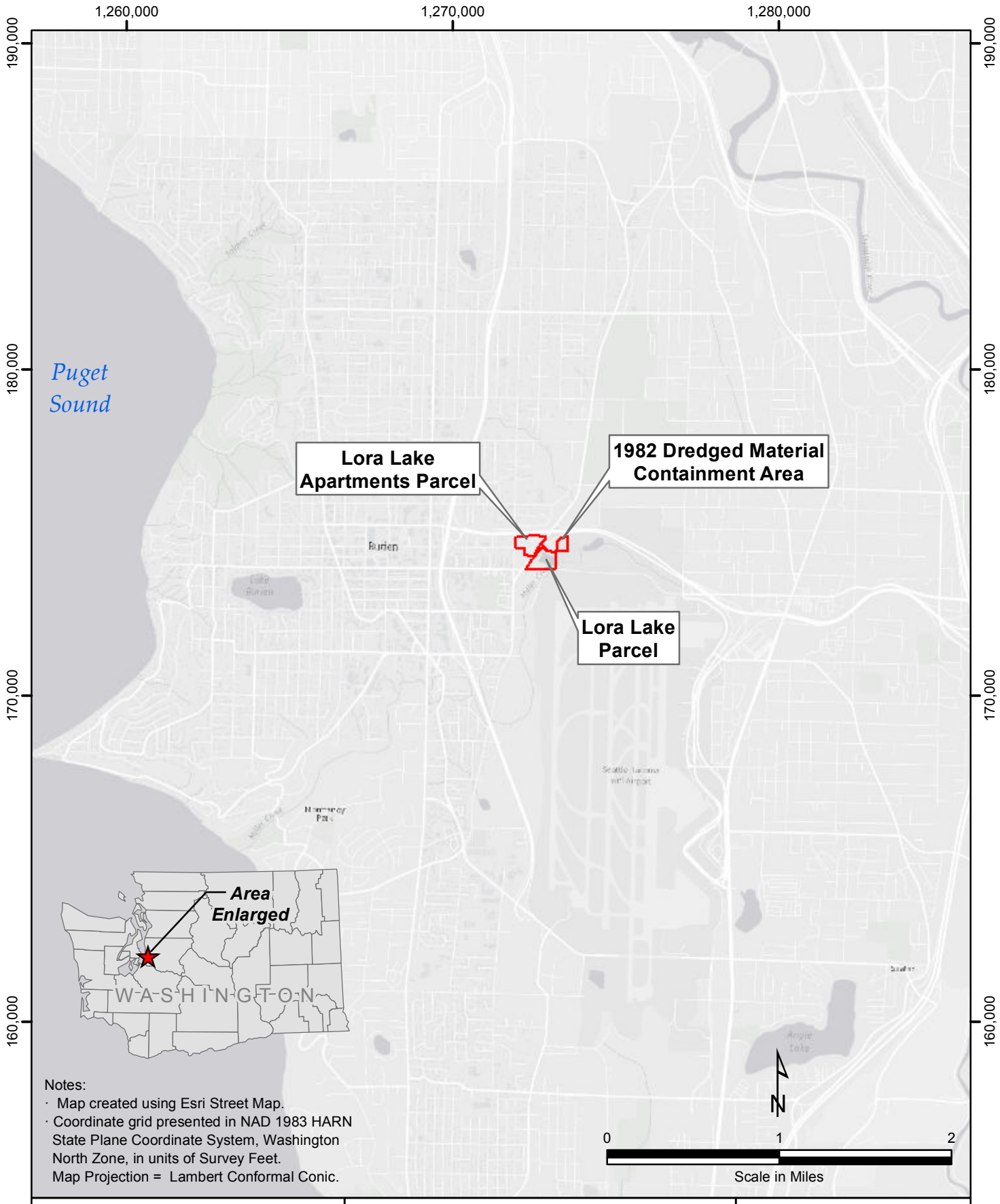
**Port of Seattle**
**Lora Lake Apartments Site**

# Remedial Investigation/ Feasibility Study

# Volume I

# Figures

FINAL




FLOYD | SNIDER
strategy • science • engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 1.1
Vicinity Map

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 1.1 (Vicinity Map).mxd
8/29/2014

1,271,500 1,272,000 1,272,500 1,273,000 1,273,500

175,000 174,500 174,000

**Legend**

- City Boundaries
- Tax Parcels
- Approximate Extent of 1982 Dredged Material Containment Area
- Approximate Locations of Fences

Notes:
- Tax parcel boundaries based on King County tax parcel data.
- City boundary data provided by King County.
- Locations of fences were digitized based on aerial image cited below and Google Earth Street View.
- Aerial image provided by Port of Seattle and dated March 20, 2011.
- Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of Survey Feet. Map Projection = Lambert Conformal Conic.

Abbreviations:
- HARN = High Accuracy Reference Network
- NAD = North American Datum

SR 518

CITY OF BURIEN

CITY OF SEATAC

LORA LAKE APARTMENTS PARCEL

1982 DREDGED MATERIAL CONTAINMENT AREA

SOUTH 150TH STREET

8TH AVE SOUTH

FORMER SEATTLE CITY LIGHT PROPERTY

PORT OF SEATTLE PROPERTY

DES MOINES MEMORIAL DRIVE

Lora Lake

PORT OF SEATTLE PROPERTY

CITY OF BURIEN

CITY OF SEATAC

LORA LAKE PARCEL

STIA 3RD RUNWAY APPROACH LIGHTING SYSTEM

N

0 150 300

Scale in Feet

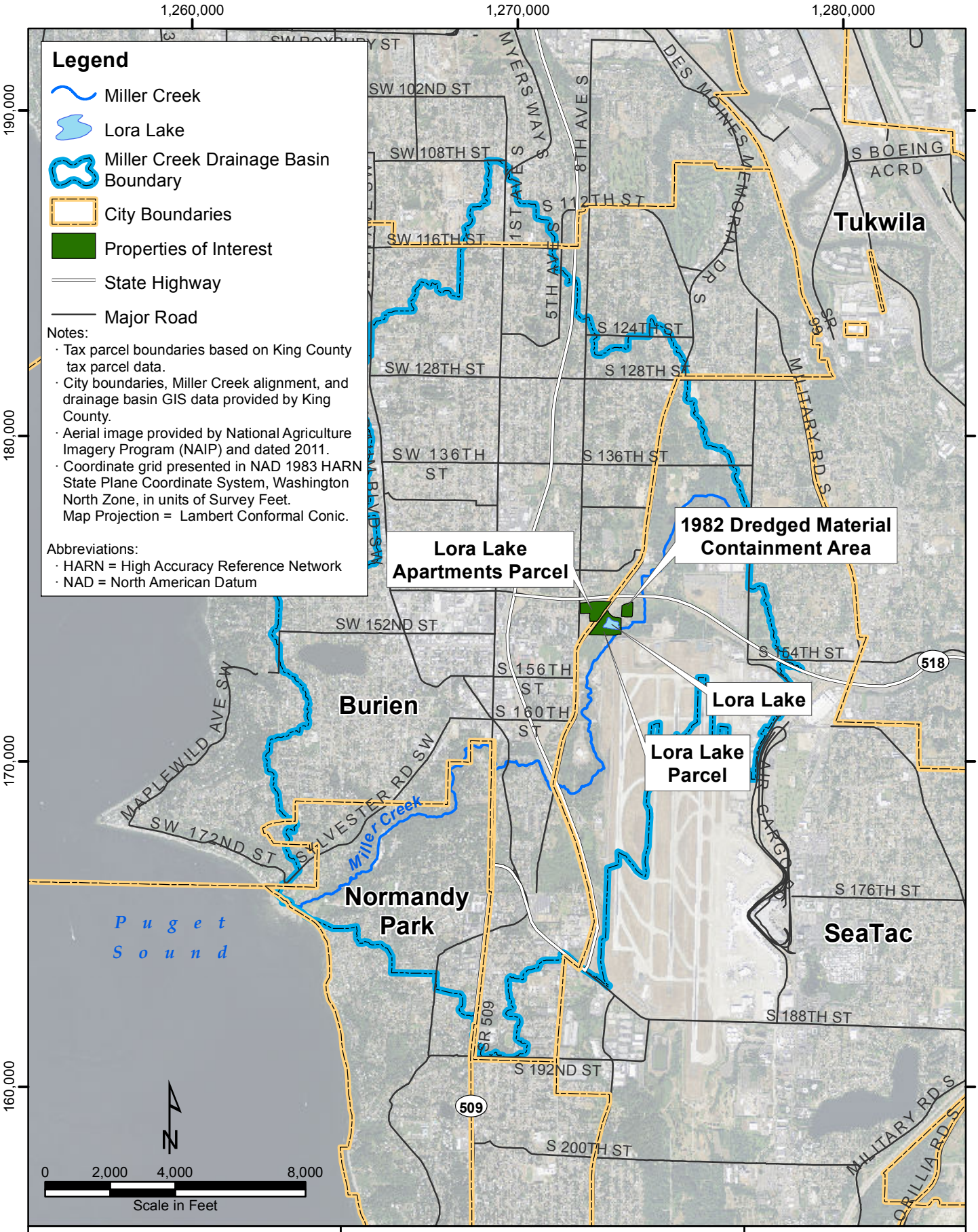
FLOYD | SNIDER

strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 2.1
Site Map

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 2.1 Site Map.mxd
8/29/2014




FLOYD | SNIDER
strategy · science · engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 2.2
Miller Creek
Watershed Map

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 2.2 Miller Creek Watershed Map.mxd
8/29/2014

1,272,000 1,272,500 1,273,000

175,000 174,500

**Legend**

- Former Locations of Structures Associated with Industrial Activities[1]
- Locations of Former Residences and Associated Outbuildings[1]
- Approximate Perimeter of Former Auto Wrecking Yard
- Tax Parcels

Notes:

1. Locations of former residences and former structures associated with auto wrecking and barrel cleaning activities were digitized using reference aerial photos dated 1936, 1946, 1980, and 1985 (Appendix A).
   - Approximate location of Potential Drum Cleanout Pond based on 1946 aerial photograph (Appendix A).
   - Approximate location of the 1987 excavation and sump removal by Golder Associates was derived from figures appearing in Golder, 1987.
   - Approximate Extent of Investigation by GeoSciences Management, Inc. supplied by AECOM.
   - Approximate locations for features associated with the former Sunnydale Substation are based on Figure 4, Pinnacle Geosciences, 2009.
   - Tax parcel boundaries based on King County tax parcel data.
   - Aerial image provided by Port of Seattle and dated March 20, 2011.
   - Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of Survey Feet. Map Projection = Lambert Conformal Conic.

Abbreviations:

- HARN = High Accuracy Reference Network
- NAD = North American Datum

SR 518

8TH AVE SOUTH

DES MOINES MEMORIAL DRIVE

Approximate Extent of Investigation by GeoScience Management, Inc.

Approximate Location of 1987 Golder Excavation and Sump Removal Activities

Approximate Location of Novak Barrel Cleaning Company Building

Potential Drum Cleanout Pond

Concrete Slab (Removed)

Former Perimeter Fence of Seattle City Light Sunnydale Substation

Area of Soil Excavation by Seattle City Light

Approximate Perimeter of Former Auto Wrecking Yard

Lora Lake

N

0 100 200

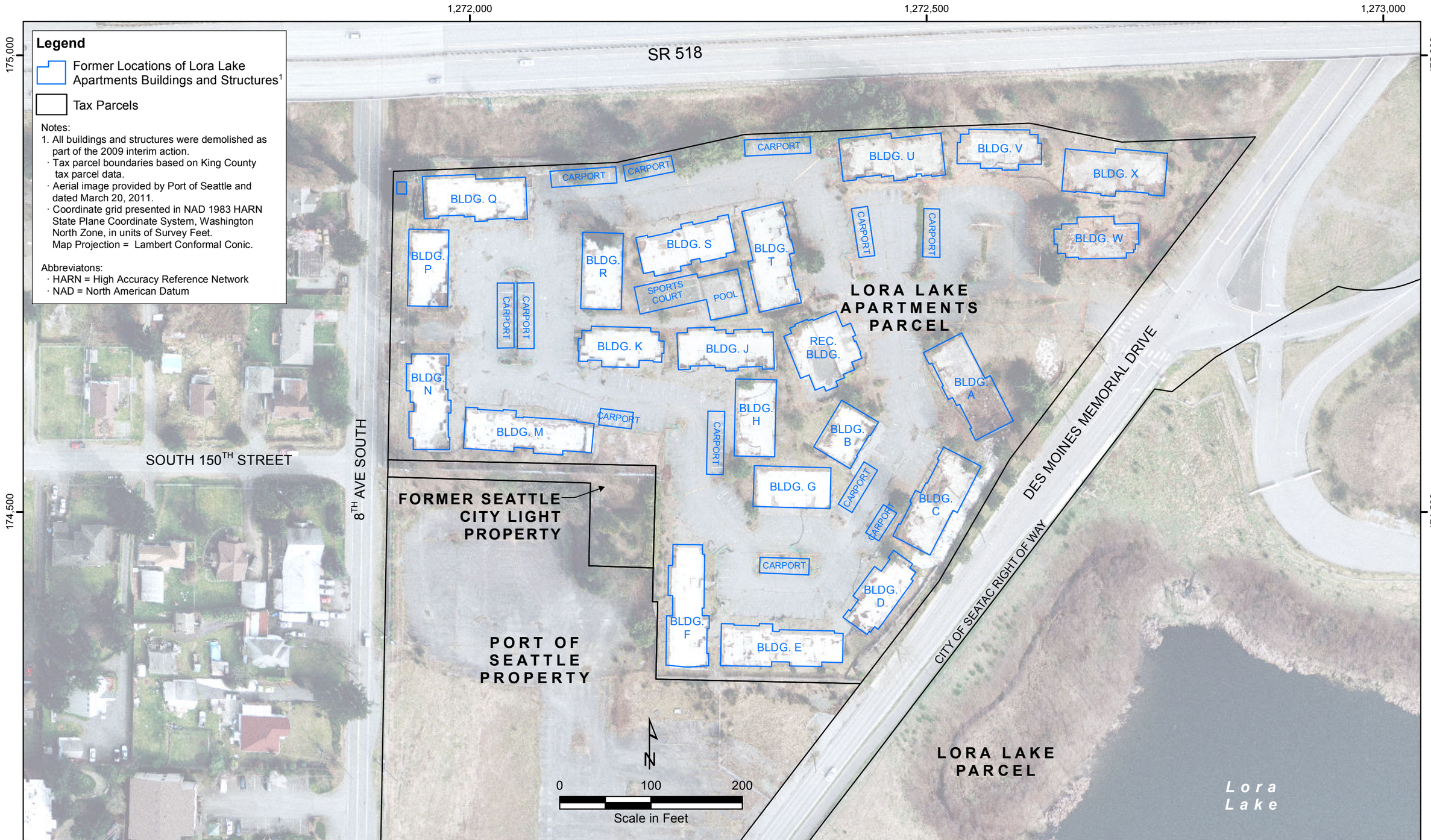
Scale in Feet

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 2.3
Historical Site Uses and Operations

Path: I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 2.3 Historical Site Uses and Operations.mxd
Date: 8/29/2014




FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 2.4
Lora Lake Apartments Layout

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 2.4 Lora Lake Apartments Parcel Layout.mxd
8/29/2014

1,272,000 1,272,500 1,273,000 1,273,500

175,000 174,500 174,000

SR 518

8TH AVE SOUTH

LORA LAKE APARTMENTS PARCEL

FORMER SEATTLE CITY LIGHT PROPERTY

DES MOINES MEMORIAL DRIVE

CITY OF SEATAC RIGHT OF WAY

STIA 3RD RUNWAY APPROACH LIGHTING SYSTEM

1982 DREDGED MATERIAL CONTAINMENT AREA

PORT OF SEATTLE PROPERTY

LORA LAKE PARCEL

Lora Lake

Miller Creek

PORT OF SEATTLE PROPERTY

N

0 125 250

Scale in Feet

**Legend**

Runway Protection Zones[1]

- Controlled Activity Area[2]
- Extended Object Free Area[3]
- Approximate Locations of Fences
- Approximate Extent of Dredged Material Containment Area
- Tax Parcels
- Miller Creek

Notes:

1. Runway Protection Zones based on Port of Seattle data.
2. The Controlled Activity Area is the zone outside of and adjacent to the Extended Object Free Area (XOFA) in which land use is restricted by the FAA and excludes the construction of residences and public gathering places such as shopping centers, offices or hospitals. (FAA 2008).
3. The XOFA must be kept clear of objects including structures, equipment, and terrain, except for those objects necessary for air navigation or aircraft ground-maneuvering purposes. (FAA 2008).

· STIA = Seattle-Tacoma International Airport.
· Locations of fences were digitized based on aerial image cited below and Google Earth Street View.
· Aerial image provided by Port of Seattle and dated March 20, 2011. The location of the STIA 3rd Runway Approach Lighting System was digitized from this aerial photo.
· Tax parcel boundaries based on King County tax parcel data.
· Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of survey feet. Map Projection = Lambert Conformal Conic.

Abbreviations:

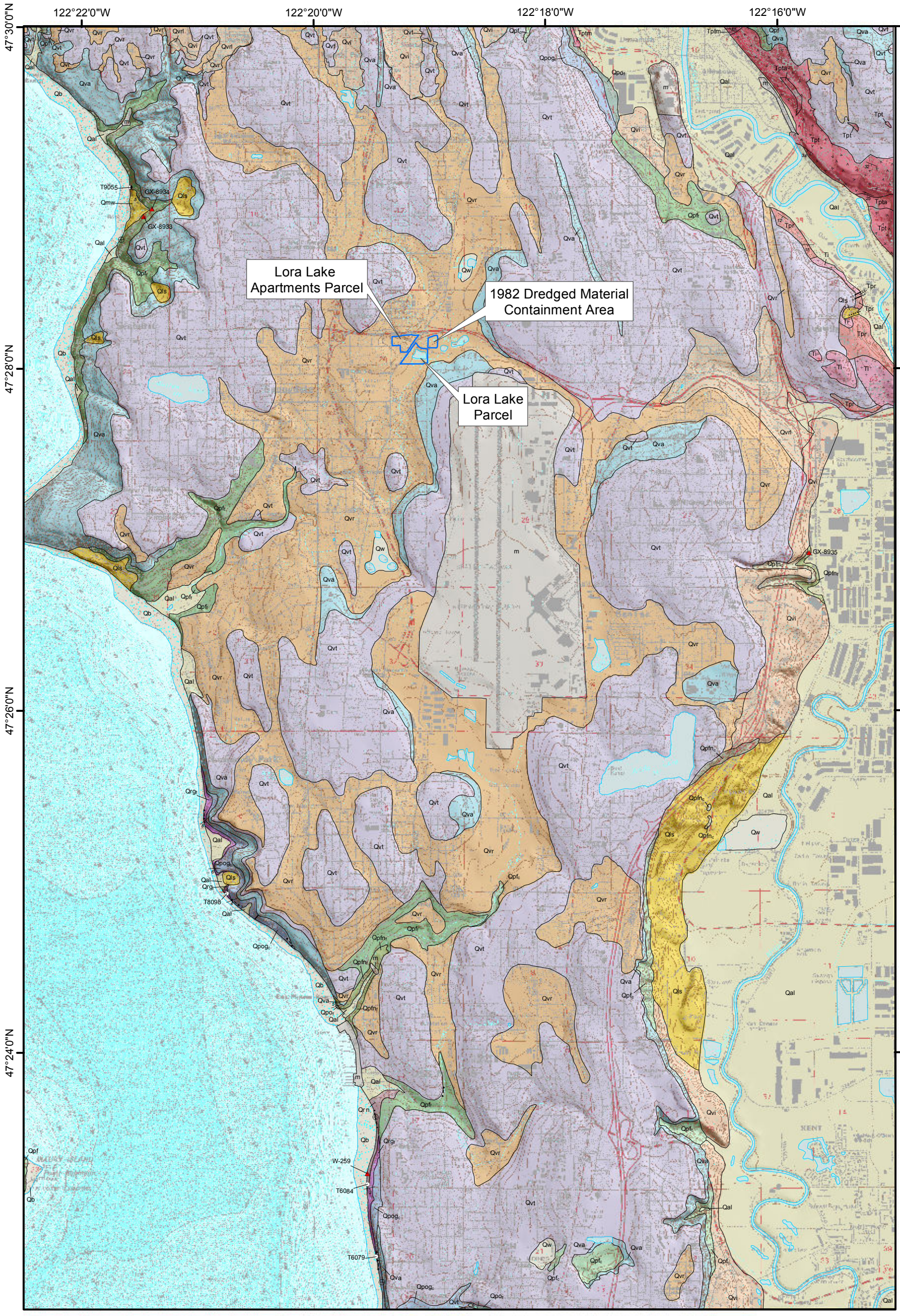
· FAA = Federal Aviation Administration
· HARN = High Accuracy Reference Network
· NAD = North American Datum

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 2.5
FAA Runway Protection and Approach Transition Zones

Path: I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 2.5 FAA Runway Protection and Approach Transition Zones.mxd
Date: 8/29/2014




Notes:

- Accompanying legend for the Geologic Map of Des Moines, Washington, appears in Figure 2.6b.
- This map was originally published at a scale of 1:24,000. For this figure, the map has been reformatted to satisfy report figure size standards, resulting in a presentation scale of 1:42,000.

Map Reference:
Booth, D.B. and Waldron, H.H., 2004, Geologic Map of the Des Moines 7.5' Quadrangle, Washington, Draft Copy: U.S. Geological Survey Miscellaneous Field Studies, Scale 1:24,000, 1 sheet.

FLOYD | SNIDER
strategy • science • engineering

Aspect CONSULTING

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

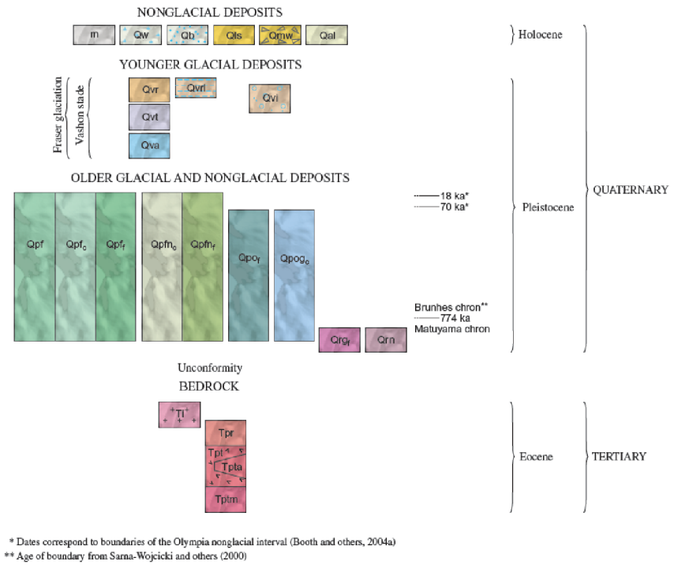
Figure 2.6a
Geologic Map of the Des Moines 7.5' Quadrangle, Washington

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 2.6a Des Moines Geology.mxd
8/29/2014

GEOLOGIC MAP OF THE DES MOINES 7.5' QUADRANGLE, KING COUNTY, WASHINGTON

By
Derek B. Booth and Howard H. Waldron
2004

## CORRELATION OF MAP UNITS




* Dates correspond to boundaries of the Olympia nonglacial interval (Booth and others, 2004a)
** Age of boundary from Sarna-Wojcicki and others (2000)

**Contact**

**Fault**—Dotted where concealed

**Strike and dip of beds**
Inclined
Horizontal

**Pre-Vashon till**—Mapped within units $Qpf_f$, $Qpog_c$, and $Qrg_f$ where exposed on valley walls or coastal bluffs

**Peat bed or other organic-rich layer**

**Paleomagnetic sample localities**
T9055 Transitional magnetization
T6084 Reversed magnetization

GX-8933 **$^{14}$C age locality**—See Table 1 for ages

## DESCRIPTION OF MAP UNITS

### NONGLACIAL DEPOSITS

m **Modified land (Holocene)**—Sand and gravel as fill, as well as extensively graded natural deposits. Where topographic base map (*ca.* 1949) does not reflect subsequent human modification, original (unmodified) geologic deposit has been mapped where information is available

Qw **Wetland deposits (Holocene)**—Peat and alluvium, poorly drained and intermittently wet. Grades into unit Qal. Compiled from King County (1983); however, mapped areas are not complete inventory of such deposits

Qb **Beach deposits (Holocene)**—Well-sorted sand, pebbles, silt, and shells deposited or reworked by wave action. Includes upper-beach deposits above mean high-water line, extensive tideflats below mean high-water line, and local thin veneer of modern beach sediment that overlies older deposits. At stream mouths, grades into unit Qal

Qls **Landslide deposits (Holocene)**—Diamict of broken to internally coherent surficial deposits that have been transported downslope en masse by gravity. Numerous unmapped areas of both landslide and related mass-wastage deposits are present along coastal bluffs of Puget Sound, as well as in ravines that drain east to Green River, particularly where coarse deposits (units Qva and $Qpog_c$) overlie fine deposits (particularly unit $Qpf_f$)

Qmw **Mass-wastage deposits (Holocene)**—Undifferentiated colluvium, soil, and landslide debris having indistinct morphology. Mapped along coast 2 km south of north map boundary as fan-shaped deposit where landslide debris intermingles with stream-channel alluvium. Numerous unmapped areas of mass-wastage deposits are present elsewhere in quadrangle along coastal bluffs of Puget Sound and in ravines draining eastward to Green River and Duwamish River valleys. Deposits, both mapped and unmapped, include abundant discrete landslides that are meters to tens of meters in lateral extent

Qal **Alluvium (Holocene)**—Moderately well sorted deposits of cobble gravel, pebbly sand, and sandy silt along flood plain of Green River and Duwamish River, and alluvial fans at mouths of small streams along Puget Sound, where they are gradational with sediments of unit Qb

### YOUNGER GLACIAL DEPOSITS

**Deposits of the Vashon stade of Fraser glaciation of Armstrong and others (1965) (Pleistocene)**—Consists of:

Qvr **Recessional outwash deposits**—Stratified sand and gravel, moderately well sorted to well sorted; less common silty sand and silt. Deposited in broad anastomosing outwash channels that carried south-draining glacial meltwater away from ice margin during ice retreat. Typically slightly oxidized. Deposits that are less than about 1 m thick not shown on map. Locally subdivided into:

Qvrl **Recessional lacustrine deposits**—Very fine-grained sand, silt, and clay deposited in small lakes during ice recession

Qvi **Ice-contact deposits**—Deposits that are similar in texture to unit Qvr but commonly are less well sorted and have silt-rich matrix. Contains lenses and pods of till. Deposits are present in northernmost part of quadrangle and along Duwamish River and Green River valleys. From Tukwila south to edge of quadrangle, they form a kame terrace that was built against late-recessional ice tongue in Green River valley

Qvt **Till**—Compact diamict containing subrounded to well-rounded clasts in massive, silt- or sand-rich matrix. Glacially transported and deposited. Generally a few meters to a few tens of meters thick, forming an undulatory surface. Also found sporadically within areas mapped as unit Qvi

Qva **Advance outwash deposits**—Well-bedded sand and gravel deposited subaqueously or by streams and rivers in front of advancing ice sheet. Almost devoid of silt or clay, except near base of unit. Generally unoxidized

### OLDER GLACIAL AND NONGLACIAL DEPOSITS

Qpf **Deposits of pre-Fraser glaciation age (Pleistocene)**—Weakly to moderately oxidized sand and gravel, lacustrine sediments containing local peat layers, and moderately to strongly oxidized diamict composed of silty matrix and rounded gravel clasts. Includes deposits of both glacial and nonglacial origin. Locally mapped as:

$Qpf_c$ **Coarse-grained deposits**—Predominantly gravel and sand

$Qpf_f$ **Fine-grained deposits**—Predominantly silt and clay

**Nonglacial deposits**—Abundant organic debris or pumice indicates nonglacial origin

$Qpfm_c$ **Coarse-grained nonglacial deposits**—Predominantly gravel and sand

$Qpfm_f$ **Fine-grained nonglacial deposits**—Predominantly silt and clay

**Deposits of Pre-Olympia age (Pleistocene)—**

$Qpo_f$ **Fine-grained deposits**—Silt at north and south edges of map of indeterminate glacial or nonglacial origin; underlies glacial deposits of pre-Olympia age ($Qpog_c$)

**Glacial deposits**—Weakly to strongly oxidized silt, sand, and sparse gravel of glacial origin as determined by clast provenance. Underlies all Vashon-age deposits and thus also must be of pre-Olympia age

$Qpog_c$ **Coarse-grained deposits**—Predominantly gravel and sand

**Reversely magnetized deposits (Pleistocene)—**

**Glacial deposits—**

$Qrg_f$ **Fine-grained deposits**—Fine-grained silt containing dropstones or interstratified with pebbly diamict and so of presumed glacial origin. Reversely magnetized and thus presumably more than 774,000 years old

Qrn **Nonglacial deposits**—Silt, fine- to medium-grained sand, clay, ash, peat, and mudflow deposits. Abundant wood and volcanic debris demonstrate nonglacial origin. Underlies silt of unit Qrg in bluffs near Zenith

### BEDROCK

Tl **Intrusive rocks (Eocene)**—Irregular masses of porphyritic basalt and andesite

**Puget Group (Eocene)**—Divided into:

Tpr **Renton Formation**—Nonmarine arkosic and feldspathic micaceous sandstone; also siltstone and claystone containing locally abundant coal beds

Tpt **Tukwila Formation**—Andesitic sandstone, tuff, mudflow breccia, and minor lava flows or sills. Locally subdivided into:

Tpta **Arkosic sandstone**—Similar to Renton Formation

Tptm **Marine and nonmarine sedimentary rocks**—Volcanic conglomerate and marine sandstone; some siltstone and shale. Mostly composed of volcanic rock fragments and minor arkose. Deposits at north edge of quadrangle contain marine shells

Notes:
- Refer to Figure 2.6a, Geologic Map of the Des Moines 7.5' Quadrangle, Washington, for the map reference information pertaining to this legend.
- The correlations and descriptions of map units that are presented in this figure are reproduced in the maximum size possible within the space constraints imposed by the 11" X 17" document format. To view this document in its native, full-size pdf format, please visit http://pubs.usgs.gov/sim/2004/2855/ and view or download the file named "des_moines_map.pdf".

