattle, Washington.

Dragovich, Joe D., Patrick T. Pringle, and Timothy J. Walsh
1994 Extent and Geometry of the Mid-Holocene Osceola Mudflow in the Puget Lowland–Implications for Holocene Sedimentation and Paleogeography. *Washington Geology* 22:3-26.

Earth Technology Corporation
1984 Archaeological Resources Assessment for the Downtown Seattle Transit Tunnel Project. Submitted to Parsons Brinkerhoff Quade & Douglas. Earth Technology Corporation, Seattle, Washington.

Easterbrook, Don J.
2003 Cordilleran Ice Sheet Glaciation of the Puget Lowland and Columbia Plateau and Alpine Glaciation of the North Cascade Range, Washington. In *Western Cordillera and Adjacent Areas*, edited by Terry W. Swanson, pp. 137-157. The Geological Society of America, Boulder, Colorado.

Eckrom, J.A.
1989 *Remembered Drums: A History of the Puget Sound Indian War*. Pioneer Press Books, Walla Walla, Washington.

Fallon, Mike
2006 State of Washington Archaeological Site Form, 45KI765, [redacted] Refuse Deposit. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.

Finger, John Robert
1968 *Henry L. Yesler's Seattle Years, 1852-1892*. Unpublished Master's Thesis, University of Washington, Seattle, WA.

Fullerton, Janet
1982 *Transit and Settlement in Seattle, 1871-1941*. Master's Thesis, Department of Geography, University of Washington, Seattle, Washington.

Geotech Consultants, Inc.
1998 Geotechnical Investigations for a Proposed Mixed Use Building at 100 5th Avenue South, Seattle, WA. Report (2953) prepared for the Seattle Department of Planning and Development.

Gilpin, Jennifer and Justin Butler
2009 State of Washington Archaeological Site Inventory Form, 45KI930. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.

Glover, E. S.
1878 Birdseye View of the City of Seattle, Puget Sound, Washington Territory. Library of Congress Geography and Map Division, G4284.S4A3-1878.G6.

Grant, F. J. (editor)
1891 *The History of Seattle*. American Publishing and Engraving Company, New York, New York.

Greenberg, Jaclyn
1972 *Treatment of the Poor in King County, Washington, 1854-1894*. Unpublished Master's Thesis, University of Washington, Seattle, Washington.

Hanford, C. H.
1923 The Orphan Railroad and the Rams Horn Right of Way. *Washington Historical Quarterly* XIV(2).

Hart Crowser Inc.
1986 Research Design for Archaeological Test Excavations Downtown Seattle Transit Project. Submitted to Parsons Brinkerhoff Quade & Douglas. Hart Crowser, Inc., Seattle, Washington.

Hart-Crowser and Associates
1977 400 Yesler Way. Prepared by Hart-Crowser & Associates, Seattle, Washington.

Heideman, Eileen, Sharon Boswell, Ann Sharley, Brandy Rinck, and Lorelea Hudson
2010 Cultural Resources Assessment for the King Street Station Bridges Seismic Retrofit Project. Prepared for HDR, Inc., Bellevue, Washington. Northwest Archaeological Associates, Inc., Seattle, Washington.

Heideman, Eileen, Brandy Rinck and Sharon Boswell
2012 Historical and Cultural Resources Overview for the Yesler Way over 4th Avenue South Bridge, Type, Size and Location Study. Report. Draft May 2012. Prepared for City of Seattle Department of Transportation, HDR Engineering, Inc., Bellevue, Washington.

Hershman, M. J., S. Heikkala and C. Tobin
1981 *Seattle Waterfront: The Walker's Guide to the History of Elliott Bay*. Waterfront Awareness, Seattle, Washington.

Hines, H. K.
1893 *An Illustrated History of the State of Washington*. The Lewis Publishing Company, Chicago, Illinois.

Hines, Neal O.
1980 *Denny's Knoll: A History of the Metropolitan Tract of the University of Washington.* University of Washington Press, Seattle, Washington.

Holstine, Craig
1996 Historic Resources Discipline Report: Washington State Department of Transportation's Proposed SR 519 Kingdome Area Intermodal Access Project, Seattle, Washington. Prepared for Washington State Department of Transportation. Archaeological and Historical Services, Eastern Washington University, Cheney, Washington.

Hudson, Lorelea, Brandy Rinck, Sharon Boswell, Mimi Sheridan, and Jacqueline Marcotte
2013 Elliott Bay Seawall Project, Cultural Resources Assessment. SWCA Environmental Consultants, Seattle, Washington and Mimi Sheridan, Seattle, Washington.

Hynding, Alan
1973 *The Public Life of Eugene Semple*. University of Washington Press, Seattle, Washington.

Jacobs, Orange
1908 *Memoirs of Orange Jacob*. Lowman and Hanford, Seattle, Washington.

Jesi, Anika and Audrey Mazza, eds.
2011 Seattle Prism Light Reconnaissance Study. Institute for Public Service, Seattle University. Spring 2011.

Kellogg, David
1912 Letter to Vivian Carkeek, May 10, 1912. On File, Museum of History and Industry, Seattle, Washington.

Klingle, Matthew
2001 *Urban by Nature: An Environmental History of Seattle 1880-1970.* PhD Dissertation, University of Washington, Seattle, Washington.
2007 *Emerald City: An Environmental History of Seattle*. Yale University Press, New Haven, Connecticut.

Kopperl, Robert E., Christian J. Miss, and Charles M. Hodges
2010 Results of Testing at the [redacted] Site, 45-KI-839, [redacted], Washington. Prepared for the City of Redmond, Washington. Northwest Archaeological Associates, Inc., Seattle, Washington.

Kreisman, Lawrence
1986 National Register of Historic Places Registration Form, Seattle Chinatown Historic District. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.

Larson Anthropological Archaeological Services (LAAS)
2004 Environmental Impact Statement. Appendix M, Archaeological Resources and Traditional Cultural Places Technical Memorandum, SR 99, Alaska Way Viaduct & Seawall Replacement Project. Submitted by Parsons Brinckerhoff Quade & Douglas, Inc. Agreement No. Y-7888. Prepared by Larson Anthropological/Archaeological Services, Gig Harbor, Washington.

Lewarch, Dennis and Lynn Larson
2003 Revised Draft: Historic Context Statement Hunter-Fisher-Gatherer Resources, King County Cultural Resource Protection Project. Submitted to King County Road Services Division. Larson Anthropological Archaeological Services, Ltd., Gig Harbor, Washington.

Link, Karin Murr
2004a Historic Property Inventory Form, Dilling Park/ City Hall Park. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.
2004b Historic Property Inventory Form, 420 4th Avenue. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.
2004c Historic Property Inventory Form, Milburn Hotel. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.
2004d Historic Property Inventory Form, Crouley Building/ Reynolds Hotel. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.
2004e Historic Property Inventory Form, MacRae Parking Garage. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.
2004f Historic Property Inventory Form, City Hall/ Public Safety Building. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.
2004g Historic Property Inventory Form, Prefontaine Building. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.
2004h Historic Property Inventory Form, Tashiro Building and Exchange Building. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.
2004i Historic Property Inventory Form, Frye Hotel. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.
2005 National Register of Historic Places Registration Form, Pioneer Square-Skid Road Historic District. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.

Magden, Ron
1991 *History of Seattle Waterfront Workers 1884-1934*. Trade Printery, Seattle, Washington.

Marcotte, Jacqueline, Sharon Boswell, and Lorelea Hudson
2012 Underwater Archaeological Survey Report Elliott Bay Seawall Project, Final. SWCA Environmental Consultants, Seattle, Washington.

Matson, R. G., and G. Coupland
1995 *The Prehistory of the Northwest Coast*. Academic Press, San Diego, California.

Meeker, Ezra
1905 *Pioneer Reminiscences of Puget Sound*. Ed. Lowman & Hanford Stationary and Printing Co., Seattle, Washington.

Meier, Dennis
1980 *Evolution of Seattle's Downtown.* City of Seattle, Office of Policy Evaluation, Seattle, Washington.

Merrill, Christie, Larry Mishkar, Chris Lockwood
2011 Cultural Resources Monitoring at King Street Station, King County, Washington:2010 Results. Submitted to Seattle Department of Transportation. Paragon Research Associates, Seattle, Washington.

Metro
1985 106 Documentation: Downtown Seattle Transit Project. Metro, Municipality of Metropolitan Seattle, Washington.

Miller, Jay
1999 *Lushootseed Culture and the Shamanic Odyssey: An Anchored Radiance*. University of Nebraska Press, Lincoln, Nebraska.

Miller, Jay and Astrida Blukis Onat
2004 Winds, Waterways, and Weirs: Ethnographic Study of the Central Link Light Rail Corridor. Submitted to Sound Transit, Central Link Light Rail. BOAS, Inc., Seattle, Washington.

Miss, Christian J. and Charles M. Hodges
2007 The Alaskan Way Viaduct and Seawall Replacement Project, Research Design for Identification of Archaeological Resources, Part I: Native American Properties. Northwest Archaeological Associates, Inc./Environmental History Company, Seattle, Washington.

Miss, Christian J. and Mimi Sheridan
2010 The Alaskan Way Viaduct and Seawall Replacement Project: Appendix I, Section 106: Historic, Cultural, and Archaeological Resources Discipline Report. Northwest Archaeological Associates, Inc., Seattle, Washington.

Miss, Christian J., Sharon A. Boswell, Charles M. Hodges, Johonna Shea, and Lorelea Hudson
2007a The Alaskan Way Viaduct and Seawall Replacement Project, Research Design for Identification of Archaeological Resources, Part II: Historical Properties. Northwest Archaeological Associates, Inc./Environmental History Company, Seattle, Washington.

Miss, Christian J., Emily Matson, Alicia B. Valentino, and Charles M. Hodges
200b SR 99 Alaskan Way Viaduct & Seawall Replacement Program, Results of the Archaeological Core Collection Program, Phase I. Northwest Archaeological Associates, Inc./Environmental History Company, Seattle, Washington.

Miss, Christian J., Alicia Valentino and Michael Shong
2009 National Register of Historic Places Registration Form, 45KI924, Dearborn South Tideland Site. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.

Morgan, Murray
1960 *Skid Road*. Ballantine Books, New York, New York.

Morgan, Vera E. (editor)
1999 The SR-101 Sequim Bypass Archaeological Project: Mid- to Late-Holocene Occupations on the Northern Olympic Peninsula, Clallam County, Washington. Archaeological and Historical Services, Eastern Washington University, Cheney, Washington.

Murphy, Laura, Denis Lewarch, Leonard Forsman, Michael Madson, David Iversen, Lynn Larson
2000 Fiber Optic Line Between Portland and Seattle Cultural Resources Assessment: Clark, Cowlitz, Lewis, Thurston, Pierce and King Counties, Washington, and Multnomah County, Oregon. Submitted to Jones & Stokes Associates, Inc. Larson Anthropological Archaeological Services Ltd., Seattle, Washington.

Nelson, Alan R., Samuel Y. Johnson, Harvey M. Kelsey, Ray E. Wells, Brian L. Sherrod, Silvio K. Pezzopane, Lee-Ann Bradley, Rich D. I. Koehler, and Robert C. Bucknam
2003 Late Holocene Earthquakes on the Toe Jam Hill Fault, Seattle Fault Zone, Bainbridge Island, Washington. *Geological Society of America Bulletin* 115:1388-1403.

Nelson, Meg
1998 Letter Report: Recent Excavation for Seismic Retrofitting at the King County Administration Building. Submitted Department of Construction and Facility Management, King County Administration Building. Northwest Archaeological Associates, Inc., Seattle, Washington.

Nelson, Donald
1967 Report of Soils Investigation, Proposed Multi-Story Parking Garage, Fifth Avenue and Jefferson Street, Seattle, Washington. Prepared for N.G. Jacobson & Associates and King County. Dames & Moore, Seattle, Washington.

Northwest Archaeological Associates, Inc.
2000 Plan of Action: Cultural Resources Assessment of the Proposed Light Lanes Fiber Optic Line. Prepared for David Evans and Associates. Northwest Archaeological Associates, Inc., Seattle, Washington.

Pacific Building and Engineering Record
1906 "Union Passenger Depot, Seattle." August 11, 1906. *Pacific Building and Engineering Record*, Seattle, Washington.

Parsons Brinkerhoff and Engineering and Industrial Heritage
2005 A Context for Common Historic Bridge Types. NCHRP Project 25-25, Task 15, prepared for The National Cooperative Highway Research Program, Transportation Research Council, National Research Council.

Phelps, Myra
1978 *Public Works in Seattle, A Narrative History: The Engineering Department, 1875-1975.* Seattle Engineering Department, Seattle, Washington.

Phelps, Thomas S.
1855-56 Plan of Seattle. University of Washington Special Collections, Seattle, Washington.

Phillips, S. Colby and Christopher C. Lockwood
2011 Letter Report: Cultural Resources Monitoring of Geothermal Wells at King Street Station Parking Plaza, Seattle, Washington. Submitted to Seattle Department of Transportation. Paragon Research Associates, Seattle, Washington.

Polk, R.L and Company
1897 *Seattle City Directory*. Polk's Seattle Directory Company, Seattle, Washington.
1910 *Seattle City Directory*. R.L. Polk and Company, Seattle, Washington.

Port of Seattle
1981 *Port in a Storm*. Port of Seattle, Seattle, Washington.

Potter, Elisabeth Walton
1976 National Register of Historic Places Inventory Nomination Form: Pioneer Square Historic District. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.

Reiff, Janice
1981 *Urbanization and the Social Structure: Seattle, Washington, 1852-1910*. Unpublished PhD Dissertation, Department of History, University of Washington, Seattle, Washington.

Roberts, Andrew
2011a State of Washington Archaeological Site Inventory Form, 45KI1011, [redacted] Submerged Debris Scatter. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.
2011b State of Washington Archaeological Site Inventory Form, 45KI1012, [redacted]. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.
2011c State of Washington Archaeological Site Inventory Form, 45KI1013, [redacted] Submerged Historic Scatter. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.

Robinson, Joan
1982 Sites of Recreational, Cultural, Historic and Archaeological Significance for I-90 Access Project. Archaeological and Historical Services, Eastern Washington University, Cheney, Washington.

Sale, Roger
1976 *Seattle Past to Present*. University of Washington Press, Seattle, Washington.

Sanborn Map Company (SMC)
1884 Sanborn Fire Insurance Maps, Seattle, Washington. Sheets 2, 4. Digital Sanborn Maps, Seattle Public Library, Seattle, Washington.
1888 Sanborn Fire Insurance Maps, Seattle, Washington. Sheets 2, 7, 8, 14, 17. Digital Sanborn Maps, Seattle Public Library, Seattle, Washington.
1893 Sanborn Fire Insurance Maps, Seattle, Washington. Sheets 8a, 8b, 9a, 9b, 11a, 11b, 12b, 13a. Digital Sanborn Maps, Seattle Public Library, Seattle, Washington.
1904 Sanborn Fire Insurance Maps, Seattle, Washington. Volume 1, Sheets 1, 17, 18, 19. Digital Sanborn Maps, Seattle Public Library, Seattle, Washington.
1905 Sanborn Fire Insurance Maps, Seattle, Washington. Volume 2, Sheets 141, 142, 143. Digital Sanborn Maps, Seattle Public Library, Seattle, Washington.

1950 Sanborn Fire Insurance Maps, Seattle, Washington. Sheets 15, 16. Digital Sanborn Maps, Seattle Public Library, Seattle, Washington.
1951 Sanborn Fire Insurance Maps, Seattle, Washington. Volume 2, Sheets 141, 142, 143. Sanborn Maps, Seattle Public Library, Seattle, Washington.

Schwantes, Carlos
1993 *Railroad Signatures Across the Pacific Northwest*. University of Washington Press, Seattle, Washington.

Seattle Department of Neighborhoods
2010 Historic Preservation: Landmarks and Designation. http://www.seattle.gov/neighborhoods/preservation/landmarks_current_nom.htm, accessed April 2010.

Shannon & Wilson, Inc.
1986 Geotechnical Report Field & Laboratory Test Results, Volume 1 of 2—Field Explorations and Testing. Prepared for Parsons Brinckerhoff Quade & Douglas, Inc., Seattle, Washington. Prepared by Shannon and Wilson, Inc., Seattle, Washington.
2005 Geotechnical Engineering Report, Fire Station 10 and Command Center Property, Seattle, Washington. Prepared for City of Seattle, Seattle, Washington. Prepared by Shannon & Wilson, Inc., Seattle, Washington.

Sherrod, Brian L.
2001 Evidence for Earthquake-Induced Subsidence about 1100 Yr Ago in Coastal Marshes of Southern Puget Sound. *Geological Society of America Bulletin* 113:1299-1311.

Shong, Michael
2009 State of Washington Archaeological Site Inventory Form, 45KI943, [redacted] Tideland Site. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.

Shong, Michael and Alicia Valentino
2009 State of Washington Archaeological Site Inventory Form, 45KI924, [redacted] Tideland Site. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.

Soule, John P.
c. 1891 Photograph captioned "Indian Camp, Seattle, Wash." University of Washington Libraries, Special Collections Division, General Indian Collection No. 564; Negative Number: NA680.

Stanley, Daniel J., and Andrew G. Warne
1997 Holocene Sea-Level Change and Early Human Utilization of Deltas. *GSA Today* 7:1-7.

Suttles, Wayne
1990 Environment. In *Northwest Coast*, edited by Wayne Suttles, pp. 16-29. Handbook of North American Indians, Vol. 7, William C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

Suttles, Wayne, and Barbara Lane
1990 Southern Coast Salish. In *Northwest Coast*, edited by Wayne Suttles, pp. 485-502. Handbook of North American Indians, Vol. 7, William C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

Thomson, R.H.
1950 *That Man Thomson*. University of Washington Press, Seattle, Washington.

Thrush, Coll-Peter
2002 *Native Seattle: Histories of the Crossing-Over Place*. Ph.D. Dissertation, Department of History, University of Washington, Seattle, Washington.
2007 *Native Seattle: Histories of the Crossing-Over Place*. University of Washington Press, Seattle, Washington.

Troost, Kathy Goetz, Derek B. Booth, Aaron P. Wisher, and Scott A. Shimel
2005 *The Geologic Map of Seattle – a Progress Report*. Open File Report 2005-1252. U.S. Department of the Interior, U. S. Geological Survey, in cooperation with the City of Seattle and the Pacific Northwest Center for Geologic Mapping Studies at the Department of Earth and Space Sciences, University of Washington.

Tuhy, John E.
1983 *Sam Hill: The Prince of Castle Nowhere*. Timber Press, Portland, Oregon.

Unknown
1973 Terrace Street and 4th Avenue South, Log of Borings.

Warren, James
1981 *King County and Its Queen City*. Windsor Publications, Woodland Hills, California.
1989 *The Day Seattle Burned. June 6, 1889*. Museum of History and Industry, Seattle, Washington.

Waterman, Thomas T.
2001 *Puget Sound Geography: Original Manuscript from T.T. Waterman*. Edited by, with additional material from, Vi Hilbert, Jay Miller, and Zalmai Zahir. Lushootseed Press, Federal Way, Washington.

Waters, Michael R.
1992 *Principles of Geoarchaeology: A North American Perspective*. The University of Arizona Press, Tucson, Arizona.

Watt, Roberta Frye
1931 *Four Wagons West: The Story of Seattle*. Metropolitan Press, Portland, Oregon.
1959 *Four Wagons West*. Binford and Mort Publishing, Portland, Oregon.

Wessen, Gary and M. Leland Stilson
1987 Resource Protection Planning Process, Southern Puget Sound Study Unit. Prepared for the Washington State Department of Community Development. Office of Archaeology & Historic Preservation, Olympia, Washington.

Wickwire, Cathy
2005 Seattle Parks and Recreation's Historic Resources Plan. Submitted to Seattle Parks and Recreation. MAKERS Architecture and Urban Design, Susan Black Associates.

Wilson, William H.
1989 *The City Beautiful Movement*. Johns Hopkins University Press, Baltimore, Maryland.
2009 *Shaper of Seattle*. Washington State University Press, Pullman, Washington.

Winter, David G. and Shaun D. Stauffer
2004 Geotechnical Engineering Design Services, King County—Goat Hill Redevelopment, Seattle, Washington. Prepared for Wright Runstad & Company, Seattle, Washington. Prepared by GeoEngineers, Redmond, Washington.

Zehfuss, Paul H., Brian F. Atwater, James W. Vallance, Henry Brenniman, and Thomas A. Brown
2003 Holocene Lahars and Their Byproducts along the Historical Path of the White River between Mount Rainier and Seattle. In *Western Cordillera and Adjacent Areas*, Field Guide 4, edited by Terry W. Swanson, pp. 209-223. The Geological Society of America, Boulder, Colorado.

Zuccotti, Lucy
2008 Central Link Light Rail Project Initial Segment Monitoring of Construction Phase Excavations. Submitted to Sound Transit. BOAS, Inc., Seattle, Washington.

Newspapers and Journals

American Railway Engineering and Maintenance of Right of Way Association
American Society of Civil Engineers
Engineering Record
Pacific Builder and Engineer
The Seattle Times

APPENDIX A: CORRESPONDENCE

Northwest Archaeological Associates
Cultural Resources Management Services
5418 20th Avenue NW, Suite 200, Seattle, WA 98107

November 18, 2011

Cecile Hansen, Chairwoman
Duwamish Tribe
4705 W. Marginal Way S.W.
Seattle, WA 98106-1514

RE: Yesler Way Bridge over 4th Avenue South Cultural Resources Assessment

Dear Ms. Hansen,

Northwest Archaeological Associates, a division of SWCA Environmental Consultants (NWAA/SWCA) has been retained by HDR, Inc. and the City of Seattle Department of Transportation (SDOT) to conduct a cultural resources assessment for planned work on the Yesler Way Bridge over 4th Avenue South in downtown Seattle. This bridge carries Yesler Way over 4th Avenue South in Section 5, Township 24 North, Range 4 East (Figure 1). Phase 1 of the project is a Type, Size and Location (TS&L) study, and Phase 2 will involve Plans, Specifications and Estimates (PS&E). The design will be determined in the course of the project but may involve rehabilitation or replacement of the bridge. SDOT intends to seek federal funding, but until then the project is regulated by the State Environmental Policy Act (SEPA).

Our participation in Phase I includes monitoring geotechnical work that is currently planned to take place in three locations to the east and west of the bridge. The NWAA/SWCA technical report will include background research, local environmental and cultural setting, and the results of the geotechnical monitoring.

At this time we would like to know if the Tribe has any concerns about cultural resources in or near the project area. If so, please contact us at your earliest convenience so these locations can be taken into account during planning. We understand that the Tribe may have concerns about sharing sensitive information and we are happy to work with you regarding these concerns. This letter is a technical inquiry and is not intended to replace government-to-government consultation required by state and federal regulations. Thank you for your attention to this matter, and we look forward to hearing from you regarding this project.

Sincerely,

Lorelea Hudson, M.A., R.P.A,
Senior Archaeologist, Project Manager

Encl: Project location map

Tel: 206-781-1909
Fax: 206-781-0154
Email: lhudson@swca.com

Northwest Archaeological Associates
Cultural Resources Management Services
5418 20th Avenue NW, Suite 200, Seattle, WA 98107

November 18, 2011

Laura Murphy, Archaeologist
Muckleshoot Tribe
39015 172nd Avenue SE
Auburn, WA 98092

RE: Yesler Way Bridge over 4th Avenue South Cultural Resources Assessment

Dear Ms. Murphy,

Northwest Archaeological Associates, a division of SWCA Environmental Consultants (NWAA/SWCA) has been retained by HDR, Inc. and the City of Seattle Department of Transportation (SDOT) to conduct a cultural resources assessment for planned work on the Yesler Way Bridge over 4th Avenue South in downtown Seattle. This bridge carries Yesler Way over 4th Avenue South in Section 5, Township 24 North, Range 4 East (Figure 1). Phase 1 of the project is a Type, Size and Location (TS&L) study, and Phase 2 will involve Plans, Specifications and Estimates (PS&E). The design will be determined in the course of the project but may involve rehabilitation or replacement of the bridge. SDOT intends to seek federal funding, but until then the project is regulated by the State Environmental Policy Act (SEPA).

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Northwest Archaeological Associates
Cultural Resources Management Services
5418 20th Avenue NW, Suite 200, Seattle, WA 98107

November 18, 2011

Steve Mullen, Cultural Resource Director
Snoqualmie Nation
P O Box 969
Snoqualmie, WA 98065

RE: Yesler Way Bridge over 4th Avenue South Cultural Resources Assessment

Dear Mr. Mullen,

Northwest Archaeological Associates, a division of SWCA Environmental Consultants (NWAA/SWCA) has been retained by HDR, Inc. and the City of Seattle Department of Transportation (SDOT) to conduct a cultural resources assessment for planned work on the Yesler Way Bridge over 4th Avenue South in downtown Seattle. This bridge carries Yesler Way over 4th Avenue South in Section 5, Township 24 North, Range 4 East (Figure 1). Phase 1 of the project is a Type, Size and Location (TS&L) study, and Phase 2 will involve Plans, Specifications and Estimates (PS&E). The design will be determined in the course of the project but may involve rehabilitation or replacement of the bridge. SDOT intends to seek federal funding, but until then the project is regulated by the State Environmental Policy Act (SEPA).

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Northwest Archaeological Associates
Cultural Resources Management Services
5418 20th Avenue NW, Suite 200, Seattle, WA 98107

November 18, 2011

Dennis Lewarch, THPO Cultural Resources
Suquamish Tribe
PO Box 498
Suquamish, WA 98392-0498

RE: Yesler Way Bridge over 4th Avenue South Cultural Resources Assessment

Dear Mr. Lewarch,

Northwest Archaeological Associates, a division of SWCA Environmental Consultants (NWAA/SWCA) has been retained by HDR, Inc. and the City of Seattle Department of Transportation (SDOT) to conduct a cultural resources assessment for planned work on the Yesler Way Bridge over 4th Avenue South in downtown Seattle. This bridge carries Yesler Way over 4th Avenue South in Section 5, Township 24 North, Range 4 East (Figure 1). Phase 1 of the project is a Type, Size and Location (TS&L) study, and Phase 2 will involve Plans, Specifications and Estimates (PS&E). The design will be determined in the course of the project but may involve rehabilitation or replacement of the bridge. SDOT intends to seek federal funding, but until then the project is regulated by the State Environmental Policy Act (SEPA).

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At this time we would like to know if the Tribe has any concerns about cultural resources in or near the project area. If so, please contact us at your earliest convenience so these locations can be taken into account during planning. We understand that the Tribe may have concerns about sharing sensitive information and we are happy to work with you regarding these concerns. This letter is a technical inquiry and is not intended to replace government-to-government consultation required by state and federal regulations. Thank you for your attention to this matter, and we look forward to hearing from you regarding this project.

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Senior Archaeologist, Project Manager

Encl: Project location map

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Email: lhudson@swca.com

Northwest Archaeological Associates
Cultural Resources Management Services
5418 20th Avenue NW, Suite 200, Seattle, WA 98107

November 18, 2011

Richard Young, Cultural Resources
Tulalip Tribes
Hibulb Cultural Center and Natural History Preserve
6410 23rd Avenue NE
Tulalip, WA 98271

RE: Yesler Way Bridge over 4th Avenue South Cultural Resources Assessment

Dear Mr. Young,

Northwest Archaeological Associates, a division of SWCA Environmental Consultants (NWAA/SWCA) has been retained by HDR, Inc. and the City of Seattle Department of Transportation (SDOT) to conduct a cultural resources assessment for planned work on the Yesler Way Bridge over 4th Avenue South in downtown Seattle. This bridge carries Yesler Way over 4th Avenue South in Section 5, Township 24 North, Range 4 East (Figure 1). Phase 1 of the project is a Type, Size and Location (TS&L) study, and Phase 2 will involve Plans, Specifications and Estimates (PS&E). The design will be determined in the course of the project but may involve rehabilitation or replacement of the bridge. SDOT intends to seek federal funding, but until then the project is regulated by the State Environmental Policy Act (SEPA).

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At this time we would like to know if the Tribes have any concerns about cultural resources in or near the project area. If so, please contact us at your earliest convenience so these locations can be taken into account during planning. We understand that the Tribes may have concerns about sharing sensitive information and we are happy to work with you regarding these concerns. This letter is a technical inquiry and is not intended to replace government-to-government consultation required by state and federal regulations. Thank you for your attention to this matter, and we look forward to hearing from you regarding this project.

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Northwest Archaeological Associates
Cultural Resources Management Services
5418 20th Avenue NW, Suite 200, Seattle, WA 98107

November 18, 2011

Kate Valdez, THPO Cultural Resources
Confederated Tribes and Bands of the Yakama Nation
PO Box 151
Toppenish, WA 98948

RE: Yesler Way Bridge over 4th Avenue South Cultural Resources Assessment

Dear Ms. Valdez,

Northwest Archaeological Associates, a division of SWCA Environmental Consultants (NWAA/SWCA) has been retained by HDR, Inc. and the City of Seattle Department of Transportation (SDOT) to conduct a cultural resources assessment for planned work on the Yesler Way Bridge over 4th Avenue South in downtown Seattle. This bridge carries Yesler Way over 4th Avenue South in Section 5, Township 24 North, Range 4 East (Figure 1). Phase 1 of the project is a Type, Size and Location (TS&L) study, and Phase 2 will involve Plans, Specifications and Estimates (PS&E). The design will be determined in the course of the project but may involve rehabilitation or replacement of the bridge. SDOT intends to seek federal funding, but until then the project is regulated by the State Environmental Policy Act (SEPA).

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APPENDIX B: BORE LOG SUMMARY

Table B-1. Bore Log Summary.

BORING	UTM (Zone 10, NAD83)		DEPTH (fbs)		LITHOLOGY	DESCRIPTION
	EASTING	NORTHING	TOP	BOTTOM		
B-1	550451.41	5272278.49	0	0.3	Asphalt	Asphalt.
			0.3	0.6	Concrete	Concrete.
			0.6	6	Sand	Yellowish brown, slightly silty, fine to coarse sand with few scattered, sub-rounded, small to large pebbles; small pockets of sticky clay.
			10	10.6	Silt	Grayish brown, slightly gravelly, fine to coarse sandy, clayey silt.
			15	16	Sand	Brown to reddish brown, very silty, fine to very coarse sand; scattered slightly clayey pockets; few small woody fibers and very few pieces of charcoal.
			20	20.8	f-cSgz	Grayish brown, slightly clayey, silty, gravelly, fine to very coarse sand; gravels are common to many, angular to sub-rounded, very small to medium pebbles.
			25	25.8	Pleistocene	Gray, silty, fine to medium sand.
			25.8	26	Pleistocene	Gray, fine sandy, silt.
			30	31.5	Pleistocene	Light brownish gray, interbedded, silty, fine to coarse sand and gravelly, fine to coarse sand; gravels in gravelly sand beds are common to many, angular to rounded, very small to small pebbles.
			35	36	Pleistocene	Gray, silty in pockets, fine to coarse sand with common, dark reddish brown, medium, iron oxide mottles and a few, small-pebble-sized clay rip-ups.
B-1 (3242)	550480.75	5272274.91	0	1	Concrete	Concrete.
			1	6	Sand	Grayish brown, slightly silty and gravelly, fine sand.
			6	8	Sand	Brown, slightly silty, fine sand.
B-2	550457.79	5272258.48	0	0.5	Asphalt	Asphalt.
			0.5	1	Granite	Granite.
			1	1.2	Sand	Brown, silty, fine to coarse sand.
			1.2	1.7	Concrete	Concrete; weathered soft.
			5	5.5	Sand	Gray, slightly silty, fine to coarse sand.
			5.5	6	Clay	Gray, fine sandy, silty, clay.
			10	11.2	Silt	Gray, clayey silt; till-like.
			15	16	Pleistocene	Bluish gray, clayey silt; till like; weathered.
			20	21	Pleistocene	Bluish gray, clayey silt; till like; weathered.
			25	26.1	Pleistocene	Dark gray, medium to very coarse sand; outwash.
			30	30.9	Pleistocene	Yellowish brown to gray, fine to coarse sand with very few, scattered, sub-rounded, medium pebbles.
			35	36.5	Pleistocene	Interbedded, yellowish brownish gray, silty, fine to medium sand and fine to coarse sand.
			40	41	Pleistocene	Grayish brown, silty, fine to very coarse sand.
B-2 (3242)	550486.96	5272265.52	0	0.75	Concrete	Concrete.
			0.75	5.8	Sand	Brown, slightly silty, gravelly, fine sand.
			5.8	7	Sand	Gray, slightly silty, fine sand.
B-3	550430	5272258	0	0.2	Asphalt	Asphalt.
			0.2	1.4	Concrete	Concrete.
			1.4	5.2	Sand	Grayish to yellowish brown, gravelly, silty, fine to very coarse sand; gravels are few to common, rounded to angular, very small to very large pebbles; very few, sub-rounded, small cobbles.
			5.5	6.5	Sand	Grayish to yellowish brown, slightly silty, gravelly, medium to coarse sand; gravels are many, angular to sub-angular, small to medium pebbles.
			10	10.3	Wood	Woody debris.
			10.3	10.6	Clay	Brown, silty clay.
			10.6	11	Silt	Yellowish brown, slightly clayey, gravelly, fine to medium sandy, silt; gravels are few, sub-angular, small pebbles.

Table B-1. Bore Log Summary.

BORING	UTM (Zone 10, NAD83)		DEPTH (fbs)		LITHOLOGY	DESCRIPTION
	EASTING	NORTHING	TOP	BOTTOM		
			15	16	Clay	Gray, gravelly, fine sandy, silty clay; gravels are few to common, sub-rounded, small pebbles.
			20	21.1	Clay	Gray, fine sandy, silty clay with trace organics; woody debris at ~20 fbs, possibly a piling, no creosote.
			25	25.9	f-mS	Yellowish brown, fine to medium sand with few iron oxide mottles and trace organics.
			30	31	f-cSgz	Brown, slightly clayey, gravelly, silty, fine to medium sand; gravels are few to common, sub-angular, small pebbles; few iron oxide stains and trace organics.
			35	36	Pleistocene	Very light gray to grayish brown, gravelly, fine to coarse sand; gravels are common to many, sub-rounded to sub-angular, small to medium pebbles; very compact.
			40	40.5	Pleistocene	Yellowish brown, gravelly, very coarse sand; gravels are few, sub-angular to rounded, small pebbles.
B-3 (3242)	550519	5272288.86	0	5.5	Sand	Reddish brown, gravelly, fine sand.
			5.5	5.6	Concrete	Concrete.
B-4 (3242)	550520.58	5272287.31	0	1	Concrete	Concrete.
			1	5	Sand	Reddish brown, slightly silty, gravelly, fine sand.
			5	11.7	Sand	Brown, slightly silty, gravelly, fine to medium sand.
B-5 (3242)	550525.99	5272280.73	0	5	Sand	Reddish brown, slightly silty, gravelly, fine sand.
			5	5.5	Concrete	Concrete.
B-6 (3242)	550525.36	5272277.98	0	5	Sand	Reddish brown, slightly silty, gravelly, fine sand.
			5	8	Sand	Grayish brown, slightly silty, gravelly, fine sand.
Boring 1 (9084)	550450.25	5272240.42	0	1	Concrete	Concrete.
			1	2	Sand	Brownish gray, fine to coarse sand.
			2	3	Sand	Brown, gravelly, clayey, silty, fine to coarse sand.
			3	18	Silt	Mottled brown and gray, gravelly, clayey, sandy, silt with a trace of organic debris.
			18	24	Zc	Clayey silt.
			24	26.5	fSzg	Brown, gravelly, silty sand with scattered organic debris.
			26.5	40	Pleistocene	Glacial and interglacial deposits.
Boring 2 (9084)	550460.6	5272239.95	0	0.5	Concrete	Concrete.
			0.5	1.5	Sand	Brown, gravelly sand.
			1.5	5	Sand	Brown, clayey, silty, sand.
			5	27.5	Silt	Gray, sandy, clayey, silt with a few scattered gravels.
			27.5	32	fSzg	Brown and gray, gravelly, silty, sand with scattered organic debris.
			32	45	Pleistocene	Glacial and interglacial deposits.
Boring 3 (9084)	550455.2	5272256.73	0	0.5	Asphalt	Asphalt.
			0.5	2	Sand	Brown sand.
			2	5	Sand	Gravelly, silty sand.
			5	24	Silt	Gray, sandy, clayey, silt with a few gravels.
			24	28	fSz	Brownish gray, silty sand with scattered woody and organic debris.
			28	40	Pleistocene	Glacial and interglacial sediment.
MW-1 (2728)	550388.48	5272212.88	0	1	Asphalt	Asphalt.
			1	5	Sand	Gray, fine to medium sand.
			5	17	Sand	Light brown, silty, gravelly, fine to coarse sand with scattered organics throughout and occasional charcoal fragments between 15 and 17 fbs.
			17	30	Pleistocene	Glacial and interglacial sediment.
MW-2 (2728)	550401.48	5272200.12	0	1	Asphalt	Asphalt.
			1	7	Sand	Grayish brown, gravelly, silty, clayey, fine to coarse sand with brick fragments.

Table B-1. Bore Log Summary.

BORING	UTM (Zone 10, NAD83)		DEPTH (fbs)		LITHOLOGY	DESCRIPTION
	EASTING	NORTHING	TOP	BOTTOM		
			7	17	Sand	Grayish brown, gravelly, silty, clayey, fine to coarse sand with common iron oxide staining.
			17	30	Pleistocene	Glacial and interglacial deposits.
PW-1 (2728)	550397.45	5272205.38	0	1	Concrete	Concrete.
			1	7	Sand	Brown, silty, gravelly, fine to medium sand.
			7	17	Sand	Brown, clayey, silty, fine to medium sand.
			17	18	Gravel	Brown, fine to medium sandy, small to medium pebbles.
			18	30	Pleistocene	Glacial and interglacial deposits.
TB-8 (2728)	550370.27	5272224.54	0	13	Sand	Gray and brown, gravelly, silty, clayey, fine to coarse sand with iron oxide staining, organic debris, and wood fragments; interbedded with small gravels.
			13	30	Pleistocene	Glacial and interglacial deposits.
TB-87 (2728)	550378.63	5272282.54	0	12	Sand	Gray, silty, clayey, gravelly, sand with many fine organic debris.
			12	14	Silt	Brown, organic-rich, sandy, clayey silt.
			14	18	Sand	Brown, silty, gravelly, fine to medium sand.
			18	28	f-cSgz	Brown, sometimes silty, gravelly, fine to coarse sand.
			28	32	fSzc	Grayish brown, clayey, silty, fine sand.
			32	45	Pleistocene	Glacial and interglacial sediment.
TP-2 (17921)	550528.63	5272239.84	0	6	Fill	No Details available.
B-12 (17169)	550472.51	5272298.58	0	15	Fill	No Details available.
			15	35	Pleistocene	No Details available.
B-4-MW	550492.52	5272230.48	0	14.5	Fill	No Details available.
			14.5	30	Holocene	No Details available.
			30	40	Pleistocene	No Details available.
G-2 (52)	550504.75	5272313.22	0	3	Fill	No Details available.
			3	41.5	Pleistocene	No Details available.
G-4 (52)	550479.25	5272301.41	0	7.5	Fill	No Details available.
			7.5	36.5	Pleistocene	No Details available.
TB-88 (2728)	550293.33	5272235.90	0	4.5	Silt	Brown, clayey silt with lenses of fine sand; iron oxide mottles.
			4.5	12	Sand	Reddish brown, silty fine sand; iron oxide staining.
			12	13	Silt	Gray and dark brown clayey silt; compact; organic partings; till used as fill.
			13	17	Sand	Gray and brown, slightly silty, fine to medium sand.
			17	19.5	Sand	Gray, clayey, silty fine sand.
			19.5	22	Pleistocene	Brownish gray, sandy, clayey, silt; iron oxide stained sand; till-like.
			22	24.5	Pleistocene	Brown, silty fine sand with lenses of clayey silt.
			24.5	57	Pleistocene	Gray to grayish brown, silty, fine to coarse sand; pumice fragments.
			57	71	Pleistocene	Gray, slightly silty, fine to medium sand; outwash.
			71	91.5	Pleistocene	Interbedded, clayey, silty fine sand to fine sandy silt; locally clayey.
TB-31 (2728)	550430.64	5272179.29	0	1.5	Concrete	Concrete
			1.5	19	Sand	Dark gray, slightly silty, fine to medium sand and silt pockets at 10 fbs; scattered small pebbles; fill.
			19	22	Sand	Brown, silty, clayey, gravelly, fine to coarse sand; fill.
			22	29	f-cSgz	Gray, slightly silty, gravelly, fine to coarse sand; colluvium or fill.
			29	37.5	Pleistocene	Gray, slightly gravely, sandy clay and clayey, silty, pebbly sand; till-like.

Table B-1. Bore Log Summary.

BORING	UTM (Zone 10, NAD83)		DEPTH (fbs)		LITHOLOGY	DESCRIPTION
	EASTING	NORTHING	TOP	BOTTOM		
			37.5	50	Pleistocene	Gray, clayey silt to silty clay; occasional lenses and fine sand partings.
			50	60	Pleistocene	Gray, clayey, fine sandy, silt; compressed organics.
			60	64	Pleistocene	Dark gray, slightly silty, fine to medium sand with scatttered gravel; outwash.
			64	67	Pleistocene	Gray, slightly silty, sandy, small pebbles.
			67	69	Pleistocene	Gray, clayey silt interbedded with fine to coarse sand; compact.
			69	80.5	Pleistocene	Gray, slightly silty, fine to medium sand; locally gravelly; scattered clayey silt intrusions; trace of fine organics.
TB-74 (2728)	550327.82	5272246.20	0	4	Silt	Brown, slightly silty and clayey, fine sand and clayey, fine sandy silt.
			4	10	Silt	Gray, slightly sandy, clayey silt to silty clay.
			10	15	Sand/Silt	Brown, clayey, silty, fine sand and clayey, sandy, silt; iron oxide stained.
			15	20	Sand	Reddish brown, silty, fine sand.
			20	22	Silt	Brown, fine sandy silt.
			22	28	Sand	Brown, slightly silty, fine to coarse sand.
			28	30	Pleistocene	Brown, fine sandy silt; laminated; iron-oxide stained.
			30	32	Pleistocene	Gray to dark brown, slightly clayey, sandy silt with a trace of organics.
			32	37	Pleistocene	Interbedded brown, fine sand; gray, silty fine sand; and fine sandy silt.
			37	77	Pleistocene	Dark gray, fine to medium sand; ash lenses; pumice; locally gravelly or slightly silty; outwash.
			77	79	Pleistocene	Gray, fine sandy silt to clayey silt; compact; till.
TP-4 (2953)	550557.94	5272235.97	0	7	Sand	Reddish brown to light brown, gravelly, silty, fine to medium sand; fill.
			7	12	Silt	Gray, gravelly, sandy, silt; till used as fill.
			12	15	Pleistocene	Gray, silty clay; till-like.
B-9A (17169)	550531.49	5272339.10	0	0.5	Asphalt	Asphalt
			0.5	1.8	Concrete	Concrete and bricks
			1.8	7	Sand	Brown, silty, fine to coarse sand with gravel and debris; fill.
			7	16	Silt	Brown, fine sandy silt with scattered organic matter.
			16	20.5	Silt	Gray sandy silt; fill.
			20.5	27.5	Sand/Wood	Brown, silty, fine to medium sand with gravel, concrete, and wood debris; wood debris concentrated around 21.2 fbs; fill.

APPENDIX C: HISTORIC PROPERTY INVENTORY FORMS

Historic Inventory Report

Location

Field Site No. 182 DAHP No.

Historic Name: Battle of Seattle Site Marker

Common Name: Battle of Seattle Site Marker

Property Address: City Hall Park, 400 Third Ave, Seattle, WA 98104

Comments:

Tax No./Parcel No. 094200-1145

Plat/Block/Lot Borens C D Add, Block 38

Acreage 0.56

Supplemental Map(s)

Township/Range/EW	Section	1/4 Sec	1/4 1/4 Sec	County	Quadrangle
T24R04E	05	NW	NW	King	SEATTLE SOUTH

Coordinate Reference

Easting: 1188896

Northing: 832660

Projection: Washington State Plane South

Datum: HARN (feet)

Identification

Survey Name: Yesler Bridge Replacement Date Recorded: 12/19/2011

Field Recorder: Eileen Heideman / SWCA

Owner's Name: City of Seattle

Owner Address: P.O. Box 94749

City: Seattle State: WA Zip: 98124

Classification: Object

Resource Status: Comments:
National Register

Within a District? Yes

Contributing? Yes

National Register: Pioneer Square--Skid Road Historic District (Including Boundary Increases)

Local District: Pioneer Square Preservation District (City of Seat

National Register District/Thematic Nomination Name: Pioneer Square--Skid Road Historic District (Including Boundary Increases)

Eligibility Status: Not Determined - SHPO

Determination Date: 1/1/0001

Determination Comments:

Description

Historic Use: Recreation and Culture - Monument/Marker

Current Use: Recreation and Culture - Monument/Marker

Plan: None

Stories: N/A

Structural System: None

Changes to Plan: Not Applicable

Changes to Interior: Not Applicable

Changes to Original Cladding: Not Applicable

Changes to Windows: Not Applicable

Changes to Other: Intact

Other (specify): Marker appears intact

Style:	Cladding:	Roof Type:	Roof Material:
None	None	None	None

Foundation:	Form/Type:
None	None

Narrative

Study Unit	Other
Social Movements/Organizations	
Education	
Architecture/Landscape Architecture	

Date of Construction: 1916 Built Date

Builder:

Engineer:

Architect:

Property appears to meet criteria for the National Register of Historic Places: Yes

Property is located in a potential historic district (National and/or local): Yes - National

Property potentially contributes to a historic district (National and/or local): Yes

Statement of Significance:

The DAR received permission in 1914 to place a boulder with a bronze tablet commemorating the Battle of Seattle at the north end of Pioneer Place, the triangular section of land formed by the junction of 1st Avenue and Yesler Way ("Memorial Font Still in Abeyance," The Seattle Sunday Times, February 8, 1914:4). The monument was apparently delayed, but was eventually placed up the street in City Hall Park in August 1916. A newspaper article published prior to the unveiling described the monument in some detail:

The Battle of Seattle memorial tablet is to be 14 ½ inches high and 21 inches long and will be made of bronze cast and moulded entirely in Seattle. The metal for the tablet was contributed by the women of Lady Stirling Chapter in the form of all sorts of bronze and brass trinkets.

In the upper left hand corner of the tablet will be the insignia of the Daughters of the American Revolution. In the lower right hand corner will be an engraved likeness of the sloop Decatur, whose guns proved the determining factor in the famous battle in which the Indians were repulsed and the city saved. The engraving of the sloop was made from a photograph. It will be more than five inches high.

In the center of the tablet will be the inscription: "The Battle of Seattle was fought on this ground, January 26, 1856. This memorial tablet is erected by Lady Stirling Chapter, Daughters of the American Revolution, August 15, 1916."

In the center of the memorial tablet will be inlaid an old copper cent, coined in 1856 and donated for the purpose by Mrs. A.J. Trumbull, past regent of Lady Stirling Chapter. Just beyond the border of the tablet will be cut into the stone the state motto, "Patriotism, Reverence, Remembrance," which was proposed by Lady Stirling Chapter and later accepted as the official state maxim.

The U.S.S. Maine tablet is described in the article as well:

On the north side of the boulder will be a Maine memorial tablet, donated by the government at the request of Mrs. A.J. Trumbull and Mrs. H.T. Bredes, whose pleas for the tablet were forwarded by Congressman Will E. Humphrey. The tablet is commemorative of the battleship Maine tragedy, and is handsomely engraved with a special design prepared by Charles Keck, a New York sculptor. It is twenty-two inches long and eighteen inches high, and is made from metal collected in the raising of the Maine from Havana harbor. The tablets are manufactured by the government and presented on request for patriotic memorials.

The article also notes that the boulder was obtained from the grounds of the Seattle Golf Club, but it makes no note of the pile of shot or the chiseled hollow on top of the boulder ("Memorial of Battle of Seattle Will be Unveiled by G.A.R.," The Seattle Sunday Times, August 6, 1916:11).

This monument is a contributing feature in the Pioneer Square-Skid Road Historic District and is also individually listed in the NRHP, although only the Battle of Seattle plaque is mentioned in that document (Corley 1969; Link 2005).

Description of Physical Appearance:

The Battle of Seattle site marker is a naturally-formed, rough-sided granite boulder containing two metal plaques, a chiseled inscription with the words “Patriotism Reverence Remembrance” on the top of the stone, and a small pile of cannon shot. The top of the boulder also contains an empty circular hollow that was chiseled out with the apparent intent to contain an unknown object.

The southwest-facing plaque contains the inscription: “The Battle of Seattle was fought on this ground, Jan. 26th 1856 – This commemorative boulder is erected by Lady Stirling Chapter, Daughters of the American Revolution, August 15th, 1916,” and contains the image of a ship with sails in the lower right corner and the ship’s wheel symbol for the Daughters of the American Revolution (DAR) in the upper left corner.

A plaque on the northeast side of the boulder memorializes the sinking of the U.S.S. Maine and contains the figure with a bowed head and an arm raised toward a palm branch on the left side of the plaque. Below the arm is the scene of a sinking ship. A circular shield in front of the figure is inscribed with the words “patriotism” and “devotion,” and the center has a classic-form stars and stripes shield with an eagle above and olive branches below. The plaque is inscribed with the words: “In Memoriam, U.S.S. Maine, destroyed in Havana Harbor February 15th, 1898.” At the bottom of the plaque is the note that “This tablet is cast from metal recovered from the U.S.S. Maine.”

Major Bibliographic References:

Corley, Margaret

1969 [Original] National Register of Historic Places Registration Form, Pioneer Square-Skid Road Historic District. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.

Heideman, Eileen, Sharon Boswell, Brandy Rinck, Ann Sharley and Bob Krier

2015 Final Cultural Resources Assessment for the Yesler Way over Fourth Avenue South Bridge, Seattle Washington. SWCA Report Number 14-619, prepared for HDR Engineering, Inc., and the Seattle Department of Transportation. SWCA Environmental Consultants, Seattle, Washington.

Link, Karin Murr

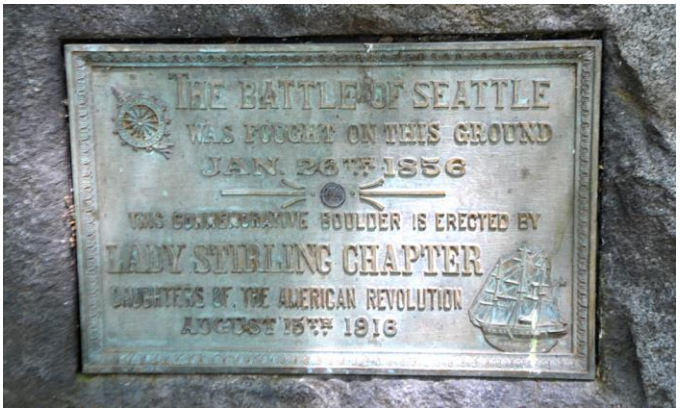
2005 National Register of Historic Places Registration Form, Pioneer Square-Skid Road Historic District. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.

Photos

Boulder and U.S.S. Maine plaque, view to the southeast.
2013

View to the north.
2013

Battle of Seattle plaque, view to the northeast.
2013

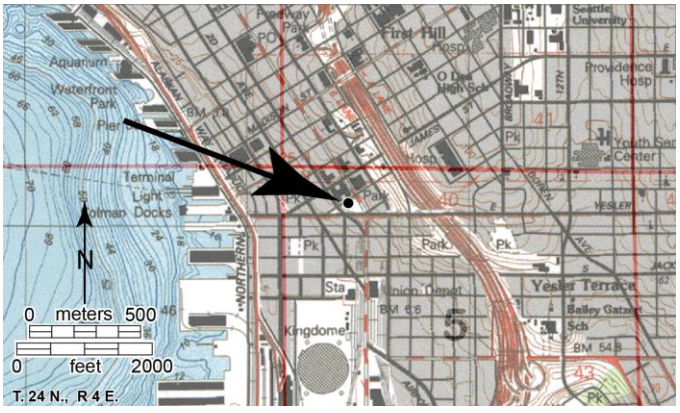


Closer view of Battle of Seattle plaque, view to the northeast.
2013

U.S.S. Maine plaque, view to the southwest.
2013

Inscription on top of boulder.
2013

Hollow on top of boulder.
2013



location.
2013

Historic Inventory Report

Location

Field Site No. 183 DAHP No.

Historic Name: King County Courthouse Tunnel

Common Name: King County Courthouse Tunnel

Property Address: City Hall Park, 400 Third Ave, Seattle, WA 98104

Comments:

Tax No./Parcel No. 094200-1145

Plat/Block/Lot Borens C D Add, Block 38

Acreage 0.56

Supplemental Map(s)

Township/Range/EW	Section	1/4 Sec	1/4 1/4 Sec	County	Quadrangle
T24R04E	05	NW		King	SEATTLE SOUTH

Coordinate Reference

Easting: 1189104

Northing: 832553

Projection: Washington State Plane South

Datum: HARN (feet)

Identification

Survey Name: Yesler Bridge Replacement Date Recorded: 12/19/2011

Field Recorder: Eileen Heideman / SWCA

Owner's Name: City of Seattle

Owner Address: P.O. Box 94749

City: Seattle State: WA Zip: 98124

Classification: Structure

Resource Status: Comments:

National Register Contributing element of historic district.

Within a District? Yes

Contributing? Yes

National Register: Pioneer Square--Skid Road Historic District (Including Boundary Increases)

Local District: Pioneer Square Preservation District (City of Seat

National Register District/Thematic Nomination Name: Pioneer Square--Skid Road Historic District (Including Boundary Increases)

Eligibility Status: Not Determined - SHPO

Determination Date: 1/1/0001

Determination Comments:

Description

Historic Use: Transportation - Road-Related (vehicular)
Current Use: Transportation - Road-Related (vehicular)
Plan: Other
Stories: N/A
Structural System: Concrete - Reinforced Concrete
Changes to Plan: Intact
Changes to Interior: Intact
Changes to Original Cladding: Intact
Changes to Windows: Not Applicable
Changes to Other: Not Applicable
Other (specify):

Style:	Cladding:	Roof Type:	Roof Material:
Other	Concrete Brick	Other	Other

Foundation:	Form/Type:
Concrete - Poured	Other

Narrative

Study Unit
Transportation
Architecture/Landscape Architecture

Other

Date of Construction: 1917 Built Date

Builder: Jahn Contracting Company

Engineer: A. H. Dimock, Engineer; Timotheus Josenhans, Supt. of Buildings

Architect: D. R. Huntington, City Architect

Property appears to meet criteria for the National Register of Historic Places: Yes

Property is located in a potential historic district (National and/or local): Yes - National

Property potentially contributes to a historic district (National and/or local): Yes

Statement of Significance:

The courthouse tunnel was constructed between 1916 and 1917 to provide vehicle access to a basement parking area in what was then the County-City Building (now King County Courthouse). The walls were designed by A.H. Dimock, City Engineer, Timotheus Josenhans, Superintendent of Buildings, and D.R. Huntington, City Architect. Construction was undertaken by the Jahn Contracting Company. Huntington's design for the tunnel entrance walls was well-received due to their decorative nature. ("City May Move Quarters May 1," Seattle Daily Times, Monday Evening, February 28, 1916:4; Link 2005:267-268; "Seattle Gets Beauty Touches," Seattle Sunday Times, July 13, 1919:15).

This structure is a contributing feature in the Pioneer Square-Skid Road Historic District. Although a portion of the wall on the north side of the tunnel entrance has suffered damage and was subsequently removed, the majority of the structure is intact and this damage does not significantly alter the integrity of the structure.

Description of Physical Appearance:

The King County Courthouse tunnel entrance is located at the southeast corner of City Hall Park, northwest of Yesler Way and 4th Avenue and south of Dilling Way. The entrance consists of two narrow, brick-paved lanes that are divided by a concrete curb. The entrance drive roughly parallels Yesler Way and leads down to two rolling overhead doors. Beyond these doors, the drive curves to the northwest, continuing to slope down until it reaches the level of the courthouse basement. The lanes within the tunnel are paved with bricks near the entrance and transition to concrete as the floor slopes downward. The tunnel lanes are divided by concrete posts that support the reinforced concrete roof, and concrete curbs are located between the lanes and along the walls. The tunnel was originally lit with light bulbs at the top of each post, but these have been replaced with florescent tube fixtures.
The tunnel entrance is surrounded by a reinforced concrete wall with red clay tile inlay and cylindrical concrete posts at the northeast and northwest corners. These walls extend not only around the tunnel entrance, but also continue around a poured concrete stairway that provides pedestrian access between 4th Avenue and Yesler Way at the northwest corner of the adjacent bridge. The walls extend along the south side of the tunnel entrance and the north side of the sidewalk on Yesler Way to meet up with the decorative rail of the adjacent bridge. The wall along the sidewalk consists of square concrete posts with a heavy chain linking the posts above a lower wall that is stepped between posts as it continues up the slope to the bridge.

Major Bibliographic References:

Heideman, Eileen, Sharon Boswell, Brandy Rinck, Ann Sharley and Bob Krier

2015 Final Cultural Resources Assessment for the Yesler Way over Fourth Avenue South Bridge, Seattle Washington. SWCA Report Number 14-619, prepared for HDR Engineering, Inc., and the Seattle Department of Transportation. SWCA Environmental Consultants, Seattle, Washington.
Link, Karin Murr

2005 National Register of Historic Places Registration Form, Pioneer Square-Skid Road Historic District. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.

Photos

Courthouse tunnel, view to the southeast.
2013

Tunnel, view to the northwest.
2013

Tunnel, view to the west.
2013

Tunnel entrance drive and walls from garage door, view to the east.
2013

Tunnel opening, view to the west.
2013

Tunnel entrance walls and garage doors, view to the west.
2013

Tunnel entrance drive and walls, view to the west.
2013

Damage to tunnel entrance wall, view to the south.
2013

Stair leading to Yesler Way, view to the southwest.
2013

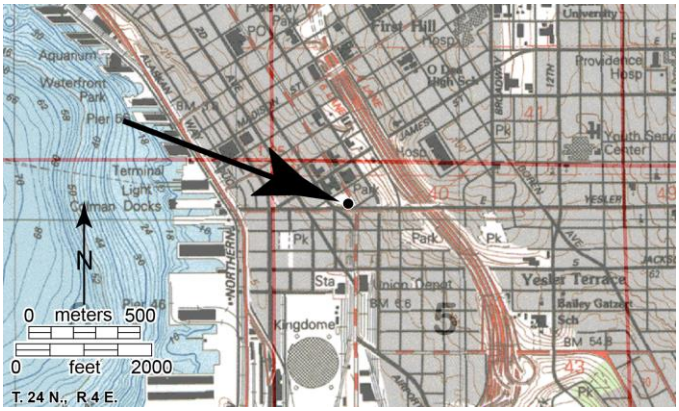
Stair leading to Yesler Way, view to the west.
2013

Cylindrical post above tunnel entrance.
2013

Tunnel entrance walls, view to the southeast.
2013

Detail of tunnel entrance walls, view to the northwest.
2013

Back side of stair leading to Yesler Way, view to the southeast.
2013



location.
2013

Historic Inventory Report

Location

Field Site No. 193 DAHP No. 17-06294

Historic Name: Yesler Way Bridge over Fourth Avenue

Common Name: Yesler Way over Fourth Avenue South Bridge

Property Address: Intersection of Yesler Way, Terrace Street, and 4th Avenue South, Seattle, WA 98104

Comments:

Tax No./Parcel No. N/A

Plat/Block/Lot N/A

Acreage 1

Supplemental Map(s)

Township/Range/EW	Section	1/4 Sec	1/4 1/4 Sec	County	Quadrangle
T24R04E	05	NW	NE	King	SEATTLE SOUTH

Coordinate Reference

Easting: 1189180

Northing: 832527

Projection: Washington State Plane South

Datum: HARN (feet)

Identification

Survey Name: Yesler Bridge Replacement Date Recorded: 12/08/2011

Field Recorder: Bob Krier, Eileen Heideman / SWCA

Owner's Name: City of Seattle

Owner Address: P.O. Box 94749

City: Seattle State: WA Zip: 98124

Classification: Structure

Resource Status:	Comments:
National Register	SHPO determined bridge eligible for NRHP 3/1/1984.