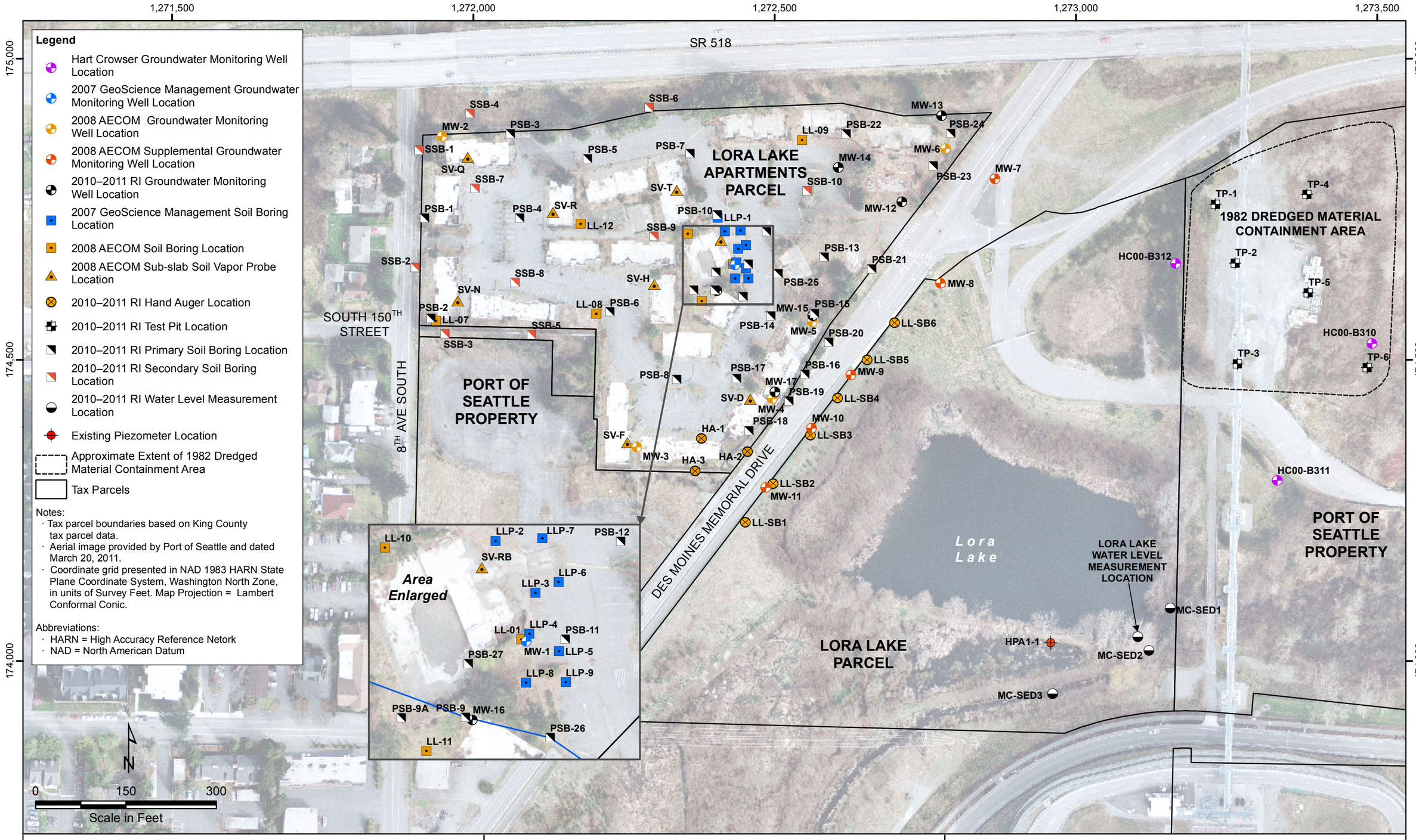
FLOYD | SNIDER
strategy ▪ science ▪ engineering

Aspect CONSULTING

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 2.6b
Des Moines 7.5' Quadrangle Geology Map Legend

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 2.6b Des Moines Geology Map Legend 11x17.mxd
8/29/2014

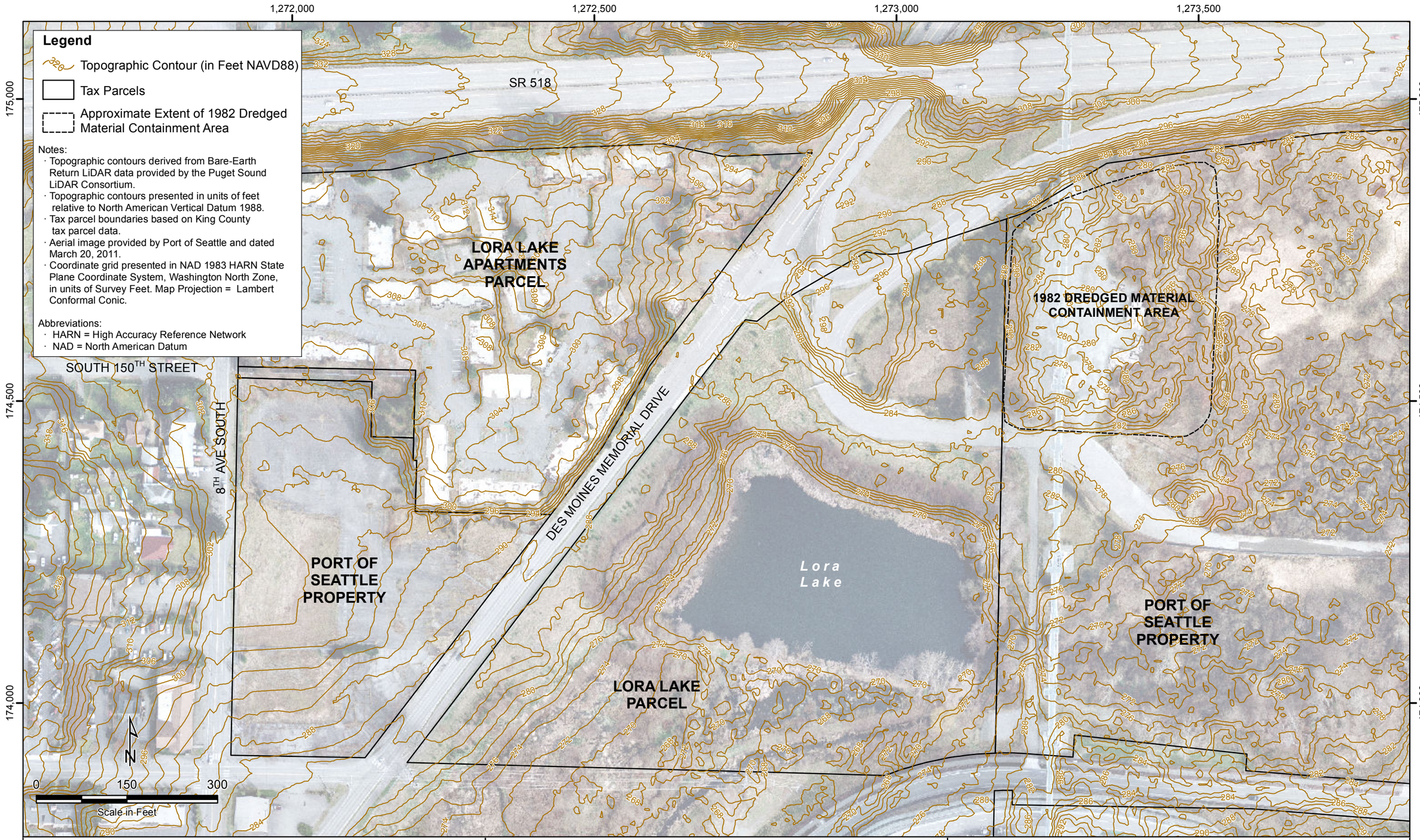



FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 2.7
All Site Soil Boring and Monitoring Well Locations

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 2.7 All Site Soil Boring and MW Locations.mxd
8/29/2014

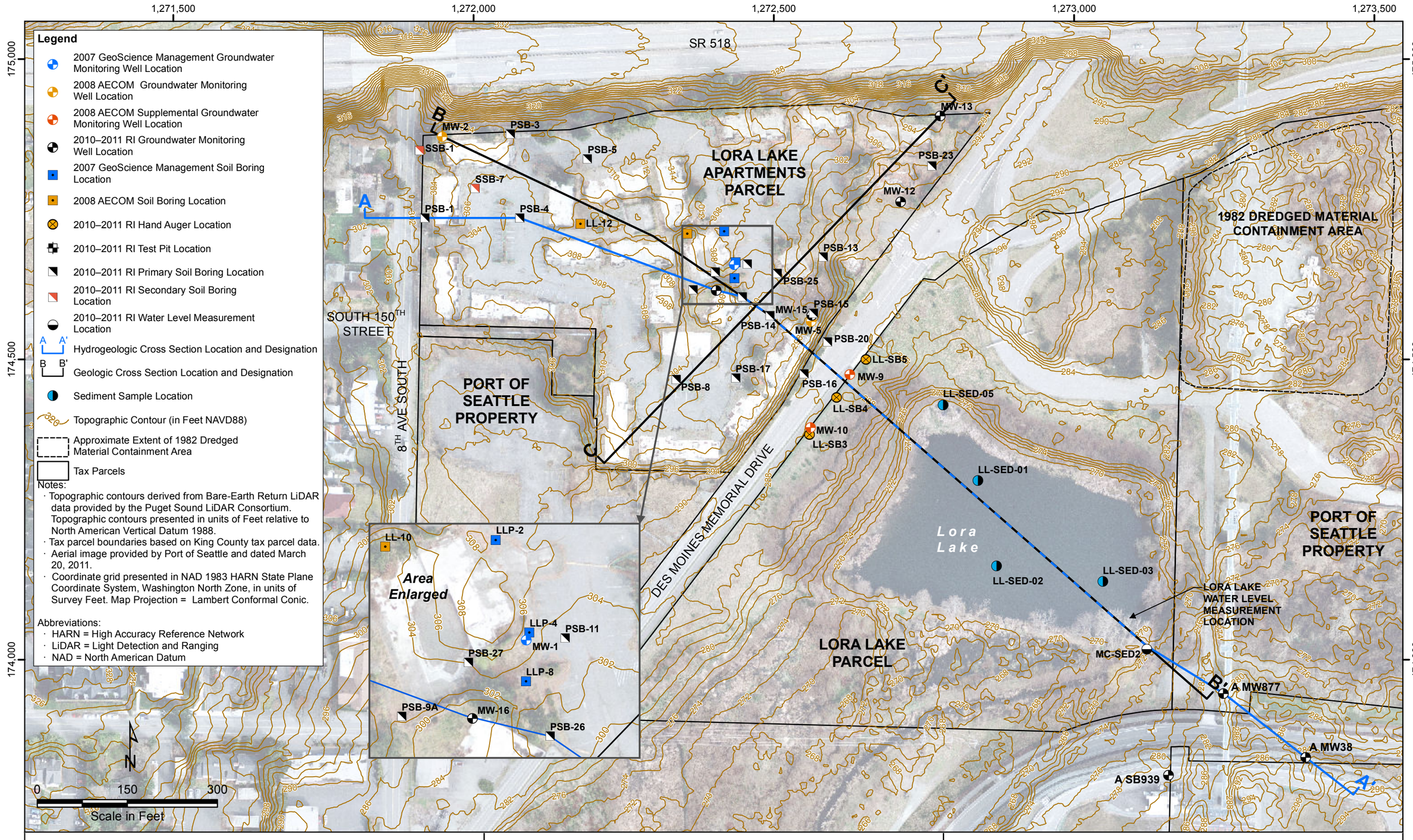



FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 2.8
Site Topography

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 2.8 Topography of LLA & LL & DMA.mxd
8/29/2014

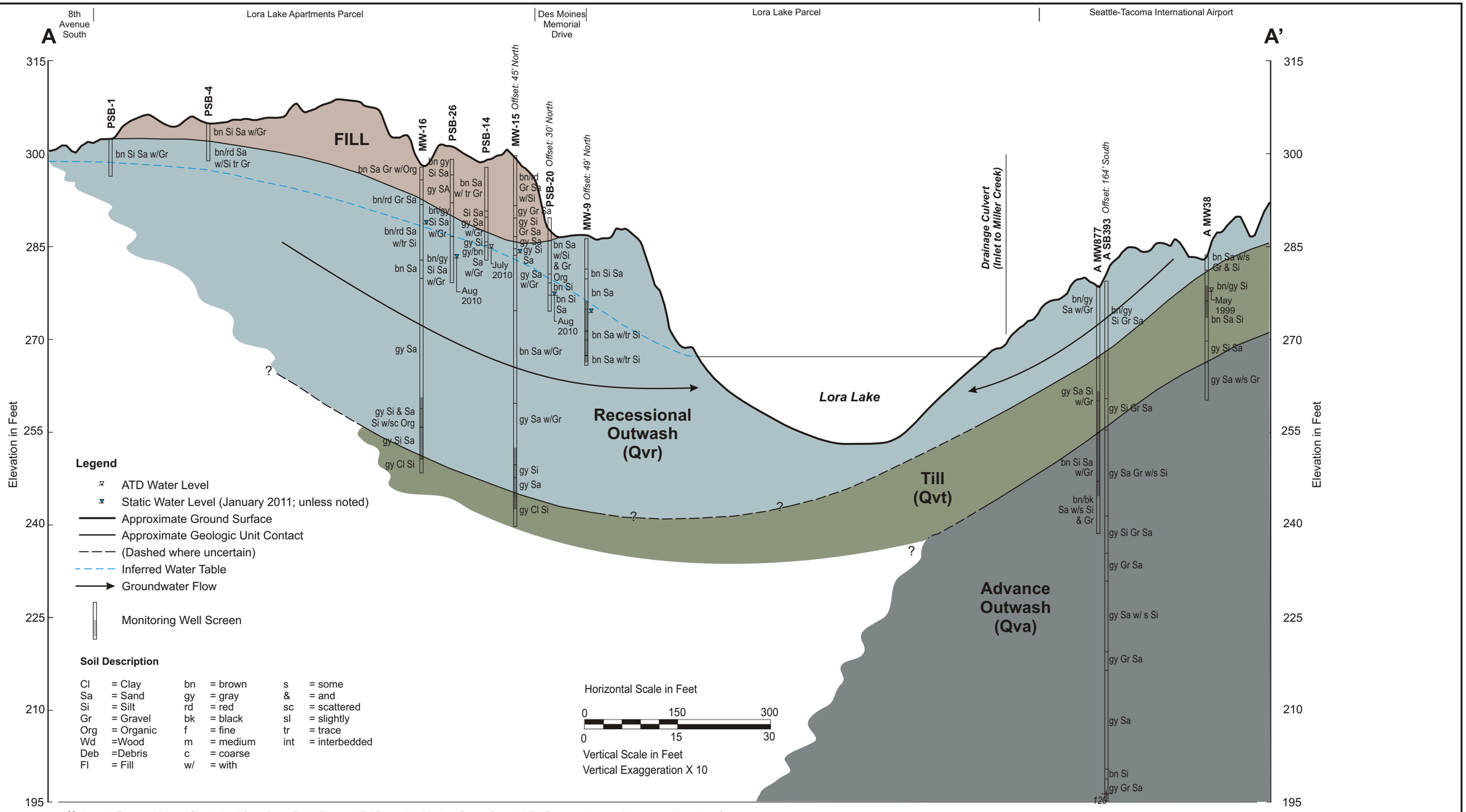



FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 2.9
Locations of Geologic Cross Sections

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 2.9 Locations of Geologic and Hydrogeologic Cross Sections.mxd
8/29/2014




***Notes:*** 1. Topographic profile derived from Bare-Earth Return LiDAR provided by the Puget Sound LiDAR consortium and presented in units of feet relative to North American Vertical Datum 1988.
2. Soil boring and monitoring well locations based on Port survey data and projected to cross section profile. Projected ground surface based on survey elevations at these locations and ground truthing.

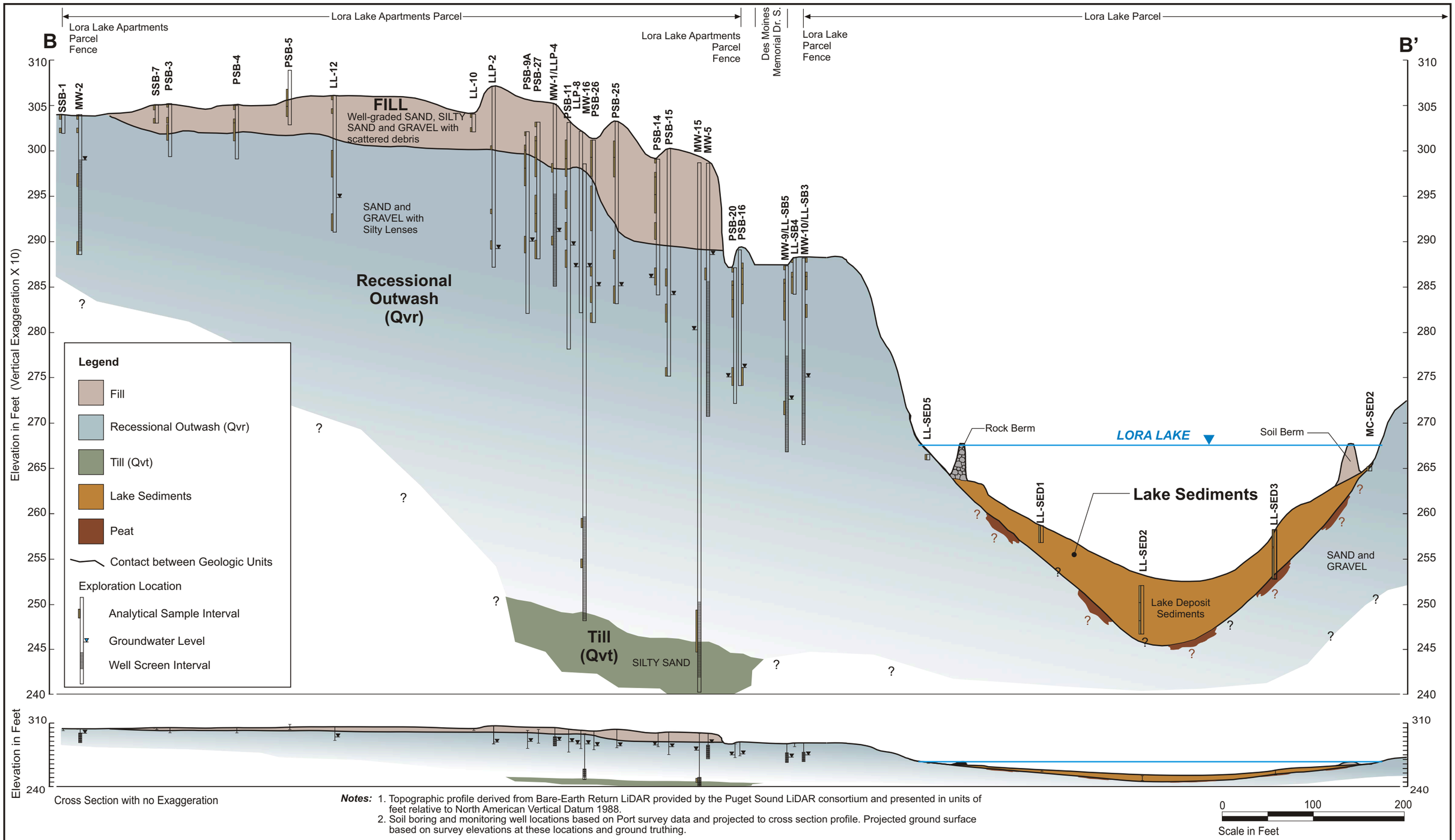
FLOYD | SNIDER
strategy ▪ science ▪ engineering

Aspect CONSULTING

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 2.10
Hydrogeologic Cross Section A-A'

G:Project\Clients\Floyd Snider\Lora Lake Section A-A'



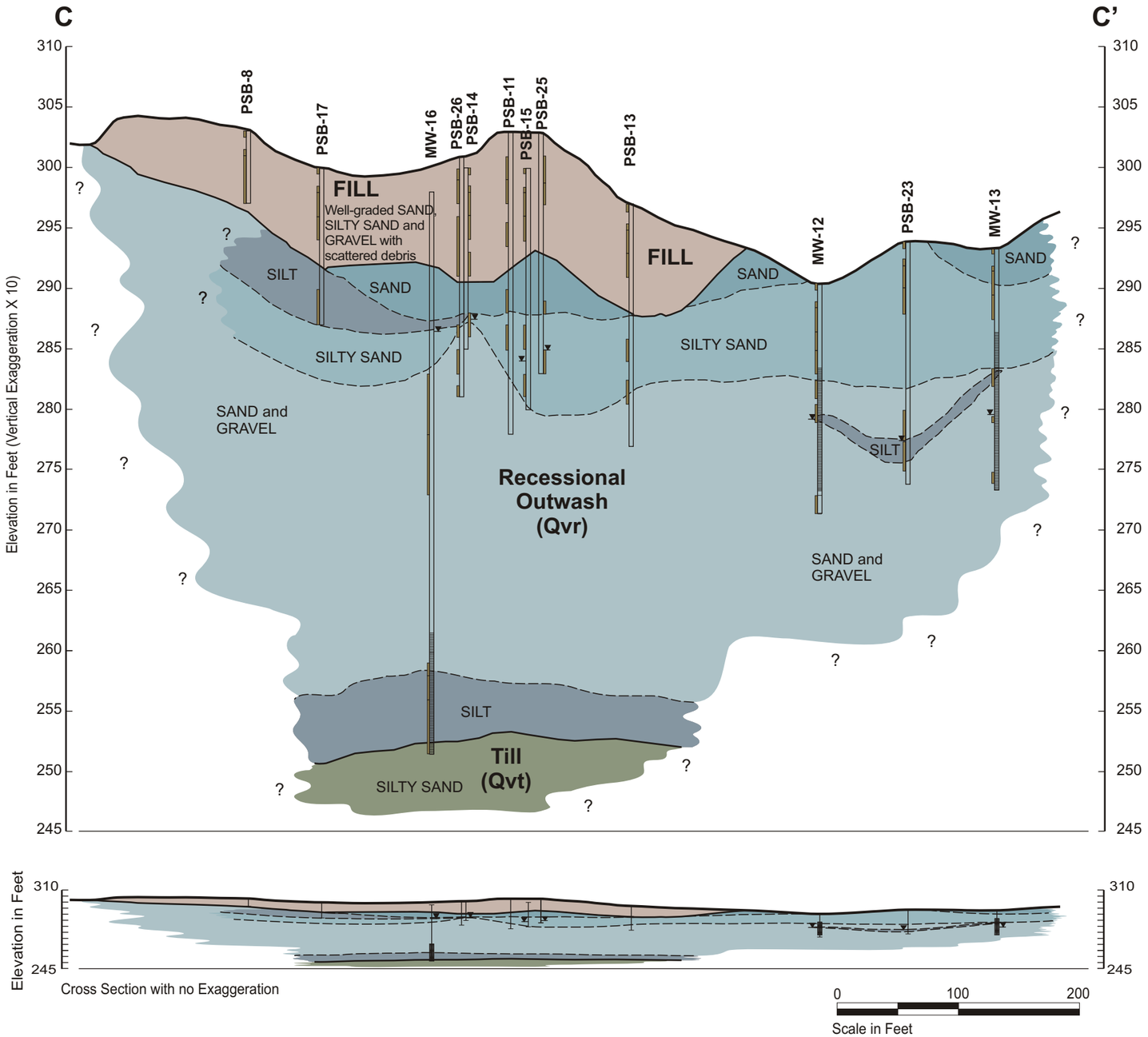

***Notes:***
1. Topographic profile derived from Bare-Earth Return LiDAR provided by the Puget Sound LiDAR consortium and presented in units of feet relative to North American Vertical Datum 1988.
2. Soil boring and monitoring well locations based on Port survey data and projected to cross section profile. Projected ground surface based on survey elevations at these locations and ground truthing.

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 2.11
Geologic Cross Section B-B'

G:Project\Clients\Floyd Snider\Lora Lake\Figure 2.11




**Legend**

- Fill
- Recessional Outwash (Qvr)
  - SAND
  - SILTY SAND
  - SILT
  - SAND and GRAVEL
- Till (Qvt)
- Contact between Geologic Units
- Contact within Geologic Unit

Exploration Location

- Analytical Sample Interval
- Groundwater Level
- Well Screen Interval

***Notes:***

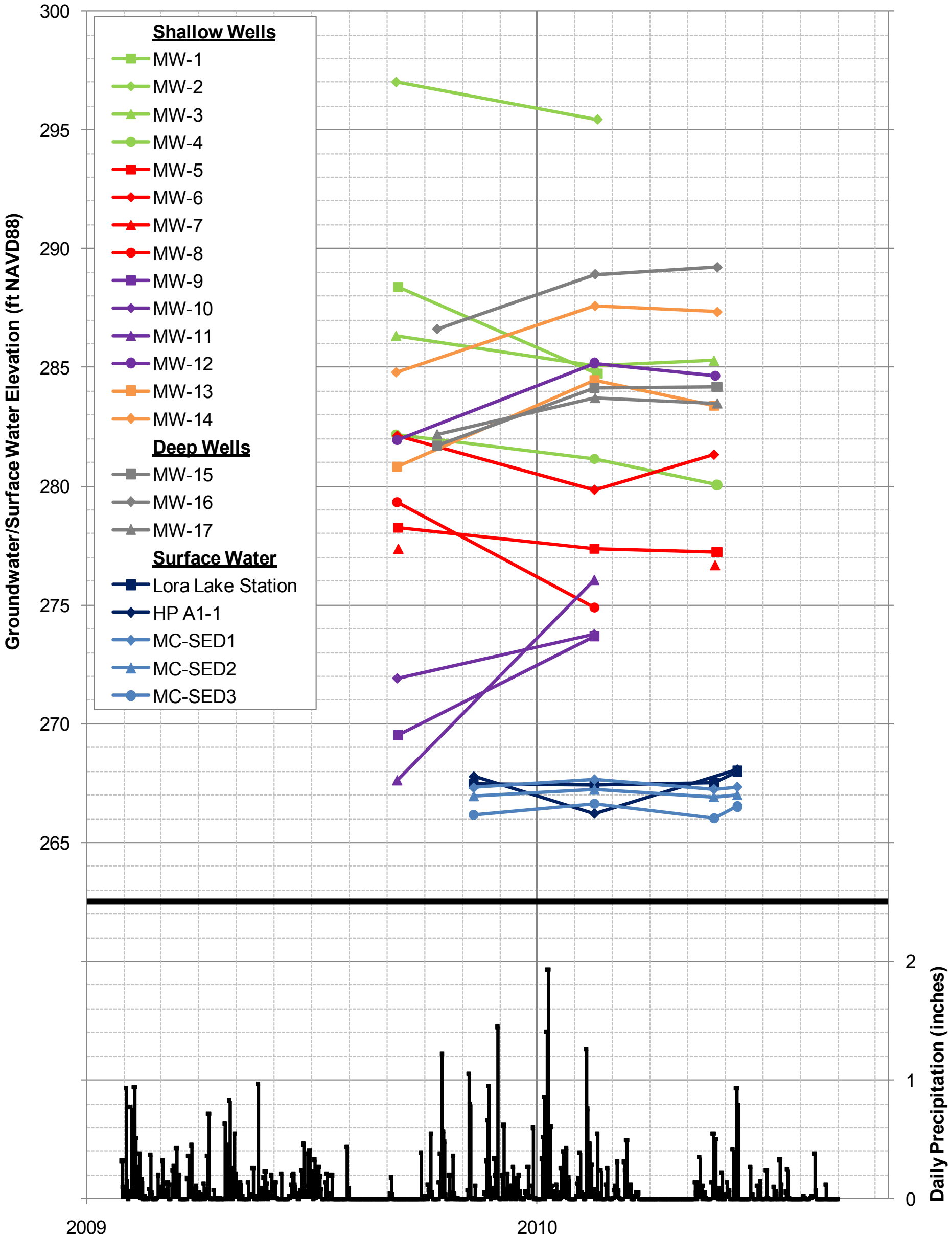
1. Topographic profile derived from Bare-Earth Return LiDAR provided by the Puget Sound LiDAR consortium and presented in units of feet relative to North American Vertical Datum 1988.
2. Soil boring and monitoring well locations based on Port survey data and projected to cross section profile. Projected ground surface based on survey elevations at these locations and ground truthing.

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 2.12
Geologic Cross Section C-C'

G:Project\Clients\Floyd Snider\Lora Lake\Figure 2.12




FLOYD | SNIDER
strategy • science • engineering
Aspect CONSULTING

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 2.13
Groundwater and Surface Water Hydrographs

1,272,000 1,272,500 1,273,000 1,273,500

175,000 174,500 174,000

SR 518

MW-2 296.16'

MW-13 280.81'

MW-6 280.12'

MW-14 284.79'

MW-7 276.657'

MW-12 281.93'

LORA LAKE APARTMENTS PARCEL

8TH AVE SOUTH

S. 150TH STREET

1982 DREDGED MATERIAL CONTAINMENT AREA

MW-1 287.29'

MW-16

MW-15

MW-5 277.55'

MW-8 272.79'

MW-17

MW-4 281.09'

MW-9 273.79'

MW-3 285.47'

MW-10 273.92'

MW-11 276.49'

PORT OF SEATTLE PROPERTY

DES MOINES MEMORIAL DRIVE

CITY OF SEATAC RIGHT OF WAY

Lora Lake

LORA LAKE PARCEL

PORT OF SEATTLE PROPERTY

290 288 286 284 282 280 278 276 274 272 270 268 294 292

N

0 62.5 125 250

Scale in Feet

**Legend**

- MW-3 — Location and Designation of Monitoring Well used to Generate Dry Season (August 2010) Potentiometric Surface Contours
- MW-16 — Deep Monitoring Well Location and Designation[1]
- 285.47' — Groundwater Elevation in feet NAVD88
- 284 — Potentiometric Surface Contour in feet NAVD88[2]
- Tax Parcels
- Approximate Extent of 1982 Dredged Material Containment Area

Notes:

1. Monitoring Wells MW-15, MW-16, and MW-17 were installed in 2010 and access deeper portions of the regional aquifer. Groundwater elevations for these wells were not used to derive the Dry Season Groundwater Contours presented in this map.
2. Potentiometric surface contours developed by Aspect Environmental, LLC.

· Aerial image provided by Port of Seattle and dated March 20, 2011.
· Tax parcel boundaries based on King County tax parcel data.
· Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of Survey Feet. Map Projection = Lambert Conformal Conic.

Abbreviations:
· HARN = High Accuracy Reference Network
· NAD = North American Datum
· NAVD88 = North American Vertical Datum of 1988

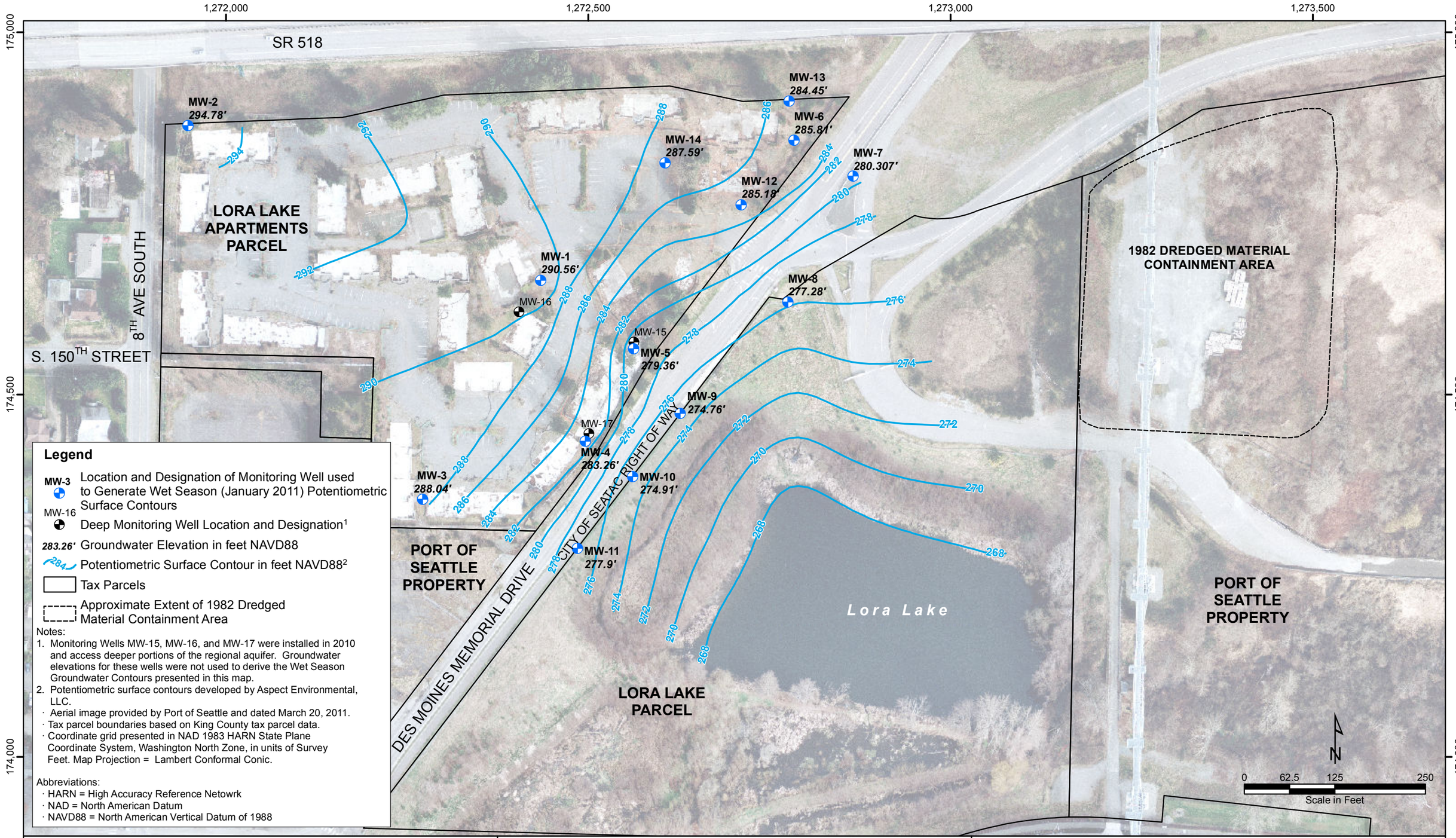
FLOYD | SNIDER
strategy ▪ science ▪ engineering

Aspect CONSULTING

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 2.14
Groundwater Potentiometric Surface Map—Dry Season

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 2.14 Groundwater Potentiometric Surface Map - Dry Season.mxd
8/29/2014



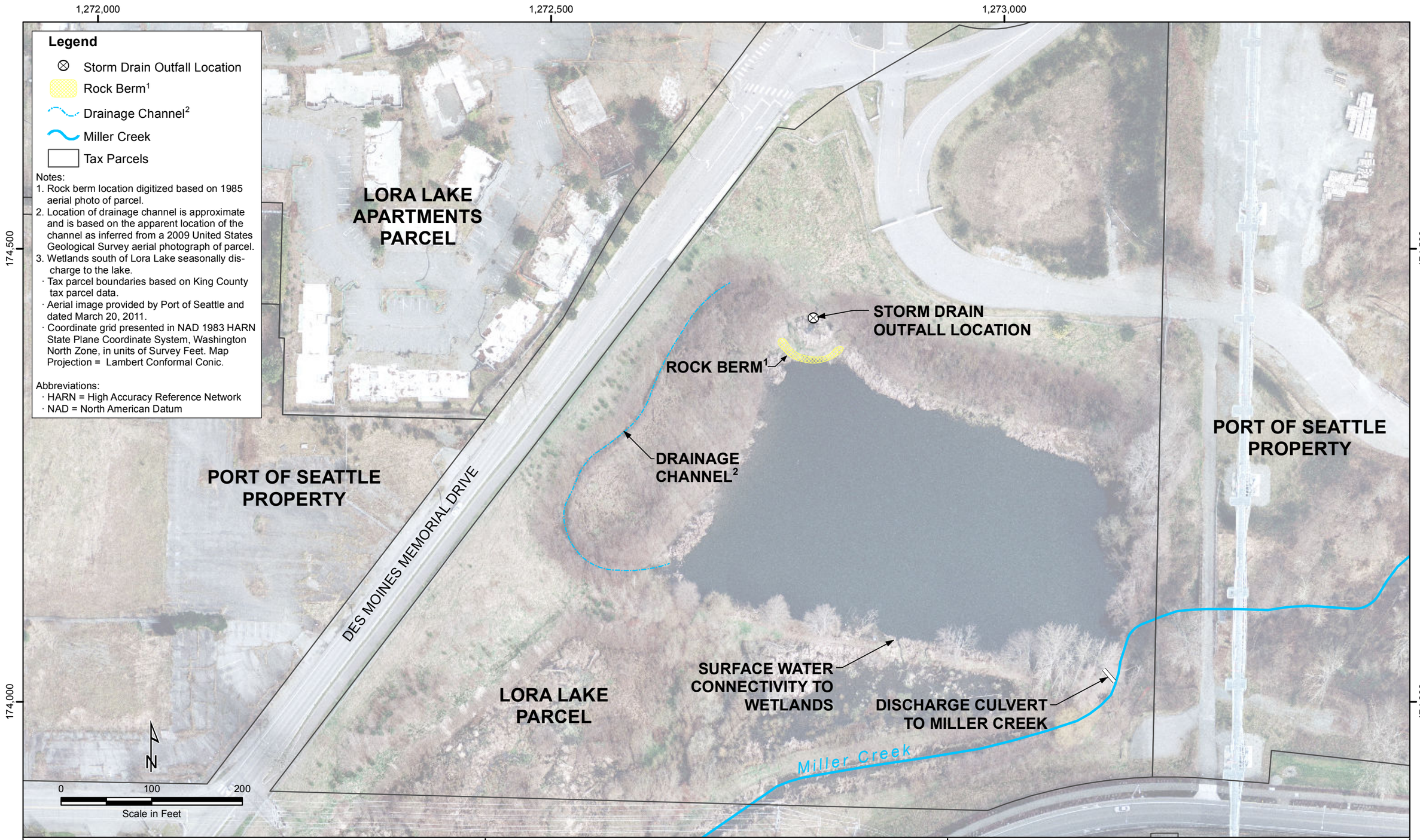

FLOYD | SNIDER
strategy ▪ science ▪ engineering

Aspect CONSULTING

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 2.15
Groundwater Potentiometric Surface Map—Wet Season