Within a District? Yes

Contributing? Yes

National Register: Pioneer Square--Skid Road Historic District (Including Boundary Increases)

Local District: Pioneer Square Preservation District, Internationa

National Register District/Thematic Nomination Name: Pioneer Square--Skid Road Historic District (Including Boundary Increases)

Eligibility Status: Not Determined - SHPO

Determination Date: 1/1/0001

Determination Comments:

Description

Historic Use: Transportation - Road-Related (vehicular)
Current Use: Transportation - Road-Related (vehicular)
Plan: Other
Stories: N/A
Structural System: Steel
Changes to Plan: Intact
Changes to Interior: Not Applicable
Changes to Original Cladding: Not Applicable
Changes to Windows: Not Applicable
Changes to Other: Not Applicable
Other (specify):

Style:	Cladding:	Roof Type:	Roof Material:
None	None	None	None

Foundation:	Form/Type:
Concrete - Poured	Bridge - Steel Girder

Narrative

Study Unit	Other
Transportation Science and Engineering	

Date of Construction: 1910 Built Date
Builder: C. J. Erickson Construction Company
Engineer: R. H. Thompson, City Engineer
Architect:

Property appears to meet criteria for the National Register of Historic Places: Yes
Property is located in a potential historic district (National and/or local): Yes - National
Property potentially contributes to a historic district (National and/or local): Yes

Statement of Significance:

The Yesler Way Bridge over Fourth Avenue in the heart of downtown Seattle was built during a time of significant change in both transportation and urban development. By 1910 when the span was completed, the city had grown from a small frontier outpost to a world-wide trade and distribution hub. Local government officials hoped to continue the progress by putting Seattle at the forefront of innovative movements in engineering and city planning and integrating its street and rail systems as a means of promoting further growth. The Yesler Way Bridge served not only as a symbol of new and more modern transportation options but also as a gateway to broader civic development.

The final design and plans for the Yesler Way Bridge appear to have been the joint effort of several engineers and draftsman within the Seattle Engineering Department as well as from outside firms. According to a letter written by City Engineer R.H. Thomson in early May of 1907, Assistant City Engineer D.W. McMorris may have originally proposed the bridge across Fourth Avenue, with Thomson following up with initial plans and specifications (Thomson to McMorris, May 4, 1907, in Local Improvement District [LID] 130-1-13120, Seattle Municipal Archives [SMA]).

In mid-June of 1909, Thomson forwarded 18 sheets of bridge plans to C.J. Erickson, the contractor, for the Fourth Avenue and Yesler Bridge. The basic specifications for the steel bridge had come from the American Railway Engineering and Maintenance of Right of Way Association, but the initial plans were drawn up in the City Engineer's office. It is not known what resemblance these 1909 drawings had to those Thomson had presented to Assistant City Engineer D.W. McMorris in 1907. The name of John A. Dunford, a 2nd grade draftsman in the department , was listed on the first sheets dealing with the basic plans for the bridge, primarily drawn up in May of 1909 (Thomson to Erickson, June 19, 1909, in LID 1310-1-1312; Bridge Plan I-A, Seattle Department of Transportation).

The more specific renderings of the girders, riveting plans and designs of abutments, piers and other miscellaneous details included the last names or initials of individuals who could not be identified in the roster of Seattle Engineering Department employees. There is no specific confirmation that "JWH," who was listed on the designs for the iron railings and other ornamental details, or "Miller", whose name was on many of the plans for the girders as well as the abutments and piers, worked for the City Engineer or for independent engineers hired to assist the city with the bridge design. Consulting engineer J. W. Bowerman of Bowerman and McCloy did provide an estimate of potential Yesler Way Bridge costs to Thomson in June 1909. McCloy's name appears as a reviewer of several of the plans, and Miller may be Harry F. Miller, a draftsman for Bowerman and McCloy firm (Bridge Plans, Seattle Department of Transportation; Estimate of 4th Avenue and Yesler Bridge, June 5, 1909; 2600-04, Reports of the City Engineer, Box 1, vol. 4; Polk 1910).

At the time that contractor C.H. Erickson was given these plans, the Seattle Electric Company and the City of Seattle were still negotiating over cost distribution, but it was already agreed that the bridge's steel work would be built as a whole to these specifications. Once the City made some modifications to the plans for the gravity retaining wall, Erickson was authorized to begin construction of the bridge retaining walls and foundation piers as quickly as possible in order to have them ready for the arrival of the steel (Thomson to Erickson, June 19, 1909, in LID 1310-1-1312, SMA).

A list of C.J. Erickson's sub-contractors for the bridge construction has not been found, but correspondence indicates that the Moran Company of Seattle provided the steel and fabricated the bridge, which was put in place by a separate erecting firm, Gordon, White and Company. The Moran Company was best known as a shipbuilder, but it also offered foundry services as well as engineering, boilermaking, coppersmithing, galvanizing and sawmilling. Company president J.V. Paterson served as the liaison with the Engineering Department for the Yesler Bridge, which required more than 358,000 pounds of steel. The Moran Company also constructed the two steel stairways from Yesler Way to Fourth Avenue and Terrace Street as called for in the project specifications (Thomson to Patterson, May 10, 1910; Agreement of January 15, 1910, Thomson to Paterson, May 18, 1910; Paterson to George, Sept. 15, 1910, in LID 1310-1-1312-sheet 3 microfiche, SMA).

As construction on the bridge continued into 1910, Thomson tried to expedite the process by petitioning the mayor to allow crews to work on Sundays as an emergency measure for "public safety and convenience" (Thomson to John H. Miller, Feb. 11, 19, 1910, in LID 1310-1-1312-sheet 3 microfiche, SMA).

The construction of two steel stairways to Yesler and Terrace were part of the original specifications. A suspended sidewalk was also added to the Grand Union Hotel, which was located on Fourth Avenue along the southeast corner of the bridge. Contractors for the hotel installed steel columns with the necessary brackets to anchor it in place along the side of the hotel and the bridge. Moran Company was asked to provide a supplemental bid for manufacturing the stairway and railing for the project. Their quotation was accepted, and the company finished this addition by September of 1910 (D.W. McMorris to John Cannon, July 29, 1909, in LID 1310-1-1312, SMA; D.W. McMorris to C.B. George, Jan. 11, 1910, in LID 1310-1-1312-sheet 3 microfiche, SMA).

Other final construction details were completed in late June and July of 1910. The City Engineer's assistant, D.W. McMorris, suggested the bridge's color scheme to Thomson, who agreed to the choice. The final coat of paint on the exposed steel was shade No. 39, which was a dark olive in the color palette. Shade 49, called Ecru, was chosen for the underside of the bridge to maximize the light (McMorris to Thomson, June 2, 1910, in LID 1310-1-1312-sheet 3 microfiche, SMA). Erickson was also asked to finish several other tasks, which included painting the railing and using cement to fill the gap between the stairway and landing built along the Grand Union Hotel (also referred to as the Cannon Building for its owner, John Cannon). The contractor was also asked to repair leaks in the east wall by chipping out bad concrete and filling with a fairly dry mixture of cement and sand. Thomson issued the final acceptance of the bridge in early August of 1910 (Thomson to Erickson, July 23, 1910, in LID 1310-1-1312-sheet 3 microfiche, SMA).

The project specifications listed iron railing in the section with bulkheads and retaining walls, and its use was to be shown on plans or under the direction of the City Engineer. Bids for the railing were to be based on a price per linear foot that would include furnishing all necessary ironwork, installing it in a concrete base and then painting it with two coats of enamel paint in a color to be determined by the City Engineer. The city estimated the need for over 13,000 pounds of cast iron, with the winning bid at seven cents per pound (City of Seattle-Department of Public Works, Specifications for the Improvement of Fourth Ave, et al., Feb 9, 1907; Contract for Local Improvement, Nov. 28, 1906, LID 1310-1-1312, specs-2, SMA).

The iron railing that extended along either side of the Yesler Bridge over Fourth as detailed on Plan 4-18 was similar in pattern to the railing that was added to the stairways that led from the bridge as drawn in Plan 18-18 and subsequent revisions. This railing design replicated the iron railing that extended along the west side of Fourth Avenue south as it crossed both Washington and Main Streets. In this area the Great Northern Railway tunnel had recently been completed, and the railing provided a barrier between the concrete sidewalks on Fourth and the long, open entry to the tunnel. The south portal of the tunnel was located at Washington Street and tracks extended at grade from the new station at King Street to that point. The same railing was also used on Washington Street as it continued over the portal and on the South Main Street Bridge that crossed the tunnel access. In addition, the railing ran along Jackson Street south of Fourth Avenue near the station.

It is not currently known whether this railing was installed when the Great Northern tunnel project and the depot construction were completed around 1906 or whether it was added by the city as the Fourth Avenue regrade project came to a close in 1909. In either case, the railing provided a unifying element along Fourth Avenue, linking the city's new south-end transportation hub with its government and commercial districts to the north. City engineers apparently made a conscious effort to include the same design element on the Yesler Way Bridge, which was a steel span based on railroad designs and highly visible to traffic moving north into the city on Fourth Avenue as well as streetcar users heading to eastern residential suburbs.

The Moran Company provided the railing for the stairways and platforms connected to the Yesler Way Bridge, although it is not known whether they manufactured it themselves or contracted with another ironworking facility. A year later, however, the city purchased from the Great Northern Railroad a small piece of land on the southwest side of Washington Street near the tunnel portal. At that time, the City Engineer authorized Artistic Ornamental Iron and Wire Works of Seattle to reconstruct the iron fence and manufacture additional railing of the same design to be added along this property where it fronted Washington Street (Thomson to Artistic Ornamental Iron and Wire Works, Mar. 23, 1911, in 2608-01, LID Letterpress Books, Box 4, Book 31:23).

Some additional elements of the Fourth Avenue and Yesler Way bridge construction efforts were included in other projects. A contract for paving Fourth Avenue from Washington to Madison was let in early 1909 as part of a separate Local Improvement District. The replanking of parts of Yesler Way outside of the bridge deck as well as the regrade of other portions was carried out in 1908 and 1909. In addition, the City installed a series of cluster lights designed by the Engineering Department on a number of streets, including Prefontaine Place from Yesler Way to Washington in 1909 (Thomson to Erickson, Jan. 25, 1909, LID 1310-1-1312, microfiche, SMA; Board of Public Works, March 2, 1907; Thomson to Board of Public Works, Jan. 5, 1909 in 2608-01, Engineering Department, Local Improvement Letterpress Books, Box 1). The original 1909 bridge plans specified, in addition to the railings, cast iron decorative elements on some of the bridge piers. Despite these features, the Seattle Times reported in October of 1915 that the City Engineer at the time, A.W. Dimock, planned to increase the ornamentation on the Yesler Way over Fourth Avenue Bridge. According to the article:

Many complaints have been made of the appearance of this bridge, poorly lighted and without ornamentation, and the further use of the entrance to the city hall for the storage of garbage cans and other refuse and the use of the space under the sidewalk approaches from Fourth Avenue for the storage of tools used by the street and park departments.

Poor Impression

Property owners on Fourth Avenue are the principal complainants and they claim that inasmuch as more than half a million people arrive in Seattle through the railway station each year, they should be given a better impression of the city than is now possible if the Yesler Way bridge, crossing the principal street leading from the railway stations, was properly lighted and needed repairs made where the concrete has broken away from the steel supports (Seattle Times, Oct. 14, 1915:14).

At the time, City Engineer Dimock promised that needed upgrades would be made to the bridge in conjunction with the construction of a tunnel to the new County-City Building and improvements to City Hall Park, which abutted both Fourth Avenue and Yesler Way to the northwest of the bridge. No plans for any of the changes to the bridge during this era have been located. The ornamental lighting fixtures that currently hang from the structure were not detailed in the original plans and may have been additions made by Dimock. As part of the tunnel project, however, a new brick staircase and wall with bandings of red tile were added to replace the original metal staircase from the Yesler Bridge to Terrace Avenue (Courtois 1983:2).

The Yesler Way over 4th Avenue South Bridge was determined eligible for the NRHP in 1984, and has retained integrity of location, design, setting, materials, workmanship, feeling and association.

Description of Physical Appearance:

This bridge carries Yesler Way and the west end of Terrace Street over 4th Avenue South. It is located at the east edge of the Pioneer Square neighborhood at the south end of downtown Seattle.

Superstructure

The superstructure of the bridge consists of steel, riveted, fabricated built-up plate girders. It is referred to as a deck girder bridge where the floor system rests on the top of the flanges of the girders as opposed to a through girder bridge where the deck is located between the girders, and the girders extend above the roadway surface. This type of structure was developed by the railroads in the mid-nineteenth century and began its use on highways at about the beginning of the twentieth century (Parsons Brinkerhoff and Engineering and Industrial Heritage 2005). Archival research indicates that this bridge is the earliest of its type built by the city and is also one of very few remaining structures of this kind in Seattle. The metal used in the structural components is not specified on the plans, but it is assumed to be steel as opposed to wrought iron.

The bridge consists of 21 lines of girders. The span lengths vary due to the skewed alignment of the piers and abutments to accommodate the Fourth Avenue curvature and the Terrace Street alignment. For the center main span the length varies from approximately 52 feet 6 inches to 56 feet 6 inches and consists of the fabricated built-up plate girders. They vary in depth from approximately 2.5 feet to 4.0 feet. For the two end spans the lengths vary from approximately 10 feet to 17 feet and consist of standard, rolled, steel I-beams, partially encased in concrete. They vary in depth from 12 to 18 inches. The spans do not integrate structurally with each other; that is, they are considered simply supported and not continuous. Each girder is designed on the basis of its own span length. The center (main span) girders are supported at each end by attachments to the steel beams that extend between the columns. The I-beams of the end spans are supported at one end by attachment to the steel beam between the columns and at the other end by the abutments.

The steel girders for these types of bridges with the short span lengths were commonly fabricated and riveted completely in the shop, under ideal working conditions and resulted in accurate measurements and quality control. While the fabrication was underway, the on-site construction of the footings, columns and abutments was taking place. The completely finished girders at the shop were then transported to the site to be erected on the columns and abutments.

The top flanges of the girders are embedded in a 7 inch thick concrete slab, reinforced with wire mesh. The slab is then overlaid with a layer of 1/8 inch waterproofing, another 1-1/2 inch layer of concrete topped with a 1-1/2 inch sand cushion and then paved with 6 inch thick setts. The roadway deck consists of granite setts, which are quarried rectangular blocks that were laid in a pre-determined, as opposed to a random pattern. The roadway has since been resurfaced with an asphalt overlay. The original design plans specified sandstone blocks, but construction records indicate that a change order was made to use granite blocks instead of sandstone. Some of these setts are visible on the Terrace Street portion of the bridge.

Substructure

The east abutment consists of two gravity walls, one each to support the alignment of the Terrace Street I-beams and the other for the Yesler Way I-beams. A tunnel opening between the walls was provided for vehicular access from 4th Avenue into the areaways surrounding the Yesler Building. The original design plans are lacking details of the opening and the overhead support system for the bridge girders. The on-site review of the gravity wall, both inside and outside of the Yesler Building, provided a visual observation of this feature.

The gravity type abutment wall is a rather elementary, structural type of foundation that provides vertical support for the bridge I-beams and lateral stability for the mass of soil behind the wall. The width at the bottom is 14 feet and the height approximately 30 feet. The thickness of the wall is decreased gradually through a progression of steps, starting at the bottom, until it is two feet thick at the top. It relies on its own weight and the weight of the soil bearing on the horizontal steps for its stability. No reinforcement is necessary except usually a nominal number of reinforcing bars are placed near the exposed faces to prevent surface cracking due to temperature changes and shrinkage of the concrete. The design plans did not show any reinforcing steel for these walls. These types of walls are generally less expensive to construct and mostly used on smaller bridges. A visual appearance on the southeast exposed vertical face seen when standing on 4th Avenue shows the outline, described above, of the progression of the steps on the backside of the wall.

The west abutment is a continuous wall from end to end. It is structurally referred to as a cantilever wall as opposed to the east abutment being a gravity wall. Like the east abutment it provides vertical support for the bridge I-beams and lateral stability for the mass of soil behind the wall. However, it consists of a concrete stem (wall) and a concrete base slab, both relatively thin and fully reinforced to resist the moments and shears to which they are subjected. A standard detail is given on the design plan of the wall with a structural formulation for determining the dimensions of the wall for the varying heights.

The intermediate piers each consist of six riveted fabricated built-up steel columns varying in length from 18 feet to 27 feet. Like the girders, the columns are fabricated in a shop and arrive at the site ready for erection. A special steel base is fabricated for each column consisting of steel plates and stiffeners to form a grillage to distribute the heavy column loads to the concrete foundations. Each column is supported by an individual concrete footing. Four of the columns on the east side have a tapered footing that is three feet in height and either 7.5 or 6.5 feet square at the base. The other two columns and all six of the columns at the west side each bear on a concrete tapered shaft that extends approximately 12 to 16 feet below the ground surface, and is either 4.5 or 5.0 feet square at the bottom. The design plans do not show any steel reinforcement for the footings or the shafts.

An interesting structural feature at the west pier is that the concrete shafts are bearing on a raft foundation that covers the entire length beneath the columns. It is 6.0 feet wide, 2.0 feet deep and approximately 85 feet long. It is similar to a reinforced-concrete continuous flat slab, and the reinforcement is shown on the design plans.

The original structural components appear to remain in the as-built configuration. It is not clear at this time which of the changes occurred during the renovation project that took place in 1975. It was observed there were utility additions, such as electrical conduits, lighting, and drainage that are not shown on the original design plans. Also, a heavy, steel tubular traffic barrier was added along both curbs for the length of the bridge. Stairways at the NW, NE and SE corners of the bridge have been removed. An asphalt overlay of the original deck was added at some unknown date. Spalls in the overlay, observed during the on-site review, revealed the granite setts. The original plans do not show the details for the expansion joints at each end of the bridge. It is assumed the current, elastic material in the joints is not the original. Due to the asphalt overlay it was not possible to confirm whether the cable car tracks, shown on the design plans, have been removed along with the hardware associated with its operation.

Design Features and Ornamentation

This bridge contains unusual design features and ornamental embellishments that are exceptional enhancements to the visual appearance of the structure. The soffits of the fascia girders were provided with a combination of circular and parabolic curvatures. The four-foot-high unique railing was apparently developed as a standard for the structures within the Pioneer Square area, and can be seen on other structures in the general vicinity. The lower portion of the railing is composed of steel flat bars, 2 x ¼ inches and 1 x ¼ inches, arranged in a crisscross or lattice type configuration. The upper portion is composed of steel angles, 1 x 1 x ¼ inches combined in a unique configuration to form architectural Gothic Arches. The four exterior columns were outfitted with cast iron ornamental castings for the capitals and casings for the vertical surfaces of the columns to cover the I-shape of the rolled steel sections.

As a class, these types of structures generally do not possess aesthetic significance, and their embellishments, if present at all, are usually limited to simple geometric designs to break up the visual mass of the solid vertical surface. However, the Yesler Bridge over 4th Avenue displays unique design elements that include the railing, the parabolic and circular embellishments of the fascia girders, and the ornamental capitals and casings of the columns, all of which demonstrate a high regard for the artistic importance of the setting by the designer. The integrity of the structure has been maintained and does represent an example of one method of bridge construction used in the early development of Seattle. It also appears that many of the stone setts are still intact under the asphalt overlay. Perhaps most importantly, research indicates that this structure may have been the first permanent steel roadway bridge constructed by the city.

Major Bibliographic References:

Courtois, Shirley

1983 Historic Property Inventory Form, Yesler Way Bridge over Fourth Avenue. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.
Heideman, Eileen, Sharon Boswell, Brandy Rinck, Ann Sharley and Bob Krier

2015 Final Cultural Resources Assessment for the Yesler Way over Fourth Avenue South Bridge, Seattle Washington. SWCA Report Number 14-619, prepared for HDR Engineering, Inc., and the Seattle Department of Transportation. SWCA Environmental Consultants, Seattle, Washington.

Link, Karin Murr

2005 National Register of Historic Places Registration Form, Pioneer Square-Skid Road Historic District. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.
Parsons Brinkerhoff and Engineering and Industrial Heritage

2005 A Context for Common Historic Bridge Types. NCHRP Project 25-25, Task 15, prepared for The National Cooperative Highway Research Program, Transportation Research Council, National Research Council.

Photos

South side of bridge, view to the northeast.
2013

South side of bridge, view to the northeast.
2013

South side of the bridge, view to the northwest.
2013

South side and underside of bridge, view to the northwest.
2013

Bridge girders and east gravity walls looking into Old City Hall/Public Safety Building areaway, view to the east.
2013

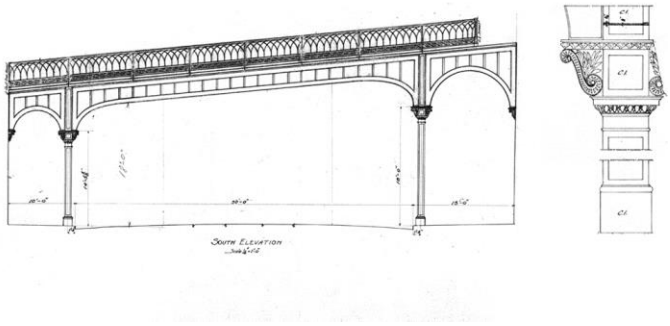
East gravity wall (center of photo), view to the north.
2013

South sidewalk, view to the west.
2013

Section of rail at former location of northeast stairway, view to the northwest.
2013

West expansion joint and granite setts, view to the southeast.
2013

Closer view of granite setts.
2013



Detail of bridge plans.
2013

image use courtesy of Seattle Municipal Archives
Bridge following construction of County-City Building tunnel.
2013

Seattle Municipal Archives, image no. 11934.
Bridge and north staircases, ca. 1915
2013

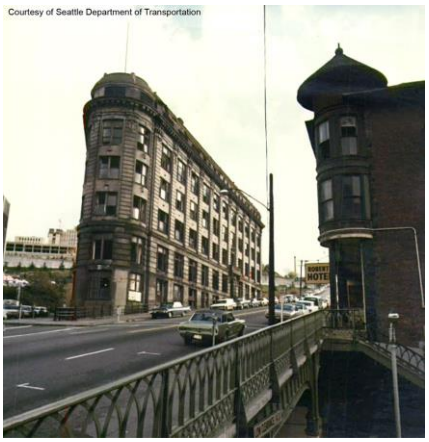
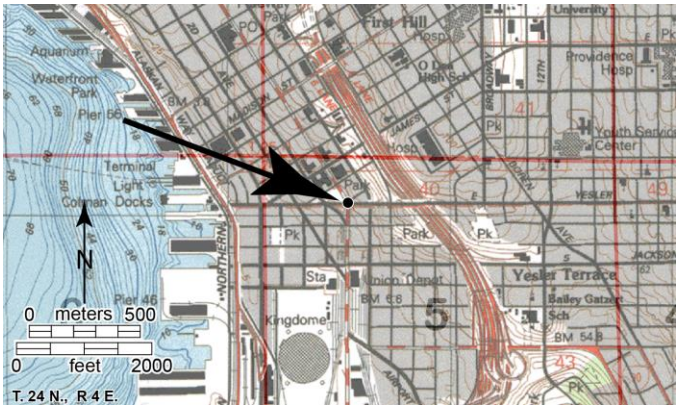


image use courtesy Seattle Department of Transportation.
Bridge in the 1970s, showing Roberts Hotel and southeast staircase on right side of image.
2013



location.
2013

Historic Inventory Report

Location

Field Site No. 195 DAHP No.

Historic Name: Great Northern Railway Tunnel

Common Name: Great Northern Railway Tunnel

Property Address: SW corner of 4th Avenue South and South Washington Street, Seattle, WA 98104

Comments:

Tax No./Parcel No. 524780-1095 (south portal)

Plat/Block/Lot Maynards D S Plat, Block 18, Lots 5-8 (south portal)

Acreage Unknown

Supplemental Map(s)

Township/Range/EW	Section	1/4 Sec	1/4 1/4 Sec	County	Quadrangle
T24R04E	05	NW		King	SEATTLE SOUTH

Coordinate Reference

Easting: 1189127

Northing: 832127

Projection: Washington State Plane South

Datum: HARN (feet)

Identification

Survey Name: Yesler Bridge Replacement Date Recorded: 05/20/2013

Field Recorder: Eileen Heideman / SWCA

Owner's Name: Burlington Northern Santa Fe Railway Company

Owner Address: 2650 Lour Menk Drive

City: Fort Worth State: TX Zip: 76131

Classification: Structure

Resource Status: Comments:
National Register

Within a District? Yes

Contributing? Yes

National Register:

Local District: Pioneer Square Preservation District (City of Seat

National Register District/Thematic Nomination Name: Pioneer Square--Skid Road Historic District (Including Boundary Increases)

Eligibility Status: Not Determined - SHPO

Determination Date: 1/1/0001

Determination Comments:

Description

Historic Use: Transportation - Rail-Related
Current Use: Transportation - Rail-Related
Plan: Other
Stories: 1
Structural System: Concrete - Reinforced Concrete
Changes to Plan: Intact
Changes to Interior: Unknown
Changes to Original Cladding: Not Applicable
Changes to Windows: Not Applicable
Changes to Other: Not Applicable
Other (specify):

Style:	Cladding:	Roof Type:	Roof Material:
None	None	Other	Other

Foundation:	Form/Type:
Concrete - Poured	Utilitarian

Narrative

Study Unit	Other
Transportation Science and Engineering	

Date of Construction: 1904 Built Date
Builder: Great Northern Railway Company
Engineer: Great Northern Railway Company
Architect:

Property appears to meet criteria for the National Register of Historic Places:Yes
Property is located in a potential historic district (National and/or local): Yes - National
Property potentially contributes to a historic district (National and/or local): Yes

Statement of Significance:	This tunnel was built at the suggestion of City Engineer Thomson, who was concerned about the uncoordinated development of Great Northern and Northern Pacific facilities in Seattle. He suggested that the railroads work together to build a tunnel underneath the city, and he was able to convince James J. Hill that it was a viable alternative. In 1903 the Great Northern in partnership with the Northern Pacific broke ground on a mile-long tunnel and with more than 600 men working two shifts, the excavation proceeded rapidly. The south portal was located near Washington Street between Third and Fourth Avenues and two parallel tracks extended under Fourth Avenue to Spring Street, where it then headed to the west and intersected what is now Alaskan Way north of Stewart. Builders bored from 27 feet to as much as 125 feet below ground, creating a tunnel that was fifty feet wide. Soils that were removed during the excavation were loaded on a small, narrow-gauge electric railroad and carried to the depot site or the Railroad Avenue trestle for use as fill. Work was completed in 1905 and the new tunnel allowed rail traffic to move in and out of the city without adding to the already heavy congestion along Seattle's waterfront (Andrews 2005: 72; Armbruster 1999:223-224; Beaton 1914:57; Phelps 1978: 73). The tunnel was determined eligible for the NRHP in 1983 and the portal is a contributing feature in the Pioneer Square-Skid Road Historic District (Courtois 1983; Link 2005). Although the tunnel itself could not be accessed to assess its integrity, the portal retains its integrity of location, design, setting, materials, workmanship, feeling and association.
Description of Physical Appearance:	The Great Northern Railway tunnel entrance is located just south of South Washington Street on the west side of 4th Avenue South. The tunnel has an arched portal and is constructed of reinforced concrete. The portal is flanked with square concrete pillars with pyramidal caps and a decorative keystone is located at the top of the arch. A plain frieze over the portal has the date of 1904 in raised numerals. The tunnel contains two tracks and crosses the length of downtown Seattle, emerging under the Alaskan Way Viaduct west of the foot of Stewart Street. The tunnel portal is visible from above from Washington Street and south along 4th Avenue, but the tunnel is actively used by freight and passenger trains and was not accessible due to safety concerns and trespassing issues.

Major Bibliographic References:

Andrews, Mildred (editor)

2005 Pioneer Square Seattle's Oldest Neighborhood. University of Washington Press, Seattle, Washington.

Armbruster, K. E.

1999 Orphan Road: The Railroad Comes to Seattle, 1835-1911. Washington State University Press, Pullman, Washington.

Beaton, Welford

1914 The City That Made Itself. Terminal Publishing Company, Seattle, Washington.

Courtois, Shirley

1983 Historic Property Inventory Form, 45KI809, Great Northern RR Tunnel. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.

Heideman, Eileen, Sharon Boswell, Brandy Rinck, Ann Sharley and Bob Krier

2015 Final Cultural Resources Assessment for the Yesler Way over Fourth Avenue South Bridge, Seattle Washington. SWCA Report Number 14-619, prepared for HDR Engineering, Inc., and the Seattle Department of Transportation. SWCA Environmental Consultants, Seattle, Washington.

Link, Karin Murr

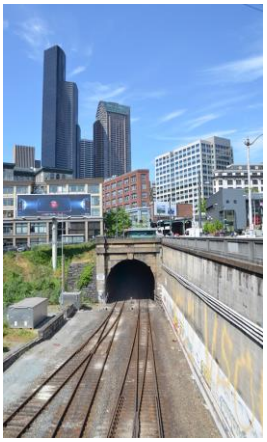
2005 National Register of Historic Places Registration Form, Pioneer Square-Skid Road Historic District. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.

Phelps, Myra

1978 Public Works in Seattle, A Narrative History: The Engineering Department, 1875-1975. Seattle Engineering Department, Seattle, Washington.

Photos

Rail lines and tunnel portal, view to the northeast.
2013

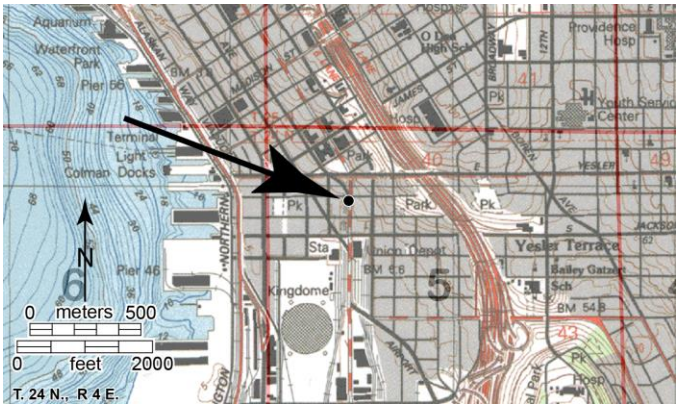


Tunnel portal, view to the north.
2013

Closer view of tunnel portal, view to the north.
2013

View from above tunnel portal to Union and King Street Stations, view to the south.
2013

UW Libraries, Special Collections Division, A. Curtis, Neg. 04387.
Construction of tunnel at south portal, ca. 1904.
2013



location.
2013

Historic Inventory Report

Location

Field Site No. 171A

DAHP No.