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 2.15 Groundwater Elevation Map - Wet Season.mxd
8/29/2014

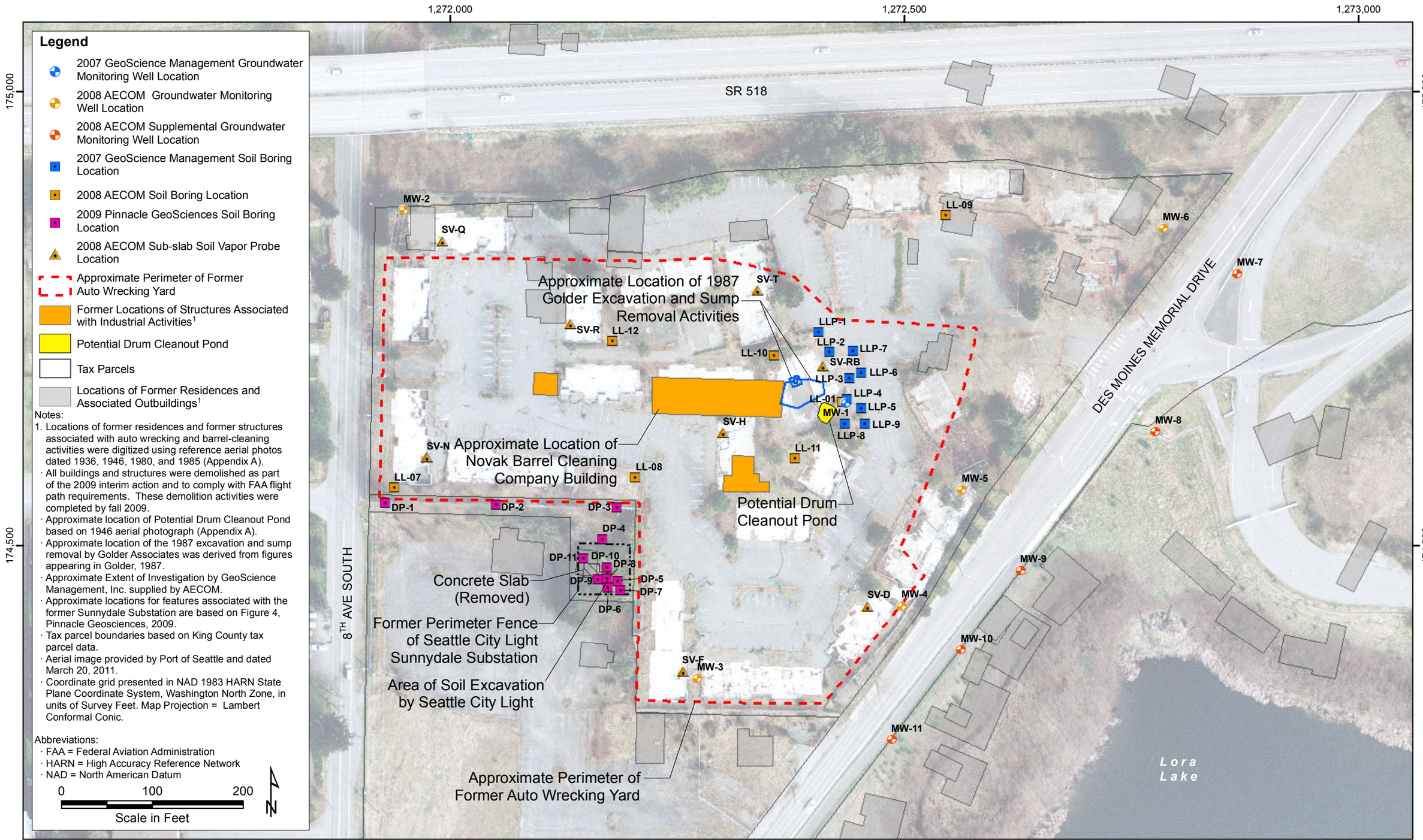



FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 2.16
Lora Lake and Miller Creek Features

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 2.16 Lora Lake and MC Features.mxd
8/29/2014




## Legend

- 2007 GeoScience Management Groundwater Monitoring Well Location
- 2008 AECOM Groundwater Monitoring Well Location
- 2008 AECOM Supplemental Groundwater Monitoring Well Location
- 2007 GeoScience Management Soil Boring Location
- 2008 AECOM Soil Boring Location
- 2009 Pinnacle GeoSciences Soil Boring Location
- 2008 AECOM Sub-slab Soil Vapor Probe Location
- Approximate Perimeter of Former Auto Wrecking Yard
- Former Locations of Structures Associated with Industrial Activities[1]
- Potential Drum Cleanout Pond
- Tax Parcels
- Locations of Former Residences and Associated Outbuildings[1]

Notes:

1. Locations of former residences and former structures associated with auto wrecking and barrel-cleaning activities were digitized using reference aerial photos dated 1936, 1946, 1980, and 1985 (Appendix A).

- All buildings and structures were demolished as part of the 2009 interim action and to comply with FAA flight path requirements. These demolition activities were completed by fall 2009.
- Approximate location of Potential Drum Cleanout Pond based on 1946 aerial photograph (Appendix A).
- Approximate location of the 1987 excavation and sump removal by Golder Associates was derived from figures appearing in Golder, 1987.
- Approximate Extent of Investigation by GeoScience Management, Inc. supplied by AECOM.
- Approximate locations for features associated with the former Sunnydale Substation are based on Figure 4, Pinnacle Geosciences, 2009.
- Tax parcel boundaries based on King County tax parcel data.
- Aerial image provided by Port of Seattle and dated March 20, 2011.
- Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of Survey Feet. Map Projection = Lambert Conformal Conic.

Abbreviations:

- FAA = Federal Aviation Administration
- HARN = High Accuracy Reference Network
- NAD = North American Datum

0 100 200

Scale in Feet

N

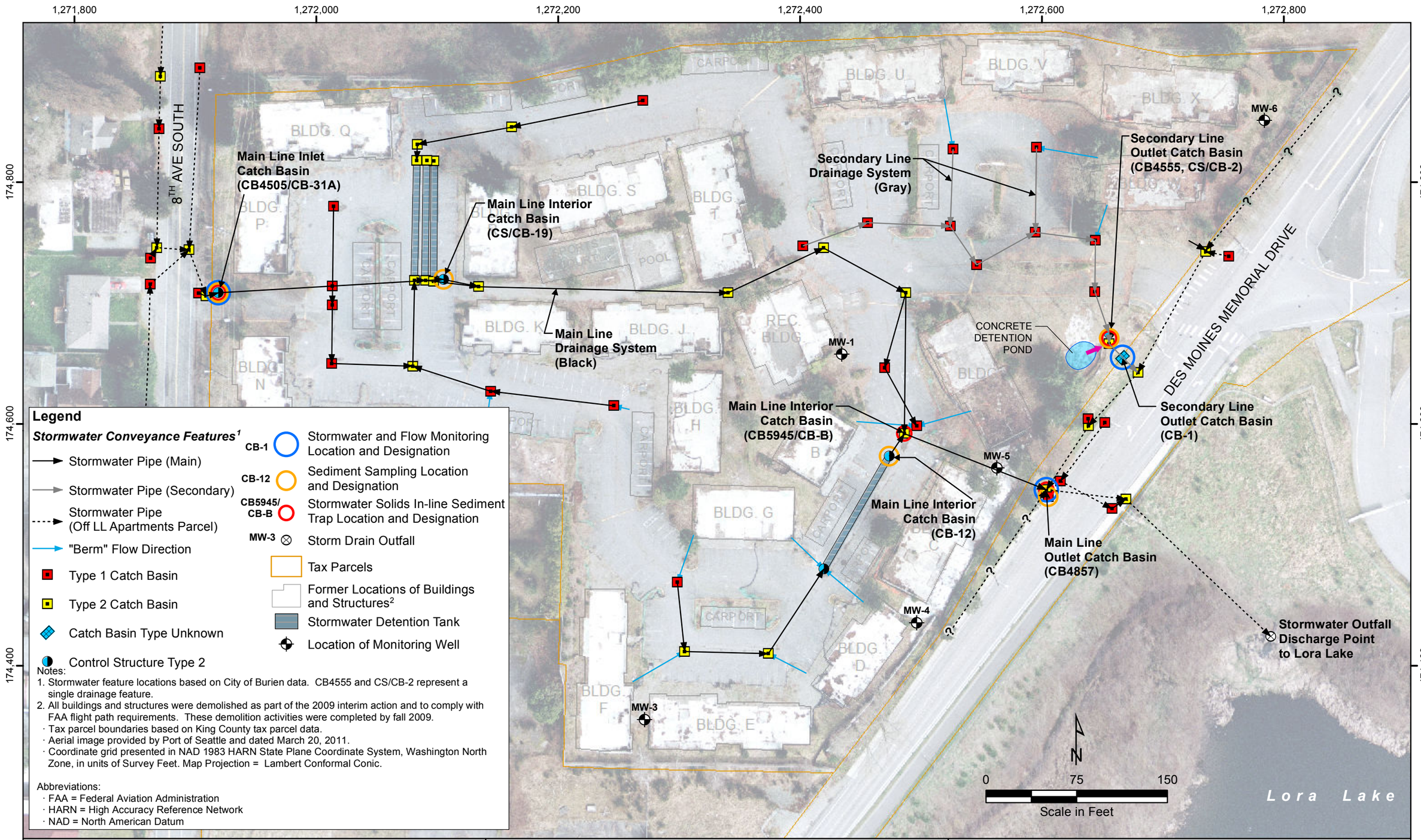
FLOYD | SNIDER

strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 3.1
Historical Investigation Locations and Operations Areas

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 3.1 Historical Investigation Locations and Operations Areas.mxd
8/29/2014




**Legend**

***Stormwater Conveyance Features***[1]

- Stormwater Pipe (Main)
- Stormwater Pipe (Secondary)
- Stormwater Pipe (Off LL Apartments Parcel)
- "Berm" Flow Direction
- Type 1 Catch Basin
- Type 2 Catch Basin
- Catch Basin Type Unknown
- Control Structure Type 2
- CB-1 — Stormwater and Flow Monitoring Location and Designation
- CB-12 — Sediment Sampling Location and Designation
- CB5945/CB-B — Stormwater Solids In-line Sediment Trap Location and Designation
- MW-3 — Storm Drain Outfall
- Tax Parcels
- Former Locations of Buildings and Structures[2]
- Stormwater Detention Tank
- Location of Monitoring Well

Notes:

1. Stormwater feature locations based on City of Burien data. CB4555 and CS/CB-2 represent a single drainage feature.
2. All buildings and structures were demolished as part of the 2009 interim action and to comply with FAA flight path requirements. These demolition activities were completed by fall 2009.

· Tax parcel boundaries based on King County tax parcel data.
· Aerial image provided by Port of Seattle and dated March 20, 2011.
· Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of Survey Feet. Map Projection = Lambert Conformal Conic.

Abbreviations:

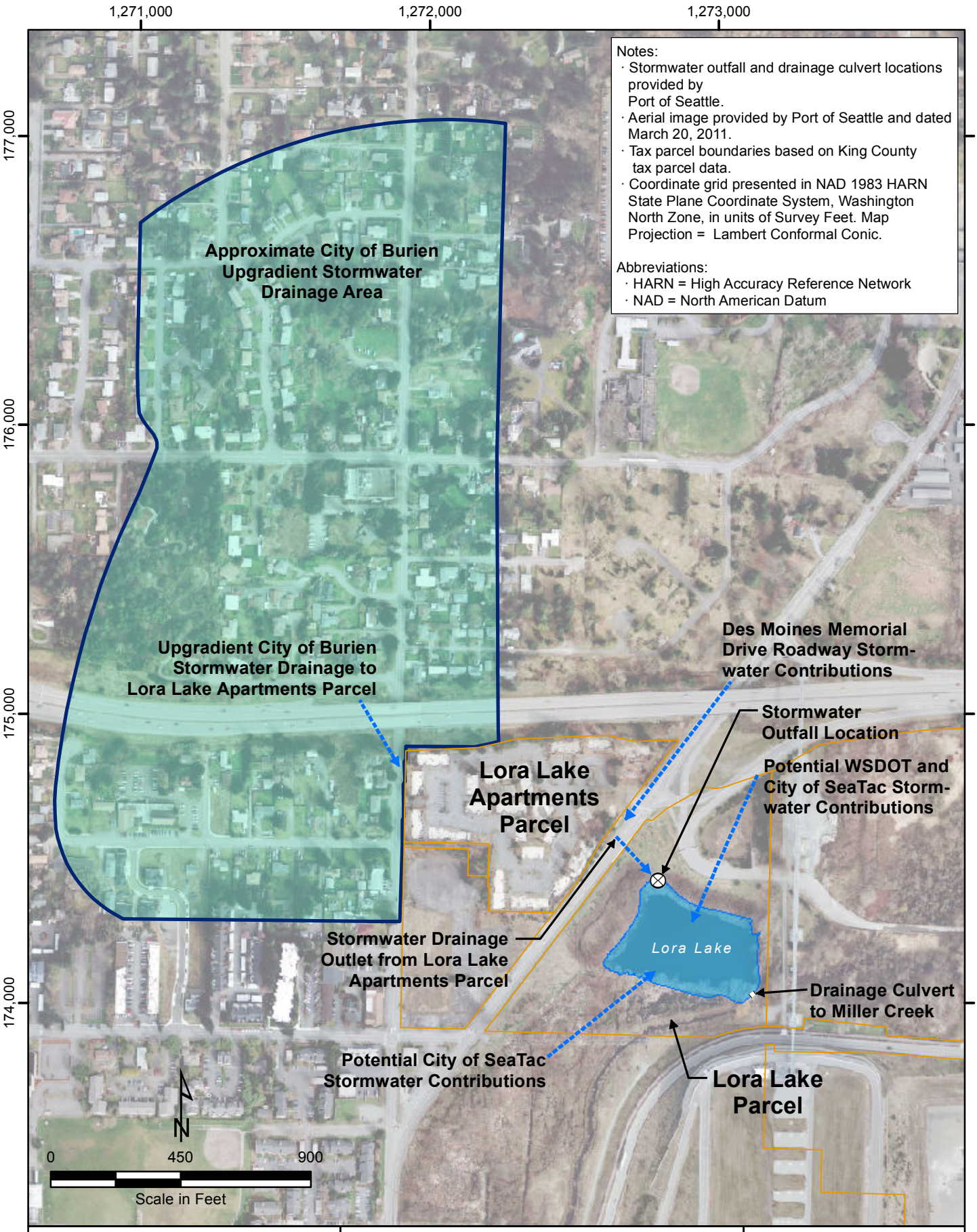
· FAA = Federal Aviation Administration
· HARN = High Accuracy Reference Network
· NAD = North American Datum

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 3.2
Stormwater Interim Action
Sampling Locations

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 3.2 Stormwater Interim Action Sampling Locations.mxd
8/29/2014

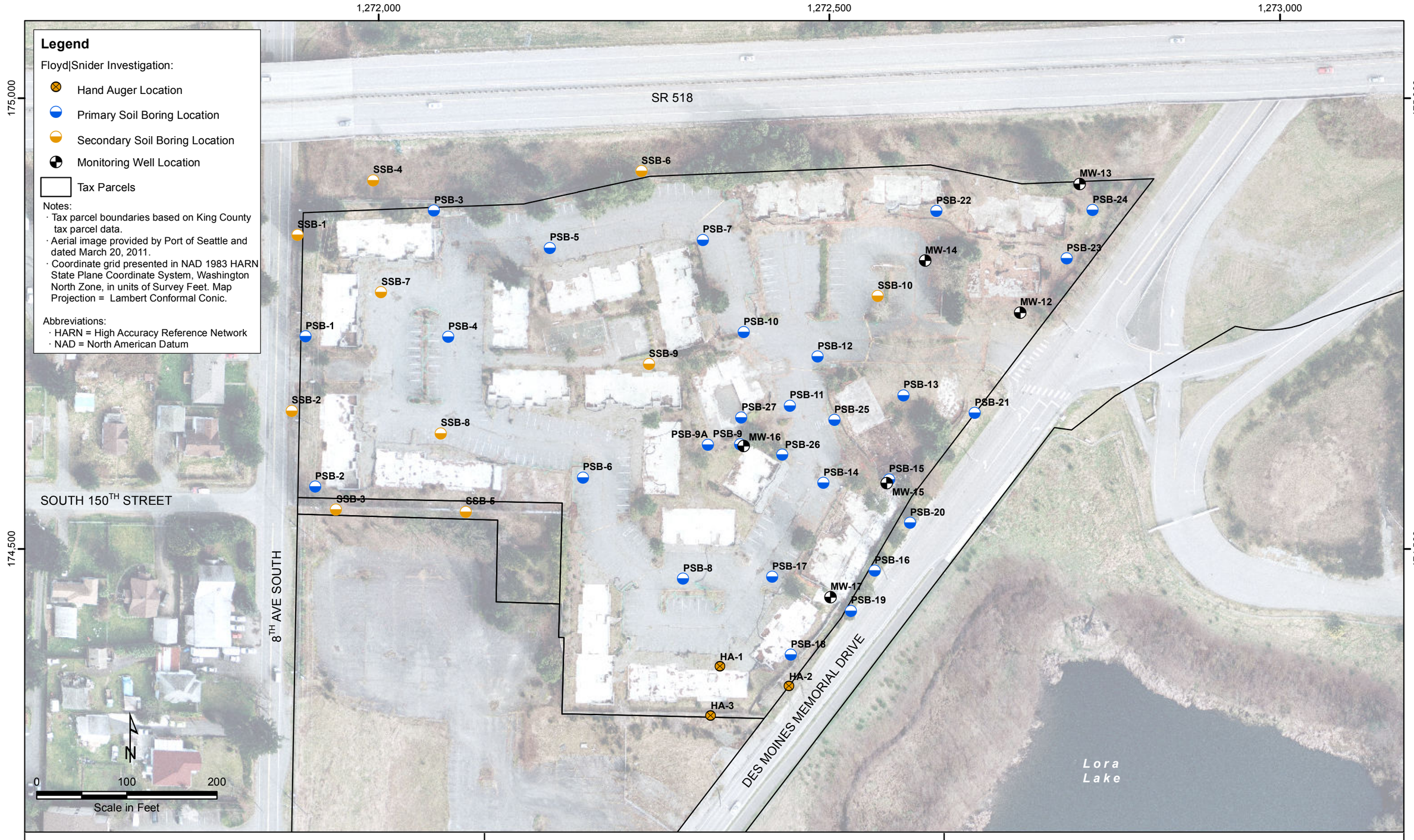



FLOYD | SNIDER
strategy · science · engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 3.3
Stormwater Drainage System Upgradient Area

Path: I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 3.3 Stormwater Drainage System Upgradient Area.mxd
Date: 8/29/2014

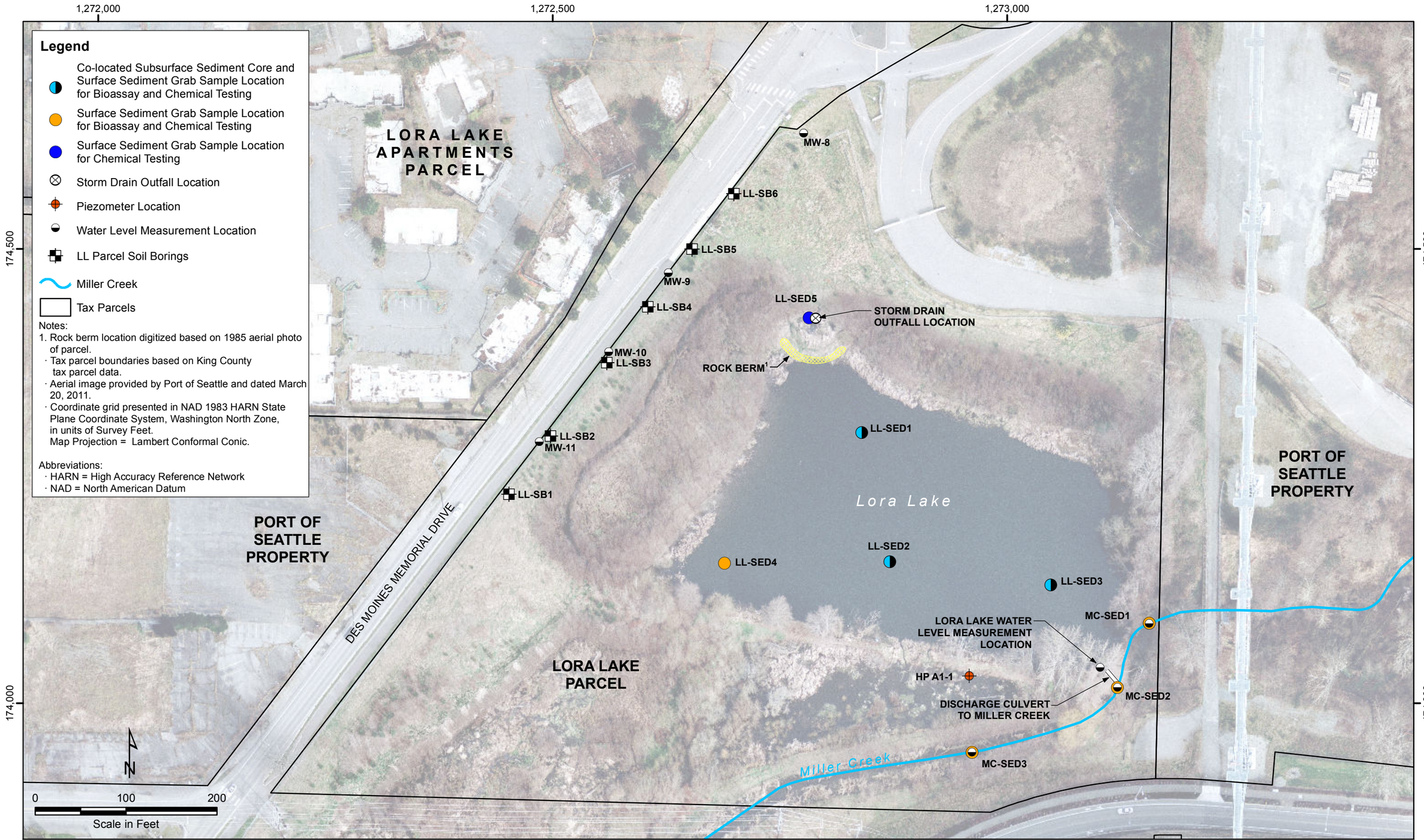



FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 3.4
2010–2011 RI Lora Lake Apartments Parcel
Soil Sampling Locations

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 3.4 RI LLA Parcel Soil Sampling Locations.mxd
8/29/2014

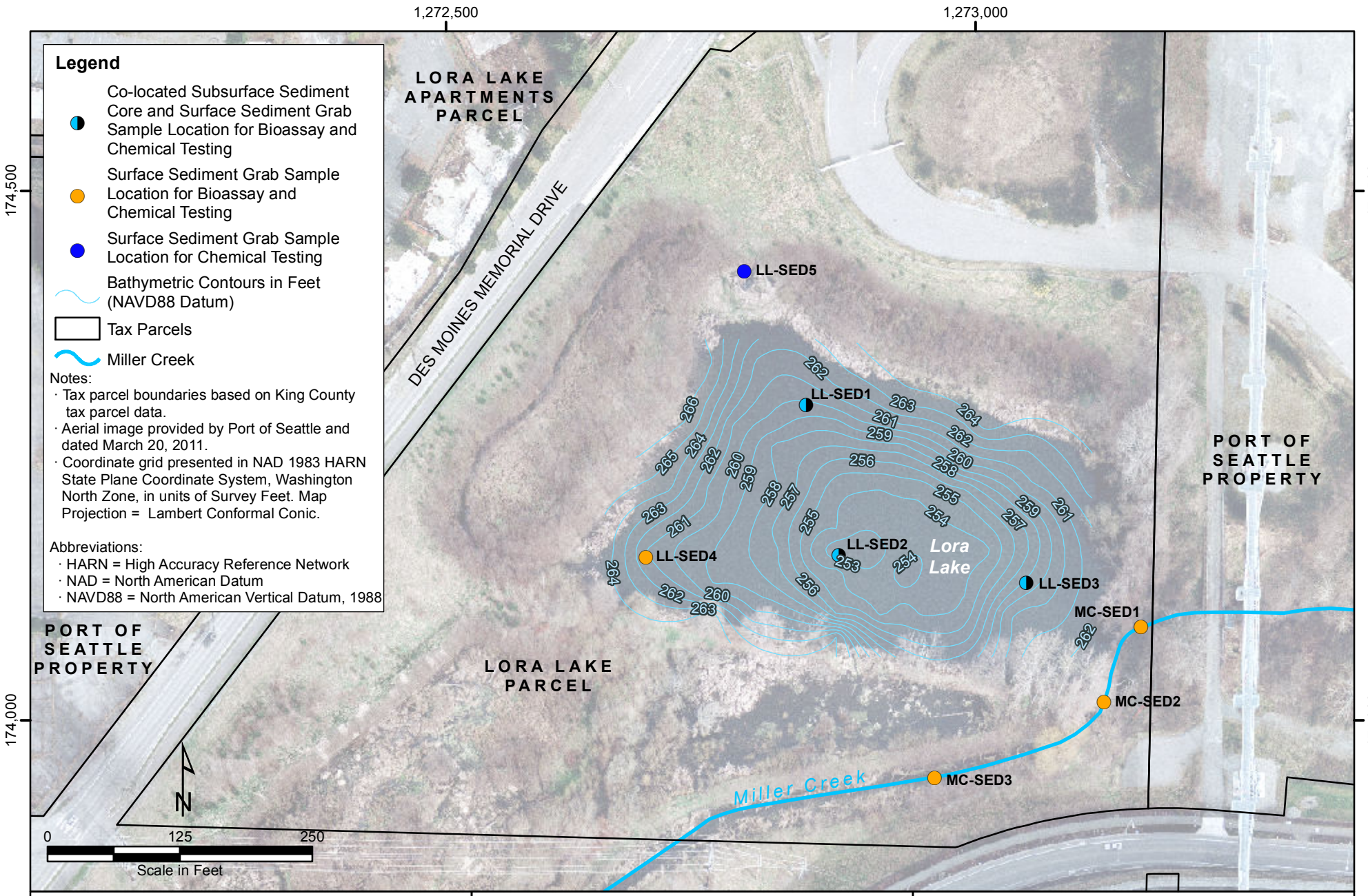



FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 3.5
2010–2011 RI Lora Lake Parcel Sampling Locations

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 3.5 RI LL Parcel Sampling Locations.mxd
8/29/2014

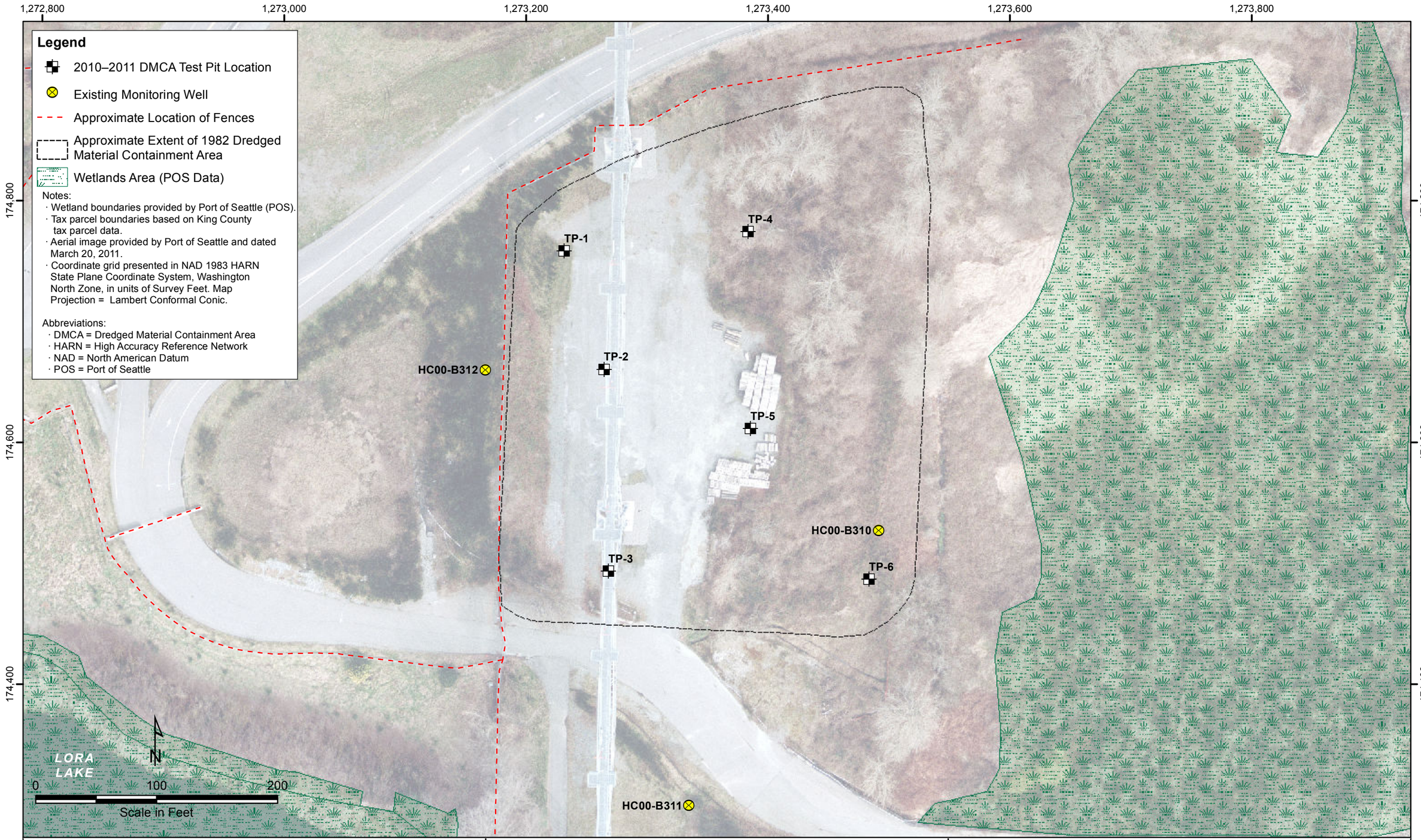



FLOYD | SNIDER
strategy · science · engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 3.6
Bathymetric Contours of Lora Lake

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 3.6 Lora Lake Bathymetry Map.mxd
8/29/2014

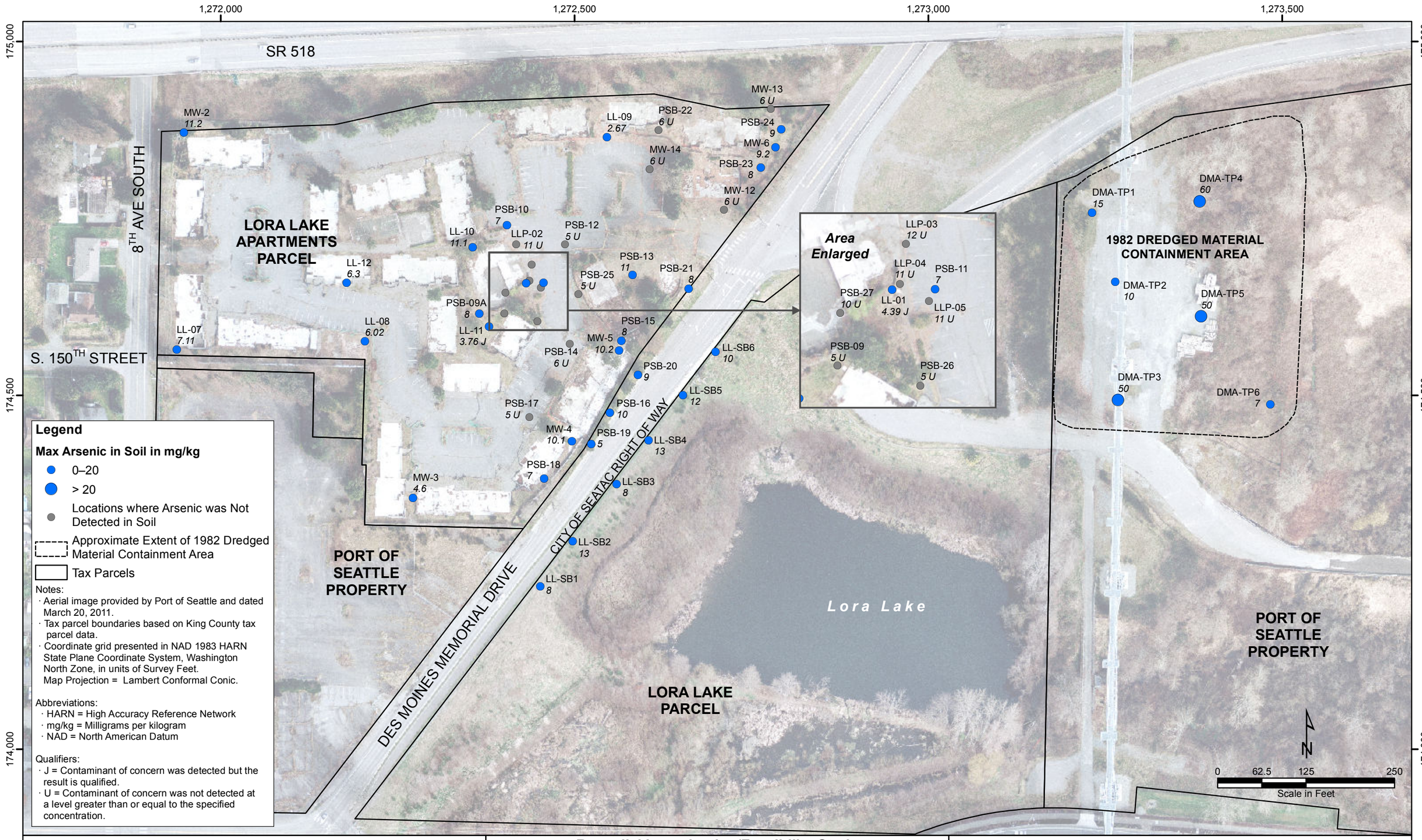



FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 3.7
1982 Dredged Material Containment Area
Test Pit and Monitoring Well Locations

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 3.7 DMCA Test Pit and Well Locations.mxd
8/29/2014




**Legend**

**Max Arsenic in Soil in mg/kg**

- 0–20
- > 20
- Locations where Arsenic was Not Detected in Soil
- Approximate Extent of 1982 Dredged Material Containment Area
- Tax Parcels

Notes:

- Aerial image provided by Port of Seattle and dated March 20, 2011.
- Tax parcel boundaries based on King County tax parcel data.
- Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of Survey Feet. Map Projection = Lambert Conformal Conic.