Historic Name: Frye Hotel Areaways

Common Name: Frye Apartments Areaways

Property Address: 223 Yesler Way, Seattle, WA 98104

Comments:

Tax No./Parcel No. 524780-1000

Plat/Block/Lot Maynards D S Plat, Block 16, Lots 6-8

Acreage 0.5

Supplemental Map(s)

Township/Range/EW	Section	1/4 Sec	1/4 1/4 Sec	County	Quadrangle
T24R04E	05	NW	NW	King	SEATTLE SOUTH

Coordinate Reference

Easting: 1188774

Northing: 832487

Projection: Washington State Plane South

Datum: HARN (feet)

Identification

Survey Name: Yesler Bridge Replacement

Date Recorded: 05/20/2013

Field Recorder: Eileen Heideman / SWCA

Owner's Name: Low Income Housing Institute

Owner Address: 2407 First Avenue

City: Seattle State: WA Zip: 98121

Classification: Structure

Resource Status:	Comments:
Federal Investment Tax Credit Property	certified 04/28/2000
National Register	Frye Hotel is contributing building in historic district.

Within a District? Yes

Contributing? Yes

National Register: Pioneer Square--Skid Road Historic District (Including Boundary Increases)

Local District: Pioneer Square Preservation District (City of Seat

National Register District/Thematic Nomination Name: Pioneer Square--Skid Road Historic District (Including Boundary Increases)

Eligibility Status: Not Determined - SHPO

Determination Date: 1/1/0001

Determination Comments:

Description

Historic Use: Domestic - Hotel

Current Use: Domestic - Multiple Family House

Plan: L-Shape

Stories: 1

Structural System: Concrete - Reinforced Concrete

Changes to Plan: Intact

Changes to Interior: Intact

Changes to Original Cladding: Not Applicable

Changes to Windows: Not Applicable

Changes to Other: Not Applicable

Other (specify):

Style:	Cladding:	Roof Type:	Roof Material:
None	None	Other	Other

Foundation:	Form/Type:
Concrete - Poured	Utilitarian

Narrative

Study Unit	Other
Science and Engineering	

Date of Construction: 1908 Built Date

Builder: Unknown

Engineer: Unknown

Architect:

Property appears to meet criteria for the National Register of Historic Places:No

Property is located in a potential historic district (National and/or local): Yes - National

Property potentially contributes to a historic district (National and/or local): Yes

Statement of Significance: The prominent Bebb and Mendel architectural firm designed the Frye Hotel for entrepreneur Charles Frye, who made his fortune in the meat packing industry. Mr. Frye subsequently contracted with Hans Pederson for construction work, and the building was completed in 1908. The hotel was one of the tallest steel frame buildings in Seattle, as well as a notable example of the Beaux Arts architectural style (Link 2005:7-268, 269). While the construction date for the building's areaway is not known, the feature was probably built around the same time as the building.
This areaway has lost integrity of design, materials and workmanship due to the removal of a large number of prism lights. The Frye Hotel areaway is recommended not eligible for the NRHP.

Description of Physical Appearance:	The Frye Hotel has a single areaway that extends the full width of the building's north side and extends a short distance around the northeast corner of the building. This areaway contains three prism light panels on the east side of the northeast corner that have been mostly covered with a smear of cement, presumably to serve as makeshift waterproofing due to cracks or leaks in the lights. These panels are placed adjacent to each other, separated only by reinforced concrete structural supports for the sidewalk. The prisms appear from underneath to be largely intact, aside from the cement layer covering them. A rectangular section of sidewalk immediately north of these three prism lights indicates that a fourth panel was removed from this location. Several long, rectangular sections of similar width are located along the north side of the building, indicating that these areas once contained a large number of prism light panels that have been removed.
Major Bibliographic References:	Heideman, Eileen, Sharon Boswell, Brandy Rinck, Ann Sharley and Bob Krier 2015 Final Cultural Resources Assessment for the Yesler Way over Fourth Avenue South Bridge, Seattle Washington. SWCA Report Number 14-619, prepared for HDR Engineering, Inc., and the Seattle Department of Transportation. SWCA Environmental Consultants, Seattle, Washington. Link, Karin Murr 2005 National Register of Historic Places Registration Form, Pioneer Square-Skid Road Historic District. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.

Photos

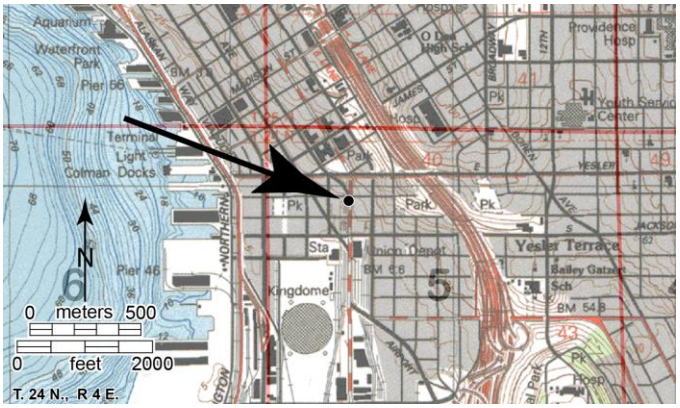
Cement over prism light panels at northeast corner of building, view to the south-southwest.
2013

Underside of prism lights from areaway, view to the east.
2013

North areaway, showing possible former locations of prism panels.
2013

North areaway with Yesler street wall on right, view to the west.
2013

North sidewalk over areaway, showing location where prism light panels may have been placed.
2013



location.
2013

Historic Inventory Report

Location

Field Site No. 184A

DAHP No.

Historic Name: Tashiro Building Areaways

Common Name: Tashiro-Kaplan Building Areaways

Property Address: 101 Prefontaine Pl S, Seattle, WA 98104

Comments:

Tax No./Parcel No. 856660-0000

Plat/Block/Lot Tashiro-Kaplan Building

Acreage 0.57

Supplemental Map(s)

Township/Range/EW	Section	1/4 Sec	1/4 1/4 Sec	County	Quadrangle
T24R04E	05	NW	NW	King	SEATTLE SOUTH

Coordinate Reference

Easting: 1188967

Northing: 832391

Projection: Washington State Plane South

Datum: HARN (feet)

Identification

Survey Name: Yesler Bridge Replacement

Date Recorded: 05/20/2013

Field Recorder: Eileen Heideman / SWCA

Owner's Name: Tashiro-Kaplan Building

Owner Address: 101 Prefontaine Place South

City: Seattle State: WA Zip: 98104

Classification: Structure

Resource Status:	Comments:
National Register	Tashiro Building is contributing element of historic district.

Within a District? Yes

Contributing? Yes

National Register: Pioneer Square--Skid Road Historic District (Including Boundary Increases)

Local District: Pioneer Square Preservation District (City of Seat

National Register District/Thematic Nomination Name: Pioneer Square--Skid Road Historic District (Including Boundary Increases)

Eligibility Status: Not Determined - SHPO

Determination Date: 1/1/0001

Determination Comments:

Description

Historic Use: Commerce/Trade - Business
Current Use: Commerce/Trade - Business
Plan: Other
Stories: 1
Structural System: Concrete - Reinforced Concrete
Changes to Plan: Intact
Changes to Interior: Intact
Changes to Original Cladding: Not Applicable
Changes to Windows: Not Applicable
Changes to Other: Not Applicable
Other (specify):

Style:	Cladding:	Roof Type:	Roof Material:
None	None	Other	Other

Foundation:	Form/Type:
Concrete - Poured	Utilitarian

Narrative

Study Unit
Science and Engineering

Other

Date of Construction: 1908 Built Date

Builder: Unknown
Engineer: Unknown
Architect:

Property appears to meet criteria for the National Register of Historic Places:No

Property is located in a potential historic district (National and/or local): Yes - National

Property potentially contributes to a historic district (National and/or local): Yes

Statement of Significance: This parcel was originally deemed unbuildable due to the presence of the Great Northern Railway Tunnel directly beneath it. Within a few years, however, the parcel was developed: the present building, a typical utilitarian commercial structure, was completed in 1908. Although earlier building tenants are not known, the Tashiro Hardware Company occupied the structure from 1919 into the 1980s, a store that offered, among other things, Japanese tools and served as a center for the surrounding community (Link 2005:7-268, 269). Although construction dates for the building's areaways have not been located, these features were probably built around the same time as the building.
The replacement of sidewalks and removal of prism light panels, as well as the filling of the west areaway has caused loss of integrity of design, materials, workmanship, feeling and association. The remaining areaway is recommended not eligible for the NRHP due to loss of integrity.

Description of Physical Appearance:	The Tashiro Building was constructed with areaways under sidewalks on the northeast and west sides of the building, opening directly into the basement for use as an extension of that space. The west areaway has been filled in, but the northeast areaway is still accessible via an interior stairway and side entrance. The sidewalk above the areaway on the northeast side of the building has been rebuilt and any original prism light panels located here have been removed. Two prism light panels are located in the new sidewalk on this side of the building, but these are modern reproductions that were placed here ca.2005 (Doug Vann, personal communication May 20, 2013).
Major Bibliographic References:	Heideman, Eileen, Sharon Boswell, Brandy Rinck, Ann Sharley and Bob Krier 2015 Final Cultural Resources Assessment for the Yesler Way over Fourth Avenue South Bridge, Seattle Washington. SWCA Report Number 14-619, prepared for HDR Engineering, Inc., and the Seattle Department of Transportation. SWCA Environmental Consultants, Seattle, Washington. Link, Karin Murr 2005 National Register of Historic Places Registration Form, Pioneer Square-Skid Road Historic District. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.

Photos

Modern prism light panel at southeast end of Tashiro building areaway.
2013

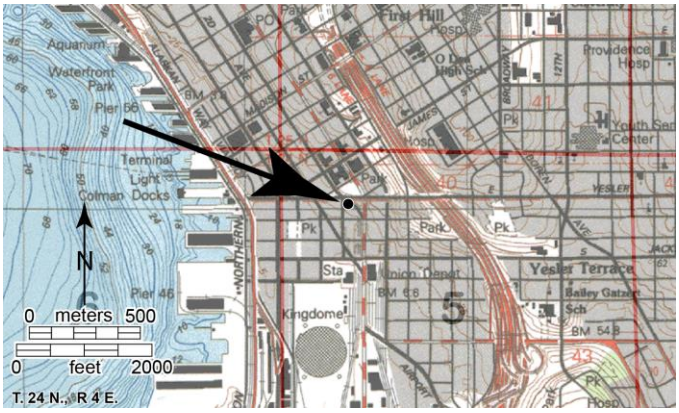
Modern prism light panel at north corner of Tashiro Building, view to the southeast.
2013

Sidewalk replacement above filled areaway on west side of building, view to the south.
2013

Underside of sidewalk, east northeast areaway.
2013

Northeast areaway with modern supports for sidewalk.
2013

Northeast areaway and sidewalk bracing with Prefontaine Place street wall to right, view to the northwest.
2013



location.
2013

Historic Inventory Report

Location

Field Site No. 204A

DAHP No.

Historic Name: Old City Hall/Public Safety Building Areaways

Common Name: Old City Hall/Public Safety Building Areaways

Property Address: 400 Yesler Way, Seattle, WA 98104

Comments:

Tax No./Parcel No. 094200-1150

Plat/Block/Lot Borens C D Add, Block 39, All Lots

Acreage 0.37

Supplemental Map(s)

Township/Range/EW	Section	1/4 Sec	1/4 1/4 Sec	County	Quadrangle
T24R04E	05	NW	NE	King	SEATTLE SOUTH

Coordinate Reference

Easting: 1189282

Northing: 832538

Projection: Washington State Plane South

Datum: HARN (feet)

Identification

Survey Name: Yesler Bridge Replacement

Date Recorded: 03/15/2013

Field Recorder: Eileen Heideman, SWCA Architectural Historian

Owner's Name: King County Property Services

Owner Address: 500 Fourth Avenue, Suite 830

City: Seattle State: WA Zip: 98104

Classification: Structure

Resource Status:	Comments:
Federal Investment Tax Credit Property	certified 11/14/1978
National Register	Old City Hall/Public Safety building is contributing element in historic district.

Within a District? Yes

Contributing? Yes

National Register: Pioneer Square--Skid Road Historic District (Including Boundary Increases)

Local District: Pioneer Square Preservation District (City of Seat

National Register District/Thematic Nomination Name: Pioneer Square--Skid Road Historic District (Including Boundary Increases)

Eligibility Status: Not Determined - SHPO

Determination Date: 1/1/0001

Determination Comments:

Description

Historic Use: Government - City Hall

Current Use: Government - Government Office

Plan: U-Shape

Stories: 1

Structural System: Concrete - Reinforced Concrete

Changes to Plan: Intact

Changes to Interior: Intact

Changes to Original Cladding: Not Applicable

Changes to Windows: Not Applicable

Changes to Other: Not Applicable

Other (specify):

Style:	Cladding:	Roof Type:	Roof Material:
None	None	Other	Other

Foundation:	Form/Type:
Concrete - Poured	Utilitarian

Narrative

Study Unit	Other
Science and Engineering	

Date of Construction: 1909 Built Date

Builder: Unknown

Engineer: Unknown

Architect:

Property appears to meet criteria for the National Register of Historic Places:No

Property is located in a potential historic district (National and/or local): Yes - National

Property potentially contributes to a historic district (National and/or local): Yes

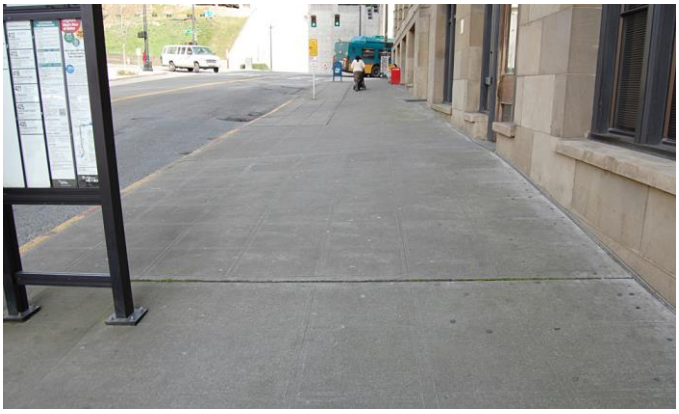
Statement of Significance:

The Old City Hall, completed in 1909, was constructed to house the City of Seattle municipal offices. The building was designed ca. 1906 by Clayton Wilson, an independent architect selected competitively for the City contract. Although the City of Seattle had its own architectural staff, the contract was put out for bid following an episode of unspecified discord between the City architectural group and a local chapter of the American Institute of Architects. The building, as designed by Wilson, was apparently a “more carefully rendered version” of an earlier design produced by the City Assistant Building Inspector (Link 2005:7-278, 279). Although construction dates for the building areaways are unknown, these features were probably built around the same time as the building.

Although the areaway at the 4th Avenue South level is fairly intact, the areaways immediately below the sidewalks have undergone numerous alterations. Due to the replacement of the sidewalks and numerous walls and infill in the areaways, these resources have lost their integrity of design, materials and workmanship and are therefore recommended not eligible for the NRHP.

Description of Physical Appearance:	The areaways around the City Hall/Public Safety Building are located on three levels. The lowest is at street level for 4th Avenue South, with areaway access via a garage door opening directly to the street underneath the Yesler Way bridge. This portion of the areaway has tall ceilings, a sloping floor, and is wide enough to admit a vehicle into the area closest to the street entrance. The areaway splits around the western tip of Old City Hall, and the coursed ashlar rubbed stone wall can be seen behind two reinforced concrete support columns. The areaway connects directly to the lowest basement level of the building immediately to the east of this area: the upper floors are partially supported by reinforced concrete columns with open space between to allow this access. Steel stairs located west of the building foundation provide access to the next level, a mezzanine level that includes a room overlooking 4th Avenue South underneath the Yesler Way bridge. The stairs continue up to the main basement level of the Yesler building, where the areaways serve as an extension of this space and are located directly underneath the sidewalks on Yesler Way and Terrace Street. Due to the slope of the ground in the surrounding areas, the lower levels of the areaways are located further west than the Terrace Street and Yesler Way areaways. The sidewalks on Terrace and Yesler have been rebuilt using corrugated metal panels to support the span of the sidewalks over the areaways. Any prism light panels that may have been installed here have been removed, although it was not confirmed that prism lights ever existed in these areaways. A section of the Yesler Way areaway has been walled off with concrete blocks for use as a Seattle City Light vault.
Major Bibliographic References:	Heideman, Eileen, Sharon Boswell, Brandy Rinck, Ann Sharley and Bob Krier 2015 Final Cultural Resources Assessment for the Yesler Way over Fourth Avenue South Bridge, Seattle Washington. SWCA Report Number 14-619, prepared for HDR Engineering, Inc., and the Seattle Department of Transportation. SWCA Environmental Consultants, Seattle, Washington. Link, Karin Murr 2005 National Register of Historic Places Registration Form, Pioneer Square-Skid Road Historic District. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.

Photos



Sidewalk on north side of building, view to the northeast.
2013

Sidewalk on north side of building, view to the east.
2013

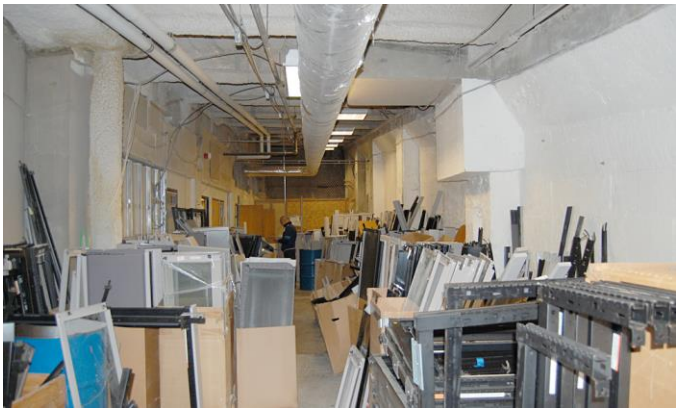
Sidewalk on north side of building, view to the west.
2013

4th Avenue level with Yesler Way street wall on left, view to the west toward 4th Avenue entrance.
2013

4th Avenue level with street wall for Terrace Street on left, view to the northeast.
2013

4th Avenue level with tip of building shown on left and Yesler Way street wall on right, view to the east.
2013

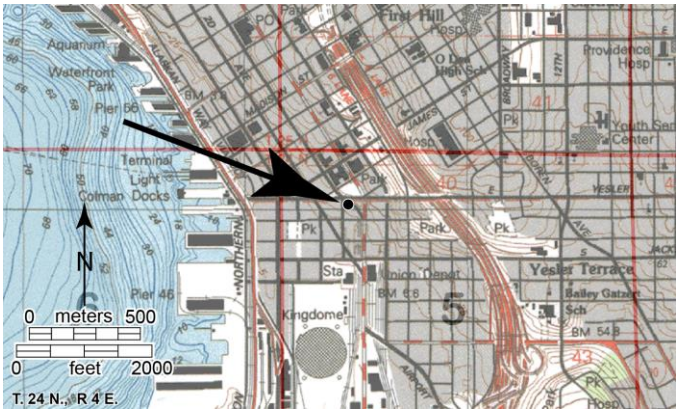
Mezzanine level with windows overlooking 4th Avenue under bridge to right, view to the southwest.
2013



Upper level of areaway with street wall to right.
2013

Lower portion of building in areaway, view to the northeast.
2013

Areaway under Terrace Street sidewalk, view to the northeast.
2013



underside of sidewalk, showing corrugated panels.
2013

4th Avenue level from 4th Avenue entrance, view to the east.
2013

location.
2013

Historic Inventory Report

Location

Field Site No. 194A

DAHP No.

Historic Name: Prefontaine Building Areaways

Common Name: Prefontaine Building Areaways

Property Address: 110 Prefontaine Pl S, Seattle, WA 98104

Comments:

Tax No./Parcel No. 524780-1045

Plat/Block/Lot Maynards D S Plat, Block 17, Lots 6-8

Acreage 0.24

Supplemental Map(s)

Township/Range/EW	Section	1/4 Sec	1/4 1/4 Sec	County	Quadrangle
T24R04E	05	NW		King	SEATTLE SOUTH

Coordinate Reference

Easting: 1189097

Northing: 832476

Projection: Washington State Plane South

Datum: HARN (feet)

Identification

Survey Name: Yesler Bridge Replacement

Date Recorded: 03/15/2013

Field Recorder: Eileen Heideman / SWCA

Owner's Name: Seavest Management

Owner Address: 505 Boylston Avenue East

City: Seattle State: WA Zip: 98102

Classification: Structure

Resource Status:	Comments:
National Register	Contributing element of historic district.
Federal Investment Tax Credit Property	certified 09/09/1988

Within a District? Yes

Contributing? Yes

National Register: Pioneer Square--Skid Road Historic District (Including Boundary Increases)

Local District: Pioneer Square Preservation District (City of Seat

National Register District/Thematic Nomination Name: Pioneer Square--Skid Road Historic District (Including Boundary Increases)

Eligibility Status: Not Determined - SHPO

Determination Date: 1/1/0001

Determination Comments:

Description

Historic Use: Commerce/Trade - Business
Current Use: Commerce/Trade - Business
Plan: Other
Stories: 1
Structural System: Concrete - Reinforced Concrete
Changes to Plan: Intact
Changes to Interior: Intact
Changes to Original Cladding: Not Applicable
Changes to Windows: Not Applicable
Changes to Other: Not Applicable
Other (specify):

Style:	Cladding:	Roof Type:	Roof Material:
None	None	Other	Other

Foundation:	Form/Type:
Concrete - Poured	Utilitarian

Narrative

Study Unit
Science and Engineering

Other

Date of Construction: 1909 Built Date

Builder: Unknown
Engineer: Unknown
Architect:

Property appears to meet criteria for the National Register of Historic Places:Yes

Property is located in a potential historic district (National and/or local): Yes - National

Property potentially contributes to a historic district (National and/or local): Yes

Statement of Significance:

The Prefontaine Building, named for the founder of Seattle's earliest Catholic church, was built in 1909 by contractor Hans Pederson. Due to the presence of the Great Northern Railway Tunnel directly below the lot, innovative engineering was required during building design. Newspaper accounts of the period report installation of eighteen massive steel girders, the largest used to that date in Seattle, atop concrete piers driven 50 feet below street grade. This substantial foundation, constructed at a cost of approximately $55,000, supported a seven-foot-thick slab of concrete, which formed the new building's basement floor (Link 2005:7-278,279; Seattle Sunday Times April 25, 1909, September 5, 1909). Although construction dates for the building areaways are unknown, they were presumably built around the same time as the building.

The areaways surrounding the Prefontaine Building are recommended eligible for the NRHP under Criterion C as contributing resources in the Pioneer Square-Skid Road Historic District. The replacement of some prism light panels happened within a few years of the building's construction and does not affect the integrity of these areaways.

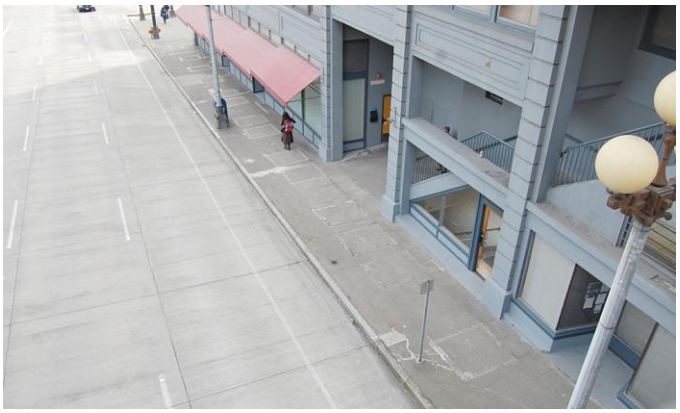
Description of Physical Appearance:	The Prefontaine Building Areaways surround the building and are located on three levels due to the slope of the ground outside the building. The highest level is located under the Yesler Way sidewalk on the north side of the building and is accessed via an entrance off of 4th Avenue South immediately south of the west abutment of the Yesler Way bridge. This areaway is lit with four intact prism light panels. Areaways under the 4th Avenue South and Prefontaine Place sidewalks are accessed through the basement via an entrance off of 4th Avenue. This areaway wraps around nearly the entire building and extends under a portion of the Yesler Way areaway. These areaways are largely unaltered and have seen few partitions added, although concrete panels in the sidewalk show that prism light panels may have originally lit the 4th Avenue and Prefontaine Place areaways. Historic photos show that these concrete panels were poured early in the history of this building, so it is unknown if prism lights existed at this location or if they were removed soon after installation. Stamps in these panels show that they were poured by Hans Pederson, the same contractor that constructed the building. This areaway level originally contained a service entrance located at the southern tip of the building. The concrete ramp for this entrance can still be seen in the areaway, although the entrance has been blocked. A third areaway level underneath the 4th Avenue areaway is accessible via a manhole located in the floor of this areaway. The full extent of this areaway level and its configuration is unknown, as it was not accessed due to safety concerns.
Major Bibliographic References:	Heideman, Eileen, Sharon Boswell, Brandy Rinck, Ann Sharley and Bob Krier 2015 Final Cultural Resources Assessment for the Yesler Way over Fourth Avenue South Bridge, Seattle Washington. SWCA Report Number 14-619, prepared for HDR Engineering, Inc., and the Seattle Department of Transportation. SWCA Environmental Consultants, Seattle, Washington. Link, Karin Murr 2005 National Register of Historic Places Registration Form, Pioneer Square-Skid Road Historic District. On file, Department of Archaeology and Historic Preservation, Olympia, Washington.