Abbreviations:

- HARN = High Accuracy Reference Network
- mg/kg = Milligrams per kilogram
- NAD = North American Datum

Qualifiers:

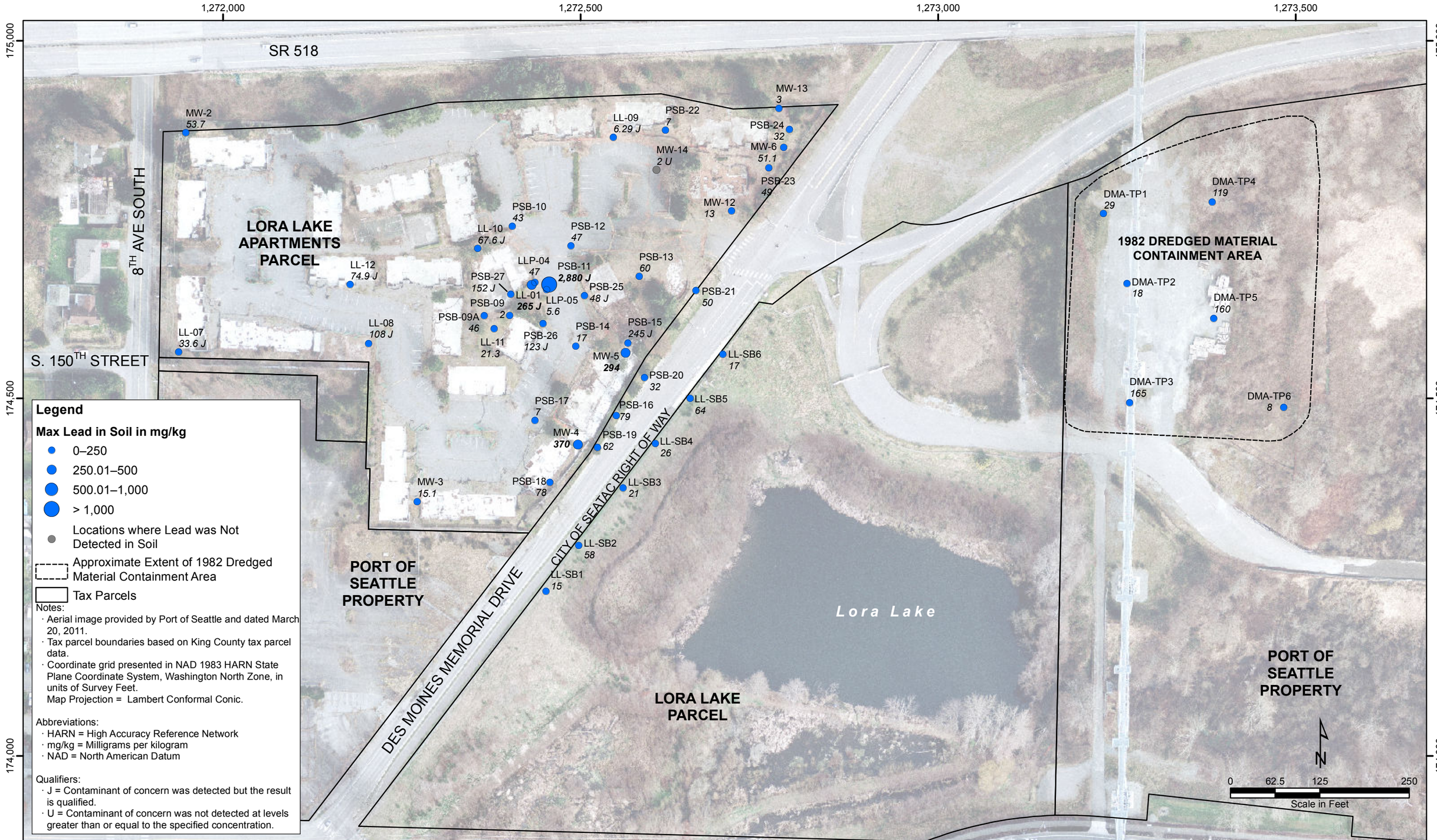
- J = Contaminant of concern was detected but the result is qualified.
- U = Contaminant of concern was not detected at a level greater than or equal to the specified concentration.

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 4.1
Maximum Arsenic Concentrations Detected in Soil

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 4.1 Max Arsenic in Soil.mxd
8/29/2014




FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 4.2
Maximum Lead Concentrations Detected in Soil

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 4.2 Max Lead in Soil.mxd
8/29/2014

1,272,000 1,272,500 1,273,000 1,273,500

175,000 174,500 174,000

SR 518

8TH AVE SOUTH

S. 150TH STREET

LORA LAKE APARTMENTS PARCEL

PORT OF SEATTLE PROPERTY

DES MOINES MEMORIAL DRIVE

CITY OF SEATAC RIGHT OF WAY

LORA LAKE PARCEL

Lora Lake

1982 DREDGED MATERIAL CONTAINMENT AREA

PORT OF SEATTLE PROPERTY

MW-2 7 U
MW-13 3.4 U
LL-09 6.5 U
PSB-22 4.4 U
PSB-24 3.4 U
MW-6 6.9 U
MW-14 4.4 U
PSB-23 3.9 U
MW-12 4.5 U
PSB-10 4.5 U
LL-10 17 JN
PSB-12 4.8 U
PSB-13 3.8
LL-12 7.1 U
PSB-21 28 U
PSB-09A 8.7
LL-11 6.1 U
LL-08 5.4 J
LL-07 6.1 U
PSB-14 4.2 U
PSB-15 5.5
MW-5 14 JN
LL-SB6 7.2 U
PSB-20 440 U
PSB-17 3.6 U
PSB-16 20 J
LL-SB5 9.5 U
MW-4 6.6 U
PSB-19 4.9 U
LL-SB4 7.2 U
PSB-18 4.9 U
MW-3 0.65 J
LL-SB3 7 U
LL-SB2 12
LL-SB1 6.2 U

DMA-TP1 5.4 U
DMA-TP4 23 U
DMA-TP2 5.9
DMA-TP5 23
DMA-TP3 14 U
DMA-TP6 3.9 U

**Area Enlarged**

LL-01 2.4 J
LLP-04 1,900 J
PSB-11 150
MW-1 1,000 J
LLP-05 11 U

**Legend**

**Max Gasoline Range TPH in Soil in mg/kg**

- 0–100
- 100–200
- 200–500
- > 500
- Location where Gasoline Range TPH was Not Detected in Soil
- Approximate Extent of 1982 Dredged Material Containment Area
- Tax Parcels

Notes:
- Aerial image provided by Port of Seattle and dated March 20, 2011.
- Tax parcel boundaries based on King County tax parcel data.
- Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of Survey Feet.
  Map Projection = Lambert Conformal Conic.

Abbreviations:
- HARN = High Accuracy Reference Network
- mg/kg = Milligrams per kilogram
- NAD = North American Datum
- TPH = Total petroleum hydrocarbons

Qualifiers:
- J = Contaminant of concern was detected but the result is qualified.
- U = Contaminant of concern was not detected at a level greater than or equal to the specified concentration.

N

0 62.5 125 250

Scale in Feet

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 4.3
Maximum Gasoline Range TPH Concentrations Detected in Soil

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 4.3 Max TPH Gasoline-Range in Soil.mxd
8/29/2014

1,272,000 1,272,500 1,273,000 1,273,500

175,000 174,500 174,000

SR 518

8TH AVE SOUTH

S. 150TH STREET

LORA LAKE APARTMENTS PARCEL

PORT OF SEATTLE PROPERTY

LORA LAKE PARCEL

1982 DREDGED MATERIAL CONTAINMENT AREA

DES MOINES MEMORIAL DRIVE

CITY OF SEATAC RIGHT OF WAY

Lora Lake

MW-2 32 U
MW-3 95 U
MW-4 96 JN
MW-5 1,100 J
MW-6 56 J
MW-12 6.5 U
MW-13 5.7 U
MW-14 5.9 U
MW-15 6.1 U
MW-16 6 U
MW-17 6.6 U
LL-07 16 J
LL-08 160 JN
LL-09 5 J
LL-10 37 JN
LL-11 4.3 J
LL-12 43 J
LL-SB1 5.5 U
LL-SB2 5.7 U
LL-SB3 5.7 U
LL-SB4 6.1
LL-SB5 13
LL-SB6 6 U
PSB-09A 5.9 U
PSB-09 5.4 U
PSB-10 24
PSB-11 440
PSB-12 14
PSB-13 54
PSB-14 13
PSB-15 24
PSB-16 110
PSB-17 22
PSB-18 9.3
PSB-19 6.1 U
PSB-20 22
PSB-21 17 U
PSB-22 5.9 U
PSB-23 5.8 U
PSB-24 5.5 U
PSB-25 5.7 U
PSB-26 5.9 U
PSB-27 22 J
LLP-01 19
LLP-02 1,300
LLP-03 160
LLP-04 6,000
LLP-05 39
LLP-06 75
DMA-TP1 6 U
DMA-TP2 5.6 U
DMA-TP3 16
DMA-TP4 14
DMA-TP5 21
DMA-TP6 5.6 U

Area Enlarged

**Legend**

**Max Diesel Range TPH in Soil in mg/kg**

- 0–50
- 50–100
- 100–1,000
- 1,000–2,000
- > 2,000
- Location where Diesel Range TPH was Not Detected in Soil
- Approximate Extent of 1982 Dredged Material Containment Area
- Tax Parcels

Notes:
- Aerial image provided by Port of Seattle and dated March 20, 2011.
- Tax parcel boundaries based on King County tax parcel data.
- Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of Survey Feet.
  Map Projection = Lambert Conformal Conic.

Abbreviations:
- HARN = High Accuracy Reference Network
- mg/kg = Milligrams per kilogram
- NAD = North American Datum
- TPH = Total petroleum hydrocarbons

Qualifiers:
- J = Contaminant of concern was detected but the result is qualified.
- U = Contaminant of concern was not detected at a level greater than or equal to the specified concentration.

N

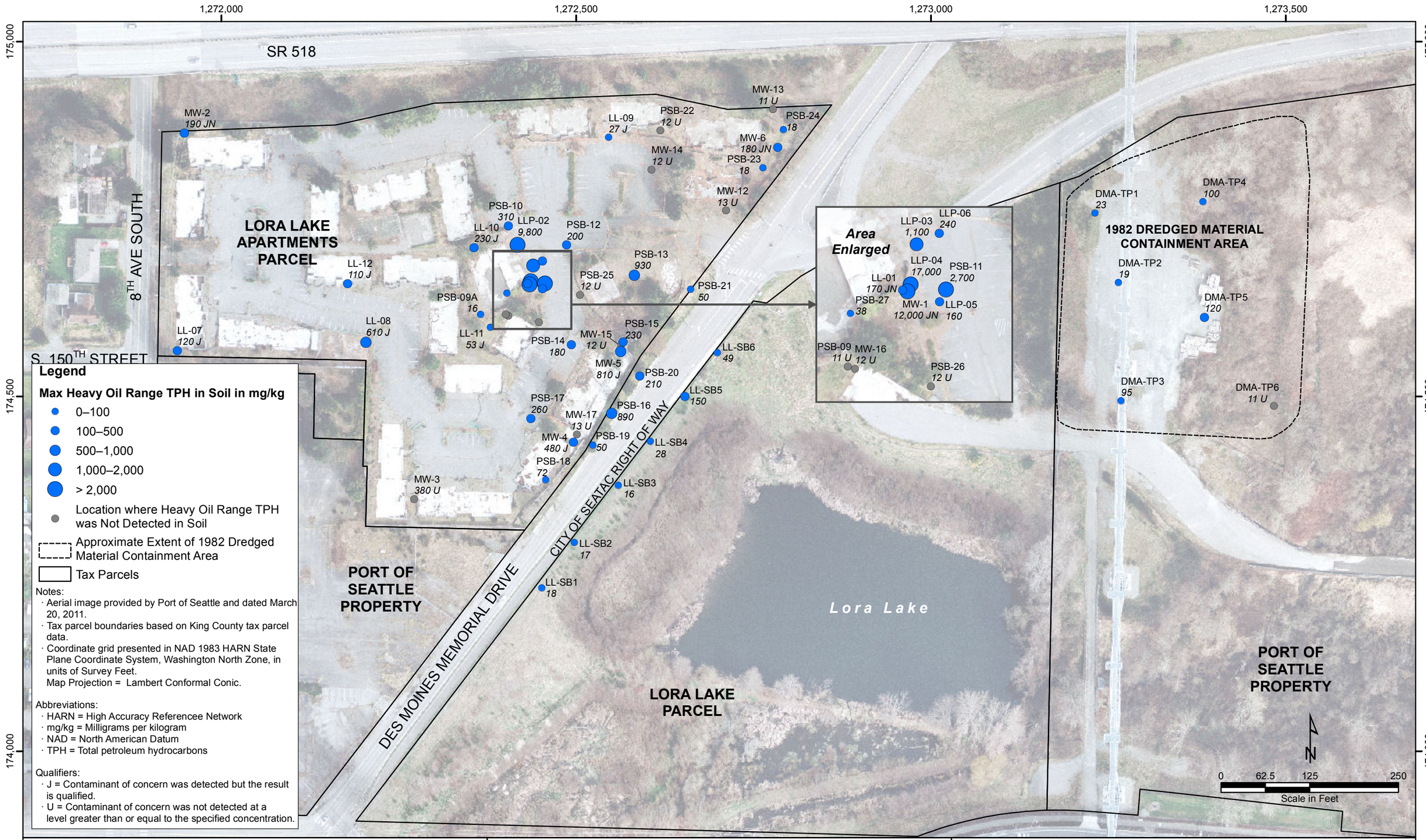
0 62.5 125 250
Scale in Feet

FLOYD | SNIDER
strategy • science • engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 4.4
Maximum Diesel Range TPH Concentrations Detected in Soil

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 4.4 Max TPH Diesel-Range in Soil.mxd
8/29/2014




**Legend**

**Max Heavy Oil Range TPH in Soil in mg/kg**

- 0–100
- 100–500
- 500–1,000
- 1,000–2,000
- > 2,000
- Location where Heavy Oil Range TPH was Not Detected in Soil
- Approximate Extent of 1982 Dredged Material Containment Area
- Tax Parcels

Notes:

- Aerial image provided by Port of Seattle and dated March 20, 2011.
- Tax parcel boundaries based on King County tax parcel data.
- Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of Survey Feet.
  Map Projection = Lambert Conformal Conic.

Abbreviations:

- HARN = High Accuracy Referencee Network
- mg/kg = Milligrams per kilogram
- NAD = North American Datum
- TPH = Total petroleum hydrocarbons

Qualifiers:

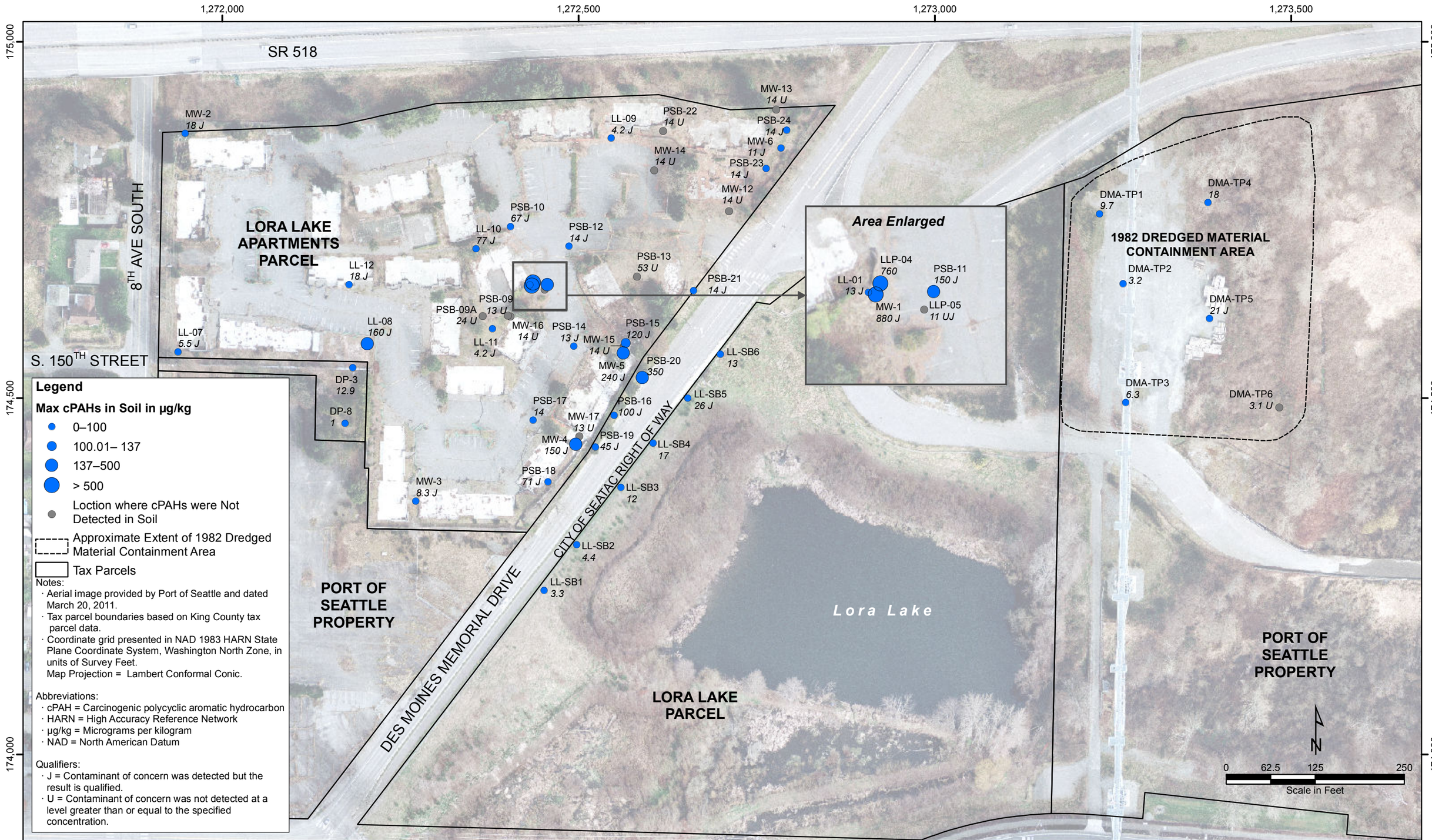
- J = Contaminant of concern was detected but the result is qualified.
- U = Contaminant of concern was not detected at a level greater than or equal to the specified concentration.

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 4.5
Maximum Heavy Oil Range TPH Concentrations Detected in Soil

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 4.5 Max TPH Heavy Oil-Range in Soil.mxd
8/29/2014




**Legend**

**Max cPAHs in Soil in µg/kg**

- 0–100
- 100.01– 137
- 137–500
- > 500
- Loction where cPAHs were Not Detected in Soil
- Approximate Extent of 1982 Dredged Material Containment Area
- Tax Parcels

Notes:

- Aerial image provided by Port of Seattle and dated March 20, 2011.
- Tax parcel boundaries based on King County tax parcel data.
- Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of Survey Feet.
  Map Projection = Lambert Conformal Conic.

Abbreviations:

- cPAH = Carcinogenic polycyclic aromatic hydrocarbon
- HARN = High Accuracy Reference Network
- µg/kg = Micrograms per kilogram
- NAD = North American Datum

Qualifiers:

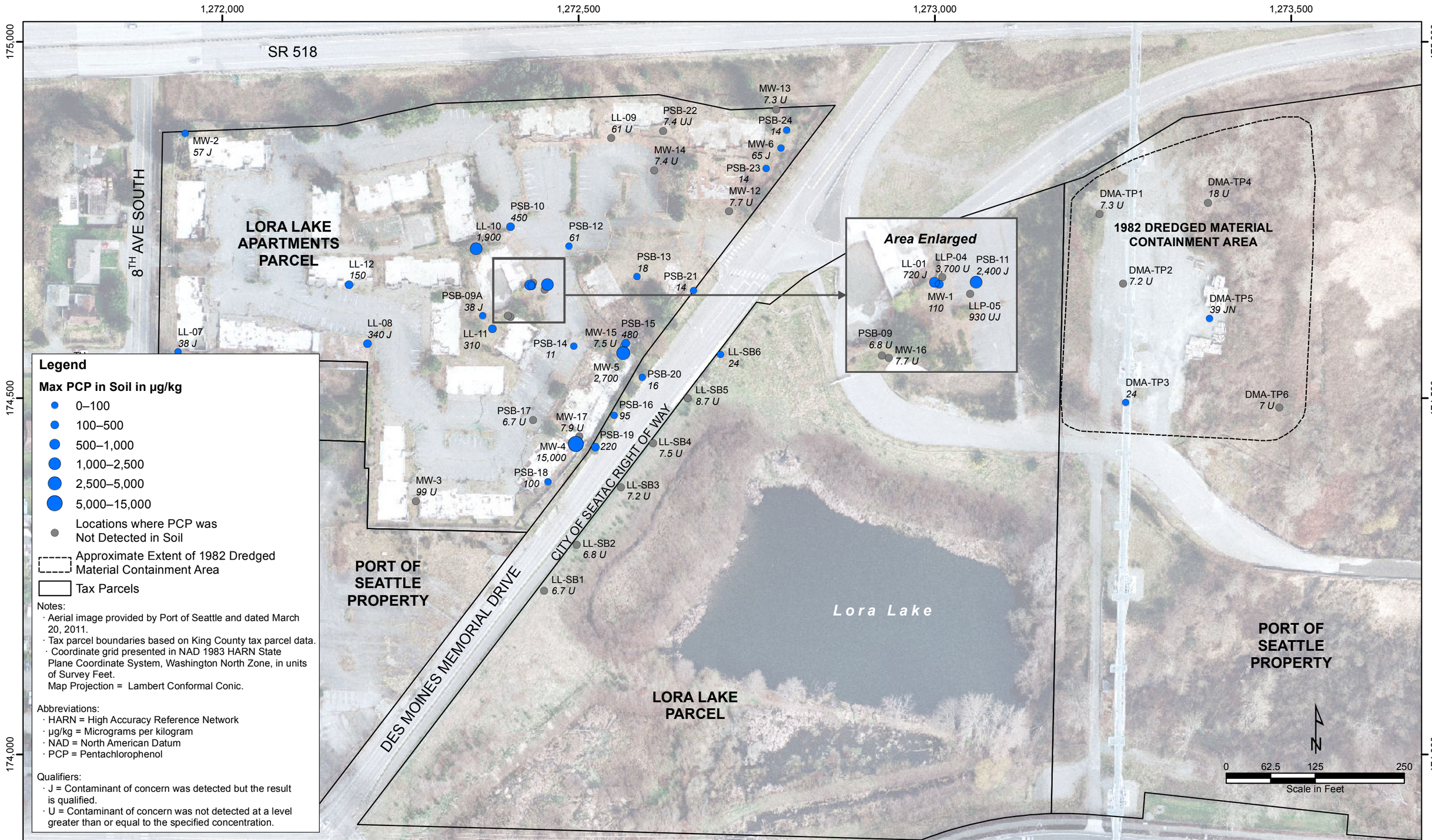
- J = Contaminant of concern was detected but the result is qualified.
- U = Contaminant of concern was not detected at a level greater than or equal to the specified concentration.

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 4.6
Maximum Carcinogenic Polycyclic Aromatic Hydrocarbon Concentrations Detected in Soil

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 4.6 Max cPAHs in Soil.mxd
8/29/2014




**Legend**

**Max PCP in Soil in µg/kg**

- 0–100
- 100–500
- 500–1,000
- 1,000–2,500
- 2,500–5,000
- 5,000–15,000
- Locations where PCP was Not Detected in Soil
- Approximate Extent of 1982 Dredged Material Containment Area
- Tax Parcels

Notes:

- Aerial image provided by Port of Seattle and dated March 20, 2011.
- Tax parcel boundaries based on King County tax parcel data.
- Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of Survey Feet.
  Map Projection = Lambert Conformal Conic.

Abbreviations:

- HARN = High Accuracy Reference Network
- µg/kg = Micrograms per kilogram
- NAD = North American Datum
- PCP = Pentachlorophenol

Qualifiers:

- J = Contaminant of concern was detected but the result is qualified.
- U = Contaminant of concern was not detected at a level greater than or equal to the specified concentration.

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 4.7
Maximum Pentachlorophenol Concentrations Detected in Soil

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 4.7 Max PCP in Soil.mxd
8/29/2014

1,271,500 1,272,000 1,272,500 1,273,000

175,000 174,500 174,000

SR 518

8TH AVE SOUTH

DES MOINES MEMORIAL DRIVE

CITY OF SEATAC RIGHT OF WAY

**MW-2**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Toluene | 1.0 | µg/kg | 1.5–2 |
| m,p-Xylene | 0.25 | µg/kg | 0–0.5 |

**LL01**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Toluene | 1.8 | µg/kg | 0–0.5 |
| m,p-Xylene | 0.54 | µg/kg | 0–0.5 |

**LL09**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Toluene | 0.53 | µg/kg | 1.5–2 |

**LL10**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Toluene | 1.1 | µg/kg | 1.5–2 |
| m,p-Xylene | 0.51 | µg/kg | 1.5–2 |

**LLP-4**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Ethylbenzene | 1,400 | µg/kg | 14.5 |
| Toluene | 620 | µg/kg | 14.5 |
| Xylenes | 12,500 | µg/kg | 14.5 |

**LL12**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Ethylbenzene | 0.46 | µg/kg | 0–0.5 |
| Toluene | 3.1 | µg/kg | 0–0.5 |
| m,p-Xylene | 1.6 | µg/kg | 0–0.5 |
| o-Xylene | 0.54 | µg/kg | 0–0.5 |

**MW-6**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Toluene | 0.66 | µg/kg | 0–0.5 |

**LL11**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Toluene | 0.86 | µg/kg | 0–0.5 |
| m,p-Xylene | 0.35 | µg/kg | 1.5–2 |

**MW-12**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| PCE | 0.9 | µg/kg | 5.5–7.5 |

**LL08**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Ethylbenzene | 0.31 | µg/kg | 2–4 |
| Toluene | 2.3 | µg/kg | 2–4 |
| m,p-Xylene | 0.88 | µg/kg | 2–4 |
| o-Xylene | 0.17 | µg/kg | 0–0.5<br>2–4 |

**PSB-11**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| PCE | 0.8 | µg/kg | 1.5–2 |
| TCE | 0.8 | µg/kg | 1.5–2 |

**PSB-21**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Ethylbenzene | 10 | µg/kg | 4–6 |
| Toluene | 240 | µg/kg | 4–6 |
| o-Xylene | 19 | µg/kg | 0–0.5 |

**LL07**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Ethylbenzene | 0.34 | µg/kg | 1.5–2 |
| Toluene | 2.6 | µg/kg | 1.5–2 |
| m,p-Xylene | 1.1 | µg/kg | 1.5–2 |
| o-Xylene | 0.26 | µg/kg | 1.5–2 |

**MW-5**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Benzene | 1.7 | µg/kg | 0–0.5 |
| Toluene | 1.5 | µg/kg | 0–0.5 |
| m,p-Xylene | 0.73 | µg/kg | 0–0.5 |
| o-Xylene | 0.43 | µg/kg | 0–0.5 |

**PSB-20**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| o-Xylene | 1,400 | µg/kg | 2–4 |

**PSB-16**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Ethylbenzene | 1 | µg/kg | 13–15 |
| Toluene | 15 | µg/kg | 13–15 |
| m,p-Xylene | 3.7 | µg/kg | 13–15 |
| o-Xylene | 1.4 | µg/kg | 13–15 |

**MW-3**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Toluene | 0.89 | µg/kg | 1.5–2 |
| m,p-Xylene | 0.53 | µg/kg | 1.5–2 |
| o-Xylene | 0.25 | µg/kg | 1.5–2 |

**MW-4**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Toluene | 0.3 | µg/kg | 0–0.5 |

**PSB-18**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| o-Xylene | 210 | µg/kg | 19–20 |

MW-2 MW-3 MW-4 MW-5 MW-6 MW-12

LL-01 LL-07 LL-08 LL-09 LL-10 LL-11 LL-12 LLP-4

PSB-11 PSB-16 PSB-18 PSB-20 PSB-21

## Legend

- Monitoring Well Location
- 2007 GeoScience Management Soil Boring Location
- 2008 AECOM Soil Boring Location
- 2010–2011 Floyd|Snider Primary Soil Boring Location

Notes:

· Aerial image provided by Port of Seattle and dated March 20, 2011.

· Tax parcel boundaries based on King County tax parcel data.

· Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of Survey Feet.
Map Projection = Lambert Conformal Conic.

Abbreviations:

· HARN = High Accuracy Reference Network
· µg/kg = Micrograms per kilogram
· NAD = North American Datum
· PCE = Tetrachloroethene
· TCE = Trichloroethene

N

0 62.5 125 250

Scale in Feet

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 4.8
Maximum Volatile Organic Compound Concentrations in Soil

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 4.8 VOCs in Soil - Callout Boxes.mxd
9/2/2014

1,272,000 1,272,500 1,273,000 1,273,500

175,000 174,500 174,000

SR 518

8TH AVE SOUTH

S. 150TH STREET

DES MOINES MEMORIAL DRIVE

CITY OF SEATAC RIGHT OF WAY

LORA LAKE APARTMENTS PARCEL

1982 DREDGED MATERIAL CONTAINMENT AREA

PORT OF SEATTLE PROPERTY

LORA LAKE PARCEL

Lora Lake

SSB-04 2.81 J
PSB-03 58.7 J
SSB-01 6.94 J
MW-2 30.2 JN
PSB-05 12.8 J
PSB-07 5.72 J
LL-09 0.692 JN
PSB-22 1.48 J
MW-13 26.2 J
PSB-24 16.6 J
MW-6 9.92 JN
MW-14 1.72 J
PSB-23 7.21 J
SSB-10 3.19 J
MW-12 23.6 J
PSB-01 10.8 J
PSB-04 194 J
PSB-10 803 J
LL-10 2,600 J
PSB-12 74.1 J
LL-12 234 JN
PSB-11 21,200
LL-01 1,810 J
PSB-13 187 J
PSB-21 18.5 J
SSB-02 15.2 J
PSB-09A 11.6 J
MW-1 302 J
PSB-27 1,650 J
LL-11 57 J
PSB-02 21.5 J
LL-07 33.8 JN
LL-08 650 J
PSB-06 702 J
PSB-14 132 J
PSB-15 2,260
LL-SB6 40.4 J
MW-5 3,100 JN
PSB-20 31 J
DP-1 0.29
SSB-03 6.84 J
DP-2 1.61
SSB-05 10.5 J
DP-3 56
DP-9 4.29
PSB-08 0.984 J
PSB-17 7.93 J
PSB-16 205 J
LL-SB5 22.7 J
MW-4 2,570 JN
PSB-19 135 J
LL-SB4 5.59 J
PSB-18 209 J
MW-3 3.11 JN
LLA-HA1 3.15 J
LL-SB3 5.2 J
LLA-HA2 107 J
LLA-HA3 17.7 J
LL-SB2 13.2 J
LL-SB1 1.95 J
DMA-TP1 4.94 J
DMA-TP4 64.5 J
DMA-TP2 7.08 J
DMA-TP5 71.9 J
DMA-TP3 41.1 J
DMA-TP6 0.887 J

**Legend**

**Max Dioxin/Furan TEQ Conc. in Soil in pg/g**

- 0–13
- 13–100
- 100–1,000
- 1,000–10,000
- > 10,000

Approximate Extent of 1982 Dredged Material Containment Area

Tax Parcels

Notes:
- Aerial image provided by Port of Seattle and dated March 20, 2011.
- Tax parcel boundaries based on King County tax parcel data.
- Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of Survey Feet.
  Map Projection = Lambert Conformal Conic.

Abbreviations:
- HARN = High Accuracy Reference Network
- NAD = North American Datum
- pg/g = Picograms per gram
- TEQ = Toxic equivalency quotient

Qualifiers:
- J = Contaminant of concern was detected but the result is qualified.
- JN = Contaminant of concern was analyzed for and tentatively identified but the associated numerical value is an estimated quantity.

N

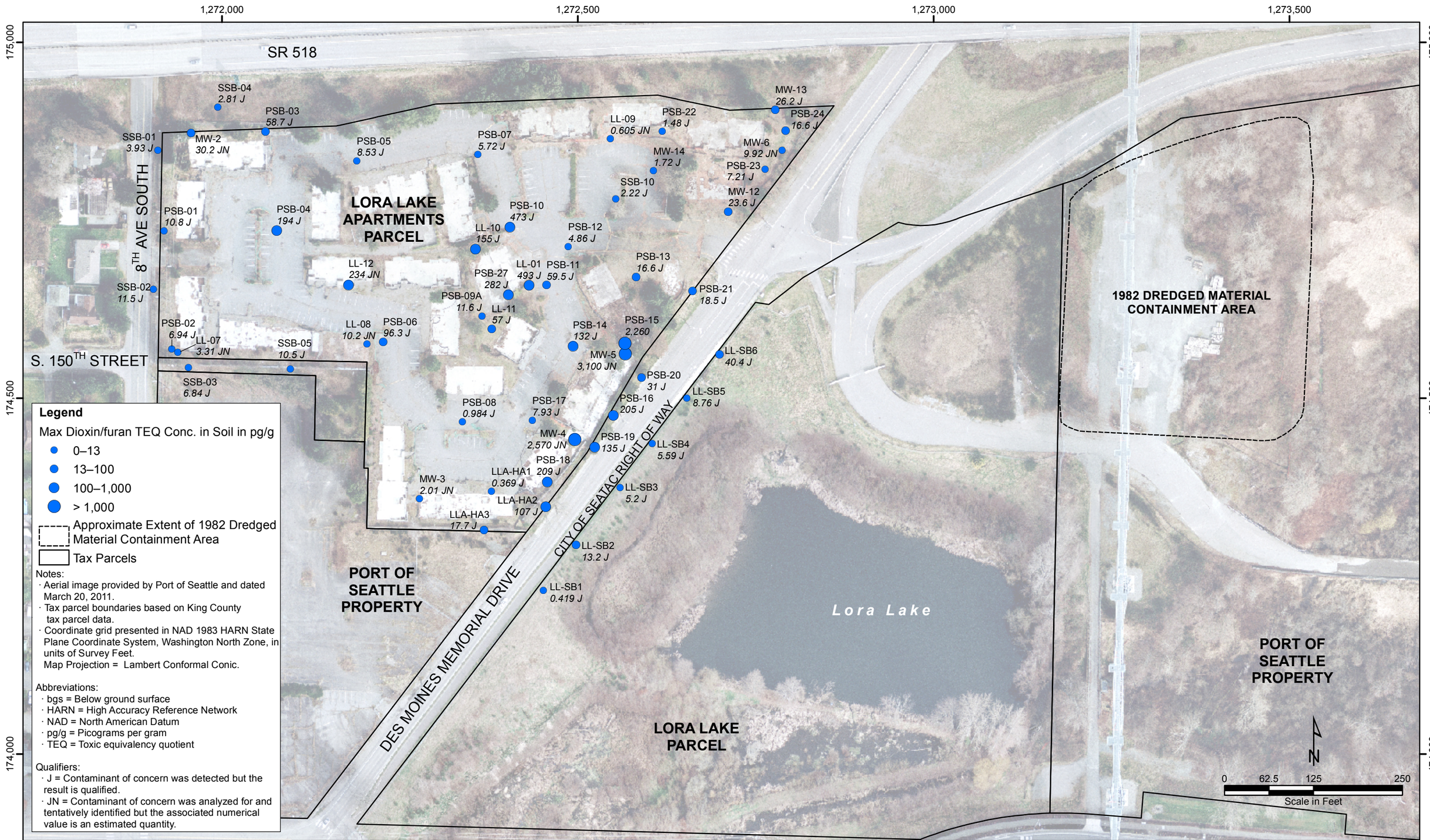
0 62.5 125 250
Scale in Feet

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 4.9
Maximum Dioxin/Furan TEQ Concentrations Detected in Soil at Any Depth

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 4.9 Max Dioxin TEQ in Soil for All Locations at Any Depth.mxd
11/5/2014




**Legend**

Max Dioxin/furan TEQ Conc. in Soil in pg/g

- 0–13
- 13–100
- 100–1,000
- > 1,000
- Approximate Extent of 1982 Dredged Material Containment Area
- Tax Parcels

Notes:

- Aerial image provided by Port of Seattle and dated March 20, 2011.
- Tax parcel boundaries based on King County tax parcel data.
- Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of Survey Feet.
  Map Projection = Lambert Conformal Conic.

Abbreviations:

- bgs = Below ground surface
- HARN = High Accuracy Reference Network
- NAD = North American Datum
- pg/g = Picograms per gram
- TEQ = Toxic equivalency quotient

Qualifiers:

- J = Contaminant of concern was detected but the result is qualified.
- JN = Contaminant of concern was analyzed for and tentatively identified but the associated numerical value is an estimated quantity.

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 4.10
Maximum Dioxin/Furan TEQ Concentrations
Detected in Soil 0 to 0.5 foot bgs

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 4.10 Max Dioxin TEQ in Soil 0-0.5ft bgs.mxd
11/5/2014

1,272,000 1,272,500 1,273,000 1,273,500

175,000 174,500 174,000

SR 518

8TH AVE SOUTH

S. 150TH STREET

DES MOINES MEMORIAL DRIVE

CITY OF SEATAC RIGHT OF WAY

LORA LAKE APARTMENTS PARCEL

1982 DREDGED MATERIAL CONTAINMENT AREA

PORT OF SEATTLE PROPERTY

PORT OF SEATTLE PROPERTY

LORA LAKE PARCEL

Lora Lake

MW-2 0.101 JN
PSB-03 2.26 J
SSB-01 6.94 J
PSB-05 12.8 J
PSB-07 0.666 J
LL-09 0.692 JN
PSB-22 1.17 J
MW-13 24.8 J
PSB-24 1.14 J
MW-14 1.03 J
MW-6 4.13 JN
PSB-23 5.01 J
SSB-10 3.19 J
PSB-01 8.26 J
PSB-04 1.74 J
PSB-10 402 J
LL-10 2,600 J
PSB-12 13.2 J
MW-12 15.7 J
LL-12 5.28 J
LL-01 1,810 J
PSB-11 21,200
PSB-13 187 J
SSB-02 15.2 J
PSB-27 1,650 J
PSB-21 7.78 J
PSB-09A 1.22 J
LL-11 3.15 J
PSB-02 21.5 J
LL-07 33.8 JN
LL-08 43.7 J
PSB-06 702 J
PSB-14 38.4 J
PSB-15 12.1 J
DP-2 1.61
SSB-05 0.529 J
MW-5 24 JN
LL-SB6 7.57 J
DP-1 0.29
SSB-03 0.239 J
DP-3 56
PSB-20 5.21 J
LL-SB5 10.8 J
DP-9 4.29
PSB-08 0.602 J
PSB-17 1.23 J
PSB-16 13.2 J
MW-4 31.2 J
PSB-19 16.1 J
LL-SB4 0.307 J
PSB-18 0.589 J
MW-3 2.88 J
LLA-HA1 3.15 J
LL-SB3 1.3 J
LLA-HA2 2.37 J
LLA-HA3 0.655 J
LL-SB2 0.407 J
LL-SB1 1.35 J
DMA-TP1 0.927 J
DMA-TP4 64.5 J
DMA-TP5 71.9 J
DMA-TP6 0.887 J

**Legend**

**Max Dioxin/furan TEQ Conc. in Soil in pg/g**

- 0 - 13
- 13–100
- 100–1,000
- 1,000–10,000
- > 10,000

Approximate Extent of 1982 Dredged Material Containment Area

Tax Parcels

Notes:
- Aerial image provided by Port of Seattle and dated March 20, 2011.
- Tax parcel boundaries based on King County tax parcel data.
- Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of Survey Feet. Map Projection = Lambert Conformal Conic.

Abbreviations:
- bgs = Below ground surface
- HARN = High Accuracy Reference Network
- NAD = North American Datum
- pg/g = Picograms per gram
- TEQ = Toxic equivalency quotient

Qualifiers:
- J = Contaminant of concern was detected but the result is qualified.
- JN = Contaminant of concern was analyzed for and tentatively identified but the associated numerical value is an estimated quantity.

N

0 62.5 125 250

Scale in Feet

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 4.11
Maximum Dioxin/Furan TEQ Concentrations
Detected in Soil 0.5 to 2 feet bgs

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 4.11 Max Dioxin TEQ in Soil0.5-2.0 ft bgs.mxd
11/5/2014

1,272,000 1,272,500 1,273,000 1,273,500

175,000 174,500 174,000

SR 518

8TH AVE SOUTH

S. 150TH STREET

LORA LAKE APARTMENTS PARCEL

1982 DREDGED MATERIAL CONTAINMENT AREA

PORT OF SEATTLE PROPERTY

LORA LAKE PARCEL

PORT OF SEATTLE PROPERTY

DES MOINES MEMORIAL DRIVE

CITY OF SEATAC RIGHT OF WAY

Lora Lake

PSB-01 *3.87 J*
DP-1 *0.29*
DP-2 *0.13*
DP-3 *0.09*
LL-08 *650 J*
PSB-06 *0.937 J*
PSB-09A *0.754 J*
PSB-10 *803 J*
PSB-11 *11,700 J*
PSB-12 *16.5 J*
PSB-13 *52.5 J*
PSB-14 *41.7 J*
PSB-15 *52.4 J*
PSB-16 *16.6 J*
PSB-17 *0.919 J*
PSB-18 *0.488 J*
PSB-19 *2.19 J*
PSB-20 *3.17 J*
PSB-21 *11.2 J*
MW-12 *14.7 J*
MW-13 *1.02 J*
LL-SB1 *1.95 J*
LL-SB2 *0.322 J*
LL-SB3 *2.15 J*
LL-SB4 *0.31 J*
LL-SB5 *22.7 J*
LL-SB6 *4.7 J*
DMA-TP1 *4.94 J*
DMA-TP2 *7.08 J*
DMA-TP3 *41.1 J*
DMA-TP5 *0.354 J*
DMA-TP6 *0.815 J*

**Legend**

**Max Dioxin/furan TEQ Conc. in Soil in pg/g**

- 0–13
- 13–100
- 100–1,000
- 1,000–10,000
- > 10,000

Approximate Extent of 1982 Dredged Material Containment Area

Tax Parcels

Notes:
- Aerial image provided by Port of Seattle and dated March 20, 2011.
- Tax parcel boundaries based on King County tax parcel data.
- Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of Survey Feet.
  Map Projection = Lambert Conformal Conic.

Abbreviations:
- bgs = Below ground surface
- HARN = High Accuracy Reference Network
- NAD = North American Datum
- pg/g = Picograms per gram
- TEQ = Toxic equivalency quotient

Qualifiers:
- J = Contaminant of concern was detected but the result is qualified.
- JN = Contaminant of concern was analyzed for and tentatively identified but the associated numerical value is an estimated quantity.

N

0 62.5 125 250

Scale in Feet

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 4.12
Maximum Dioxin/Furan TEQ Concentrations
Detected in Soil 2 to 4 feet bgs

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 4.12 Max Dioxin TEQ in Soil 2-4 ft bgs.mxd
11/5/2014

1,272,000 1,272,500 1,273,000 1,273,500

175,000 174,500 174,000

SR 518

8TH AVE SOUTH

S. 150TH STREET

LORA LAKE APARTMENTS PARCEL

PORT OF SEATTLE PROPERTY

LORA LAKE PARCEL

PORT OF SEATTLE PROPERTY

1982 DREDGED MATERIAL CONTAINMENT AREA

DES MOINES MEMORIAL DRIVE

CITY OF SEATAC RIGHT OF WAY

Lora Lake

MW-2 *0.2 U*

MW-13 *0.3*

MW-6 *0.6*

MW-14 *0.4*

MW-7 *0.9*

MW-12 *0.5*

MW-1[1] ***14.2***

MW-5 *5.4*

MW-8 *0.6*

MW-9 *0.3*

MW-4 *0.9*

MW-10 *0.6*

MW-3 *0.5*

MW-11 *0.2 U*

B-312 *0.3*

B-310 *0.7*

B-311 *0.4*

**Legend**

**Maximum Arsenic Conc. in µg/L**

- 0–5
- > 5
- Location where Arsenic was Not Detected in Groundwater
- Approximate Extent of 1982 Dredged Material Containment Area
- Tax Parcels

Notes:

1. Results for location MW-1 represent total, rather than dissolved arsenic. Refer to Section 4.2.2.1 for additional information.

· Aerial image provided by Port of Seattle and dated March 20, 2011.
· Tax parcel boundaries based on King County tax parcel data.
· Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of Survey Feet.
Map Projection = Lambert Conformal Conic.

Abbreviations:

· bgs = Below ground surface
· HARN = High Accuracy Reference Network
· µg/L = Micrograms per liter
· NAD = North American Datum
· TEQ = Toxic equivalency quotient

Qualifier:

· U = Contaminant of concern was not detected at a level greater than or equal to the specified concentration.

N

0 62.5 125 250

Scale in Feet

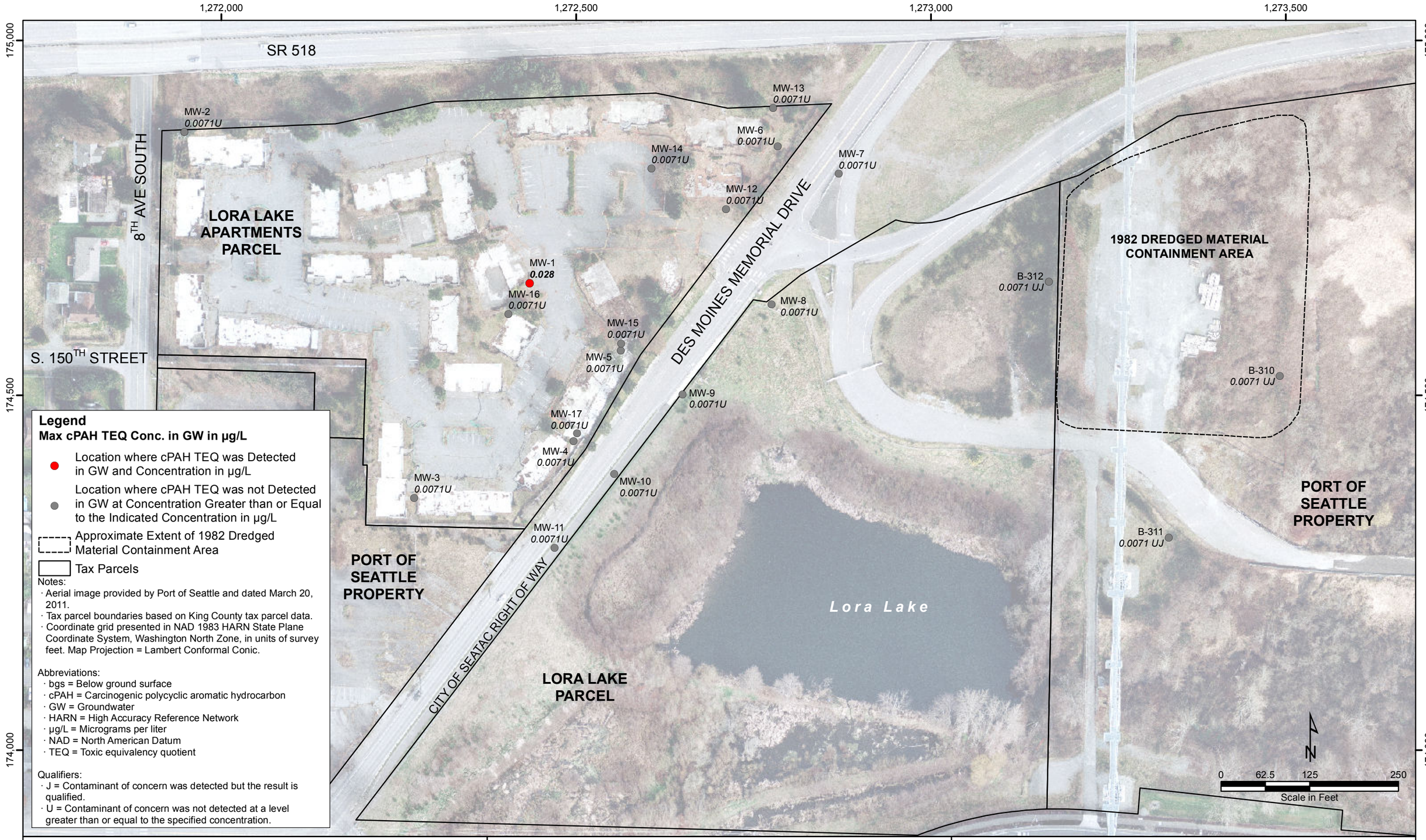
FLOYD | SNIDER

strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 4.13
Maximum Arsenic Concentrations
Detected in Groundwater 2010–2011

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 4.13 Max Arsenic in GW.mxd
12/9/2014




**Legend**
**Max cPAH TEQ Conc. in GW in µg/L**

- Location where cPAH TEQ was Detected in GW and Concentration in µg/L
- Location where cPAH TEQ was not Detected in GW at Concentration Greater than or Equal to the Indicated Concentration in µg/L
- Approximate Extent of 1982 Dredged Material Containment Area
- Tax Parcels

Notes:
- Aerial image provided by Port of Seattle and dated March 20, 2011.
- Tax parcel boundaries based on King County tax parcel data.
- Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of survey feet. Map Projection = Lambert Conformal Conic.

Abbreviations:
- bgs = Below ground surface
- cPAH = Carcinogenic polycyclic aromatic hydrocarbon
- GW = Groundwater
- HARN = High Accuracy Reference Network
- µg/L = Micrograms per liter
- NAD = North American Datum
- TEQ = Toxic equivalency quotient

Qualifiers:
- J = Contaminant of concern was detected but the result is qualified.
- U = Contaminant of concern was not detected at a level greater than or equal to the specified concentration.

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 4.14
Maximum cPAH TEQ Concentrations
Detected in Groundwater 2010–2011

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 4.14 Max cPAH Concentrations in GW.mxd
8/29/2014

1,272,000 1,272,500 1,273,000 1,273,500

175,000 174,500 174,000

SR 518

8TH AVE SOUTH

S. 150TH STREET

LORA LAKE APARTMENTS PARCEL

DES MOINES MEMORIAL DRIVE

1982 DREDGED MATERIAL CONTAINMENT AREA

PORT OF SEATTLE PROPERTY

PORT OF SEATTLE PROPERTY

LORA LAKE PARCEL

CITY OF SEATAC RIGHT OF WAY

Lora Lake

MW-1 *0.76*
MW-2 *0.25 U*
MW-3 *0.25 U*
MW-4 *0.25 U*
MW-5 *1.4*
MW-6 *0.25 U*
MW-7 *0.25 U*
MW-8 *0.25 U*
MW-9 *0.47*
MW-10 *0.25 U*
MW-11 *0.25 U*
MW-12 *0.25 U*
MW-13 *0.25 U*
MW-14 *0.25 U*
MW-15 *0.25 U*
MW-16 *0.25 U*
MW-17 *0.25 U*
B-310 *0.25 U*
B-311 *0.25 U*
B-312 *0.25 U*

**Legend**

**Max PCP Conc. in GW in µg/L**

- 0–1
- > 1
- Location where PCP was Not Detected in Groundwater
- Approximate Extent of 1982 Dredged Material Containment Area
- Tax Parcels

Notes:
- Aerial image provided by Port of Seattle and dated March 20, 2011.
- Tax parcel boundaries based on King County tax parcel data.
- Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of survey feet. Map Projection = Lambert Conformal Conic.

Abbreviations:
- GW = Groundwater
- HARN = High Accuracy Reference Network
- µg/L = Micrograms per liter
- NAD = North American Datum
- PCP = Pentachlorophenol

Qualifier:
- J = Contaminant of concern was detected but the result is qualified.

N

0 62.5 125 250
Scale in Feet

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 4.15
Maximum Pentachlorophenol Concentrations
Detected in Groundwater 2010–2011

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 4.15 Max PCP Concentrations in GW.mxd
8/29/2014

1,271,500 1,272,000 1,272,500 1,273,000

175,000 174,500 174,000

SR 518

| MW-13 | | | |
|---|---|---|---|
| **Analyte** | **Sample event** | **Result** | **Unit** |
| PCE | Summer 2010 | 0.035 | µg/L |

MW-13

MW-6

| MW-6 | | | |
|---|---|---|---|
| **Analyte** | **Sample event** | **Result** | **Unit** |
| Ethylbenzene | Spring 2011 | 1.1 | µg/L |

| MW-1 | | | |
|---|---|---|---|
| **Analyte** | **Sample event** | **Result** | **Unit** |
| PCE | Winter 2011 | 0.025 | µg/L |
| TCE | Summer 2010 | 0.17 | µg/L |
| cis-1,2-DCE | Winter 2011 | 0.26 | µg/L |
| trans-1,2-DCE | Summer 2010 | 0.11 | µg/L |
| 1,2-DCA | Summer 2010 | 0.038 | µg/L |
| Ethylbenzene | Winter 2011 | 3.1 | µg/L |
| m,p-Xylene | Winter 2011 | 5.6 | µg/L |
| o-Xylene | Winter 2011 | 9.2 | µg/L |

MW-1

MW-5

| MW-5 | | | |
|---|---|---|---|
| **Analyte** | **Sample event** | **Result** | **Unit** |
| cis-1,2-DCE | Summer 2010 | 0.028 | µg/L |
| 1,2-DCA | Summer 2010 | 0.07 | µg/L |

8TH AVE SOUTH

DES MOINES MEMORIAL DRIVE

CITY OF SEATAC RIGHT OF WAY

Lora Lake

N

0 62.5 125 250

Scale in Feet

**Legend**

Monitoring Well Location

Tax Parcels

Notes:
- Aerial Image provided by Port of Seattle and dated March 20, 2011.
- Tax parcel boundaries based on King County tax parcel data.
- Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of survey feet. Map Projection = Lambert Conformal Conic.

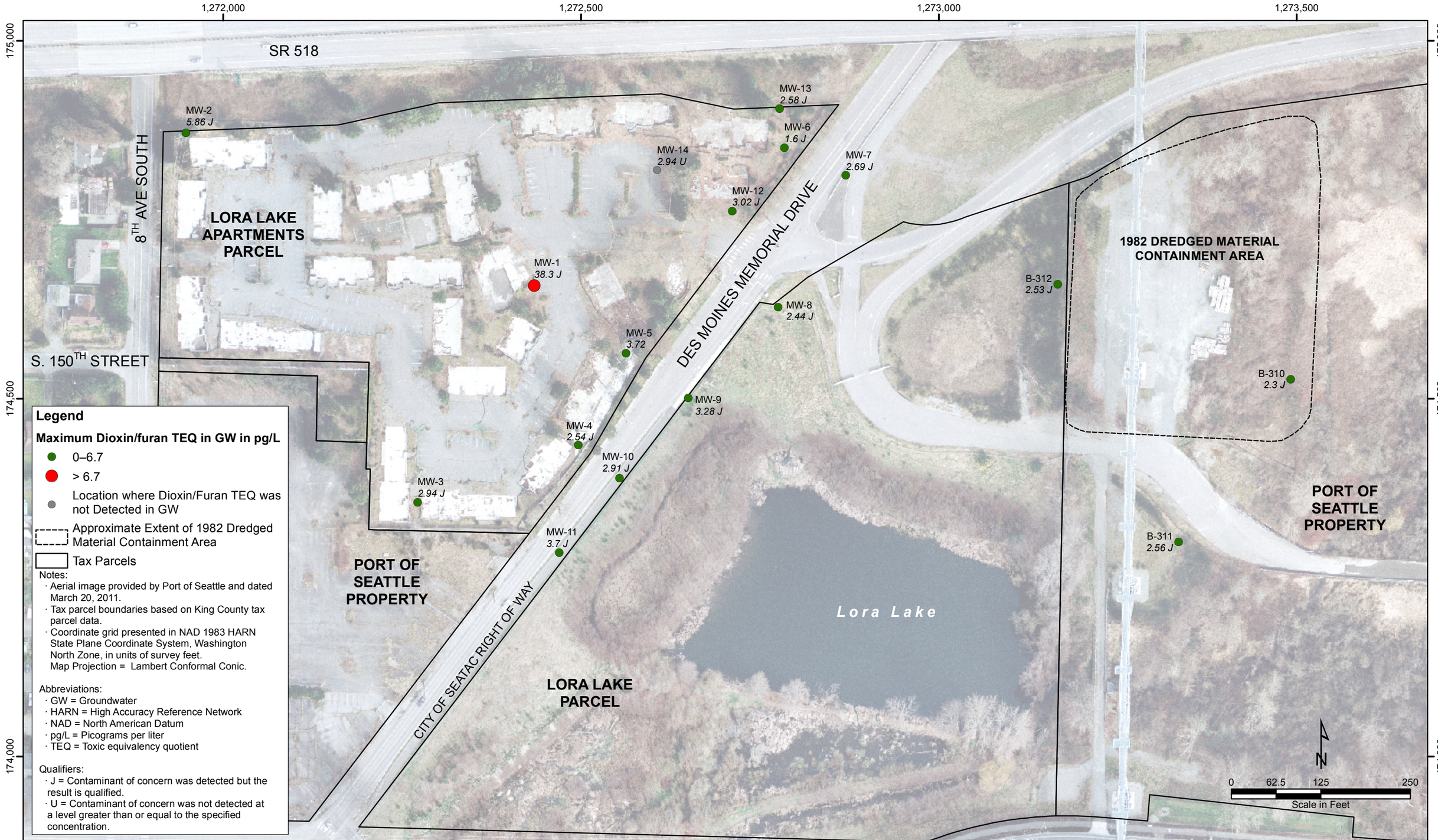
Abbreviations:
- DCA = Dichloroethane
- DCE = Dichloroethene
- HARN = High Accuracy Reference Network
- µg/L = Micrograms per liter
- NAD = North American Datum
- PCE = Tetrachloroethene
- TCE = Trichloroethene

FLOYD | SNIDER
strategy • science • engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 4.16
Volatile Organic Compound Concentrations in Groundwater 2010–2011

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 4.16 VOCs in Groundwater - Callout Boxes.mxd
12/9/2014




**Legend**

**Maximum Dioxin/furan TEQ in GW in pg/L**

- 0–6.7
- > 6.7
- Location where Dioxin/Furan TEQ was not Detected in GW
- Approximate Extent of 1982 Dredged Material Containment Area
- Tax Parcels

Notes:

- Aerial image provided by Port of Seattle and dated March 20, 2011.
- Tax parcel boundaries based on King County tax parcel data.
- Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of survey feet. Map Projection = Lambert Conformal Conic.

Abbreviations:

- GW = Groundwater
- HARN = High Accuracy Reference Network
- NAD = North American Datum
- pg/L = Picograms per liter
- TEQ = Toxic equivalency quotient

Qualifiers:

- J = Contaminant of concern was detected but the result is qualified.
- U = Contaminant of concern was not detected at a level greater than or equal to the specified concentration.

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 4.17
Maximum Dioxin/Furan TEQ Concentrations
Detected in Groundwater 2010–2011

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 4.17 Max DioxinTEQ in GW.mxd
11/5/2014

1,272,000 1,272,500 1,273,000

174,500 174,000

**Legend**

- Surface Sediment Sample Location
- Tax Parcels
- Miller Creek

Notes:
1. Rock berm location digitized based on 1985 aerial photo of parcel.
   · Tax parcel boundaries based on King County tax parcel data.
   · Aerial image provided by Port of Seattle and dated March 20, 2011.
   · Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of survey feet. Map Projection = Lambert Conformal Conic.

Abbreviations:
· cm = Centimeter
· HARN = High Accuracy Reference Network
· µg/kg = Micrograms per kilogram
· mg/kg = Milligrams per kilogram
· NAD = North American Datum
· pg/g = Picograms per gram
· TEQ = Toxic equivalency quotient

Qualifier:
· J = Contaminant of concern was detected but the result is qualified.

LORA LAKE APARTMENTS PARCEL

PORT OF SEATTLE PROPERTY

DES MOINES MEMORIAL DRIVE

LORA LAKE PARCEL

Lora Lake

Miller Creek

STORM DRAIN OUTFALL LOCATION

ROCK BERM[1]

LL-SED5

LL-SED1

LL-SED2

LL-SED3

LL-SED4

MC-SED1

MC-SED2

MC-SED3

DISCHARGE CULVERT TO MILLER CREEK

| *LL-SED5* | | | |
|---|---|---|---|
| **Analyte** | **Result** | **Unit** | **Depth (cm)** |
| Arsenic | 7 | mg/kg | 0–15 |
| Lead | 48 | mg/kg | 0–15 |
| cPAH TEQ | 48 | µg/kg | 0–15 |
| Pentachlorophenol | 33 | µg/kg | 0–15 |
| Dioxin/Furan TEQ | 7.55 J | pg/g | 0–15 |

| *LL-SED1* | | | |
|---|---|---|---|
| **Analyte** | **Result** | **Unit** | **Depth (cm)** |
| Arsenic | 20 | mg/kg | 0–15 |
| Lead | 319 | mg/kg | 0–15 |
| cPAH TEQ | 180 | µg/kg | 0–15 |
| Pentachlorophenol | 50 J | µg/kg | 0–15 |
| Dioxin/Furan TEQ | 193 J | pg/g | 0–15 |

| *LL-SED2* | | | |
|---|---|---|---|
| **Analyte** | **Result** | **Unit** | **Depth (cm)** |
| Arsenic | 50 | mg/kg | 0–15 |
| Lead | 390 | mg/kg | 0–15 |
| cPAH TEQ | 120 | µg/kg | 0–15 |
| Dioxin/Furan TEQ | 217 | pg/g | 0–15 |

| *LL-SED3* | | | |
|---|---|---|---|
| **Analyte** | **Result** | **Unit** | **Depth (cm)** |
| Arsenic | 70 | mg/kg | 0–15 |
| Lead | 361 | mg/kg | 0–15 |
| cPAH TEQ | 62 | µg/kg | 0–15 |
| Dioxin/Furan TEQ | 152 J | pg/g | 0–15 |

| *MC-SED1* | | | |
|---|---|---|---|
| **Analyte** | **Result** | **Unit** | **Depth (cm)** |
| Arsenic | 8 | mg/kg | 0–10 |
| Lead | 12 | mg/kg | 0–10 |
| Dioxin/Furan TEQ | 0.442 J | pg/g | 0–10 |

| *LL-SED4* | | | |
|---|---|---|---|
| **Analyte** | **Result** | **Unit** | **Depth (cm)** |
| Arsenic | 40 | mg/kg | 0–15 |
| Lead | 492 | mg/kg | 0–15 |
| cPAH TEQ | 43 | µg/kg | 0–15 |
| Dioxin/Furan TEQ | 149 | pg/g | 0–15 |

| *MC-SED3* | | | |
|---|---|---|---|
| **Analyte** | **Result** | **Unit** | **Depth (cm)** |
| Lead | 4 | mg/kg | 0–10 |
| Dioxin/Furan TEQ | 0.327 J | pg/g | 0–10 |

| *MC-SED2* | | | |
|---|---|---|---|
| **Analyte** | **Result** | **Unit** | **Depth (cm)** |
| Lead | 11 | mg/kg | 0–10 |
| Dioxin/Furan TEQ | 0.435 J | pg/g | 0–10 |

N

0 100 200

Scale in Feet

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 4.18
Detected Preliminary Contaminants of Concern Concentrations in Lora Lake and Miller Creek Surface Sediments

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 4.18 Detected Prelim Contam of Concern Conc in LL and Miller Crk Surf Seds.mxd
1/16/2015

1,272,000 1,272,500 1,273,000

174,500 174,000

**Legend**

- Subsurface Sediment Sample Location
- Northern Extent of Lora Lake Parcel
- Tax Parcels
- Miller Creek

Notes:

1. Rock berm location digitized based on 1985 aerial photo of parcel.
   - Tax parcel boundaries based on King County tax parcel data.
   - Aerial image provided by Port of Seattle and dated March 20, 2011.
   - Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of survey feet. Map Projection = Lambert Conformal Conic.

Abbreviations:

- cPAH = Carcinogenic polycyclic aromatic hydrocarbon
- cm = Centimeter
- HARN = High Accuracy Reference Network
- µg/kg = Micrograms per kilogram
- mg/kg = Milligrams per kilogram
- NAD = North American Datum
- pg/g = Picograms per gram
- TEQ = Toxic equivalency quotient

Qualifier:

- J = Contaminant of concern was detected but the result is qualified.