Photos

Sidewalk over areaway at south end of building, view to the north.
2013

Concrete panel in sidewalk: stamped "Hans Pederson." View to the northwest.
2013

Prism light panels over north areaway, view to the southeast.
2013



View of 4th Avenue South sidewalk, showing concrete panels, view to the southwest.
2013

West bridge abutment at east end of north areaway, view to the northeast.
2013

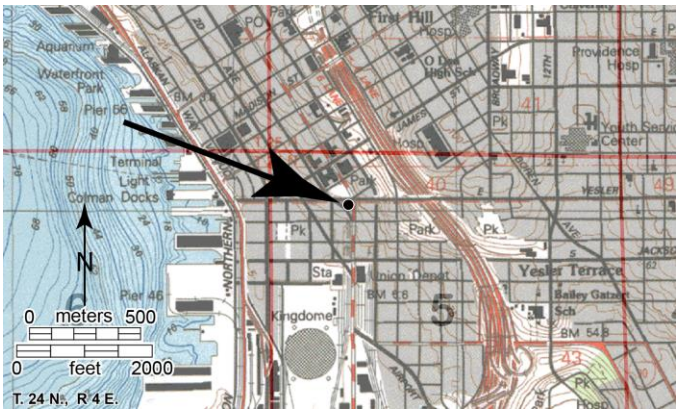
North areaway with prism light panels, view to the west.
2013

Prism light panel in north areaway.
2013

North areaway, view to the east.
2013

East areaway, view to the north.
2013

Areaway, street wall on left.
2013

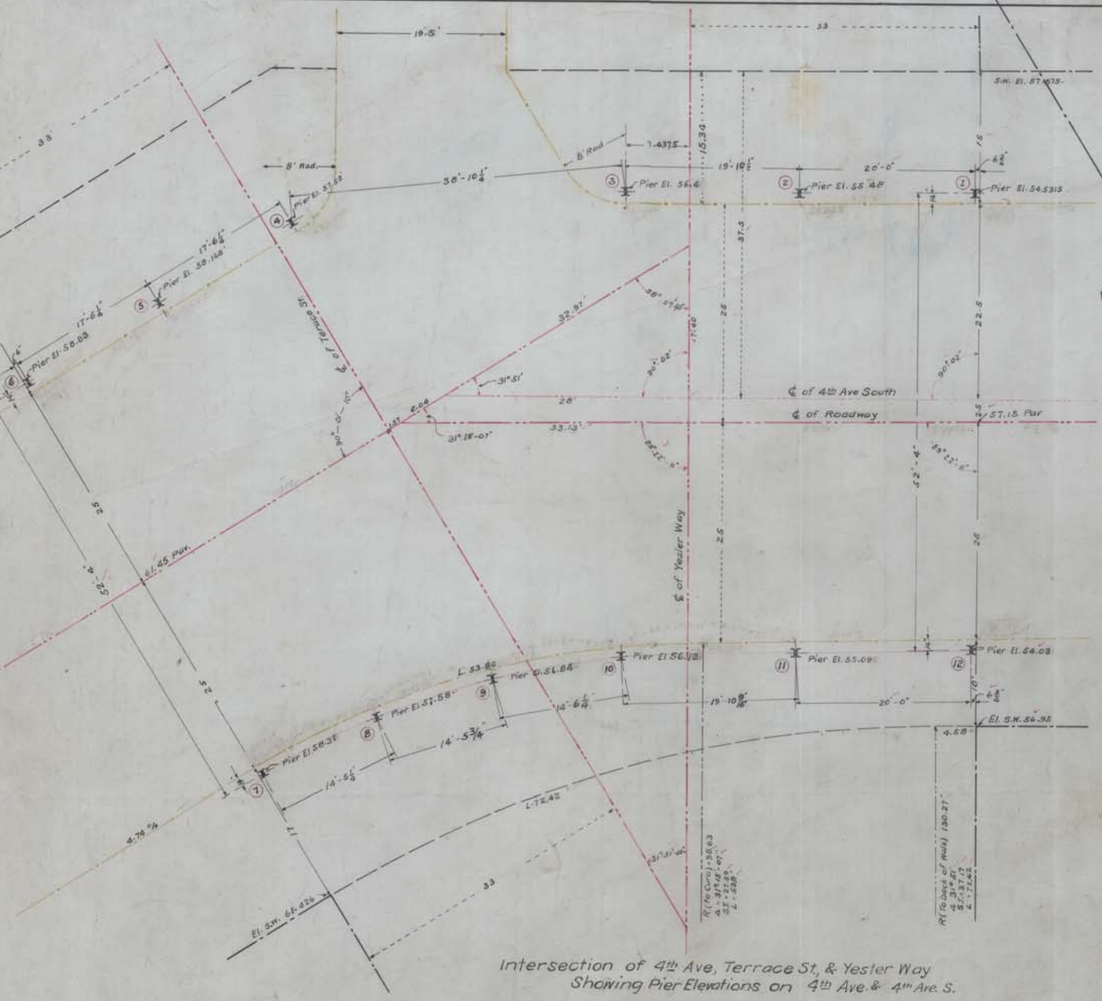


location.
2013

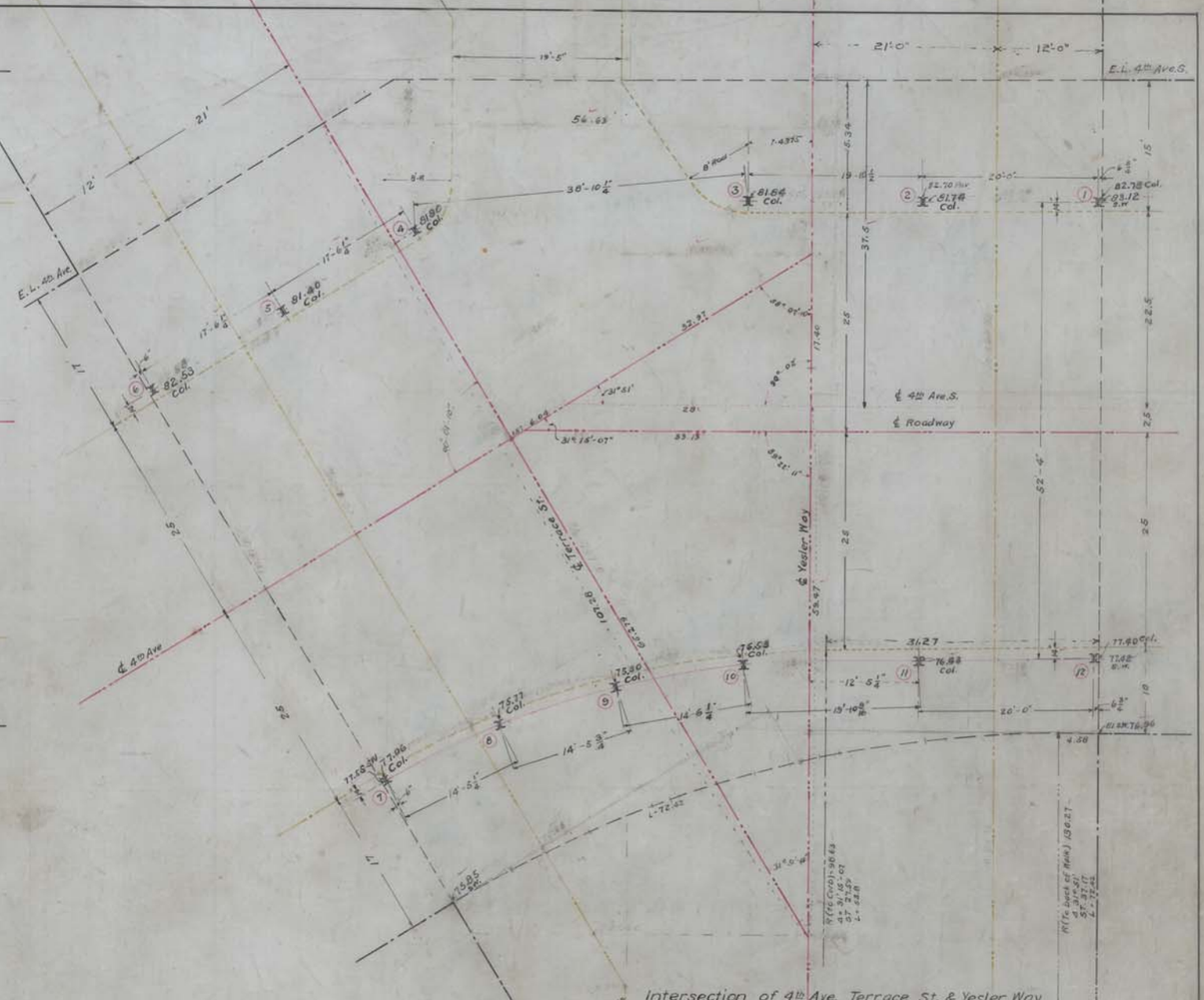
East areaway.
2013

Ramp at south end of areaway and tiled entrance, now enclosed.
2013

APPENDIX D: BRIDGE PLANS



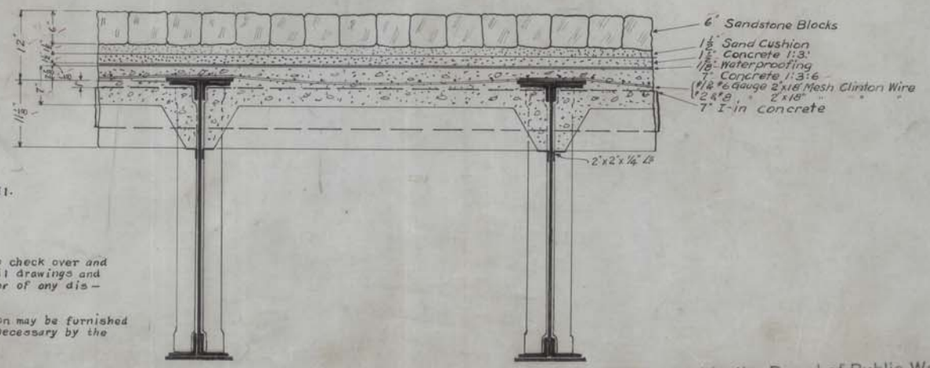
Intersection of 4th Ave, Terrace St. & Yesler Way
Showing Pier Elevations on 4th Ave. & 4th Ave. S.



Intersection of 4th Ave. Terrace St. & Yesler Way
Showing Col. El's. on Yesler Way & Terrace St.

LIST OF DRAWINGS

Sheet No.	Description
1.	General Plan of Streets
2	" " " Steel
3	Cross-section
4	End Views
5	Cross-sections on Col. Lines
6	Girders 1-3
7	" 2-4-5-20
8	" 10-11
9	" 12-13-14
10	" 15-16-17
11	" 18-19
12	" 20
13	Cross Girders
14	"
15	Plan Showing S.E.Co's. Portion.
16	Plan of Abutments and Piers.
17	Miscellaneous Details
18	Stair Details



General Section of Roadway.
Scale-1"=1'

General Notes:

Painting:

Shop; One coat of linseed oil.
Field; See specifications.

Checking Plans:

The contractor is required to check over and verify the general and detail drawings and shall notify the city engineer of any discrepencies found therin.

Further plans in amplification may be furnished at any time when considered necessary by the engineer

Shop Drawings:

Shop drawings shall be furnished by the firm or firms fabricating the material, they must conform to the drawings and specification and must be submitted in triplicate for approval to the city engineer and be approved before work is commenced in the shop.

Approved by the Board of Public Works,

Seattle, Wash., 1909

Attest:

Chairman

Secretary.

Improvement of
4th AVE. and 4th AVE. S.
Grading, Regrading etc.

Ordinance No. 14784.

Approved Nov. 28. 1906.

Local Improvement District No. 1310.

May - 1909.

Yesler Way Bridge
over
4th AVENUE

18 Sheets, Sheet No. 1

Scale-1"=1'

R. H. Thomson,
City Engineer.

Dunford 4-21-09.
" 5-15-09

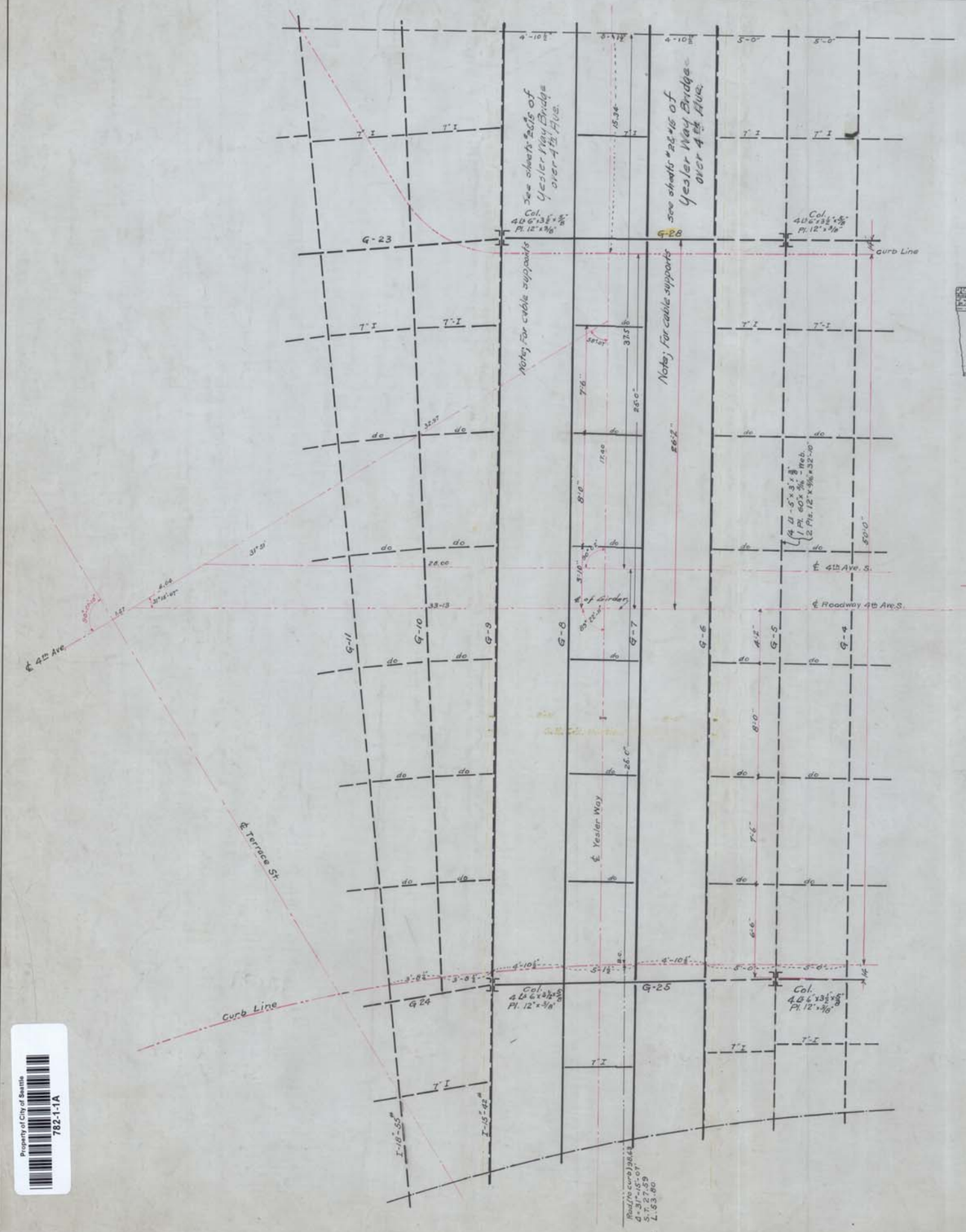
10988

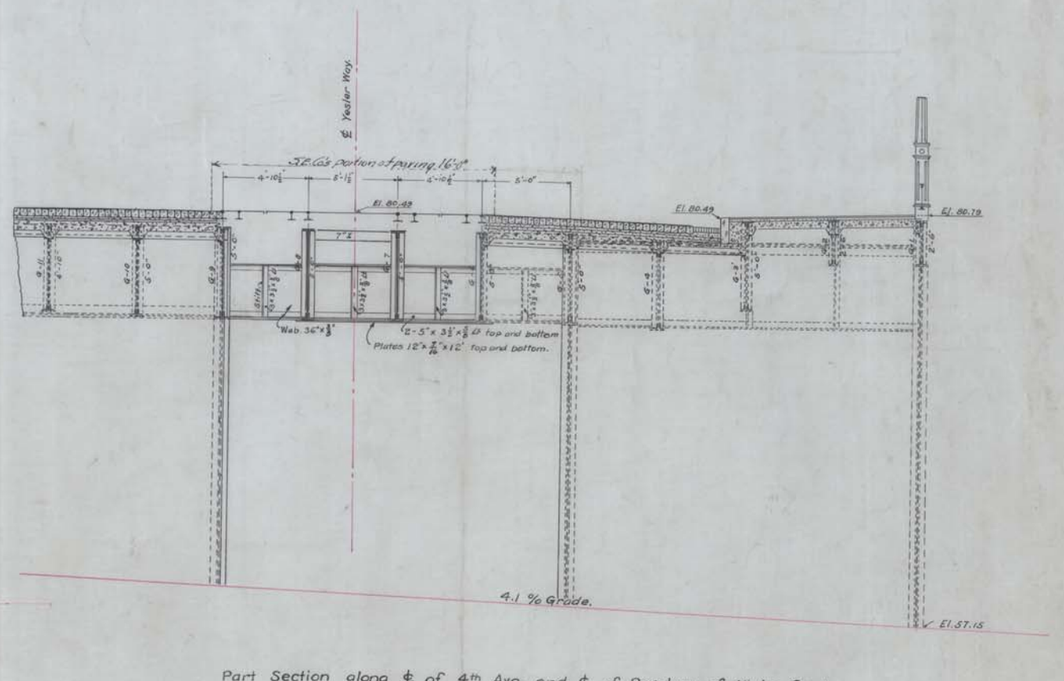
SHEET 1
GENERAL PLAN OF STREETS

1 18

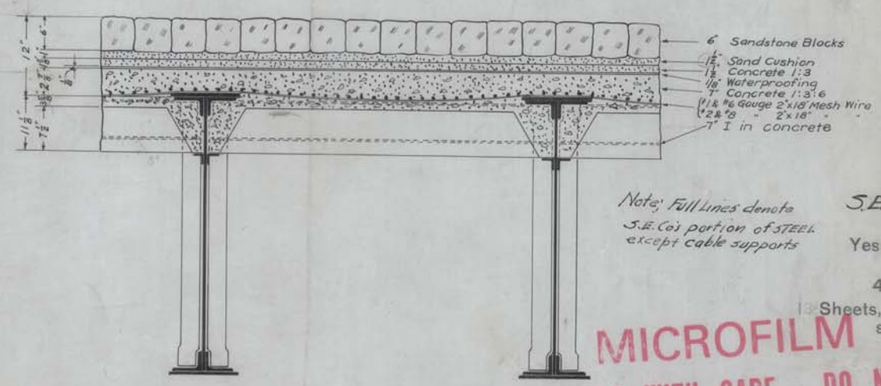
782-1-A

ELEVATION PLAN. SHEET INDEX,





Part Section along ℄ of 4th Ave. and ℄ of Roadway of 4th Ave South.



General Section of Roadway.
Scale 1"=1ft.

Note: Full Lines denote S.E. Co's portion of STEEL except cable supports

S.E. Co's Portion of Yesler Way Bridge over 4th AVENUE

13 Sheets, Sheet No. 1.

Scale 1/4"=1ft.

IN CHARGE OF	
MADE BY	Dunford
TRACED BY	"
CHECKED BY	
SHEET NO.	1 NO. OF SHEETS 1

10985

SHEET 1A

GENERAL PLAN OF STREETS

782-1-AA

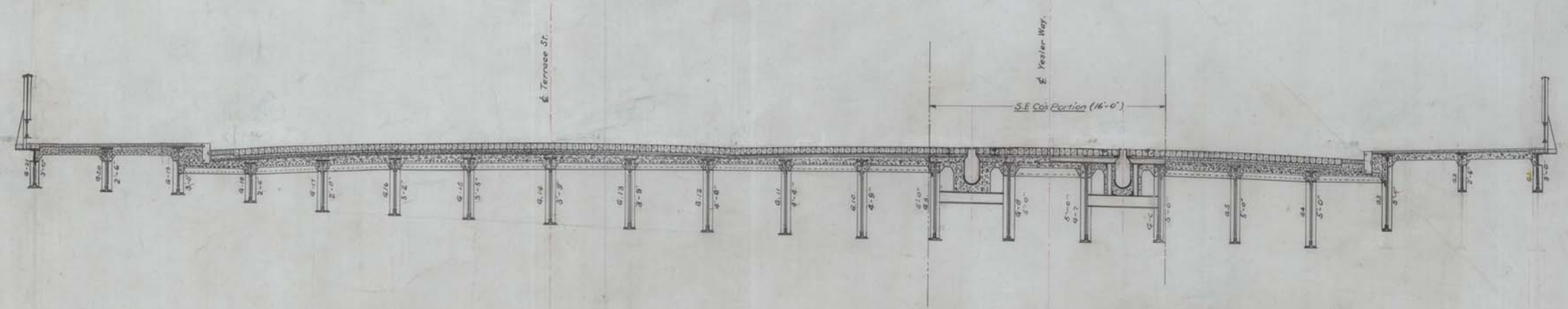
Yesler Way Bridge
over
4th AVENUE
18 Sheets, Sheet No. 2.
Scale 1/4" = 1'-0"

IN CHARGE OF		
MADE BY	Dunford	May 13, 1909
TRACED BY	"	
CHECKED BY		
SHEET NO. 2	NO. OF SHEETS 18	

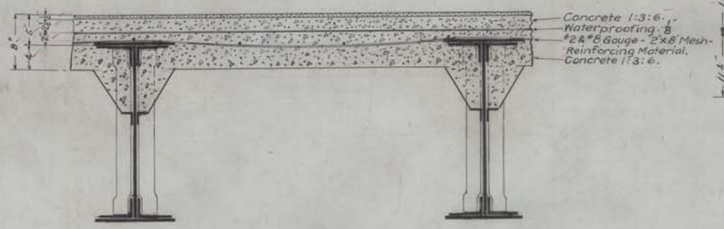
GENERAL PLAN OF STEEL

782-1-B

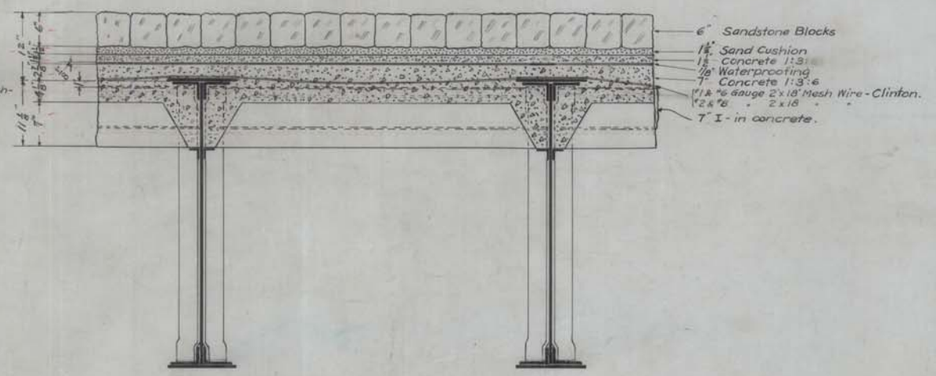
10985



Section along ℄ of 4th Ave. and ℄ of Roadway of 4th Ave. South.



General Section of Sidewalk



General Section of Roadway.

Yesler Way Bridge
over
4th AVENUE
18 Sheets, Sheet No. 3.
Scale

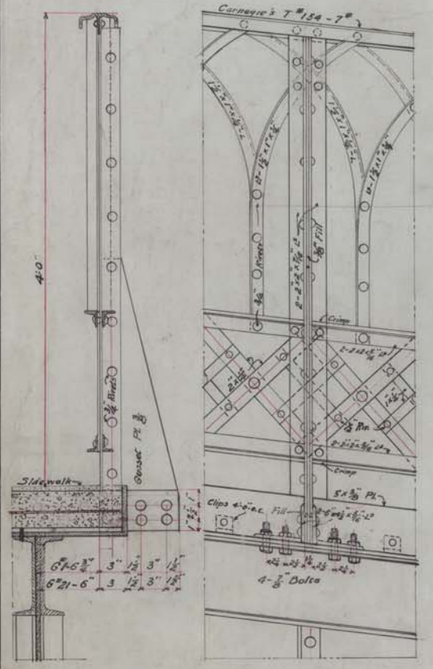
Dunford. 4-13-09.

3 18

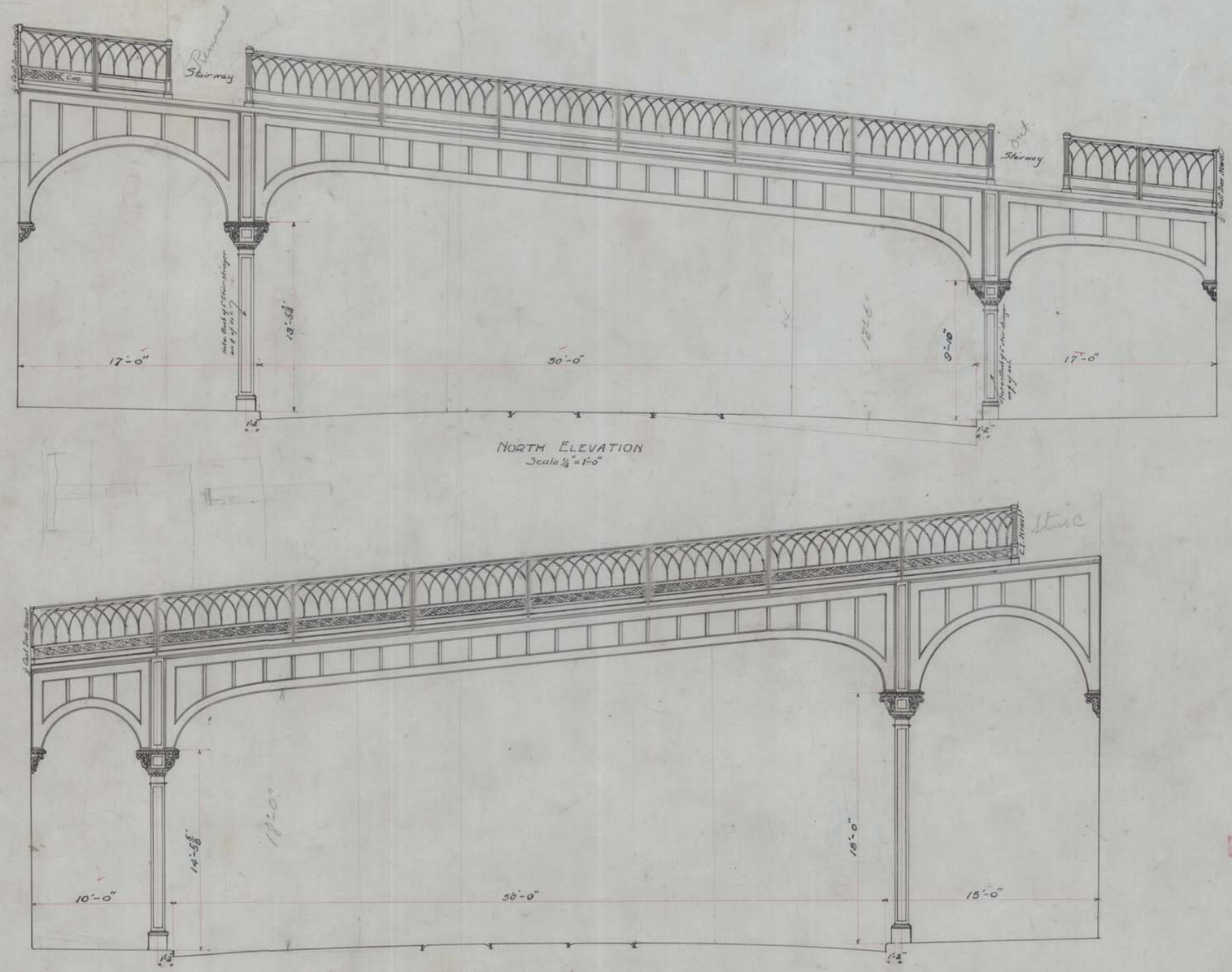
CROSS - SECTION

10985

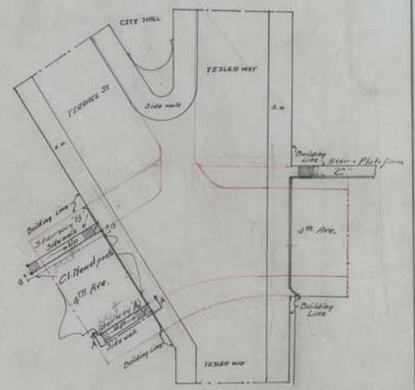
782-1-C



DETAIL OF BRIDGE RAIL



NORTH ELEVATION
Scale ¼"=1'-0"



Scale 1"=40'-0"
PLAN OF BRIDGE

SOUTH ELEVATION
Scale ¼"=1'-0"

DETAIL OF C.I. CAPS AND CASINGS FOR COLS 1, & 7 & 12
Scale 1½"=1'-0"

Yesler Way Bridge
over
4th AVENUE
18 Sheets, Sheet No. 4.
Scale 1"=1 Ft.

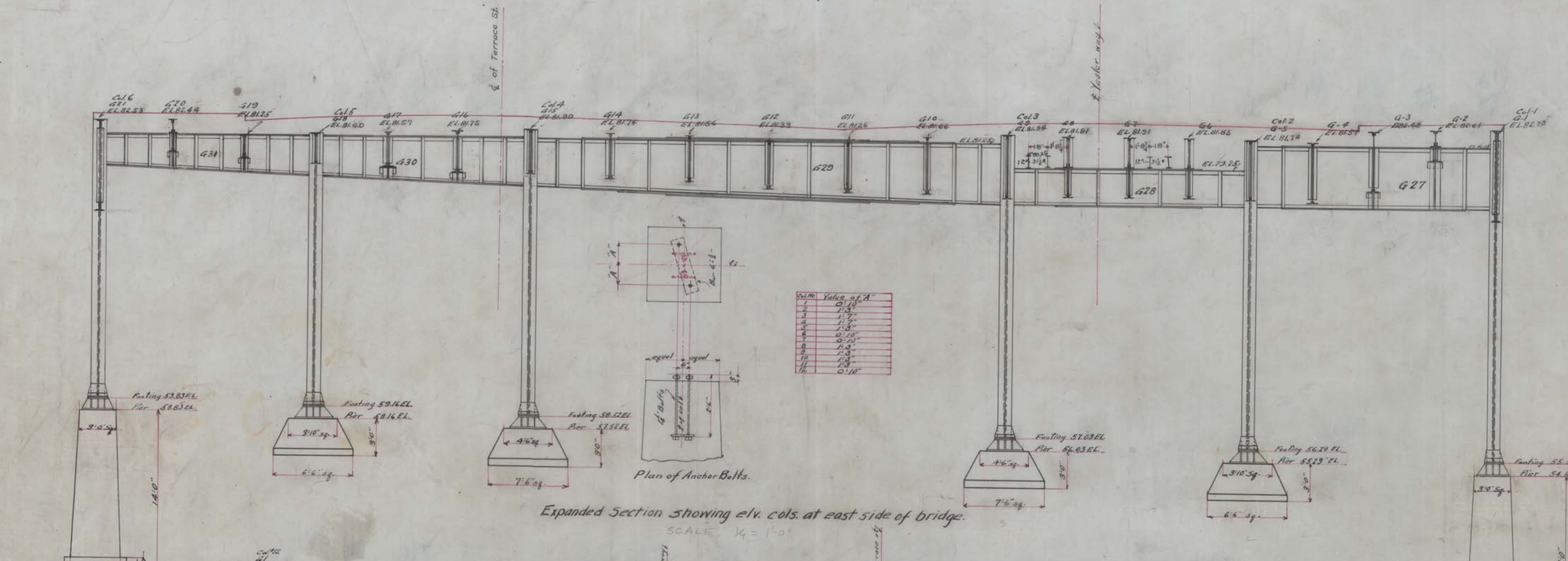
J.W.H.
J.W.H.