LORA LAKE APARTMENTS PARCEL

PORT OF SEATTLE PROPERTY

DES MOINES MEMORIAL DRIVE

LORA LAKE PARCEL

Lora Lake

STORM DRAIN OUTFALL LOCATION

ROCK BERM[1]

LL-SED1

LL-SED2

LL-SED3

DISCHARGE CULVERT TO MILLER CREEK

Miller Creek

| *LL-SED1* | | | |
|---|---|---|---|
| **Analyte** | **Result** | **Unit** | **Depth (cm)** |
| Arsenic | 9 | mg/kg | 0–56 |
| Lead | 29 | mg/kg | 0–56 |
| cPAH TEQ | 78 J | µg/kg | 0–56 |
| Dioxin/Furan TEQ | 23.2 J | pg/g | 0–56 |

| *LL-SED3* | | | |
|---|---|---|---|
| **Analyte** | **Result** | **Unit** | **Depth (cm)** |
| Arsenic | 70 | mg/kg | 0–36 |
| | 50 | mg/kg | 141–167 |
| Lead | 450 | mg/kg | 0–36 |
| cPAH TEQ | 120 | µg/kg | 0–36 |
| | 11 | µg/kg | 36–141 |
| Dioxin/Furan TEQ | 202 J | pg/g | 0–36 |
| | 0.657 J | pg/g | 36–141 |
| | 1.58 J | pg/g | 141–167 |

| *LL-SED2* | | | |
|---|---|---|---|
| **Analyte** | **Result** | **Unit** | **Depth (cm)** |
| Arsenic | 80 | mg/kg | 0–56 |
| | 80 | mg/kg | 56–112 |
| | 80 | mg/kg | 112–168 |
| Lead | 380 | mg/kg | 0–56 |
| cPAH TEQ | 580 J | µg/kg | 0–56 |
| Dioxin/Furan TEQ | 154 J | pg/g | 0–56 |
| | 1.3 J | pg/g | 56–112 |
| | 0.659 J | pg/g | 112–168 |

N

0 100 200

Scale in Feet

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 4.19
Detected Preliminary Contaminants of Concern Concentrations in Lora Lake Subsurface Sediment

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 4.19 Detected Prelim Contam of Concern Conc in LL Subsurface Seds.mxd
9/2/2014

1,272,000 1,272,500 1,273,000

174,500

174,000

**Legend**

- Sediment Bioassay Sample Location
- Tax Parcels
- Miller Creek

Notes:
1. Rock berm location digitized based on 1985 aerial photo of parcel.
   - Tax parcel boundaries based on King County tax parcel data.
   - Aerial image provided by Port of Seattle and dated March 20, 2011.
   - Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of survey feet. Map Projection = Lambert Conformal Conic.

Abbreviations:
- CSL = Cleanup screening level
- HARN = High Accuracy Reference Network
- NAD = North American Datum
- SCO = Sediment cleanup objective
- TEQ = Toxic equivalency quotient

LORA LAKE APARTMENTS PARCEL

PORT OF SEATTLE PROPERTY

LORA LAKE PARCEL

DES MOINES MEMORIAL DRIVE

Lora Lake

Miller Creek

STORM DRAIN OUTFALL LOCATION

ROCK BERM[1]

LL-SED1

LL-SED2

LL-SED3

LL-SED4

MC-SED1

MC-SED2

MC-SED3

DISCHARGE CULVERT TO MILLER CREEK

*LL-SED1*

| 20-day Chronic Midge | | 10-day Acute | | Microtox | |
|---|---|---|---|---|---|
| SCO | CSL | SCO | CSL | SCO | CSL |
| Pass | Pass | Pass | Pass | Pass | Pass |

*LL-SED2*

| 20-day Chronic Midge | | 10-day Acute | | Microtox | |
|---|---|---|---|---|---|
| SCO | CSL | SCO | CSL | SCO | CSL |
| Fail* | Fail* | Pass | Pass | Pass | Pass |

*Failed mortality test, but passed growth test.

*LL-SED3*

| 20-day Chronic Midge | | 10-day Acute | | Microtox | |
|---|---|---|---|---|---|
| SCO | CSL | SCO | CSL | SCO | CSL |
| Fail* | Pass | Pass | Pass | Pass | Pass |

*Failed mortality test, but passed growth test.

*MC-SED1*

| 20-day Chronic Midge | | 10-day Acute | | Microtox | |
|---|---|---|---|---|---|
| SCO | CSL | SCO | CSL | SCO | CSL |
| Fail* | Pass | Pass | Pass | Pass | Pass |

*Failed mortality test, but passed growth test.

*LL-SED4*

| 20-day Chronic Midge | | 10-day Acute | | Microtox | |
|---|---|---|---|---|---|
| SCO | CSL | SCO | CSL | SCO | CSL |
| Fail* | Pass | Pass | Pass | Pass | Pass |

*Failed mortality test, but passed growth test.

*MC-SED3*

| 20-day Chronic Midge | | 10-day Acute | | Microtox | |
|---|---|---|---|---|---|
| SCO | CSL | SCO | CSL | SCO | CSL |
| Fail* | Pass | Pass | Pass | Pass | Pass |

*Failed mortality test, but passed growth test.

*MC-SED2*

| 20-day Chronic Midge | | 10-day Acute | | Microtox | |
|---|---|---|---|---|---|
| SCO | CSL | SCO | CSL | SCO | CSL |
| Pass | Pass | Pass | Pass | Pass | Pass |

N

0 100 200

Scale in Feet

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 4.20
Bioassay Results in Lora Lake and Miller Creek Surface Sediments

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 4.20 Bioassay Results in Surface Sediments.mxd
12/9/2014

1,272,000 1,272,500 1,273,000 1,273,500

175,000 174,500 174,000

SR 518

**LORA LAKE APARTMENTS PARCEL**

**1982 DREDGED MATERIAL CONTAINMENT AREA**

**PORT OF SEATTLE PROPERTY**

**LORA LAKE PARCEL**

**PORT OF SEATTLE PROPERTY**

8TH AVE SOUTH

S. 150TH STREET

DES MOINES MEMORIAL DRIVE

CITY OF SEATAC RIGHT OF WAY

Lora Lake

SSB-1 SSB-2 SSB-3 SSB-4 SSB-5 SSB-6 SSB-8 SSB-9 SSB-10

MW-1 MW-2 MW-3 MW-4 MW-5 MW-6 MW-12 MW-13

PSB-1 PSB-2 PSB-3 PSB-4 PSB-5 PSB-6 PSB-7 PSB-8 PSB-9 PSB-9A PSB-10 PSB-11 PSB-12 PSB-13 PSB-14 PSB-15 PSB-16 PSB-17 PSB-18 PSB-19 PSB-20 PSB-21 PSB-22 PSB-23 PSB-24 PSB-25 PSB-26 PSB-27

LL-01 LL-07 LL-08 LL-09 LL-10 LL-11 LL-12

LLP-1 LLP-2 LLP-3 LLP-4 LLP-5 LLP-6 LLP-7 LLP-8 LLP-9

LL-SB1 LL-SB2 LL-SB3 LL-SB4 LL-SB5 LL-SB6

HA-1 HA-2 HA-3

DP-3 DP-8

DMA-TP1 DMA-TP2 DMA-TP3 DMA-TP4 DMA-TP5 DMA-TP6

***LLP-02***

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| TPH-Heavy Oil Range | 9,800 | mg/kg | 6.5–7 |

***LL-01***

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Lead | 265 J | mg/kg | 1.5–2 |

***LL-08***

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| cPAH TEQ | 160 J | µg/kg | 2–4 |

***MW-1***

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| TPH-Gasoline Range | 1,000 J | mg/kg | 14–15 |
| TPH-Diesel Range | 8,900 J | mg/kg | 14–15 |
| TPH-Heavy Oil Range | 12,000 J | mg/kg | 14–15 |
| Pentachlorophenol | 2,900 UJ | µg/kg | 14–15 |
| cPAH | 880 J | µg/kg | 14–15 |

***LLP-04***

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| TPH-Gasoline Range | 1,900 J | mg/kg | 14.5–15.5 |
| TPH-Diesel Range | 6,000 | mg/kg | 14.5–15.5 |
| TPH-Heavy Oil Range | 17,000 | mg/kg | 14.5–15.5 |
| Pentachlorophenol | 3,700 U | µg/kg | 14.5–15.5 |
| cPAH | 760 | µg/kg | 14.5–15.5 |

***MW-5***

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Lead | 294 | mg/kg | 0–0.5 |
| Pentachlorophenol | 2,700 | µg/kg | 0–0.5 |
| cPAH | 240 J | µg/kg | 0–0.5 |
| | 140 J | µg/kg | 11.5–13 |

***PSB-20***

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| TPH-Gasoline Range | 440 U | mg/kg | 2–4 |
| cPAH | 350 | µg/kg | 0–0.5 |

***PSB-11***

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Lead | 304 J | mg/kg | 1.5–2 |
| | 2,880 J | mg/kg | 2–4 |
| TPH-Gasoline Range | 150 | mg/kg | 1.5–2 |
| TPH-Heavy Oil Range | 2,700 | mg/kg | 2–4 |
| cPAH | 150 J | µg/kg | 1.5–2 |
| | 270 J | µg/kg | 2–4 |

***MW-4***

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Lead | 370 | mg/kg | 0–0.5 |
| Pentachlorophenol | 15,000 | µg/kg | 0–0.5 |
| cPAH | 150 J | µg/kg | 0–0.5 |

Notes:
1. Refer to Table 6.4 for all soil cleanup levels.
2. Dioxin/furan TEQ soil exceedances are presented in Figure 7.3.
- Tax parcel boundaries based on King County tax parcel data.
- Aerial image provided by Port of Seattle and dated March 20, 2011.
- Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of survey feet. Map Projection = Lambert Conformal Conic.

Abbreviations:
- COC = Contaminant of concern
- cPAH = Carcinogenic polycyclic aromatic hydrocarbon
- ft = Feet
- µg/kg = Micrograms per kilogram
- mg/kg = Milligrams per kilogram
- TEQ = Toxic equivalency quotient
- TPH = Total petroleum hydrocarbons

Qualifiers:
- J = Contaminant of concern was detected but the result is qualified.
- U = Contaminant of concern was not detected at a level greater than or equal to the specified concentration.
- UJ = Contaminant of concern was not detected with an estimated concentration.

**Legend**
- Soil does not exceed any cleanup levels[1]
- Soil exceeds cleanup level for at least one COC, except dioxins/furans[2]
- Tax Parcels
- Approximate Extent of 1982 Dredged Material Containment Area

N

0 62.5 125 250

Scale in Feet

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 7.1
COC Cleanup Level Exceedances in Soil (except Dioxins/Furans)

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 7.1 COC Cleanup Level Excs in Soil.mxd
9/2/2014

1,272,000 1,272,500 1,273,000 1,273,500

175,000 174,500 174,000

SR 518

8TH AVE SOUTH

S. 150TH STREET

LORA LAKE APARTMENTS PARCEL

1982 DREDGED MATERIAL CONTAINMENT AREA

PORT OF SEATTLE PROPERTY

PORT OF SEATTLE PROPERTY

LORA LAKE PARCEL

CITY OF SEATAC RIGHT OF WAY

DES MOINES MEMORIAL DRIVE

Lora Lake

MW-1 MW-2 MW-3 MW-4 MW-5 MW-6 MW-7 MW-8 MW-9 MW-10 MW-11 MW-12 MW-13 MW-14 MW-15 MW-16 MW-17

B-310 B-311 B-312

| *MW-01* | | |
|---|---|---|
| **Analytes** | **Result** | **Unit** |
| Arsenic | 5.6 | µg/L |
| | 11.9 | µg/L |
| | 14.2 | µg/L |
| Dioxin/Furan TEQ | 18.8 J | pg/L |
| | 38.3 J | pg/L |
| | 24.2 J | pg/L |
| TPH–Heavy oil range | 0.53 | mg/L |

| *MW-5* | | |
|---|---|---|
| **Analytes** | **Result** | **Unit** |
| Arsenic | 5.4 | µg/L |
| Pentachlorophenol | 1.4 | µg/L |
| | 1.4 | µg/L |

Notes:
- Refer to Table 6.2 for all groundwater cleanup levels.
- Tax parcel boundaries based on King County tax parcel data.
- Aerial image provided by Port of Seattle and dated March 20, 2011.
- Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of survey feet. Map Projection = Lambert Conformal Conic.

Abbreviations:
- COC = Contaminant of concern
- cPAH = Carcinogenic polycyclic aromatic hydrocarbon
- HARN = High Accuracy Reference Network
- µg/L= Micrograms per liter
- mg/L = Milligrams per liter
- NAD = North American Datum
- pg/L = Picograms per liter
- TEQ = Toxic equivalency quotient

Qualifiers:
- J = Contaminant of concern was detected but the result is qualified.
- UJ = Contaminant of concern was not detected with an estimated concentration.

**Legend**
- Groundwater does not exceed any cleanup levels
- Groundwater exceeds cleanup level for at least one COC
- Tax Parcels
- Approximate Extent of 1982 Dredged Material Containment Area

N

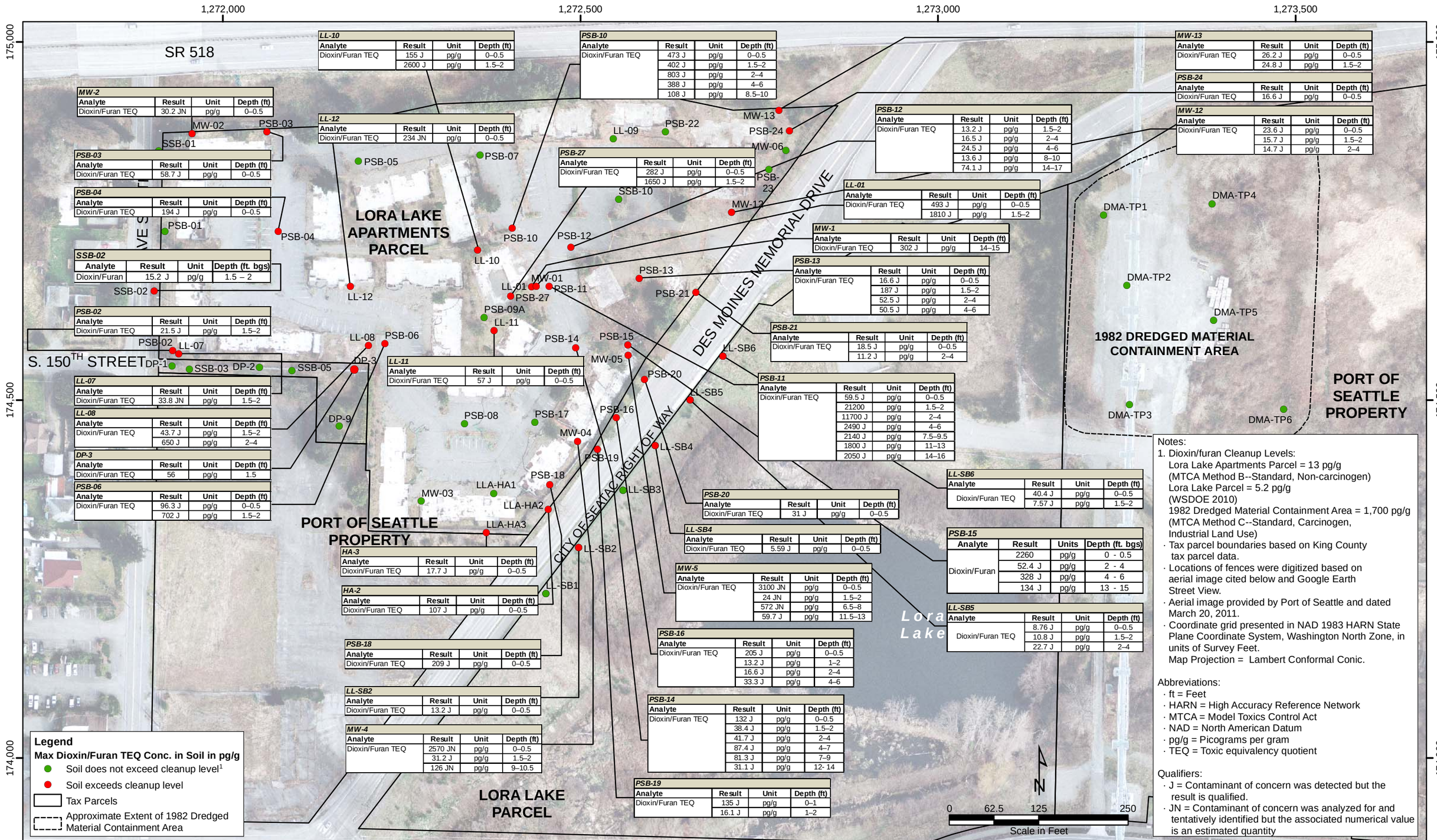
0 62.5 125 250
Scale in Feet

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 7.2
COC Cleanup Level Exceedances in Groundwater

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 7.2 COC Cleanup Level Excs in Groundwater.mxd
12/11/2014




**LL-10**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 155 J | pg/g | 0–0.5 |
| | 2600 J | pg/g | 1.5–2 |

**PSB-10**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 473 J | pg/g | 0–0.5 |
| | 402 J | pg/g | 1.5–2 |
| | 803 J | pg/g | 2–4 |
| | 388 J | pg/g | 4–6 |
| | 108 J | pg/g | 8.5–10 |

**MW-13**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 26.2 J | pg/g | 0–0.5 |
| | 24.8 J | pg/g | 1.5–2 |

**PSB-24**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 16.6 J | pg/g | 0–0.5 |

**MW-2**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 30.2 JN | pg/g | 0–0.5 |

**LL-12**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 234 JN | pg/g | 0–0.5 |

**PSB-12**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 13.2 J | pg/g | 1.5–2 |
| | 16.5 J | pg/g | 2–4 |
| | 24.5 J | pg/g | 4–6 |
| | 13.6 J | pg/g | 8–10 |
| | 74.1 J | pg/g | 14–17 |

**MW-12**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 23.6 J | pg/g | 0–0.5 |
| | 15.7 J | pg/g | 1.5–2 |
| | 14.7 J | pg/g | 2–4 |

**PSB-27**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 282 J | pg/g | 0–0.5 |
| | 1650 J | pg/g | 1.5–2 |

**LL-01**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 493 J | pg/g | 0–0.5 |
| | 1810 J | pg/g | 1.5–2 |

**PSB-03**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 58.7 J | pg/g | 0–0.5 |

**MW-1**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 302 J | pg/g | 14–15 |

**PSB-04**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 194 J | pg/g | 0–0.5 |

**PSB-13**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 16.6 J | pg/g | 0–0.5 |
| | 187 J | pg/g | 1.5–2 |
| | 52.5 J | pg/g | 2–4 |
| | 50.5 J | pg/g | 4–6 |

**SSB-02**

| Analyte | Result | Unit | Depth (ft. bgs) |
|---|---|---|---|
| Dioxin/Furan | 15.2 J | pg/g | 1.5 – 2 |

**PSB-21**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 18.5 J | pg/g | 0–0.5 |
| | 11.2 J | pg/g | 2–4 |

**PSB-02**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 21.5 J | pg/g | 1.5–2 |

**LL-11**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 57 J | pg/g | 0–0.5 |

**PSB-11**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 59.5 J | pg/g | 0–0.5 |
| | 21200 | pg/g | 1.5–2 |
| | 11700 J | pg/g | 2–4 |
| | 2490 J | pg/g | 4–6 |
| | 2140 J | pg/g | 7.5–9.5 |
| | 1800 J | pg/g | 11–13 |
| | 2050 J | pg/g | 14–16 |

**LL-07**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 33.8 JN | pg/g | 1.5–2 |

**LL-08**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 43.7 J | pg/g | 1.5–2 |
| | 650 J | pg/g | 2–4 |

**DP-3**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 56 | pg/g | 1.5 |

**PSB-06**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 96.3 J | pg/g | 0–0.5 |
| | 702 J | pg/g | 1.5–2 |

**LL-SB6**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 40.4 J | pg/g | 0–0.5 |
| | 7.57 J | pg/g | 1.5–2 |

**PSB-20**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 31 J | pg/g | 0–0.5 |

**PSB-15**

| Analyte | Result | Units | Depth (ft. bgs) |
|---|---|---|---|
| Dioxin/Furan | 2260 | pg/g | 0 - 0.5 |
| | 52.4 J | pg/g | 2 - 4 |
| | 328 J | pg/g | 4 - 6 |
| | 134 J | pg/g | 13 - 15 |

**LL-SB4**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 5.59 J | pg/g | 0–0.5 |

**LL-SB5**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 8.76 J | pg/g | 0–0.5 |
| | 10.8 J | pg/g | 1.5–2 |
| | 22.7 J | pg/g | 2–4 |

**MW-5**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 3100 JN | pg/g | 0–0.5 |
| | 24 JN | pg/g | 1.5–2 |
| | 572 JN | pg/g | 6.5–8 |
| | 59.7 J | pg/g | 11.5–13 |

**HA-3**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 17.7 J | pg/g | 0–0.5 |

**HA-2**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 107 J | pg/g | 0–0.5 |

**PSB-16**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 205 J | pg/g | 0–0.5 |
| | 13.2 J | pg/g | 1–2 |
| | 16.6 J | pg/g | 2–4 |
| | 33.3 J | pg/g | 4–6 |

**PSB-18**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 209 J | pg/g | 0–0.5 |

**LL-SB2**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 13.2 J | pg/g | 0–0.5 |

**PSB-14**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 132 J | pg/g | 0–0.5 |
| | 38.4 J | pg/g | 1.5–2 |
| | 41.7 J | pg/g | 2–4 |
| | 87.4 J | pg/g | 4–7 |
| | 81.3 J | pg/g | 7–9 |
| | 31.1 J | pg/g | 12- 14 |

**MW-4**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 2570 JN | pg/g | 0–0.5 |
| | 31.2 J | pg/g | 1.5–2 |
| | 126 JN | pg/g | 9–10.5 |

**PSB-19**

| Analyte | Result | Unit | Depth (ft) |
|---|---|---|---|
| Dioxin/Furan TEQ | 135 J | pg/g | 0–1 |
| | 16.1 J | pg/g | 1–2 |

**Legend**

**Max Dioxin/Furan TEQ Conc. in Soil in pg/g**

- Soil does not exceed cleanup level[1]
- Soil exceeds cleanup level
- Tax Parcels
- Approximate Extent of 1982 Dredged Material Containment Area

Notes:

1. Dioxin/furan Cleanup Levels:
   Lora Lake Apartments Parcel = 13 pg/g
   (MTCA Method B--Standard, Non-carcinogen)
   Lora Lake Parcel = 5.2 pg/g
   (WSDOE 2010)
   1982 Dredged Material Containment Area = 1,700 pg/g
   (MTCA Method C--Standard, Carcinogen, Industrial Land Use)
- Tax parcel boundaries based on King County tax parcel data.
- Locations of fences were digitized based on aerial image cited below and Google Earth Street View.
- Aerial image provided by Port of Seattle and dated March 20, 2011.
- Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of Survey Feet.
  Map Projection = Lambert Conformal Conic.

Abbreviations:

- ft = Feet
- HARN = High Accuracy Reference Network
- MTCA = Model Toxics Control Act
- NAD = North American Datum
- pg/g = Picograms per gram
- TEQ = Toxic equivalency quotient

Qualifiers:

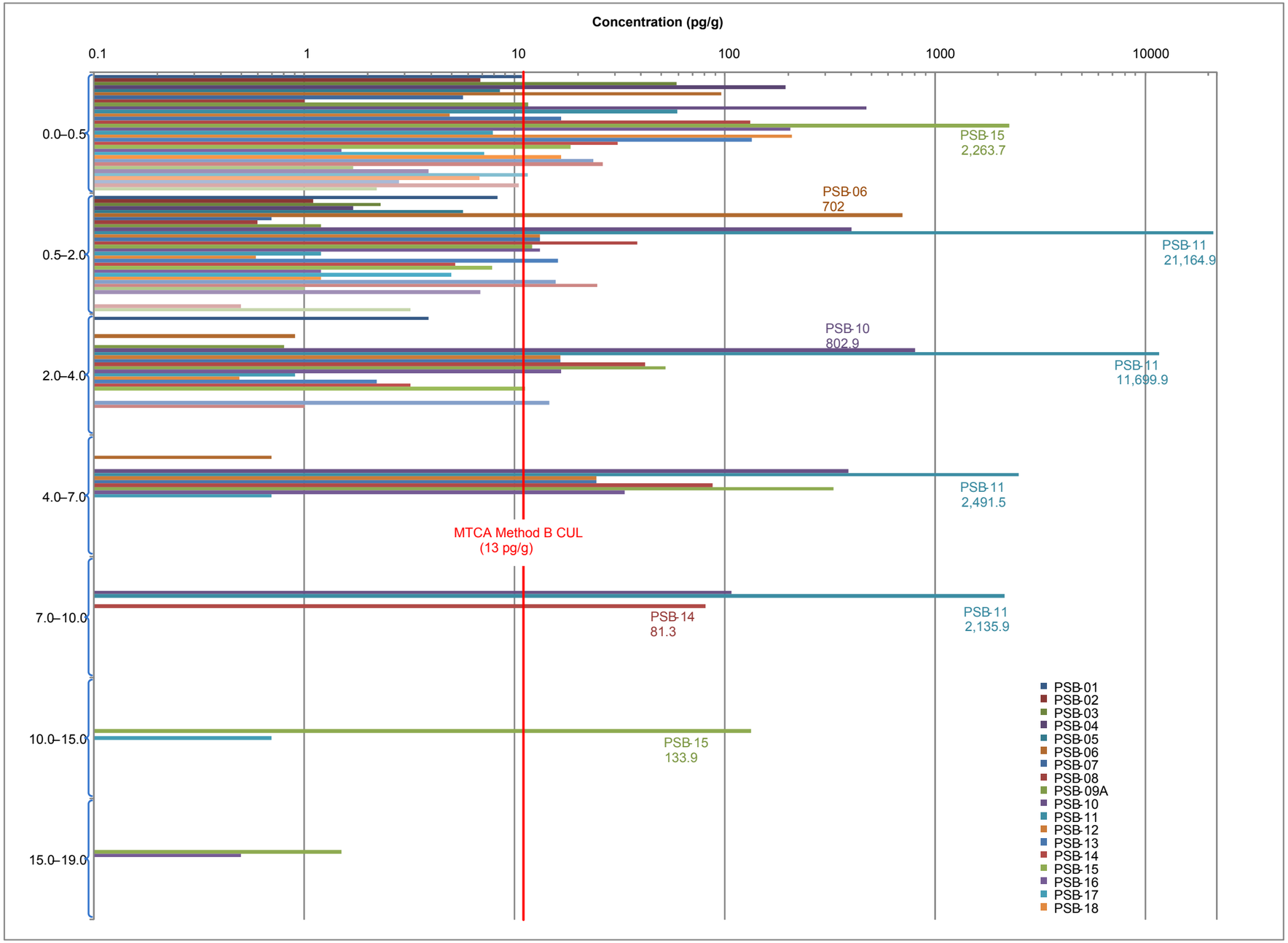
- J = Contaminant of concern was detected but the result is qualified.
- JN = Contaminant of concern was analyzed for and tentatively identified but the associated numerical value is an estimated quantity

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 7.3
Maximum Dioxin/Furan TEQ Concentrations
Detected in Soil at Any Depth

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 7.3 Dioxins Furans Cleanup Levels Exceedances in Soil.mxd
12/10/2014



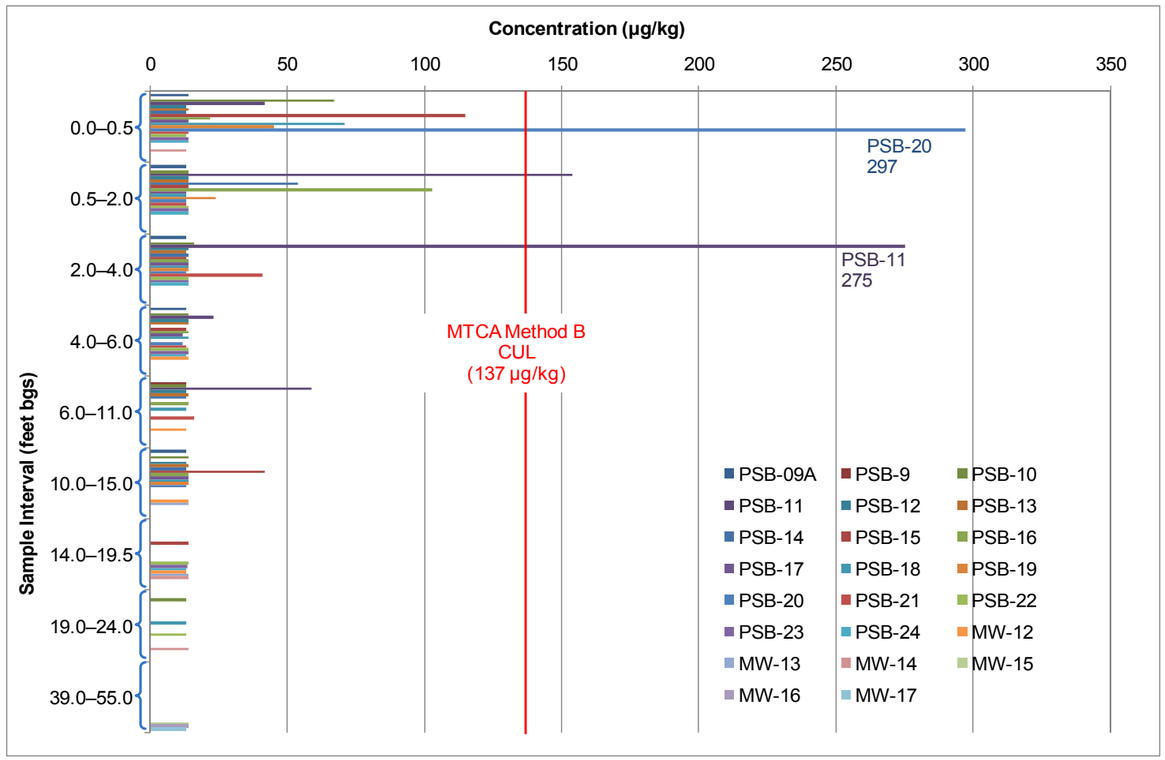

Notes:
CUL = Cleanup level
MTCA = Model Toxics Control Act
pg/g = Picograms per gram
TEQ = Toxic equivalency quotient

FLOYD | SNIDER
strategy • science • engineering

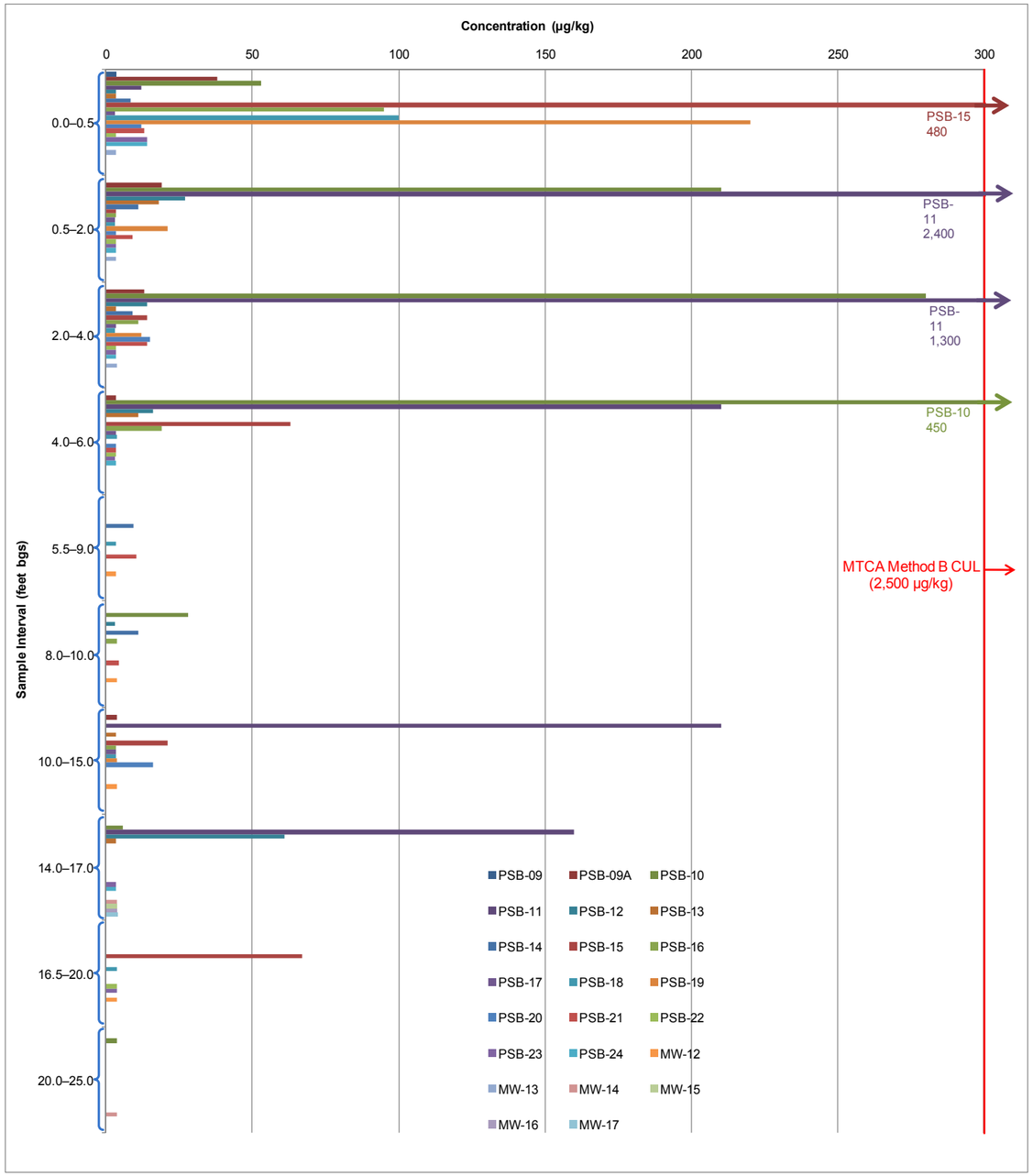
**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 7.4
Histogram for Dioxin/Furan Concentrations
in Soil at Lora Lake Apartments Parcel