4 18

10985

END VIEWS

782-1-D

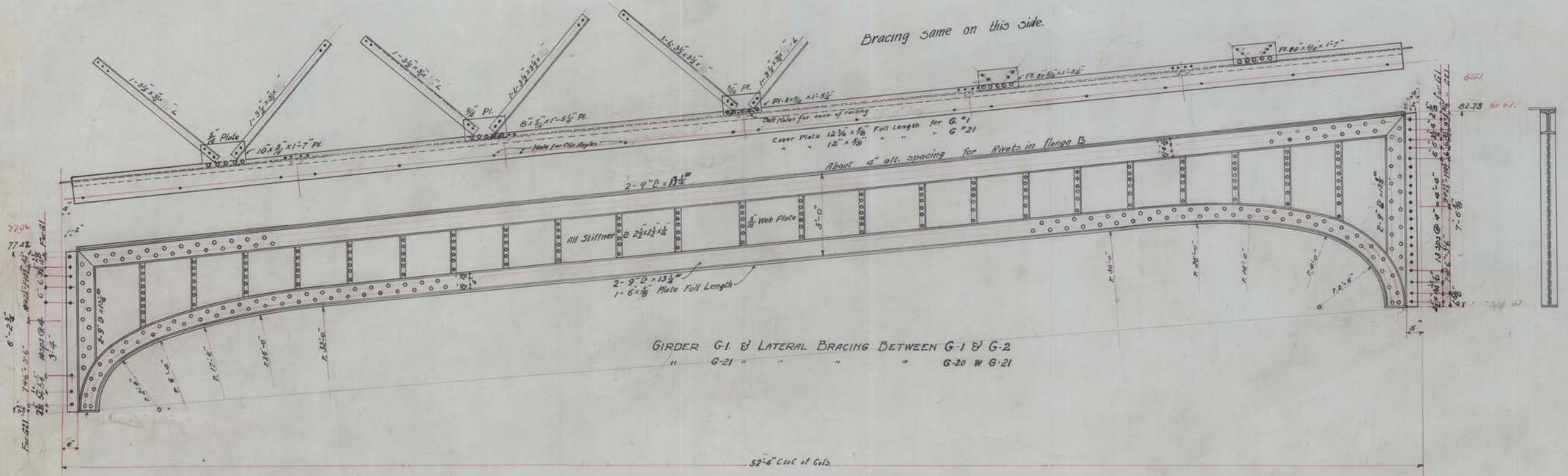


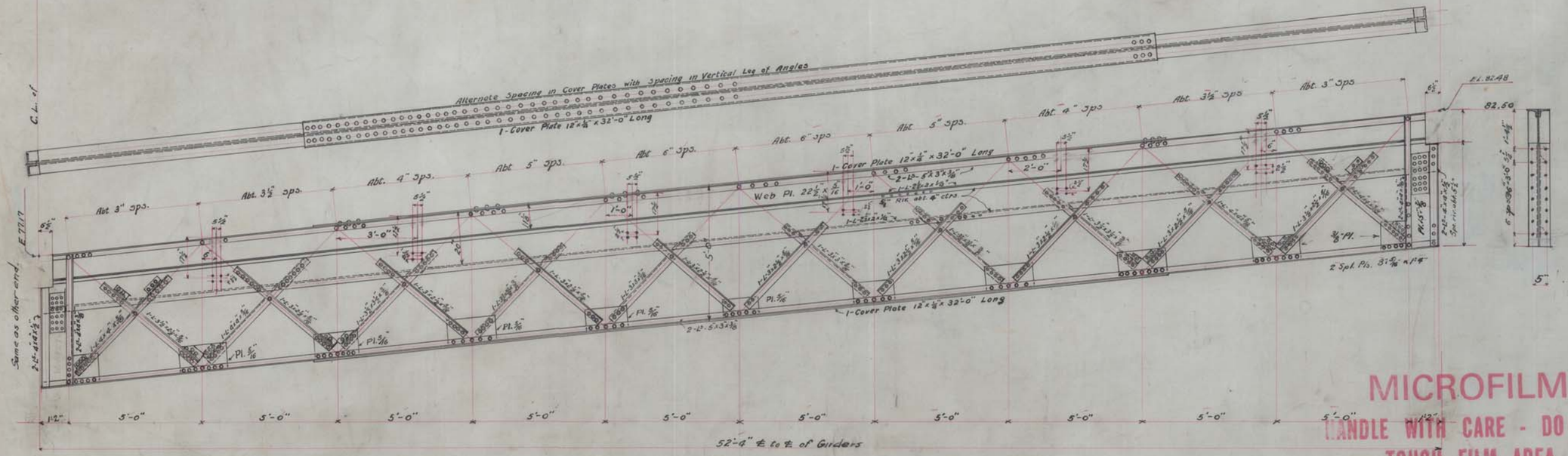
Yesler Way Bridge
over
4th AVENUE
18 Sheets, Sheet No. 5.

10985

5 18

CROSS-SECTIONS ON COL. LINES 782-1-E





Yesler Way Bridge
over
4th AVENUE
18 Sheets, Sheet No. 6.

MICROFILM
HANDLE WITH CARE - DO NOT
TOUCH FILM AREA

Rivets — ¾"
Open Holes 13/16"
Unless Noted.

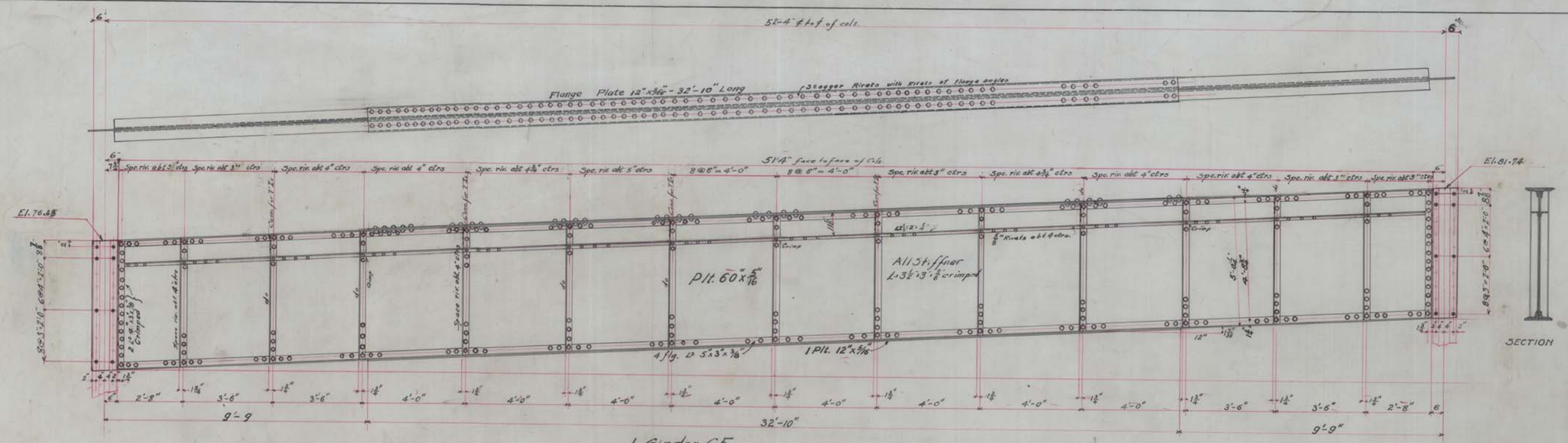
Rivets ¾" except shown

R. R. M.
J. W. H.
J. W. B
6 18

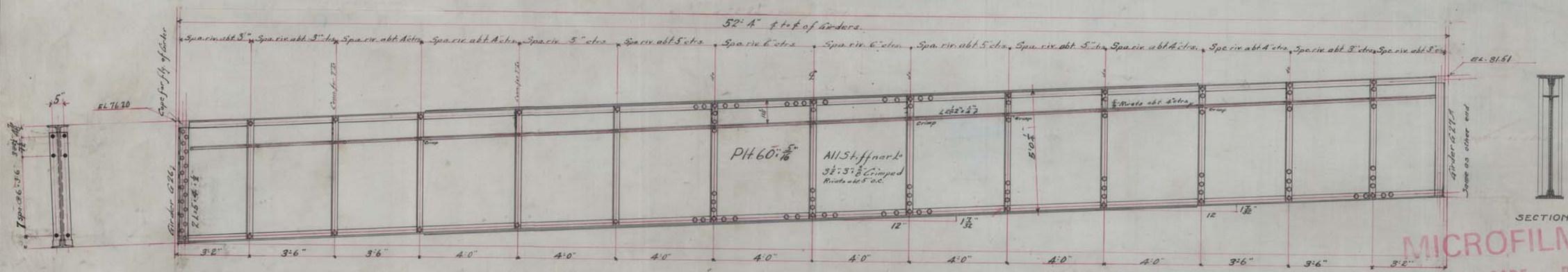
10985

GIRDERS 1-3

782-1-F

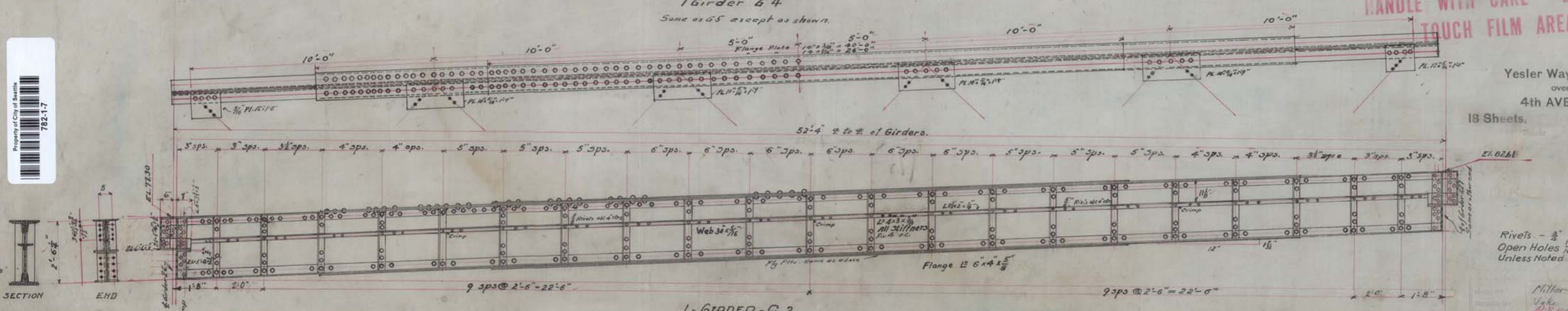


1 Girder G5



1 Girder G4

Same as G5 except as shown.



1-GIRDER-G 2.

Yesler Way Bridge
over
4th AVENUE
18 Sheets. Sheet No. 7.

Rivets - ⅞" ø
Open Holes 15/16"
Unless Noted

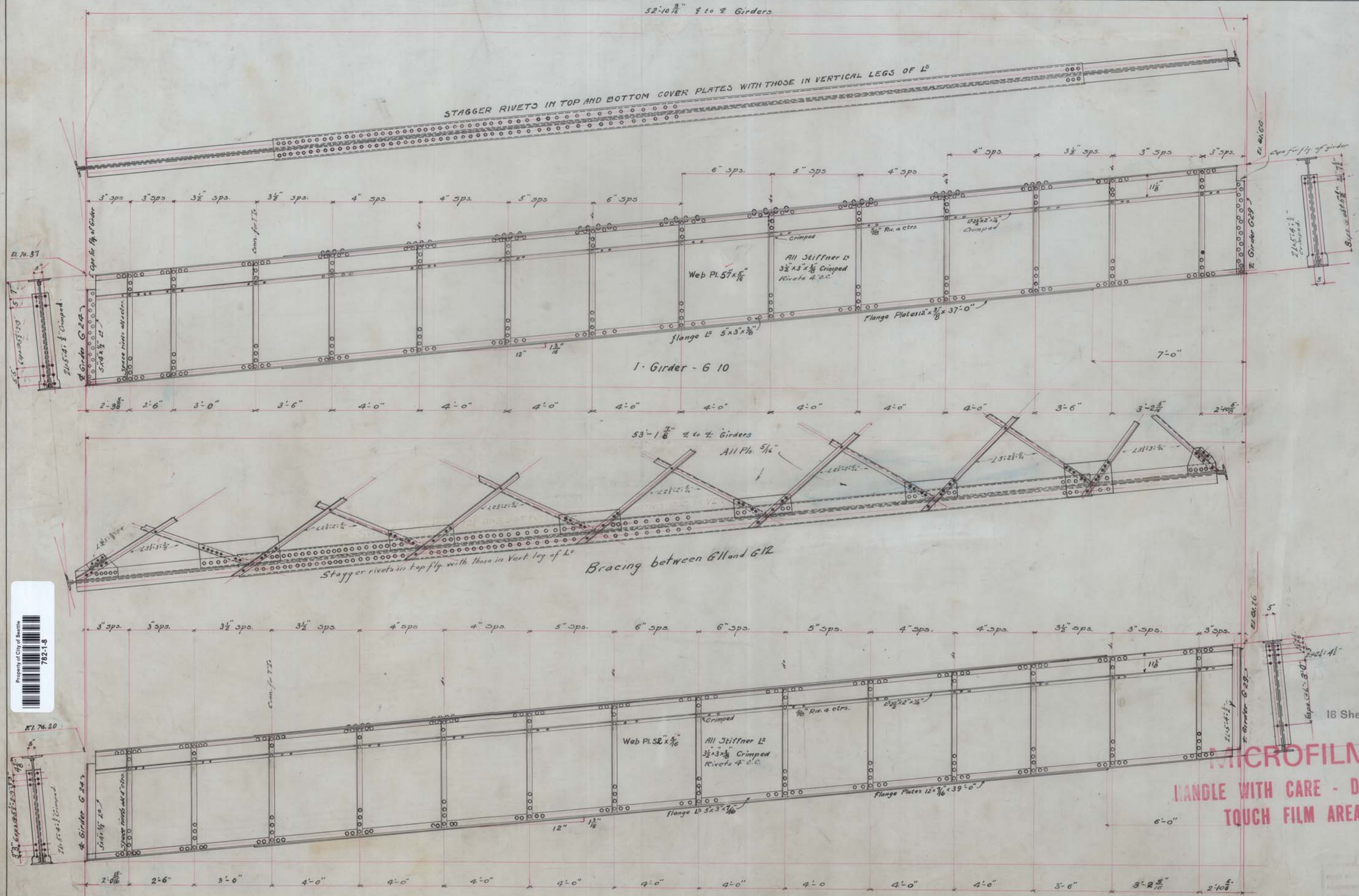
Miller
Lake
Roads

SHEET NO. 7 TOTAL SHEETS 18

10285

GIRDERS 2-4-5-20

782-1-G



Yesler Way Bridge
over
4th AVENUE
18 Sheets, Sheet No. 8.
Scale

Rivets ⅞" Open Holes 1⅛" Unless Noted.

Miller
"
Clark

8 18

10985

GIRDERS 10-11

782-1-H

53'-6⅝" C. to C. of Girder

Stagger Rivets in Top & Bottom Flange Plate with those in the vertical legs of Flange Angles

Web Plate 48" x 5/16"

Stiffener L3 3½"x3½"x⅜" Crimped Riv. abt 4" O.C.

Flange L5 5"x3½"x½"

Flange Plate 12"x⅜"x39'-0"

Crimped

5/8" Rivets abt 4" Cs.

2½"x2"x⅜" L's Both Sides

Rivets abt 3½" Cs. 2'-0⅝" | Rivets abt 3⅝" Cs. 3'-0" | Rivets abt 4" Cs. 3'-3" | Rivets abt 4" Cs. 3'-6" | Rivets abt 4⅝" Cs. 4'-0" | Rivets abt 5" Cs. 4'-0" | Rivets abt 5" Cs. 4'-0" | Rivets abt 6" Cs. 4'-0" | Rivets abt 6" Cs. 4'-0" | Rivets abt 5" Cs. 4'-0" | Rivets abt 5" Cs. 4'-0" | Rivets abt 4" Cs. 4'-0" | Rivets abt 4" Cs. 3'-6" | Rivets abt 3½" Cs. 4'-2⅜" | Rivets abt 3" Cs. 2'-0⅝"

1 Girder G-12

54'-1 7/16" C.L. at Col. #3 to C.L. of Girder G-29

Stagger Rivets in Top & Bot. Cover Pls. with those in the vertical Legs of Flange Angles

Web Plate 45" x 5/16"

Stiffener L2 3½"x3"x⅜" Crimped Riv. abt 5" O.C.

Flange L5 5"x3"x7/16"

2 Flange Plates 12"x⅞"x45'-0"
2 " " 12"x¼"x32'-0"

Crimped

5/8" Rivets abt 4" Cs.

2½"x2"x¼" L's

Rivets 3" Cs. 2'-0" | Rivets 3" Cs. 2'-8" | Rivets 3½" Cs. 2'-0⅝" | Rivets 4" Cs. 3'-6" | Rivets 4" Cs. 4'-0" | Rivets 5" Cs. 4'-0" | Rivets 5" Cs. 4'-6" | Rivets 6" Cs. 4'-0" | Rivets 6" Cs. 4'-0" | Rivets 5" Cs. 4'-0" | Rivets 5" Cs. 4'-0" | Rivets 4" Cs. 4'-0" | Rivets 4" Cs. 3'-6" | Rivets 3½" Cs. 3'-0" | Rivets 3" Cs. 4'-0" | Rivets 3" Cs. 2'-0⅝"

1 Girder G-13

55'-4⅜" C. to C. of Girders

Stagger Rivets in Top & Bot. Cover Pls. with those in vertical leg of Flange Angles

Web Plate 45" x 5/16"

Stiffener L2 3½"x3"x⅜" Crimped Riv. abt 4" O.C.

Flange L5 5"x3½"x7/16"

2 Flg. Pls. 12"x 5/16" x 45'-0"
2 Flg. Pls. 12"x ¼" x 32'-0"

Crimped

5/8" Rivets abt 4" Cs.

2½"x2"x¼" L's

Rivets 3" Cs. 2'-0⅝" | Rivets 3" Cs. 3'-0" | Rivets 4" Cs. 3'-3" | Rivets 4" Cs. 3'-6" | Rivets 5" Cs. 4'-0" | Rivets 5" Cs. 4'-0" | Rivets 6" Cs. 4'-0" | Rivets 6" Cs. 4'-0" | Rivets 6" Cs. 4'-0" | Rivets 5" Cs. 4'-0" | Rivets 5" Cs. 4'-0" | Rivets 4" Cs. 4'-0" | Rivets 4" Cs. 3'-6" | Rivets 3" Cs. 3'-0⅝" | Rivets 3" Cs. 3'-0" | Rivets 3" Cs. 2'-0⅝"

1 Girder G-14

MICROFILM
HANDLE WITH CARE - DO NOT TOUCH FILM AREA

Yesler Way Bridge
over
4th AVENUE
18 Sheets, Sheet No. 9.

Rivets ⅞
Open Holes 13/16
Unless Noted.

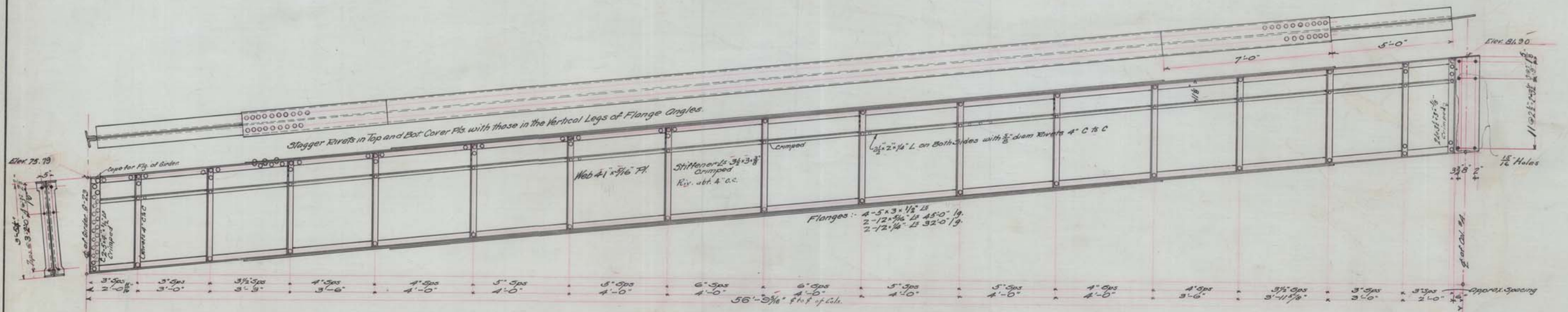
Miller

SHEET NO. 9 18

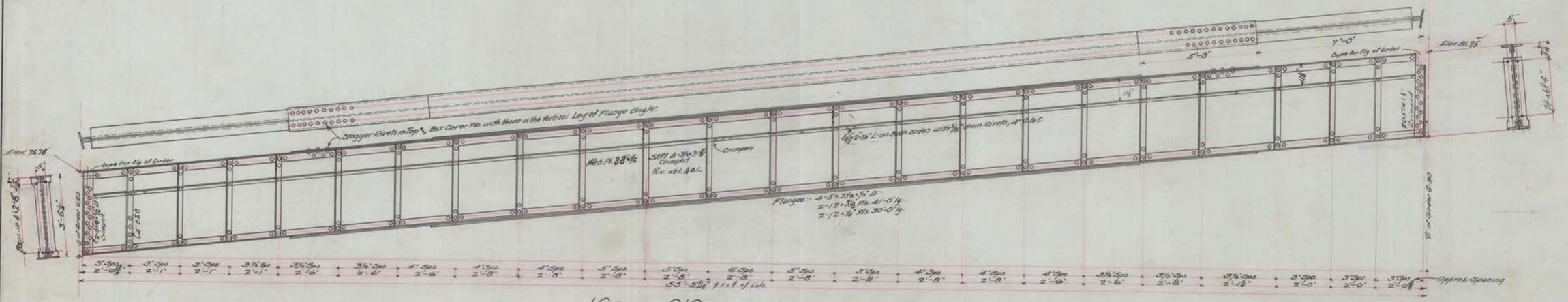
782-1-1

GIRDERS 12-13-14

10985



1 GIRDER G15



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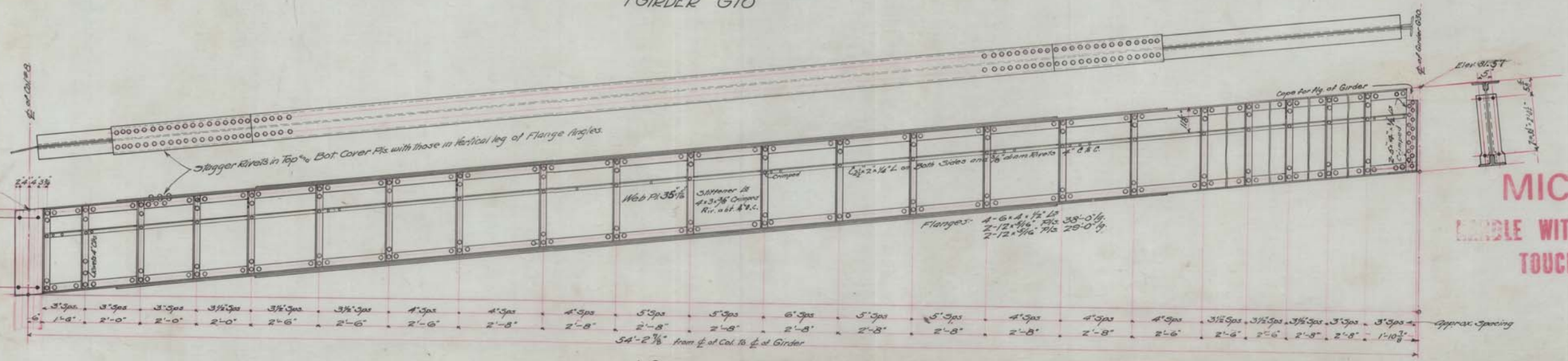


1 GIRDER G17

Yesler Way Bridge
over
4th AVENUE
18 Sheets, Sheet No. 10.

Rivets ⅞
Open Holes 13/16
Unless Noted

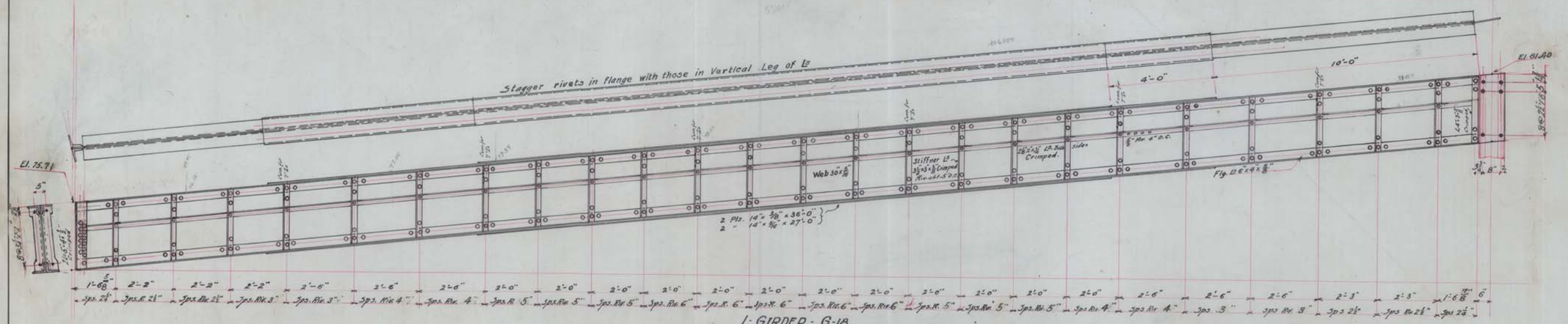
MADE BY	Miller
TRACED BY	
DRAWN BY	
SHEET NO. 10	NO. OF SHEETS 18

10985

GIRDERS 15-16-17

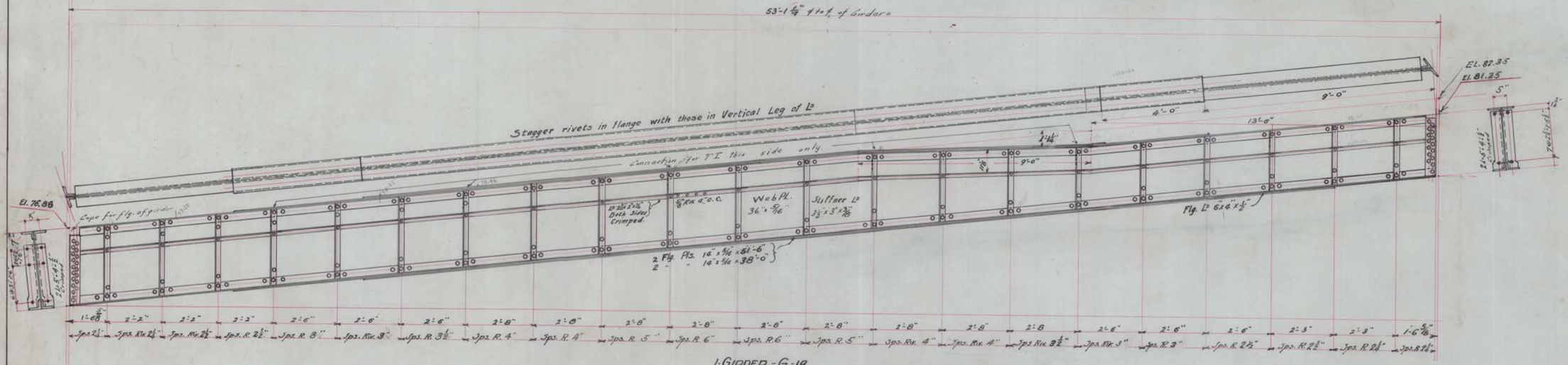
782-1-J

53'-7½" ℄ to ℄

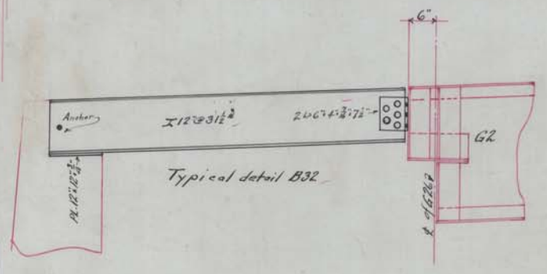


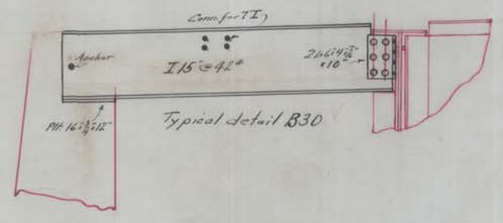
1-GIRDER - G-18

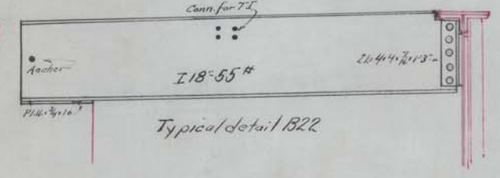
53'-1 ¼" ℄ to ℄ of Girders

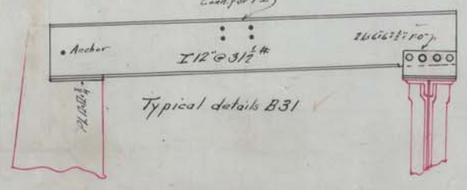


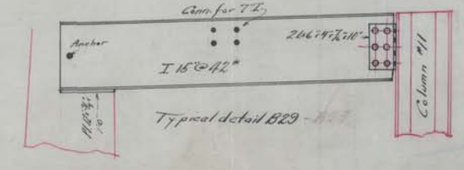
1-GIRDER - G-19











Yesler Way Bridge
over
4th AVENUE
18 Sheets, Sheet No. 11.

Rivets ⅞"
Open Holes 13/16"
Unless Noted.

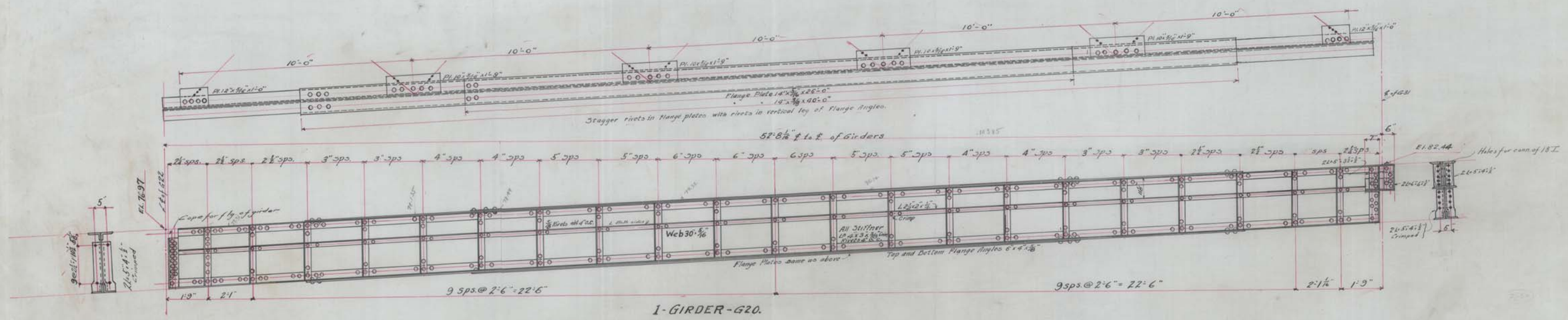
Miller

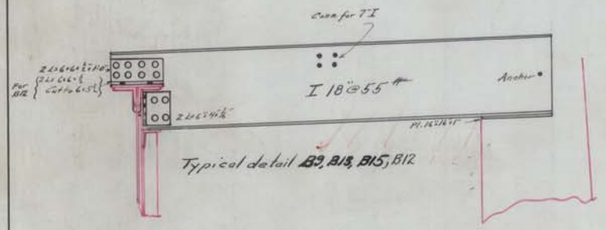
11 18

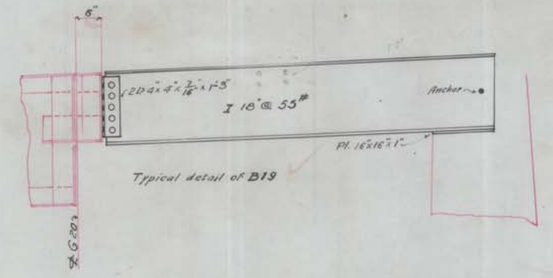
10986

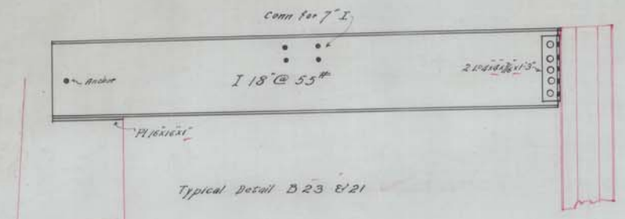
GIRDERS 18-19

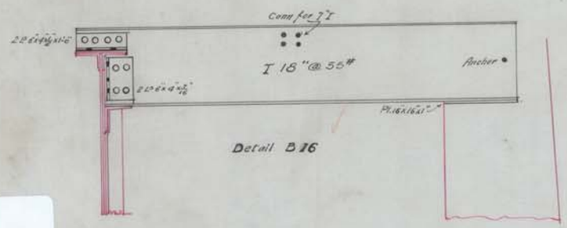
782-1-K

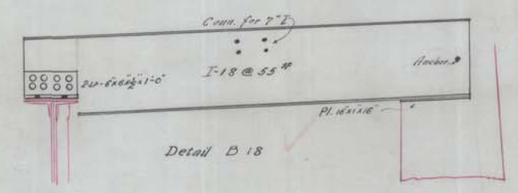


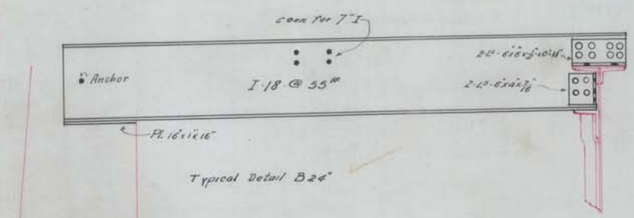


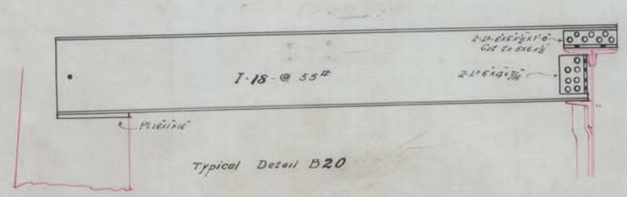












Yesler Way Bridge
over
4th AVENUE
18 Sheets, Sheet No. 12.

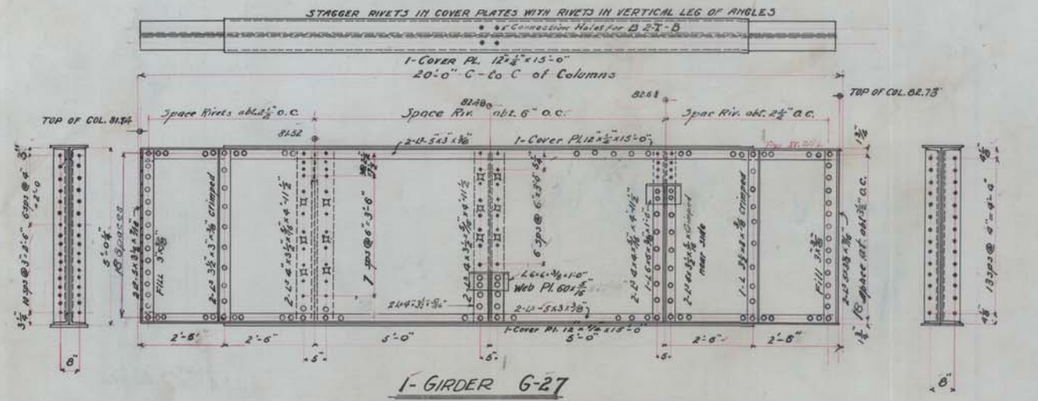
Rivets 7/8"
Open Holes 15/16"
Unless Noted

MADE BY	Miller J.W.H.	5/15/09
TRACED BY		
CHECKED BY		
SHEET NO. 12		NO. OF SHEETS

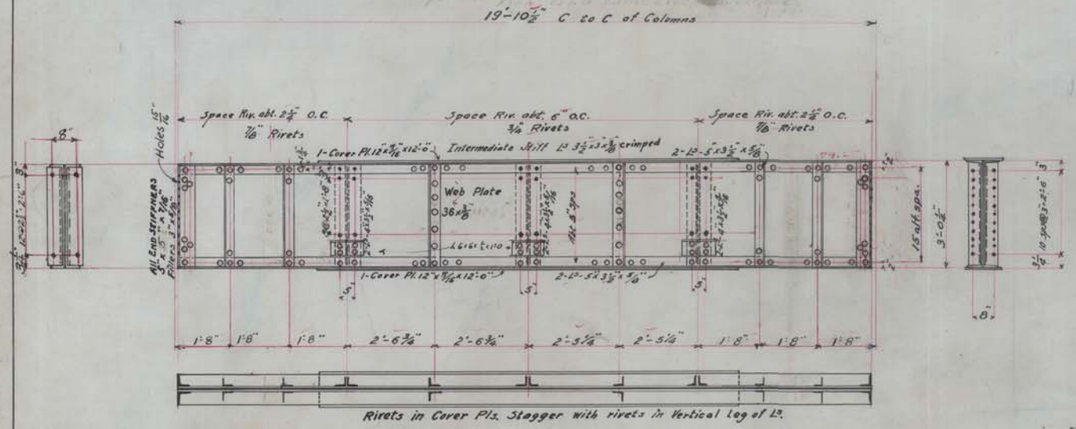
10985

GIRDERS 20

782-1-12



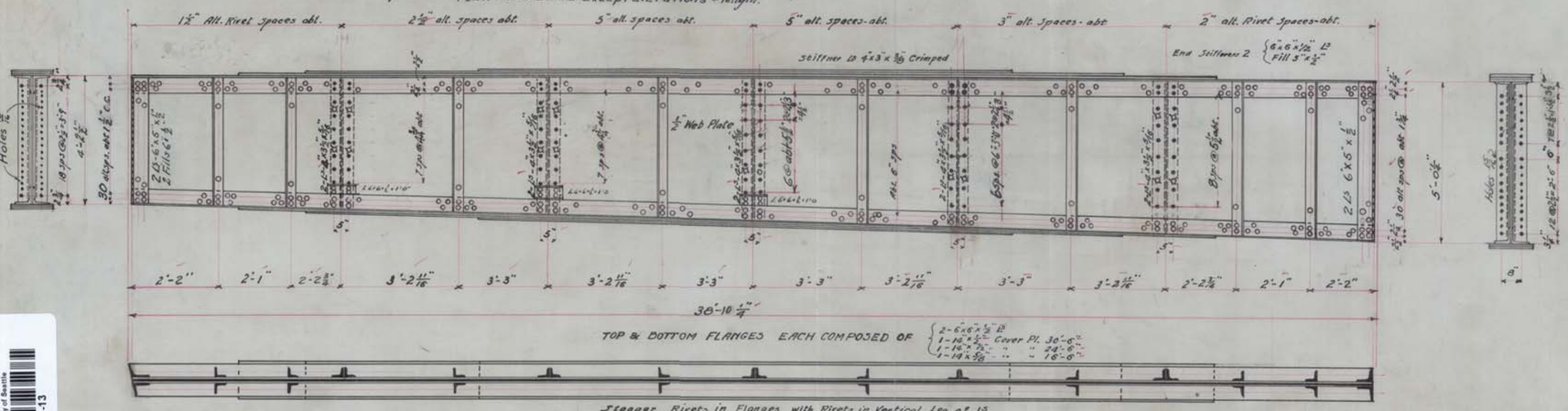
1-GIRDER G-27



Rivets in Cover Pls. Stagger with rivets in Vertical leg of Lª.

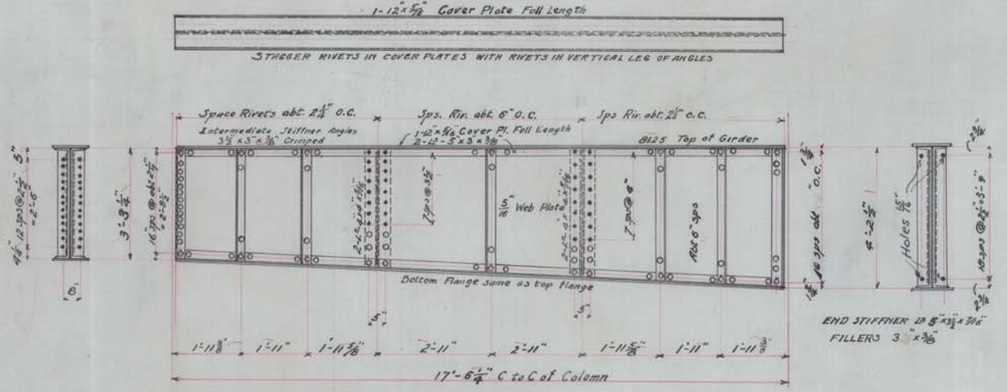
1-GIRDER G 28

1 " Rev. G25 same except alterations & length.

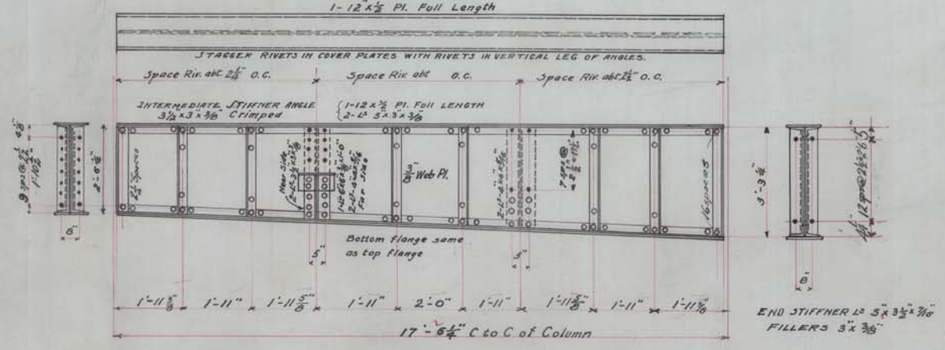


Stagger Rivets in Flanges with Rivets in Vertical Leg of Lª

1-GIRDER - G 29



1-GIRDER - G 30



1-GIRDER - G 31

Yesler Way Bridge
over
4th AVENUE
18 Sheets, Sheet No.13.

Note:
Furnish necessary Fillers
for connection of girders to cross girders

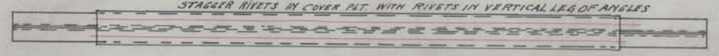
Rivets ⅞"
Open Holes 15/16"
Unless Noted.

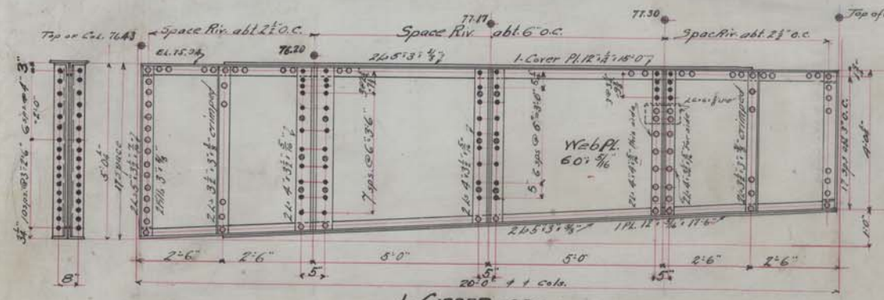
Mac
J.W.H.
13
13

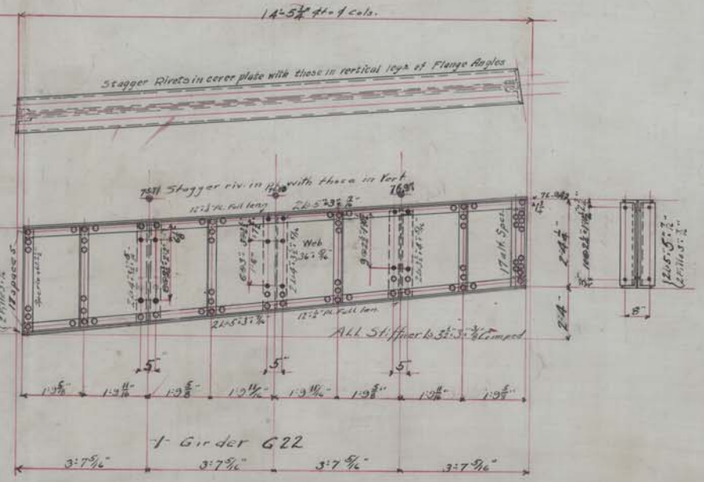
10985

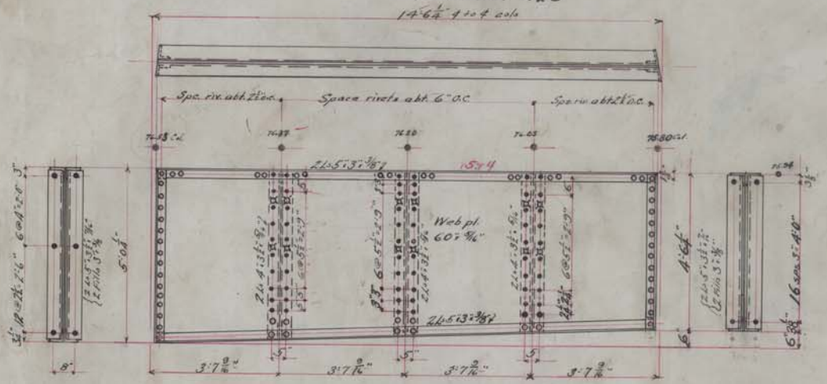
CROSS GIRDERS

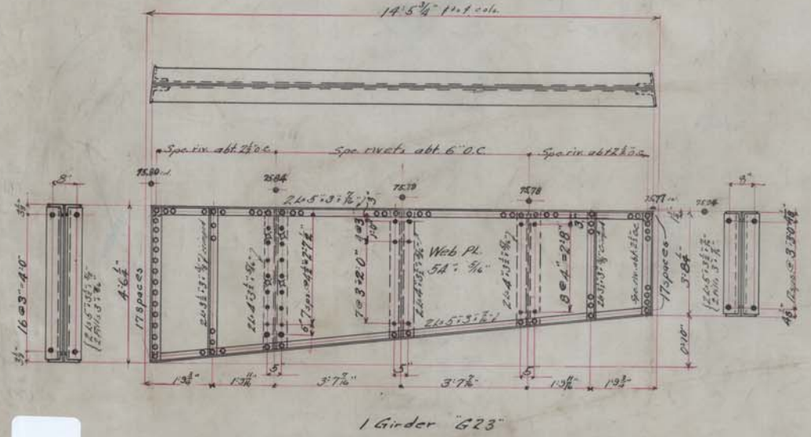
782-1-M

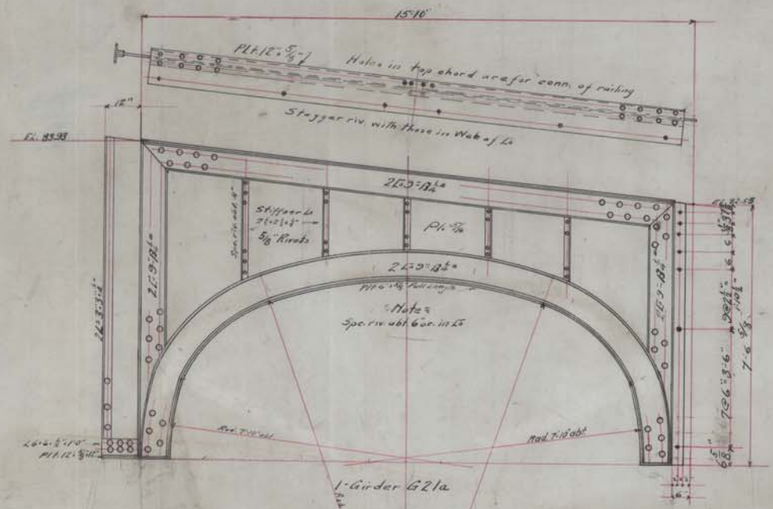


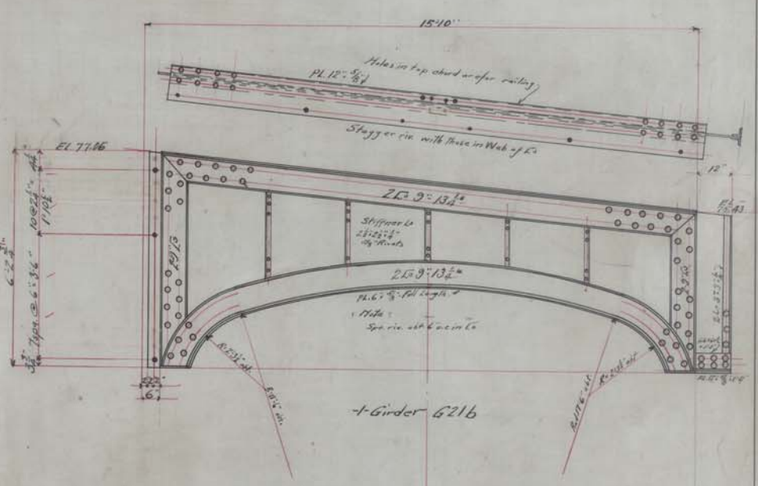












Yesler Way Bridge
over
4th AVENUE
18 Sheets, Sheet No. 14.

Note:
Furnish all necessary fillers for connection of girders to cross girders.

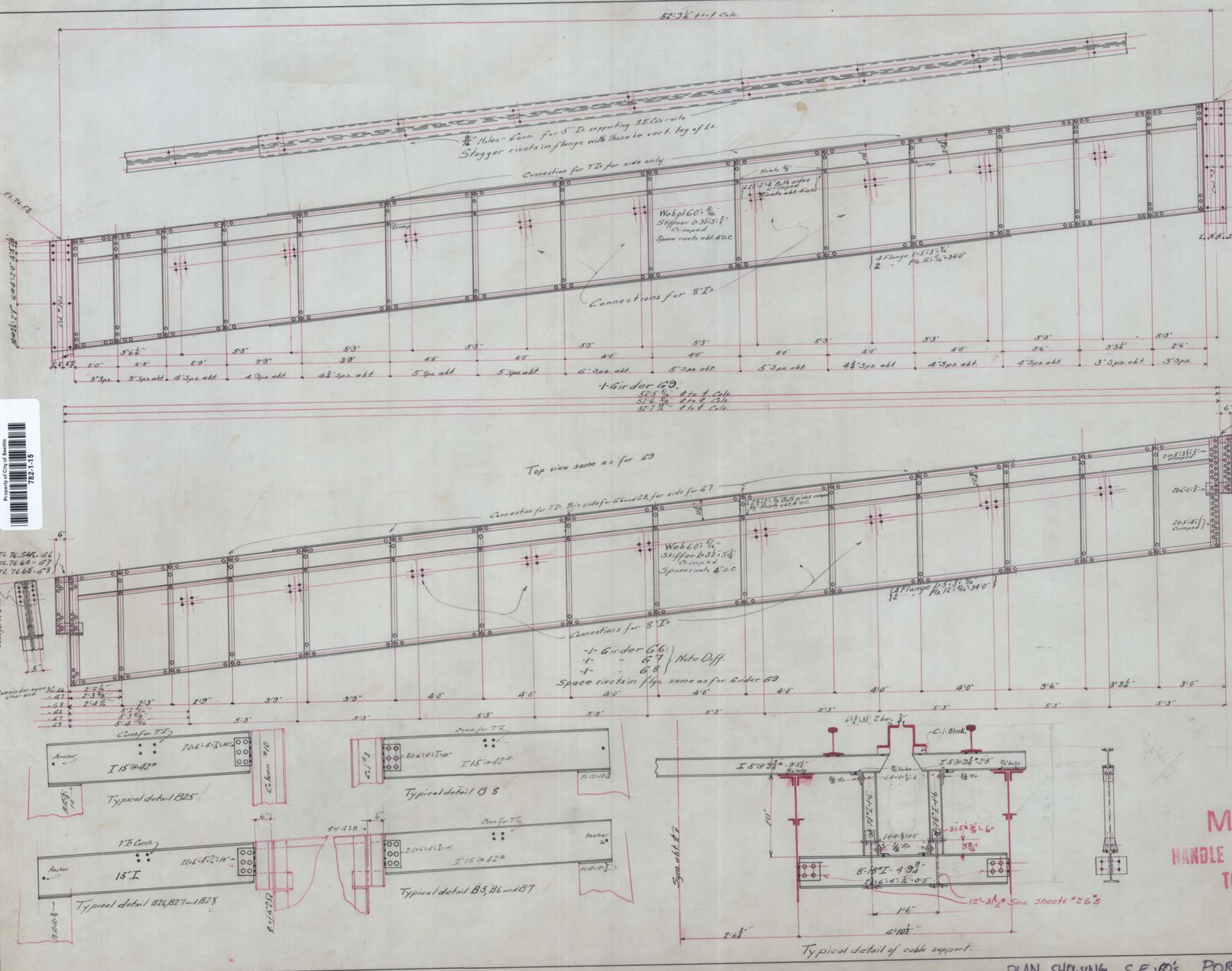
Rivets ¾" unless Noted
Open holes 13/16"

DRAWN BY	Miller
TRACED BY	Miller
CHECKED BY	
SHEET NO.	14

10985

CROSS GIRDERS

782-1-N



Yesler Way Bridge
over
4th AVENUE

18 Sheets Sheet No. 15

Sheet No. 15 No. of Sheets 18

782-1-0

PLAN SHOWING S.E. Co's. PORTION

10985

Gravity Wall

Gravity Wall

Reinforced concrete footings

Reinforced concrete wall

Line of Paving

I Beam

Typical Sec. thru gravity wall.

Note:- Distance from Sidewalk line to bottom of wall is 4'-0" in all Cases.

Line of Pavement

Line of back of sidewalk

Elevation taken at AA.

Elevation taken at BB

Expanded elevation of Rein. retaining wall.

Section Thru. rein. wall.

NOTE

FOR SIZE AND ELEVATION OF PIERS see Sh. #5

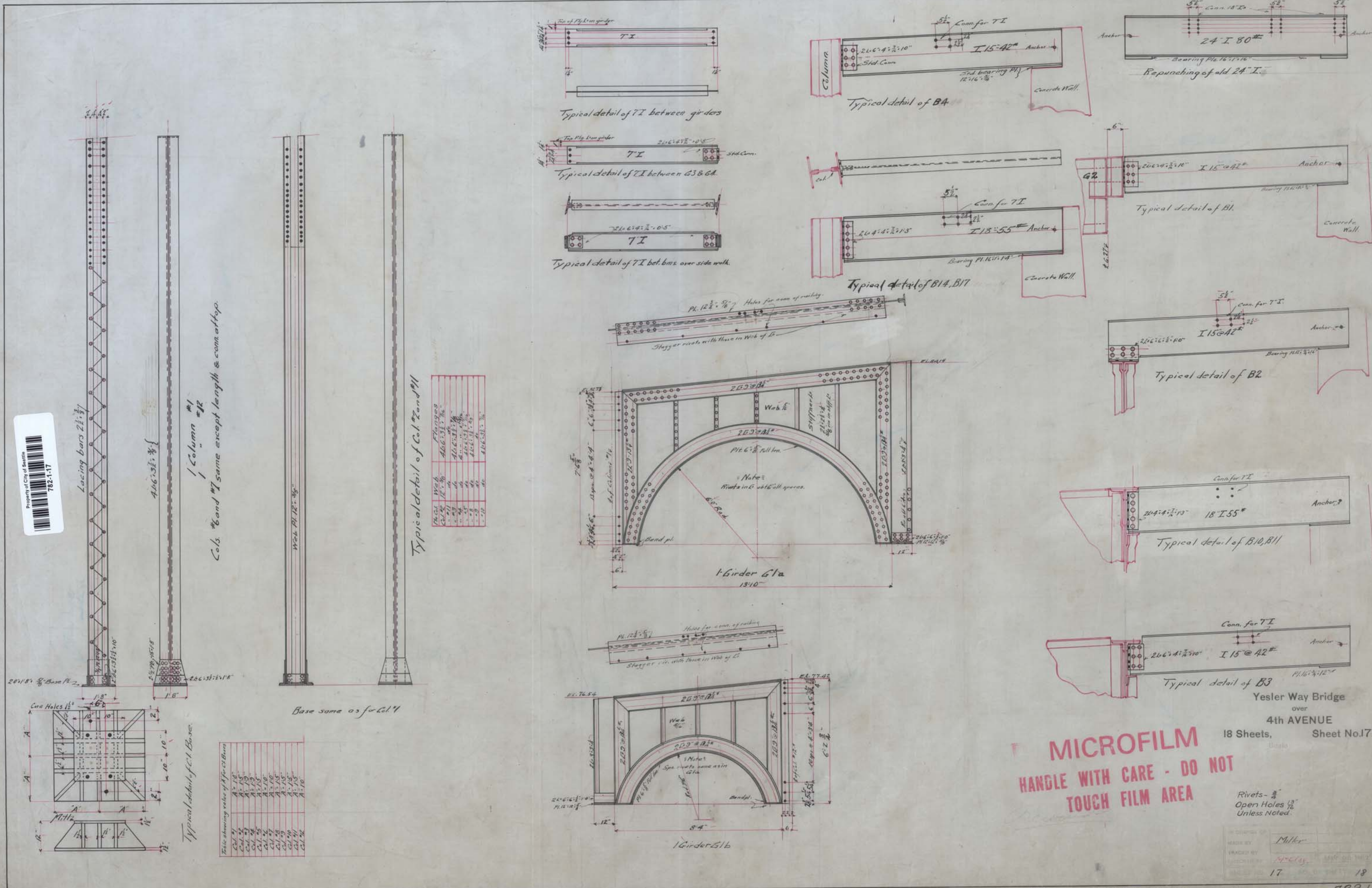
Yesler Way Bridge
over
4th AVENUE
18 Sheets. Sheet No. 16.

Miller

10985

PLAN OF ABUTMENTS AND PIERS

782-1-P



Yesler Way Bridge
over
4th AVENUE
18 Sheets, Sheet No. 17.

Rivets - 3/4"
Open Holes 13/16"
Unless Noted.

10985

MISCELLANEOUS DETAILS

782-1-Q

1 Step 6 7/16" rise & 12" tread from S.W. 4th Ave. for Stairway A
13 - 6 9/16" " & 12" " " " "
1 - 6 3/8" " to intermediate landing " " "
12 - 6" " & 12" tread " " "
1 6" " to Bridge " " "

1 Step 6 3/8" rise & 12" tread from S.W. 4th Ave. for Stairway B
18 - 6 5/16" " 12" " " " "
1 - 6 3/8" " to intermediate landing " " "
17 - 6" " & 12" tread " " "
1 6" " " " to Bridge. " " "

Plan of Landing Showing Bracing

Gusset Pls. 8"x 5/8" x 0'-10"

Note: Rail on both sides of Stairs. Construction of rail similiar to that on bridge. See sheet #3

Rail to connect to rail of bridge

El. 76.95 For A
El. 82.95 - B

2 Pl. 6"x 1/2" x 0'-5"

6"x 3/8" Pl. facing around platform, same as on Bridge, See Sh. #3

Bend Channel

Edge of Platform

N. Norgan Terrace St.

Continue Rail

6" I, 12 1/4 #, Sp. about 6'-0" C. C.

Stringers 12" I @ 20 1/4 #

Posts:- 2 Ls 2"x 2" x 7/16" Carnegie T No. 154 - 7' 0"

1 Pl. 6"x 1/2" x 1'-6"

5'-0"

C.I. Newel Post

El. 62.78 for A
El. 63.63 - B

El. 62.2 - A
El. 62.97 - B

2 Ls 5"x 3 1/2" x 1/2" - 0'-6"

1 Pl. 9"x 5/8" - 0'-9"

1'-10"

Concrete

1'-6"

El. 61.42 For A
- 62.04 - B

2 Ls 5"x 3 1/2" x 7/16" - 1'-6"

Pl. 9"x 5/8" x 0'-9"

1'-10"

Concrete

1'-6"

S.W. Line, 4.74 %

Plan Showing Slope in Landing

El. 76.95 Stair A
El. 82.95 - B

El. 77.48 Stair A
- 83.48 - B

El. 61.12 For A
- 61.50 - B

Section thru Intermediate landing Showing Sway Bracing

5'-0"

2 Ls 2 1/2" x 2 1/2" x 5/16"

L 2 1/2" x 2 1/2" x 5/16"

4'-0"

Gusset Pls. 8"x 5/8" x 1'-0"

14'-6" for Stair A
19'-6" - - B

3'-6"
3'-6"

13'-0" For Stair A
18'-0" - - B

4'-0"

6"

ELEVATION OF STAIRS TAKEN AT "AA" SEE SHEET No. 4
" " " " - BB SIMILAR TO AA EXCEPT FOR LENGTH

2'-6"

Concrete Tread

1"

6" - 12 1/4 # I

3 & 10 gauge 3"x 12" mesh Wire

Cope 6" I

1 - Pl. 5"x 3/8" x 2'-0"

5'-0"

GENERAL SECTION OF STAIRWAY "A" & "B"

Waterproofing (3 & 10 Gauge 3" & 12" Mesh Wire)

9"

SECTION OF CONCRETE SLAB FOR BALCONY STAIRS "C"

9 3/4" 3'-9" 17'-4 1/4"

3"

5"x 3/8" Pl.

Rail Similiar to that shown on stair "A" & "B" above.

6 No. 17

Bend 13 here

12" - 25 # Is

18 - Treads at about 11"
19 - Risers " " 6 1/2"

El. of Is shown on sec. "AA" "BB" & "CC"

L 5"x 4"x 1/2" 1'-9"

1 1/8" hole for existing rod

2 Ls 6"x 3 1/2" x 7/16" x 1'-9"

21"

6'-0"

El. 73.89

1 L - 5"x 3"x 5/16" - 10"

2 Ls 5"x 3 1/2" x 5/16" - 5"

2 Ls - 5"x 3/8" x 5/16"

1/2" Web

1"

Existing Columns have 13/16" holes for bracket.