\\merry\data\projects\POS-LLA\Task 4040 - Public Comment and Final RIFS\FINAL RIFS\3 FIGURES\LLA PRD RIFS F7.4 082312.vsd




**cPAH TEQ**




**PCP**

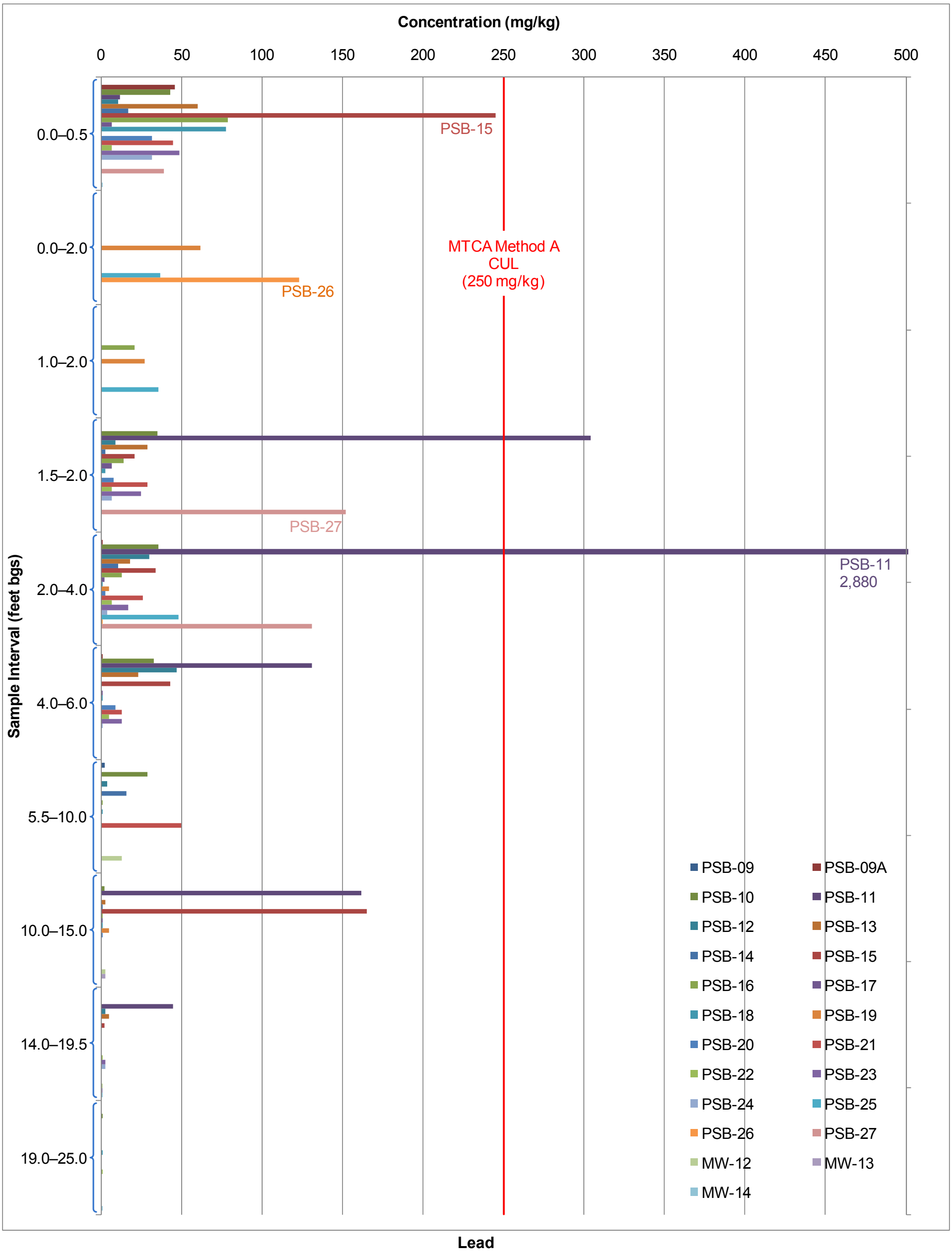
Notes:
cPAH = Carcinogenic polycyclic aromatic hydrocarbon
CUL = Cleanup level
µg/kg = Micrograms per kilogram
MTCA = Model Toxics Control Act
PCP = Pentachlorophenol
TEQ = Toxic equivalency quotient

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 7.5
Histograms for cPAH and PCP Concentrations in Soil at Lora Lake Apartments Parcel

\\merry\data\projects\POS-LLA\Task 4040 - Public Comment and Final RIFS\FINAL RIFS\3 FIGURES\LLA PRD RIFS F7.5 082312.vsd



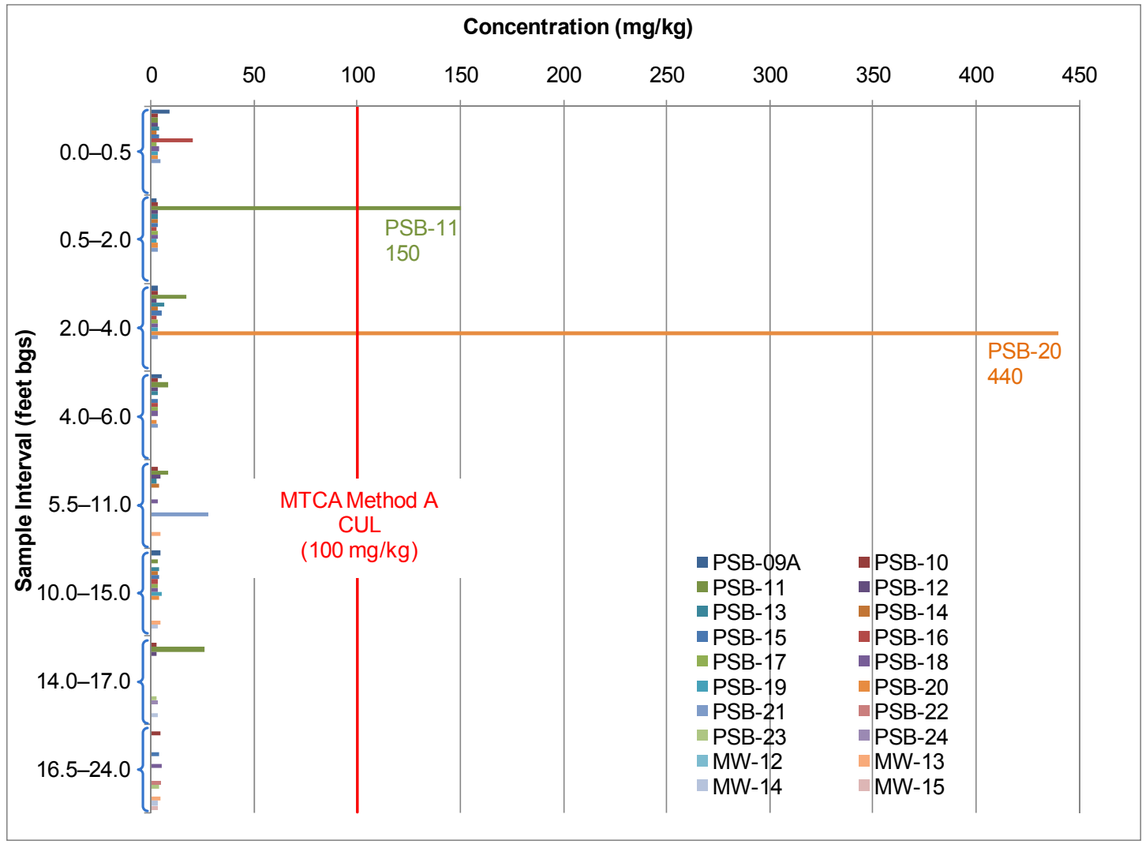

Notes:
CUL = Cleanup level
mg/kg = Milligrams per kilogram
MTCA = Model Toxics Control Act

FLOYD | SNIDER
strategy • science • engineering

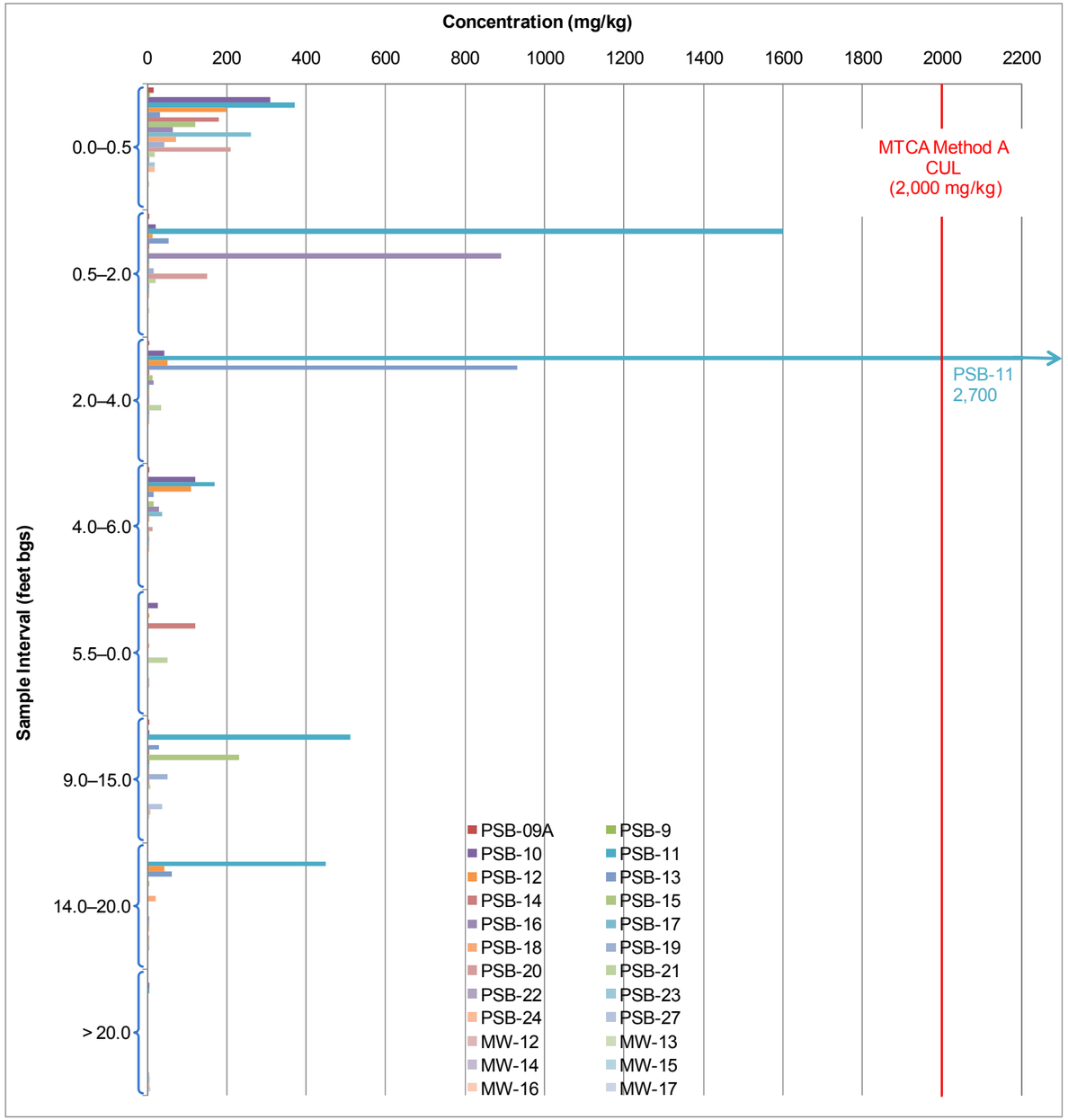
**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 7.6
Histogram for Lead Concentrations in Soil at Lora Lake Apartments Parcel

\\merry\data\projects\POS-LLA\Task 4040 - Public Comment and Final RIFS\FINAL RIFS\3 FIGURES\LLA PRD RIFS F7.6 082312.vsd




**Gasoline Range TPH**




**Heavy Oil Range TPH**

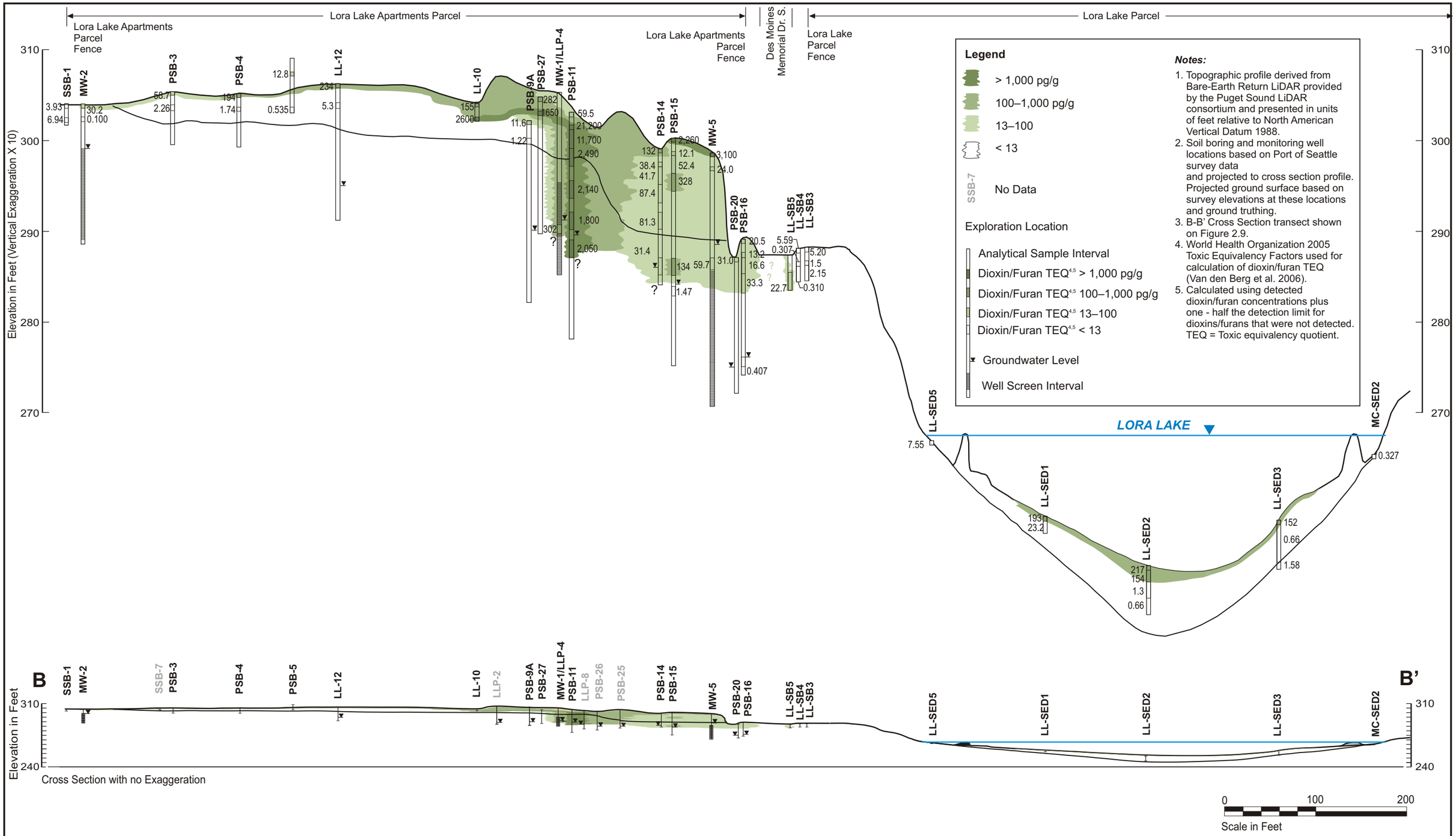
Notes:
CUL = Cleanup level
mg/kg = Milligrams per kilogram
MTCA = Model Toxics Control Act
TPH = Total petroleum hydrocarbons

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 7.7
Histograms for Gasoline Range TPH and Heavy Oil Range TPH Concentrations in Soil at Lora Lake Apartments Parcel

\\merry\data\projects\POS-LLA\Task 4040 - Public Comment and Final RIFS\FINAL RIFS\3 FIGURES\LLA PRD RIFS F7.7 082312.vsd

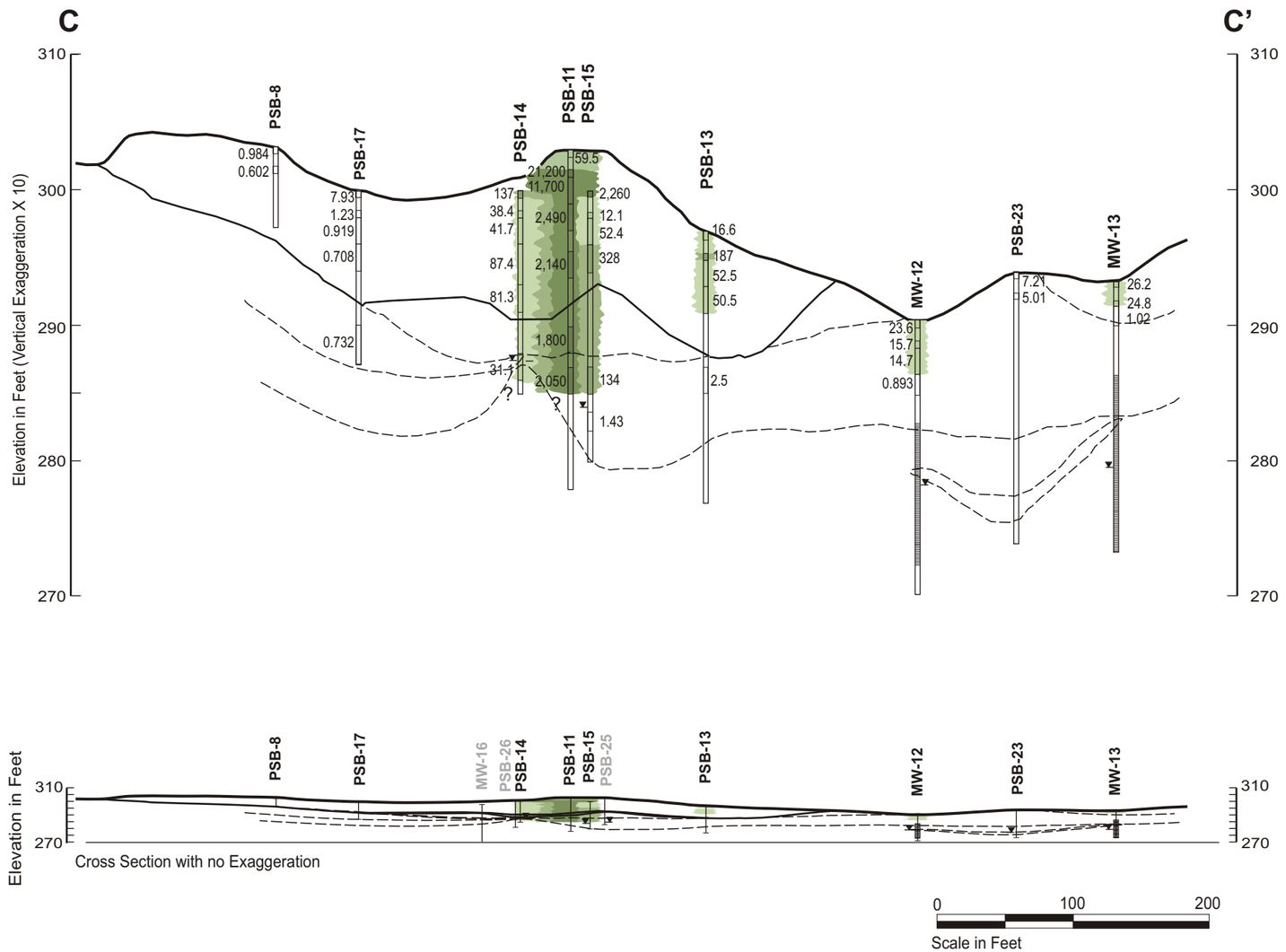



FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 7.8
Conceptual Cross Section B-B'
Dioxin/Furan TEQs Exceeding Cleanup Level in Site Soil and Sediments

G:Project\Clients\Floyd Snider\Lora Lake\Figure 7.8

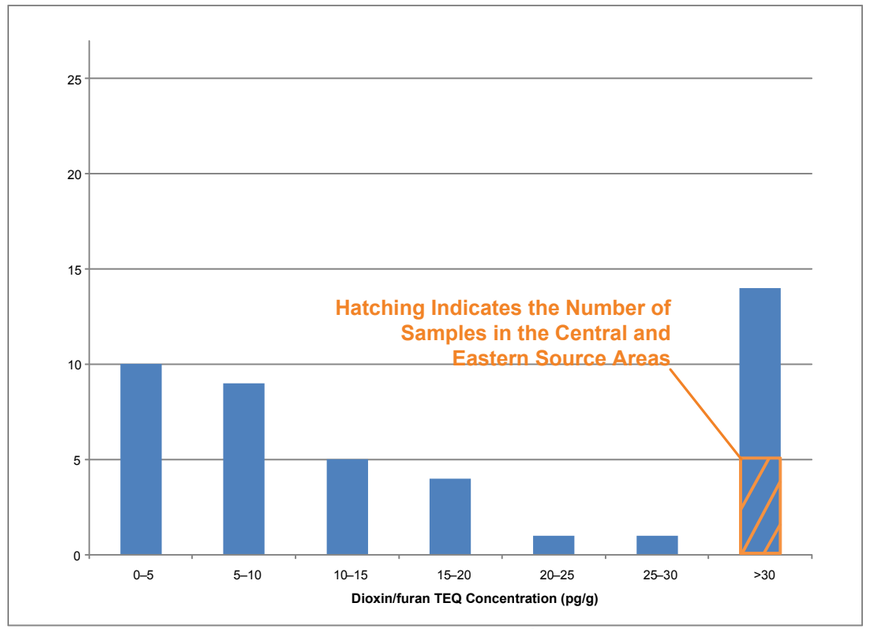



FLOYD | SNIDER
strategy • science • engineering

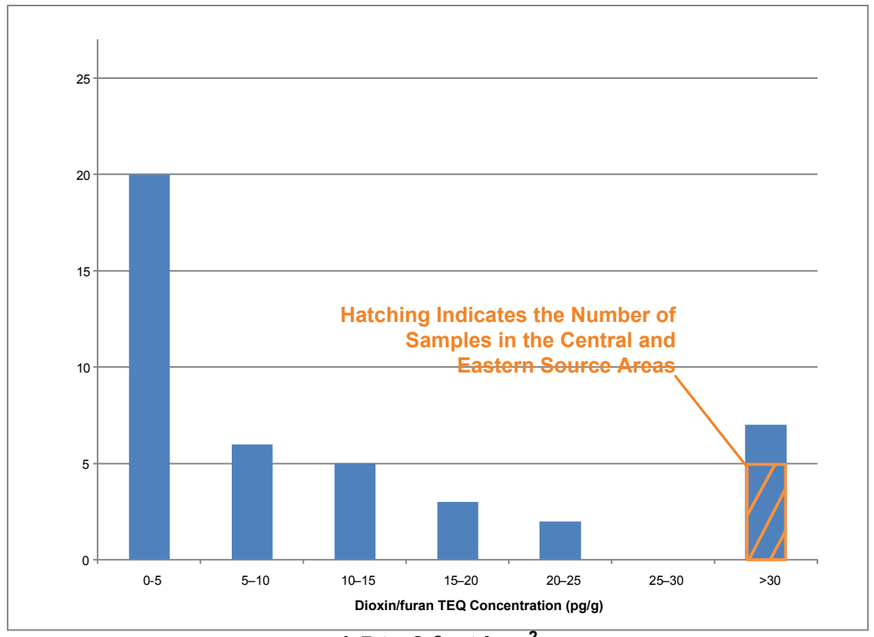
**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 7.9
Conceptual Cross Section C-C'
Dioxin/Furan TEQs Exceeding Cleanup Level in Site Soil

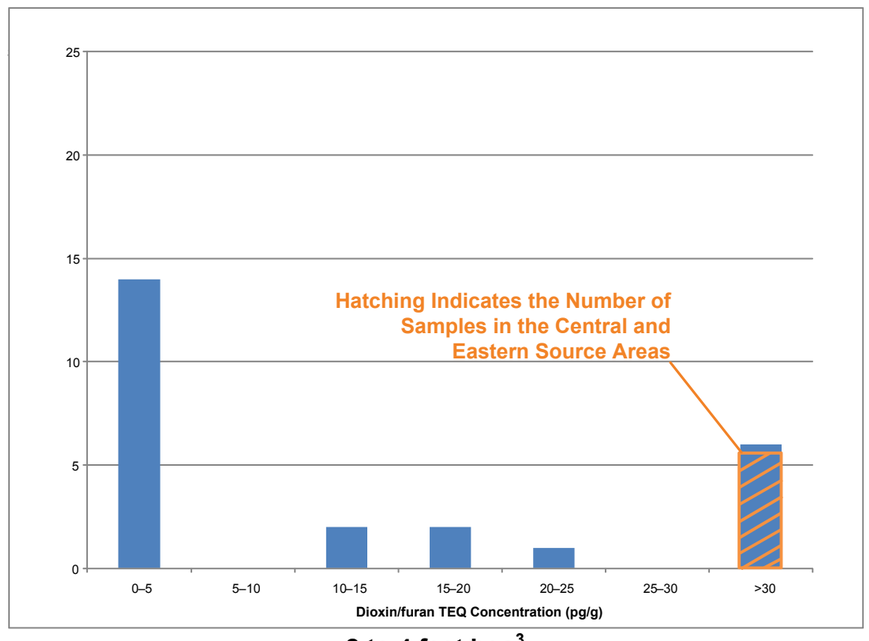
G:Project\Clients\Floyd Snider\Lora Lake\Figure 7.9



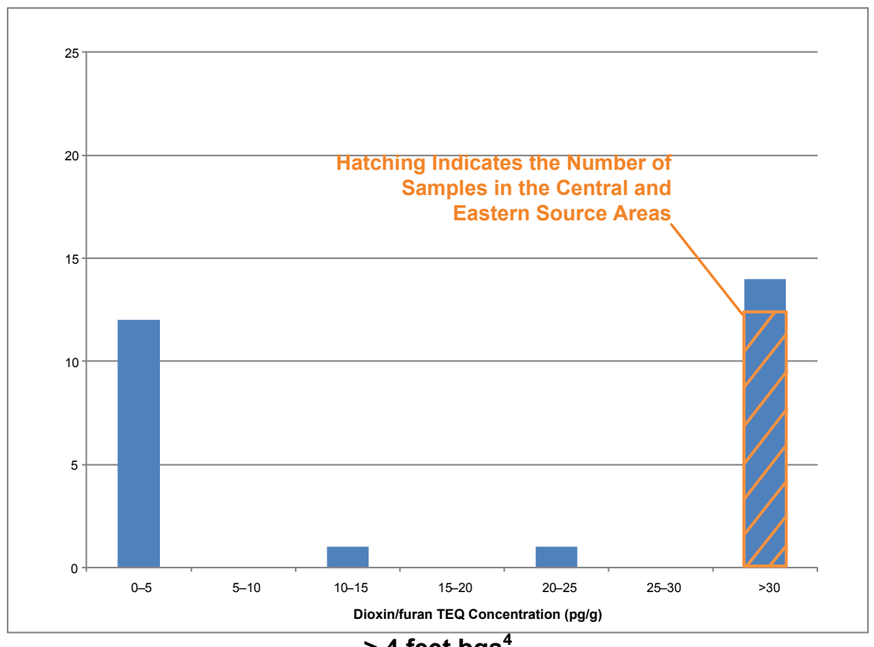

**0 to 0.5 foot bgs[1]**




**1.5 to 2 feet bgs[2]**




**2 to 4 feet bgs[3]**




**> 4 feet bgs[4]**

Notes:
1. There is a total of 44 samples from 0 to 0.5 foot bgs.
2. There is a total of 43 samples from 1.5 to 2 feet bgs.
3. There is a total of 25 samples from 2 to 4 feet bgs.
4. There is a total of 28 samples from deeper than 4 feet bgs.

- The dioxin/furan TEQ concentrations are based on non-detected values equal to one-half the detection limit.
- The hatched pattern shows the number of samples in the Central and Eastern Source Areas that exceed 30 pg/g for the dioxin/furan TEQ.

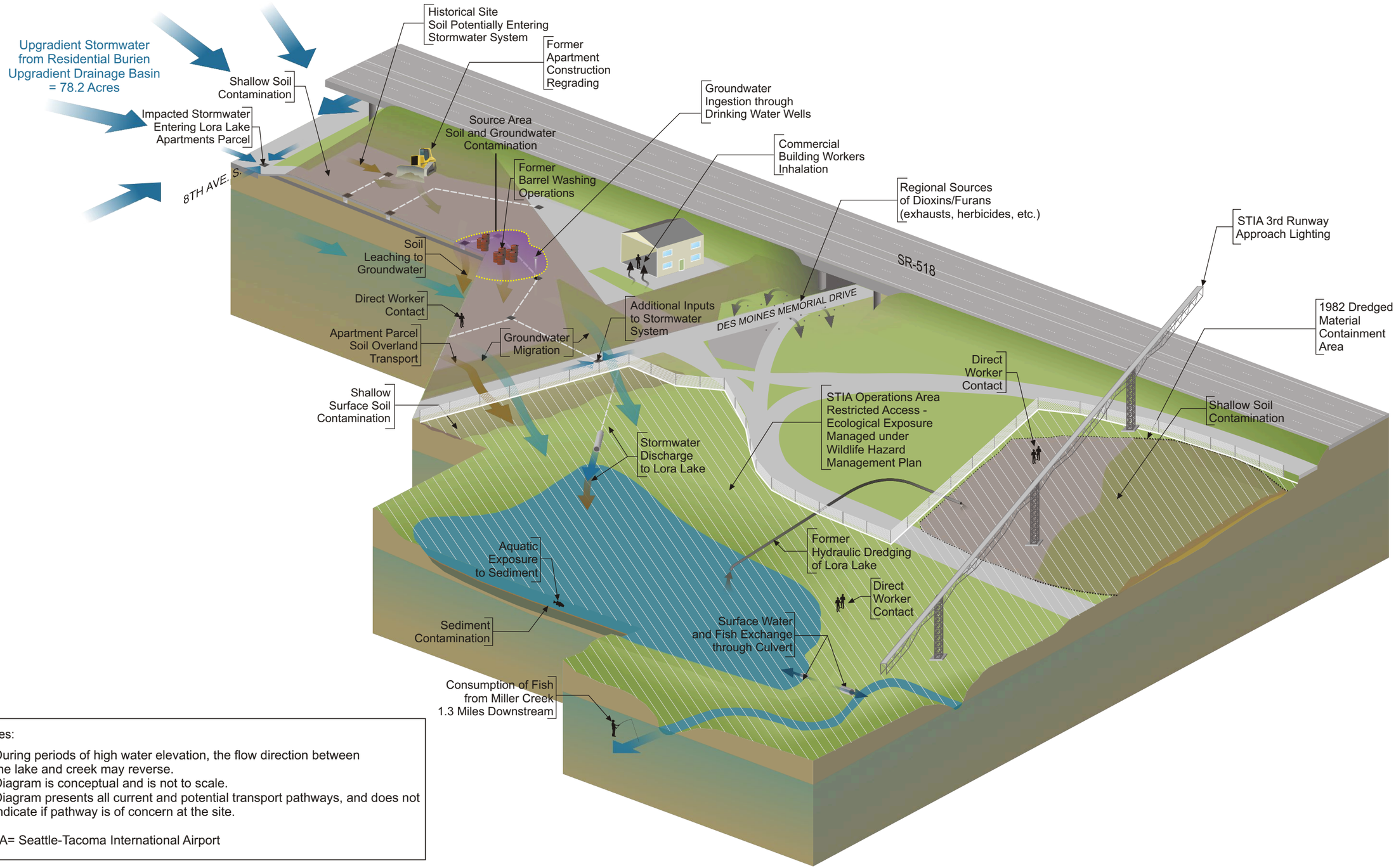
Abbreviations:
bgs = Below ground surface
pg/g = Picograms per gram
TEQ = Toxic equivalency quotient

FLOYD | SNIDER
strategy • science • engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 7.10
Lora Lake Apartments Parcel and Lora Lake Parcel
Dioxin/Furan Soil Interval Histograms

\\merry\data\projects\POS-LLA\Task 4040 - Public Comment and Final RIFS\FINAL RIFS\3 FIGURES\LLA PRD RIFS F7.10 082312.vsd




Notes:

1. During periods of high water elevation, the flow direction between the lake and creek may reverse.
2. Diagram is conceptual and is not to scale.
3. Diagram presents all current and potential transport pathways, and does not indicate if pathway is of concern at the site.