11 1/4"

Existing Col. has 13/16" open holes for bracket.

1 L 6"x 6"x 1/2" - 5"

1 L 6"x 3 1/2"x 5/16"

1/4" Web Pl.

6'-0"

2 Ls 6"x 6"x 4 1/2"

2'-6 1/2"

6"x 6"x 1/2"x 4 1/2"

SECTION AA OF STAIRS "C"

SECTION BB OF STAIRS "C"

Section AA. Stairs "C"

Rail same as rail shown on Sheet No 4

Rail to finish against wall of building.

12" - 20 1/2 # I

6" - 12 1/4 # Is Where Indicated

21'-1 1/4"
18'-1 1/8"
15'-10 1/16"
16'-0 3/8"
15'-8 7/16"
18'-10 7/16"
14'-6"

117'-2 7/16"

ELEVATION OF STAIRS "C" SEE SHEET No 4

IMPROVEMENT OF 4th AVE. & 4th AVE. S
YESLERWAY BRIDGE OVER 4th AVE.
18 SHEETS - SHET 18
MADE BY - D CHECKED

Revised Dec. 1909 SHEET 18

Size 2'x 3' = 6'0"

STAIR DETAILS

782-1-18

10985-

Continuation of rail on Balcony 'C', see sheet #8656, Moran's details of 4th Ave. Bridge. Use same newel post at end of landing - cz. Omit 3 sections of rail shown on Sh. 8656, and continue rail as shown

Side Elevation

Typical Section of Stairway

Stringer 'G' Make 1

Stringer 'H' Make 1

Bent Plate - To take 2" Gas pipe rail

Plan

End Elevation

Stringer B1 - Make 1

Girder D - Make 1

Stringer B2 - Make 1

Open holes 13/16", unless noted.

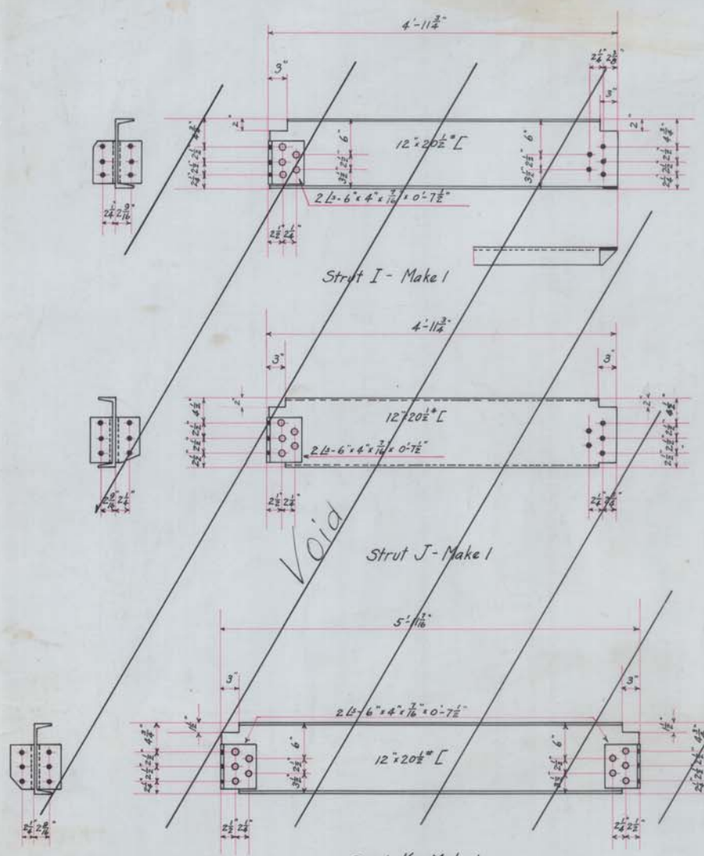
Field connections to be made with 3/4" bolts, unless noted

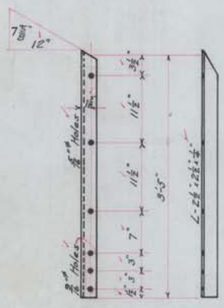
The City of Seattle
South
Stairway and Railing
4th Avenue South Bridge

MADE BY	Evans
TRACED BY	"
CHECKED BY	D.
SHEET NO. 18a	NO. OF SHEETS 18-a, b, c

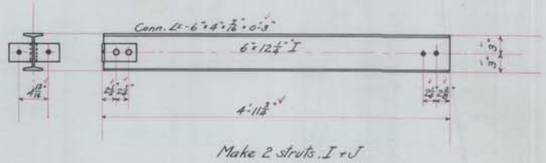
10985

SHEET 19

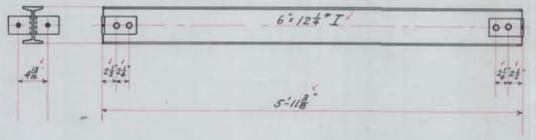




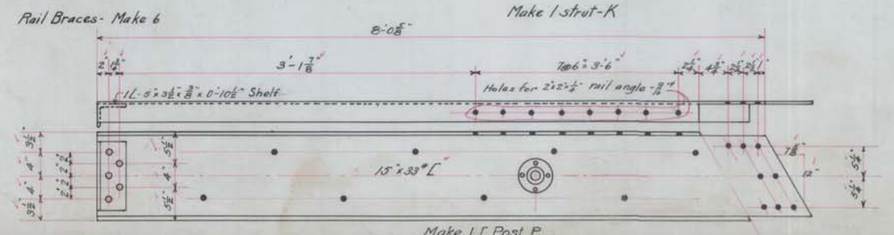
Rail Braces - Make 6



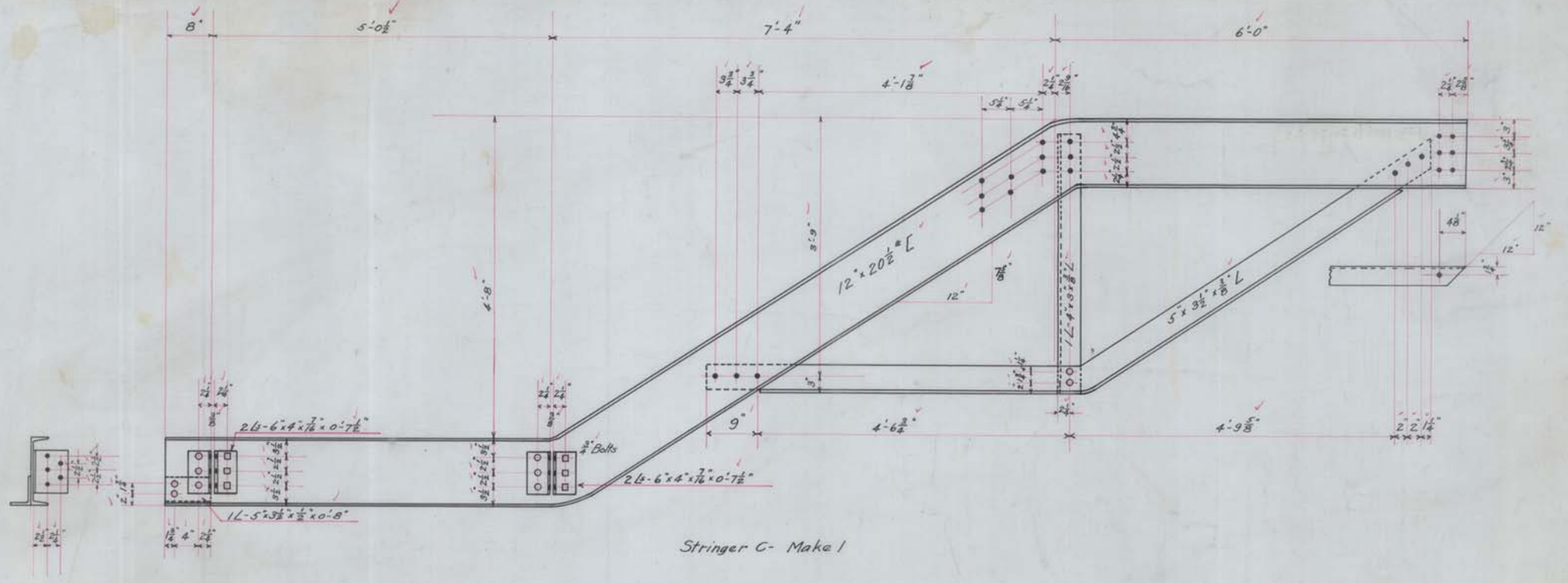
Make 2 struts, I + J



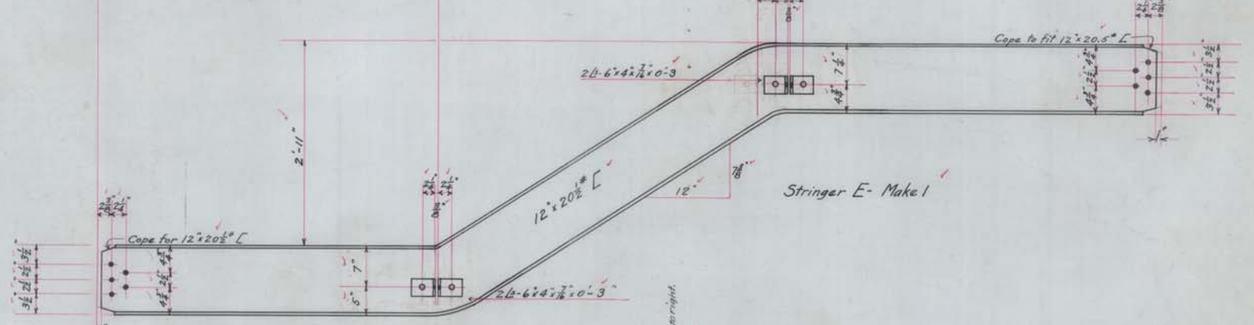
Make 1 strut-K



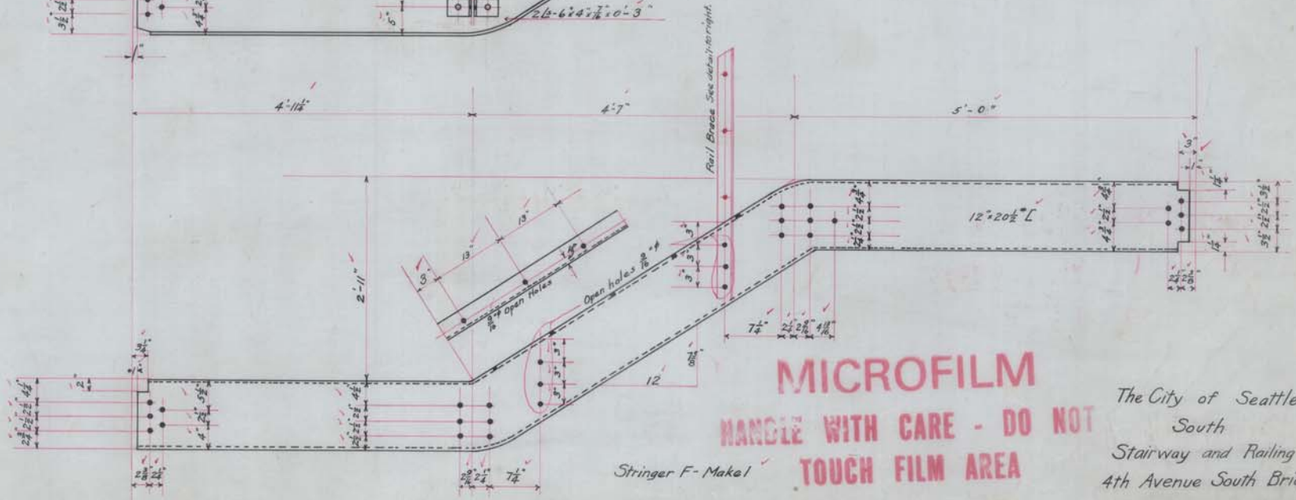
Make 1 L Post P



Stringer C - Make 1



Stringer E - Make 1



Stringer F - Make 1

Field connections with ⅞" bolts unless noted

The City of Seattle
South
Stairway and Railing
4th Avenue South Bridge

MADE BY	Evans
CHECKED BY	D
APPROVED BY	
SHEET NO.	186
NO. OF SHEETS	0.6c

SHEET 20
STAIRWAY AND RAILING 782-1-T

10985

Holes to fit rail posts-see Sh.#8610, Moran's details of 4th Ave. Br.

12"x20½#"L"

Stringer A- Make 1

1PI. 9¾"x⅜"x0'-9⅜"

Bolt for shipment

1L-5"x3"x⅜"x0'-7⅜"

1L-5½"x3½"x⅜"x1'-0"

1L-6"x4"x⅜"x1'-0"

Bolt for shipment

H- 6'-0"
F- 3'-0"
6-5'-0"

⅞" holes field-drilled for stovebolt connection with gaspipe

Make 3 Sections thus

Standard Gaspipe Newel Post

Side Elevation

2" Gaspipe Railing

Outer Rail to be bracketed to wall

Plan

End Elevation

⅞" holes field-drilled for ⅜" stove bolts

Make 1 section B

1L-6"x6"x⅞"x0'-8½"

Connection angle-stringer A to C
Make 1

The City of Seattle
South Balcony & Stairway
4th Ave. So. Bridge

MADE BY	Evans
TRACED BY	"
CHECKED BY	D
SHEET NO. 18c	NO. OF SHEETS a,b,c

10985

SHEET 21
SOUTH BALCONY & STAIRWAY 782-1-11

APPENDIX E: PIONEER SQUARE PRESERVATION BOARD MEETING MINUTES

Wednesday, March 19, 2014

The City of Seattle

Pioneer Square Preservation Board

Mailing Address: PO Box 94649 Seattle WA 98124-4649
Street Address: 700 5th Ave Suite 1700

PSB 64/14

MINUTES for Wednesday, March 19, 2014

Board Members
Mark Astor
Ann Brown
Jacqueline Gruber
Ryan Hester, Chair
Dean Kralios, Vice Chair
Willie Parish
Marcus Pearson
Tija Petrovich

Staff
Genna Nashem
Melinda Bloom

Absent
Amanda Bennett
Miriam Hinden

Chair Ryan Hester called the meeting to order at 9:00 a.m.

031914.1 **APPROVAL OF MINUTES**:

February 5, 2014
MM/SC/AB/TP 5:0:2 Minutes approved. Messrs. Parish and Pearson approved.

Ms. Gruber arrived at 9:02 am.

February 19, 2014
MM/SC/MP/DK 7:0:1 Minutes approved. Ms. Parish abstained.

March 5, 2014
MM/SC/DK 6:0:2 Minutes approved. Messrs. Parish and Astor abstained.

031914.2 **APPLICATIONS FOR CERTIFICATES OF APPROVAL**

031914.21 **Interurban Building**
157 Yesler

Replace lighting fixtures in the alley, install security cameras and remove any excess wiring

ARC Report: Mr. Kralios reported that ARC reviewed the proposal on February 26 for installation of the new light fixtures and security cameras. The applicant indicated that the new light fixtures would go where the existing light fixtures are with the exception of one. Old holes will be filled with grout and they will drill new holes into the light bracket if needed in order to line up with the mortar joints; ARC requested a drawing that indicates that this in possible. Mr. Kralios said that the applicant said that he worked with the International Sustainability Institute, Alley Network Project in choice of light. ARC thought the color and style of light fixture is appropriate. ARC thought that the location of the cameras is discrete and utilizes exiting conduit. There was discussion about painting the camera housing being it only comes in white but ARC was also concerned that painting it would require maintenance and being in the alley the white was less visually distracting. ARC recommended approval.

Applicant Comment:

Grant Wojahn explained the proposal to update the back alleyway with lighting and security cameras to enhance safety and security for his employees. Responding to questions he said that in the process they will reuse existing wiring for lighting and will remove unnecessary existing wiring and conduit, a light, and clean up. He said that there will be no new penetrations; the new fixture has large backing so can drill into grout.

Public Comment: There was no public comment.

Dean Hougen asked if the applicant would be sticking with fixtures recommended by ISIS and already being used in neighborhood.

Mr. Wojahn said that they will be. He said that they will be using the Windsor series fixture which will have a connection with the larger backed piece.

Mr. Hester said he appreciated the applicant coordinating with ISIS. He went over board purview.

Mr. Kralios said that existing wire, holes will be cleaned up.

Ms. Gruber said that per Guideline 19 alley lighting is encouraged.

Action: I move to approve a Certificate of Approval for installation of security cameras and alley lighting in aluminum color as presented per

District Rules
III General Guidelines for Rehabilitation and New Construction
XVIII Alley
SMC 23.66.030 Certificates of Approval required
Secretary of Interior's Standards for Rehabilitation 9 and 10

MM/SC/TP/AB 8:0:0 Motion carried as amended.

031914.21 **State Hotel**
114-116 First Ave S

Installation of two ducts and exhaust fans
ARC Report: Mr. Kralios said that the applicant did not attend the review meeting but the Committee took a look at the application materials. He said they questioned the hood type and requested drawings showing the installation of the brackets. ARC noted that the installation was in an area that was recessed and the set back on the roof was the required 10 feet.

Dean Haugen said they will remove non-conforming fans on the alley façade and install new and will run to the roof per Code. He said that placement is set back off the face of the alley 10 feet. He said that there will be a new duct and new hood for two separate kitchens. He said that attachment will be with brackets into the mortar, lead sleeves and stainless bolts. He said that fan will be above the parapet and they will use the same method of attachment there. He said that both are Type 1 hoods; ducting runs up the light well area of the building.

Mr. Pearson asked about set back of the fan.

Mr. Hougen said that the fan will set back about 10' from the edge of the parapet and will not be visible.

Public Comment:

Leslie Smith, Alliance for Pioneer Square, said she is glad they are rehabbing the space.

Mr. Hester went over board purview and noted that what is presented doesn't obscure the building; attachment is in the mortar; and he suggested leaving the duct unpainted.

Mr. Kralios agreed with Mr. Hester about leaving the galvanized metal unpainted. He said he appreciated the route up the alley avoiding windows and features. He said it was consistent with Guidelines and reversible.

Action: I move to approve a Certificate of Approval for installation of two ducts and exhaust fans on the alley façade as presented per
Code Citations:
District Rules VIII mechanical Systems

MM/SC/JG/MA 8:0:0 Motion carried.

031914.21 **Sidewalk alterations**

Northside of S Jackson St between 2nd and 3rd Ave S

Alterations of sidewalk to increase ADA accessibility

ARC Report: Mr. Kralios said that ARC reviewed the revised plans and discussed details of how the sidewalk met the light pole. They asked the applicant to verify that the proposed concrete abutment did not interfere with access to the light post if repairs are needed. ARC recommended a felt barrier between the concrete and light pole to protect the pole. ARC reviewed the changes to the east block and thought the transition seemed appropriate and that the solution to the sidewalk slope kept the areaway intact from below. It was noted that the areaway would have temporary bracing for stability during the construction. ARC still had questions about the transition and slope at the alley. They requested that the applicant verify and demonstrate in drawings that the alley apron would not create a dam preventing water from draining or to verify and document that there is a drain in the alley. ARC appreciated the improvement of these sidewalks to decrease the slope and allow ADA access. ARC recommended approval pending positive confirmation of the two issues discussed.

Staff Report: Granite curbs are being retained in place. On the east block the proposal is to leave the granite curb in place but to grind it down. The Board has previously approved this approach where ADA ramps have been installed. The Board has also allowed their removal and storage as an alternative to grinding them down.

Liz Stenning, ISIS, said that a walking audit was conducted resulting in questionable ADA access and points needing repair being mapped out. She said that Jackson and 1st are major access routes for transit and are prioritized. She said that the Streetcar project took care of some but others still need repair. She said that they received a grant to take care of prioritized key locations. She said that this site was selected to make the mid-block alley accessible and to fix the angle of the curb ramp.

Therese Casper, SDOT, explained that cross slopes and curb ramps at the north side of S. Jackson between 2nd and 3rd streets are too steep. She explained the intent to bring the sidewalks up to a safe standard. She said that the existing light pole will be protected from concrete pour by use of felt for easier future removal. She said that their overall intent is to get a 2% cross slope on the sidewalk and at the curb create a modified stepped curb; they will eliminate the 6" curb trip hazard adjacent to the driveway. She said that there is no parking on this side of the street so no issue with car door dings; the highest curb point is 18". She said that the work won't affect the building as the sidewalk will slope to the street. She said that at the alley they will keep the concrete section and provided drainage detail information.

Ms. Casper said that below the there is no bank vault to be impacted; the brick arch in the areaway will be protected during construction; one layer of brick will be removed so it will no longer be supporting anything but it won't look any different. She said the

granite curb will be protected and she recommends shaving it down a bit so that it is part of the ramp down; any bricks removed will be saved. Responding to clarifying questions she said that there are no prisms in the area and that lampblack will be added to concrete.

Public Comment:

Leslie Smith, Alliance for Pioneer Square, said she was impressed and that the applicant came up with a good solution; she said that there is precedent for stepped curb. She said she was pleased the process is moving forward and noted the amount of work that has gone into the project.

Mr. Hester went over board purview.

Action: I move to approve a Certificate of Approval for Alterations of sidewalk to increase ADA accessibility as presented with any brick found and removed be placed at SDOT storage.

Code Citations:
District Rules
XVII Sidewalk Treatment
XVIII Areaways

MM/SC/MA/AB 8:0:0 Motion carried as amended.

The following items were reviewed out of agenda order.

031914.21 **Intermezzo**
Merrill Place
411 1st Ave S

Installation of louvers in the transom windows

ARC Report: ARC reviewed the drawings and renderings provided. The applicant explained that they had intended the venting to be out the back but the found that there were too many pipes in the way and bends required for that route to be feasible. They proposed the venting in the non-original transom windows using the vertical two frames on each end. The louvers would be metal and painted to match the window from color. ARC confirmed that the venting will not hang into the window but will be above the window. ARC thought that the applicant demonstrated why the preferred locations on the alley and through the building are not possible. ARC recommended approval.

Geoff Lundquist explained that they have to move the exhaust venting because it was not plausible to vent out back as previously planned. He said that the louvers will now go out First Avenue and will be horizontal instead of vertically oriented; the louvers will sit side by side within the transom window. He said the metal louvers will be painted to

match the storefronts. He reminded the board that the non-historic storefronts were installed in the 1980s.

Public Comment: There was no public comment.

Mr. Hester said that the change will have minimal impact and is reversible.

Mr. Kralios said that District Rule VIII Mechanical Systems also applies.

Mr. Astor agreed with Mr. Kralios.

Action: I move to approve a Certificate of Approval for Installation of louvers in the transom windows as presented.

Code Citations:
District Rules
III General Guidelines for Rehabilitation and New Construction
VIII mechanical Systems

MM/SC/DK/MA 7:0:1 Motion carried. Ms. Gruber abstained.

031914.21 **AT and T manhole**
5th Ave between Yesler and Terrace St

Installation of a new manhole including restoration of the street and sidewalk

ARC Report: Mr. Kralios said that ARC reviewed the plans and photos provided. The applicant confirmed they intended to keep the granite curbs in place and that if there was any unforeseen damage they would replace the granite curb in kind. ARC recommended approval.

Dan McGowan explained that they propose to install a communications vault in the street on 5th; they will tie into existing structure.

Jennifer Skov explained the manhole will be 4' x 4' x 4'; they will excavate 50" down. She said they will finish the top flush with the street surface and hope to not impact the granite curb; there are three pieces of granite curb two of which may be impacted. She said they intend to keep them in place and will put a steel bar across. If it isn't possible to keep them in place they will be carefully moved aside and replaced; work should take about four days. She said that two conduit pipes will be put between two vaults and everything else will be to City standards.

Ms. Nashem explained that the sidewalk was newly re-constructed in the 80's and that no areaway exists at this location.

Mr. Hester said that lampblack is to be added to concrete per District Rules.

Ms. Skov said they will restore to the nearest joint; two sidewalk panels will be restored.

Public Comment: There was no public comment.

Mr. Hester went over district rules.

Ms. Brown asked why a new manhole was being added.

Mr. McGowan said that the existing one belongs to another provider and this one is for AT&T. He said that there is not enough room for their cable in the existing one.

Mr. Hester said the permanent vault will be good for future growth.

Mr. Kralios said that if any brick is found it should be retained and kept at the SDOT brickyard.

Action: I move to approve a Certificate of Approval for Installation of a new manhole including restoration of the street and sidewalk. The granite will be retained in place and replaced in-kind if the if they are damaged in the construction process; lampblack will be added to concrete per

Code Citations:
District Rules
III General Guidelines for Rehabilitation and New Construction
G street paving
H Curbs
XVII Sidewalk Treatment

MM/SC/MP/MA 8:0:0 Motion carried.

031914.3 PRELIMINARY PROJECT REVIEW

031914.31 Yesler Bridge

Proposed rehabilitation of the bridge

Jamie O'Day, SDOT project manager, presented via PowerPoint (full report in DON file). She went over chronology of the project from initial proposal of full bridge replacement to rehab option to replication. She said that they listened to board comments and are back to the rehab idea and to preserve the key character defining features of the bridge: fascia girders, capitals, corbels, lighting, decorative cladding, northwest stairwell and pedestrian railing.

Lex Palmer, architectural historian, said that rehab would be done according to Secretary of Interior (SOI) standards and they would employ National Park Service (NPS) briefs. He said that he believes the bridge will be able to continue to serve and

meet standards. He said they propose to replace the interior bridge girders to improve structural. He said they propose to preserve character defining features. He did a site overview and noted adjacent buildings. He said they would take off the fascia girder, refurbish it, and re-install it. He said it is the primary character defining feature; he said it has rust on it and they will maintain as much original fabric as possible.

Mr. Palmer said the four corbels, south fascia girder column cap, and two decorative lights on the north fascia girder are character defining features and would be removed, refurbished and be re-installed. He said that the north girder columns are clad in cast iron and are a character defining feature; he said the north column needs to be lengthened and they have three options: place 1.8' concrete plinth under the column with imprinted date; add section of spliced column; or, replace column and add a length of cladding by adding a spliced section.

Mr. Palmer noted the Gothic arch and diamond motif pedestrian railing and said a vehicle barrier was added in the 1970s; they propose to replace the vehicle barrier with something more sympathetic. He said they propose to install on the south pedestrian railing six steel cables 3/16" diameter across to provide the 4" diameter opening per SDOT code. The vehicle barrier is required to preserve the pedestrian railing.

He said that the northwest stairwell needs to have structural issues repaired. He said they will elevate the bridge on the north end 1.8' and will need to adjust the stairwell; he said they would extend the landing to the west. He said they propose to deconstruct the stairwell, reuse the existing brick and emboss a date in the new construction. He said they propose to begin construction in 2015.

Mr. Astor asked if earlier clearance issues would be resolved.

Ms. O'Day said there had been several vehicle strikes but the south has not been hit. She said that the horizontal clearance will require federal design deviation.

Mr. Pearson asked how raising the north end would impact the angle of the bridge and the streets coming to it and drainage.

Rob Gorman, HDR, said that it is a challenging geometric problem. He said that below the whole girder structure is changing but the bridge will look the same. He said that from the top especially at the north the bridge will be raised 1.8' and they will make a transition to existing road and sidewalk at either end. He said that the exterior columns will remain.

Mr. Hester asked about lowering the street as opposed to raising the bridge.

Mr. Gorman said that the street was lowered in the 1970s to the extent possible without doing an extensive re-do.

Mimi Sheridan, architectural historian, said that the bridge would still have to be rehabbed even if the street were lower.

Ms. Petrovich asked if interior of the columns were historic.

Ms. Nashem explained that they are historic but are secondary character defining features.

Ms. Sheridan said that the interior column is not seen – only the cladding is seen. She said that all columns have deteriorated.

Mr. Kralios said that the interior columns are not character defining; only the cladding is seen.

Ms. Petrovich asked how this would affect the historic district designation.

Ms. Sheridan said it won't change rating because character defining features are being preserved. It is similar to what is being done in areaways.

Ms. Nashem said that the local board makes decisionon what is contributing to the local district . NPS makes the determination on National Register and we won't know until that is re-done.

Mr. Palmer said that they will follow Preservation Brief 27 for cast iron.

Mr. Hester said that visible components are the primary character defining feature here. He was ok with what was proposed.

Mr. Kralios asked if the railing height would change and if the curb would be added to raise it to comply with code.

Ms. O'Day said that the railing is 42" so it complies with height.

Mr. Gorman said that it is an anchorage detail but also to prevent things like trash from being kicked off bridge to street below.

Mr. Hester said that it seems appropriate. He said that the proposed rehab would be done in accordance with the SOI standards so would be acceptable. He said that the interior columns are secondary and there is a good argument for removing them. He said the exterior is being rehabbed. He said that raising the bridge seems like a large task and suggested they thoroughly investigate lowering the street for long term functionality. He thought they should do a cost comparison.

Mr. Astor said that the proposed work is not optional but crucial to correct the fracture critical items. He noted that they've come a long way from where they started.

Ms. Petrovich asked for clarity on historic status and proposed changes.

Ms. Sheridan said that the bridge is not individually listed but is a contributing fixture of the district; she compared it to the pergola and noted changes made to it. She said

that there will be a review of the process because federal money is involved; DAHP is involved.

Mr. Kralios said that he was please they were back to a rehabilitation approach. He said when rehab or making modifications to always keep in mind the main historic components and noted they have been identified. He said that he was pleased that SDOT listened to the board and is approaching a sympathetic plan.

Mr. Astor agreed with Mr. Kralios and said that the original proposal was not approvable and he said they have considered a more appropriate option.

Mr. Hester said that what is proposed is well thought through. He said to make sure that the contributing component of the district doesn't impact historic rating.

Ms. Gruber said that they have come a long way and noted they have identified important components.

Mr. Kralios said he preferred the plinth option versus adding a splice. He said that it is clean and clearly demarcates new and historic.

Ms. Gruber agreed with Mr. Kralios and said that is it visually less intrusive.

Mr. Hester agreed.

031914.4 **BOARD BUSINESS**

031914.5 **REPORT OF THE CHAIR**: Ryan Hester, Chair

031914.6 **STAFF REPORT**: Genna Nashem

Genna Nashem
Pioneer Square Preservation Board Coordinator
206.684.0227