STIA= Seattle-Tacoma International Airport

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 8.1
Lora Lake Apartments Site
Conceptual Site Model

G:Project\Clients\Floyd Snider\Port of Seattle\Lora lake\Figure 8.1

1,272,000 1,272,500 1,273,000

175,000 174,500

SR 518

8TH AVE SOUTH

Cleanup Area C

LORA LAKE APARTMENTS PARCEL

Cleanup Area C

Cleanup Area B

Central Source Area

Cleanup Area A

Cleanup Area B

Western Source Area

Cleanup Area C

Eastern Source Area

Cleanup Area A

FORMER SEATTLE CITY LIGHT PROPERTY

PORT OF SEATTLE PROPERTY

Cleanup Area B

Cleanup Area C

DES MOINES MEMORIAL DRIVE

Lora Lake

N

0 100 200

Scale in Feet

**Legend**

**Lora Lake Apartments Cleanup Areas**

- Cleanup Area A
- Cleanup Area B
- Cleanup Area C
- Cleanup Area Boundaries
- Source Area
- Tax Parcels
- Approximate Location of Fences

Notes:

- Cleanup Area A encompasses areas with a maximum dioxin/furan TEQ concentration greater than 1,000 pg/g at any depth.
- Cleanup Area B encompasses areas with a maximum dioxin/furan TEQ concentration greater than 100 pg/g, but less than 1,000 pg/g at any depth.
- Cleanup Area C encompasses areas with a maximum dioxin/furan TEQ concentration greater than 11 pg/g, but less than 100 pg/g at any depth.
- Locations of fences were digitized based on aerial image cited below and Google Earth Street View.
- Aerial image provided by Port of Seattle and dated March 20, 2011.
- Tax parcel boundaries based on King County tax parcel data.
- Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of survey feet.
  Map Projection = Lambert Conformal Conic.

Abbreviations:

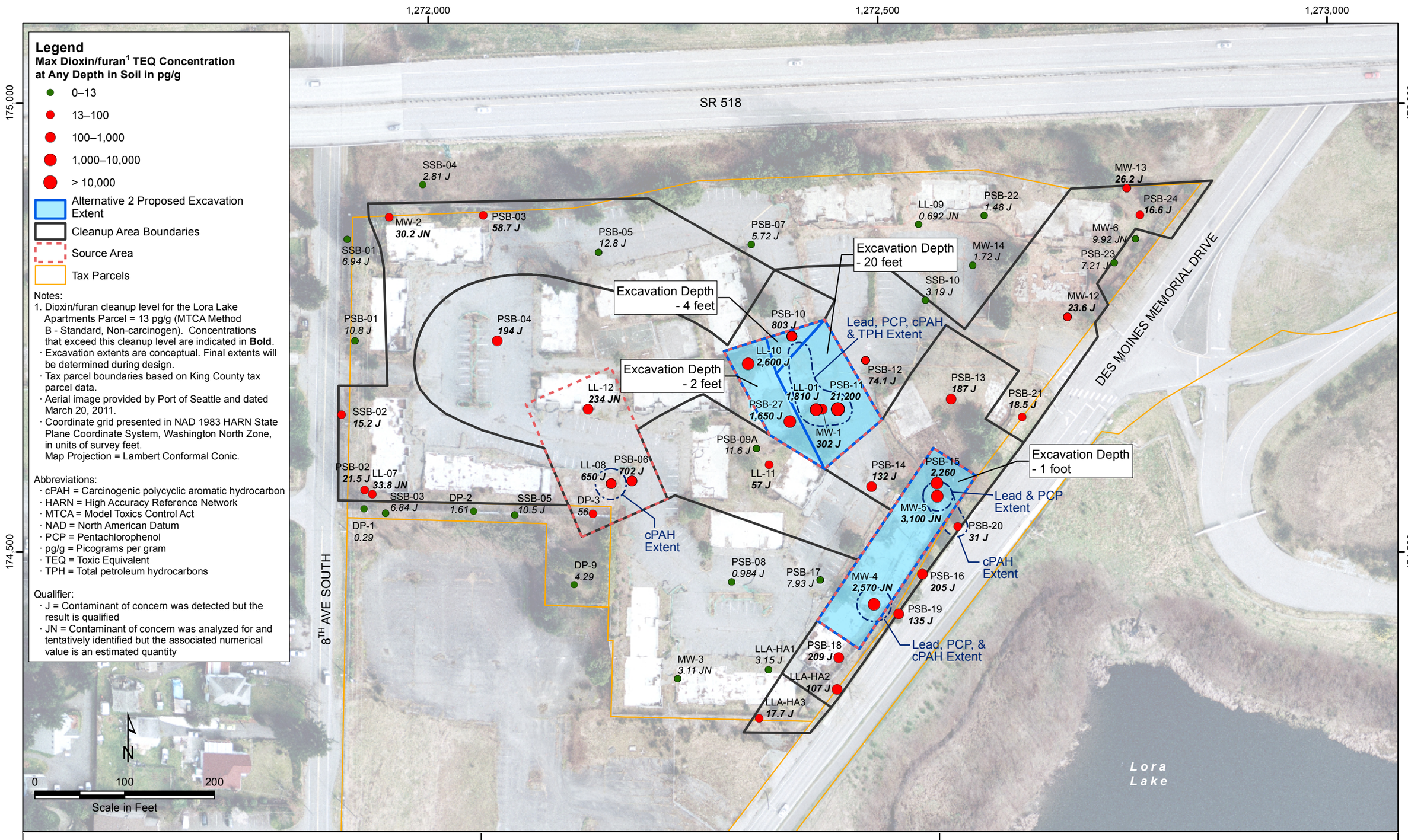
- HARN = High Accuracy Reference Network
- NAD = North American Datum
- pg/g = Picograms per gram
- TEQ = Toxic Equivalent

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 10.1
Lora Lake Apartments Parcel
Cleanup Areas

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 10.1 Cleanup Areas.mxd
8/29/2014




## Legend

**Max Dioxin/furan[1] TEQ Concentration at Any Depth in Soil in pg/g**

- 0–13
- 13–100
- 100–1,000
- 1,000–10,000
- > 10,000
- Alternative 2 Proposed Excavation Extent
- Cleanup Area Boundaries
- Source Area
- Tax Parcels

Notes:

1. Dioxin/furan cleanup level for the Lora Lake Apartments Parcel = 13 pg/g (MTCA Method B - Standard, Non-carcinogen). Concentrations that exceed this cleanup level are indicated in **Bold**.

- Excavation extents are conceptual. Final extents will be determined during design.
- Tax parcel boundaries based on King County tax parcel data.
- Aerial image provided by Port of Seattle and dated March 20, 2011.
- Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of survey feet.
  Map Projection = Lambert Conformal Conic.

Abbreviations:

- cPAH = Carcinogenic polycyclic aromatic hydrocarbon
- HARN = High Accuracy Reference Network
- MTCA = Model Toxics Control Act
- NAD = North American Datum
- PCP = Pentachlorophenol
- pg/g = Picograms per gram
- TEQ = Toxic Equivalent
- TPH = Total petroleum hydrocarbons

Qualifier:

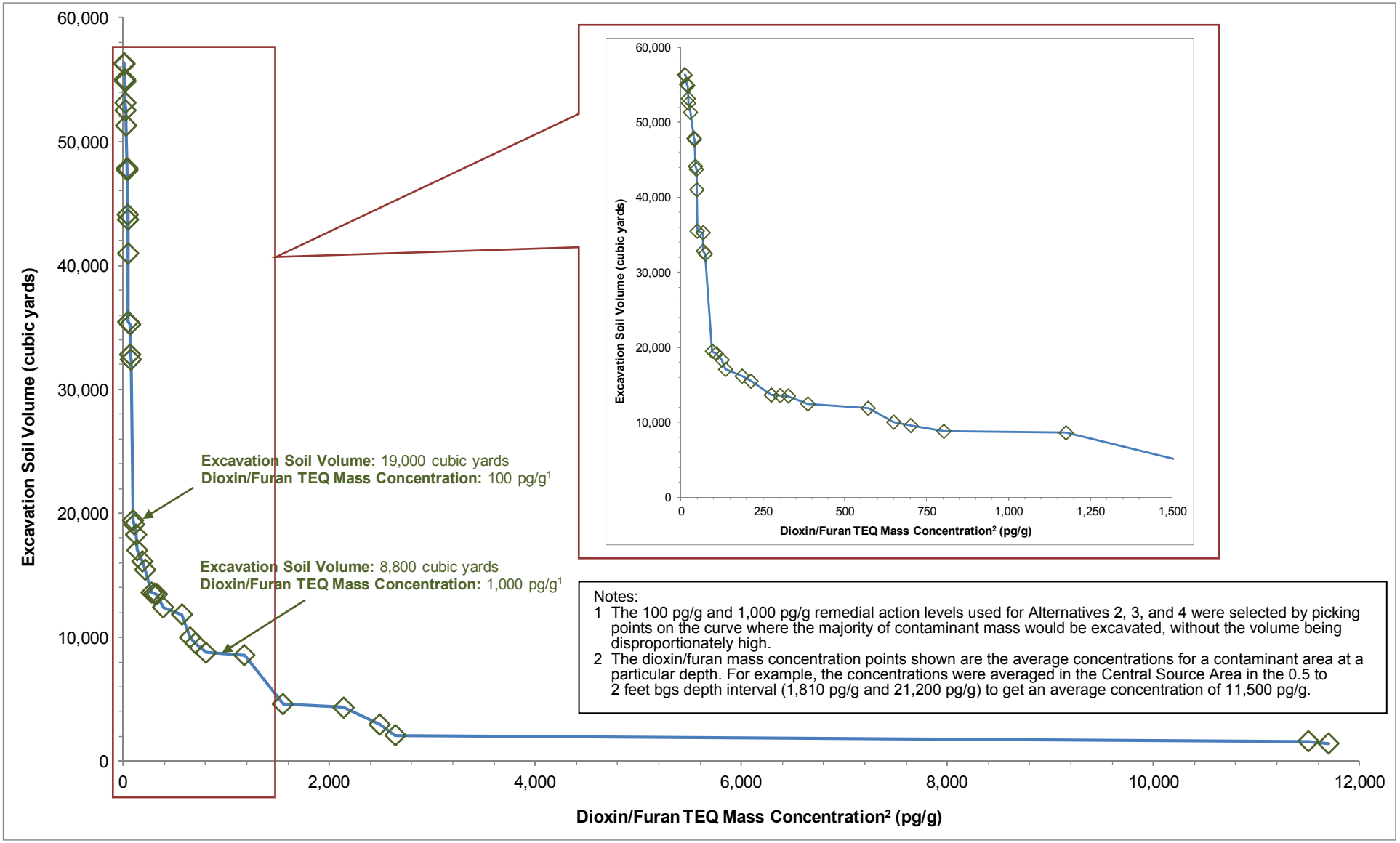
- J = Contaminant of concern was detected but the result is qualified
- JN = Contaminant of concern was analyzed for and tentatively identified but the associated numerical value is an estimated quantity

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 12.1
Alternative 2 Excavation Extent

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 12.1 Alternative 2 Excavation Extent.mxd
12/9/2014




FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartment Site**
**Burien, Washington**

Figure 12.2
Excavation Volume by
Soil Concentration

\\merry\data\projects\POS-LLA\Task 4040 - Public Comment and Final RIFS\FINAL RIFS\3 FIGURES\LLA PRD RIFS F12.2 082312.docx

1,272,000 1,272,500 1,273,000

175,000 174,500

## Legend

**Max Dioxin/furan[1] TEQ Concentration at Any Depth in Soil in pg/g**

- 0–13
- 13–100
- 100–1,000
- 1,000–10,000
- > 10,000
- Alternative 3 Proposed Excavation Extent
- Cleanup Area Boundaries
- Source Area
- Tax Parcels
- Approximate Location of Fences

Notes:
1. Dioxin/furan cleanup level for the Lora Lake Apartments Parcel = 13 pg/g (MTCA Method B - Standard, Non-carcinogen). Concentrations that exceed this cleanup level are indicated in **Bold**.
· Excavation extents are conceptual. Final extents will be determined during design.
· Tax parcel boundaries based on King County tax parcel data.
· Locations of fences were digitized based on aerial image cited below and Google Earth Street View.
· Aerial image provided by Port of Seattle and dated March 20, 2011.
· Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of survey feet.
Map Projection = Lambert Conformal Conic.

Abbreviations:
· cPAH = Carcinogenic polycyclic aromatic hydrocarbon
· HARN = High Accuracy Reference Network
· MTCA = Model Toxics Control Act
· NAD = North American Datum
· PCP = Pentachlorophenol
· pg/g = Picograms per gram
· TEQ = Toxic equivalent
· TPH = Total petroleum hydrocarbons

Qualifiers:
· J = Contaminant of concern was detected but the result is qualified
· JN = Contaminant of concern was analyzed for and tentatively identified but the associated numerical value is an estimated quantity

SR 518

DES MOINES MEMORIAL DRIVE

Lora Lake

SSB-04 2.81 J
MW-2 30.2 JN
PSB-03 58.7 J
SSB-01 6.94 J
PSB-05 12.8 J
PSB-07 5.72 J
LL-09 0.692 JN
PSB-22 1.48 J
MW-13 26.2 J
PSB-24 16.6 J
MW-6 9.92 JN
PSB-23 7.21 J
MW-14 1.72 J
SSB-10 3.19 J
MW-12 23.6 J
PSB-01 10.8 J
PSB-04 194 J
PSB-10 803 J
LL-10 2,600 J
PSB-12 74.1 J
LL-01 1,810 J
PSB-11 21,200
PSB-27 1,650 J
MW-1 302 J
PSB-13 187 J
PSB-21 18.5 J
SSB-02 15.2 J
LL-12 234 JN
PSB-09A 11.6 J
LL-11 57 J
PSB-02 21.5 J
LL-07 33.8 JN
LL-08 650 J
PSB-06 702 J
PSB-14 132 J
PSB-15 2,260
MW-5 3,100 JN
DP-2 1.61
SSB-05 10.5 J
DP-3 56
DP-1 10.29
SSB-03 6.84 J
PSB-20 31 J
DP-9 4.29
PSB-08 0.984 J
PSB-17 7.93 J
PSB-16 205 J
MW-4 2,570 JN
PSB-19 135 J
LLA-HA1 3.15 J
PSB-18 209 J
MW-3 3.11 JN
LLA-HA2 107 J
LLA-HA3 17.7 J

Excavation Depth - 10 feet
Excavation Depth - 1 foot
Excavation Depth - 20 feet
Excavation Depth - 1 foot
Excavation Depth - 2 feet
Excavation Depth - 4 feet
Excavation Depth - 10 feet
Excavation Depth - 1 foot
Lead, PCP, cPAH, & TPH Extent
cPAH Extent
Lead & PCP Extent
cPAH Extent
Lead, PCP, & cPAH Extent

N

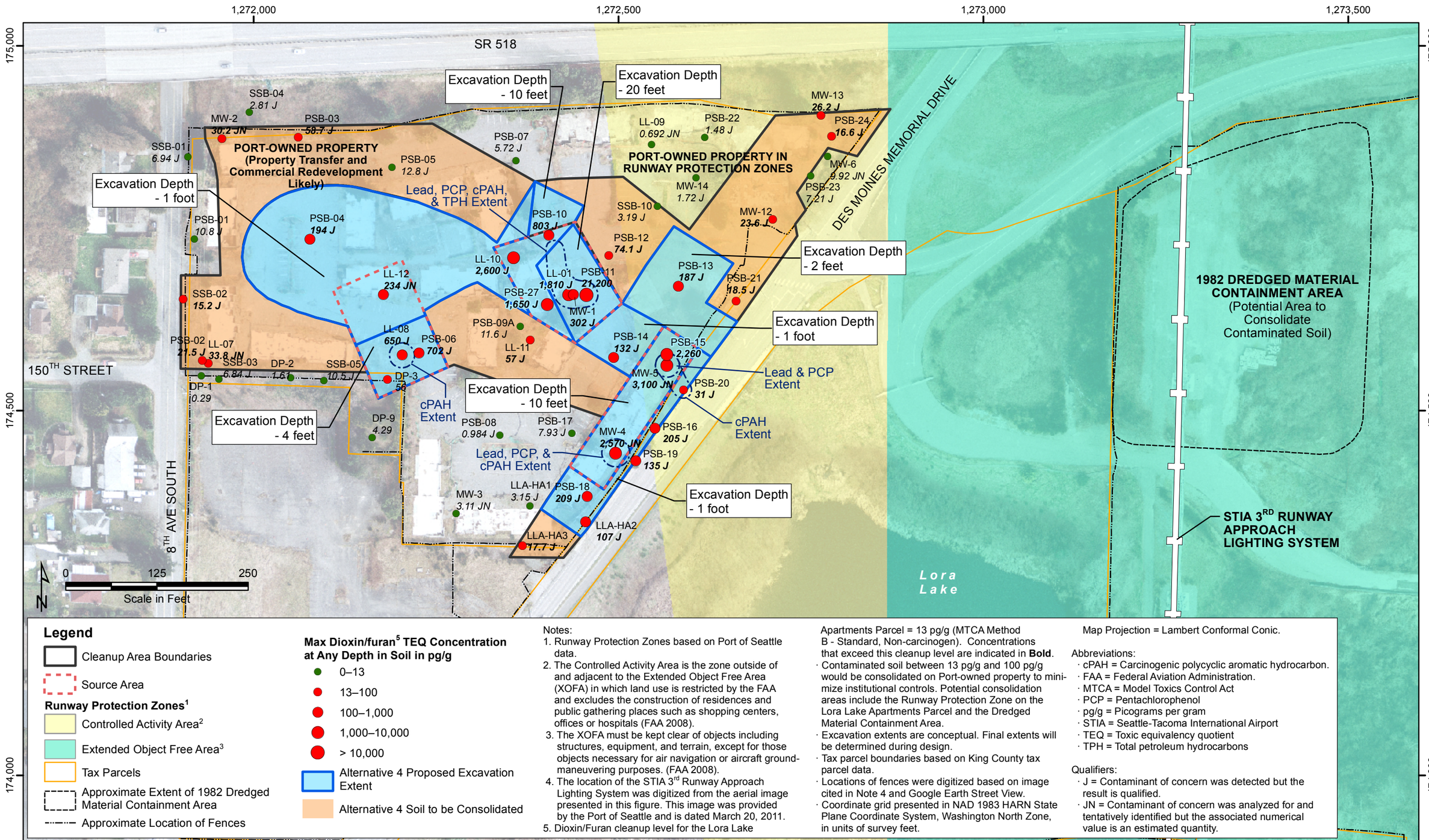
0 100 200
Scale in Feet

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 12.3
Alternative 3 Excavation Extent

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 12.3 Alternative 3 Remedy Components.mxd
12/9/2014




## Legend

- Cleanup Area Boundaries
- Source Area

**Runway Protection Zones[1]**

- Controlled Activity Area[2]
- Extended Object Free Area[3]
- Tax Parcels
- Approximate Extent of 1982 Dredged Material Containment Area
- Approximate Location of Fences

**Max Dioxin/furan[5] TEQ Concentration at Any Depth in Soil in pg/g**

- 0–13
- 13–100
- 100–1,000
- 1,000–10,000
- > 10,000
- Alternative 4 Proposed Excavation Extent
- Alternative 4 Soil to be Consolidated

Notes:

1. Runway Protection Zones based on Port of Seattle data.
2. The Controlled Activity Area is the zone outside of and adjacent to the Extended Object Free Area (XOFA) in which land use is restricted by the FAA and excludes the construction of residences and public gathering places such as shopping centers, offices or hospitals (FAA 2008).
3. The XOFA must be kept clear of objects including structures, equipment, and terrain, except for those objects necessary for air navigation or aircraft ground-maneuvering purposes. (FAA 2008).
4. The location of the STIA 3rd Runway Approach Lighting System was digitized from the aerial image presented in this figure. This image was provided by the Port of Seattle and is dated March 20, 2011.
5. Dioxin/Furan cleanup level for the Lora Lake Apartments Parcel = 13 pg/g (MTCA Method B - Standard, Non-carcinogen). Concentrations that exceed this cleanup level are indicated in **Bold**.

- Contaminated soil between 13 pg/g and 100 pg/g would be consolidated on Port-owned property to minimize institutional controls. Potential consolidation areas include the Runway Protection Zone on the Lora Lake Apartments Parcel and the Dredged Material Containment Area.
- Excavation extents are conceptual. Final extents will be determined during design.
- Tax parcel boundaries based on King County tax parcel data.
- Locations of fences were digitized based on image cited in Note 4 and Google Earth Street View.
- Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of survey feet.

Map Projection = Lambert Conformal Conic.

Abbreviations:

- cPAH = Carcinogenic polycyclic aromatic hydrocarbon.
- FAA = Federal Aviation Administration.
- MTCA = Model Toxics Control Act
- PCP = Pentachlorophenol
- pg/g = Picograms per gram
- STIA = Seattle-Tacoma International Airport
- TEQ = Toxic equivalency quotient
- TPH = Total petroleum hydrocarbons

Qualifiers:

- J = Contaminant of concern was detected but the result is qualified.
- JN = Contaminant of concern was analyzed for and tentatively identified but the associated numerical value is an estimated quantity.

FLOYD | SNIDER
strategy • science • engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 12.4
Alternative 4 Excavation Extent

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 12.4 Alternative 4 Excavation Extent.mxd
12/9/2014

## Legend

**Max Dioxin/furan[1] TEQ Concentration at Any Depth in Soil in pg/g**

- 0–13
- 13–100
- 100–1,000
- 1,000–10,000
- > 10,000
- Alternative 5 Proposed Excavation Extent
- Source Area
- Tax Parcels
- Approximate Location of Fences

Notes:

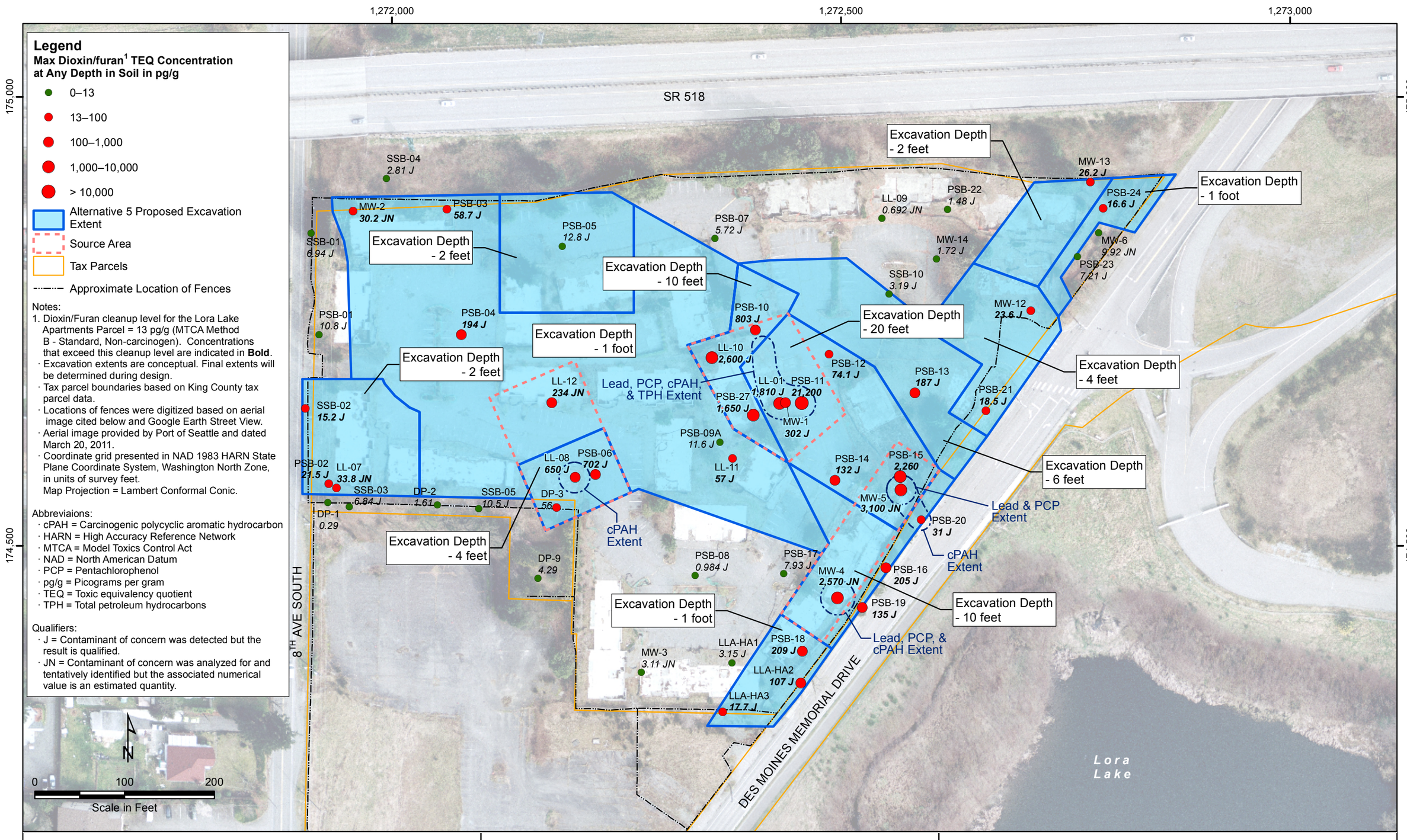
1. Dioxin/Furan cleanup level for the Lora Lake Apartments Parcel = 13 pg/g (MTCA Method B - Standard, Non-carcinogen). Concentrations that exceed this cleanup level are indicated in **Bold**.
   - Excavation extents are conceptual. Final extents will be determined during design.
   - Tax parcel boundaries based on King County tax parcel data.
   - Locations of fences were digitized based on aerial image cited below and Google Earth Street View.
   - Aerial image provided by Port of Seattle and dated March 20, 2011.
   - Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of survey feet. Map Projection = Lambert Conformal Conic.

Abbreviaions:

- cPAH = Carcinogenic polycyclic aromatic hydrocarbon
- HARN = High Accuracy Reference Network
- MTCA = Model Toxics Control Act
- NAD = North American Datum
- PCP = Pentachlorophenol
- pg/g = Picograms per gram
- TEQ = Toxic equivalency quotient
- TPH = Total petroleum hydrocarbons

Qualifiers:

- J = Contaminant of concern was detected but the result is qualified.
- JN = Contaminant of concern was analyzed for and tentatively identified but the associated numerical value is an estimated quantity.




FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 12.5
Alternative 5 Excavation Extent

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 12.5 Alternative 5 Remedy Components.mxd
12/9/2014

1,272,000 1,272,500 1,273,000

175,000 174,500

**Legend**

**Remedy Components**

- Excavation and Off-site Soil Disposal
- Soil Capping and Institutional Controls
- Cleanup Area Boundaries
- Source Area
- Stormwater Drainage System Segments to be Removed
- Stormwater Pipe (Main)
- Stormwater Pipe (Secondary)
- Stormwater Pipe (Off-site)
- Stormwater Detention Tank

**Runway Protection Zones[1]**

- Controlled Activity Area[2]
- Extended Object Free Area[3]
- Approximate Location of Fences
- Tax Parcels

SR 518

SOUTH 150TH STREET

8TH AVE SOUTH

DES MOINES MEMORIAL DRIVE

LORA LAKE APARTMENTS PARCEL

Excavation Depth - 1 foot

Excavation Depth - 10 feet

Excavation Depth - 20 feet

Excavation Depth - 2 feet

Excavation Depth - 1 foot

Excavation Depth - 4 feet

Excavation Depth - 10 feet

Excavation Depth - 1 foot

Central Source Area

Western Source Area

Eastern Source Area

Lora Lake

N

0 100 200

Scale in Feet

Notes:
1. Runway Protection Zones based on Port of Seattle data.
2. The Controlled Activity Area is the zone outside of and adjacent to the Extended Object Free Area (XOFA) in which land use is restricted by the FAA and excludes the construction of residences and public gathering places such as shopping centers, offices or hospitals (FAA 2008).
3. The XOFA must be kept clear of objects including structures, equipment, and terrain, except for those objects necessary for air navigation or aircraft ground-maneuvering purposes. (FAA 2008).

· Tax parcel boundaries based on King County tax parcel data.
· Locations of fences were digitized based on aerial image cited below and Google Earth Street View.
· Aerial image provided by Port of Seattle and dated March 20, 2011.
· Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of survey feet. Map Projection = Lambert Conformal Conic.

Abbreviations:
· FAA = Federal Aviation Administration
· HARN = High Accuracy Reference Network
· NAD = North American Datum

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 14.1
Proposed Preferred Remedial Alternative
Remedy Components

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 14.1 Proposed Preferred Remedial Alternative Components.mxd
12/11/2014

1,272,500

1,273,000

1,273,500

174,500

174,500

LORA LAKE APARTMENTS PARCEL

LL Parcel Shallow Soil Cleanup Area

DES MOINES MEMORIAL DRIVE

LL Parcel Shallow Soil Cleanup Area

*Lora Lake*

LL Parcel Sediment Cleanup Area

PORT OF SEATTLE PROPERTY

LORA LAKE PARCEL

**Legend**

- LL Parcel Shallow Soil Cleanup Area
- LL Sediment Cleanup Area
- Undefined Extent of Contamination
- Extent of Contamination
- Approximate Location of Fences
- Tax Parcels

Notes:

- Tax parcel boundaries based on King County tax parcel data.
- Locations of fences were digitized based on aerial image cited below and Google Earth Street View.
- Aerial image provided by Port of Seattle and dated March 20, 2011.
- Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of Survey Feet. Map Projection = Lambert Conformal Conic.

Abbreviations:

- HARN = High Accuracy Reference Network
- LL = Lora Lake
- NAD = North American Datum

N

0 100 200

Scale in Feet

174,000

174,000

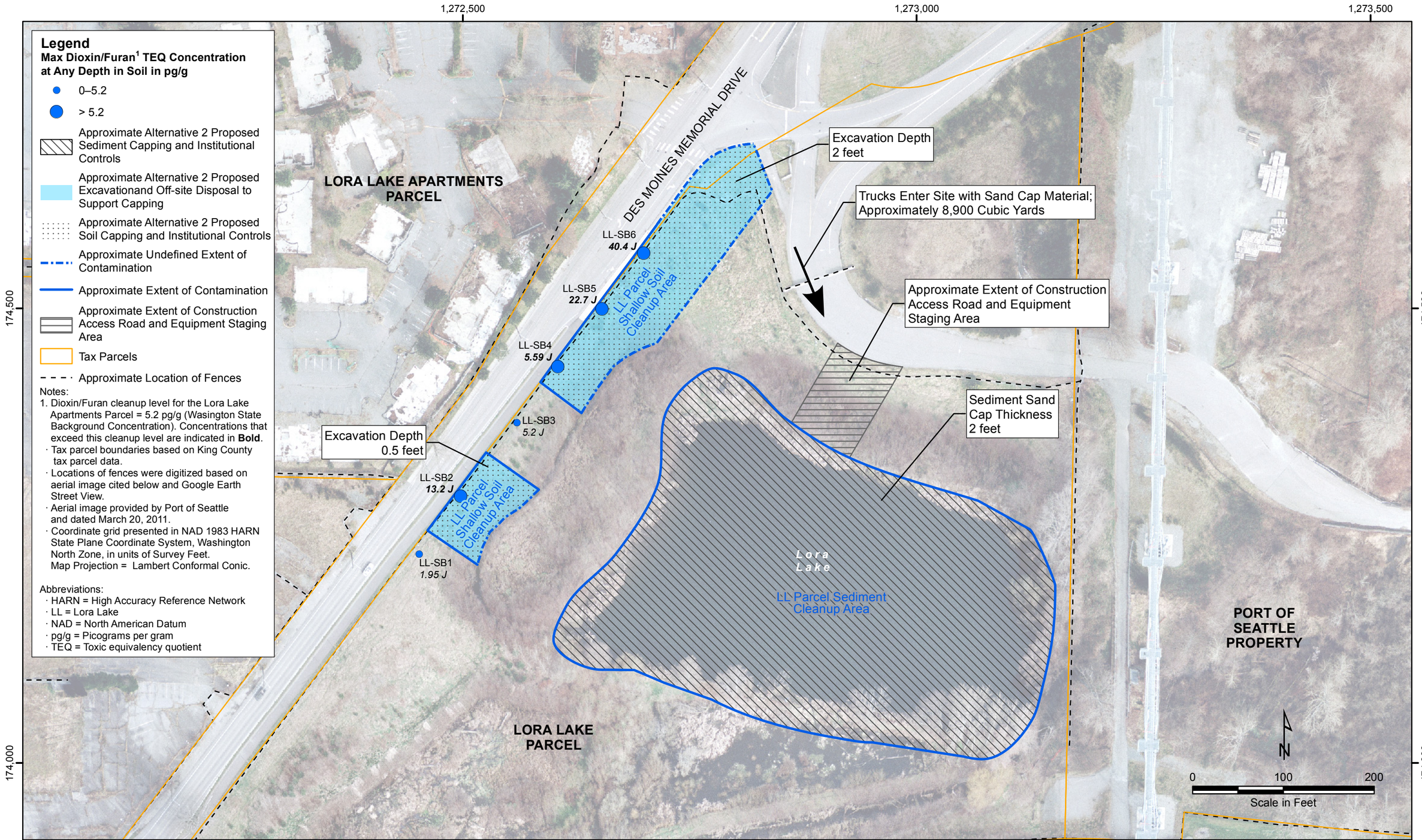
FLOYD | SNIDER

strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 16.1
Lora Lake Parcel
Cleanup Areas

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 16.1 Lora Lake Parcel Cleanup Areas.mxd
9/2/2014

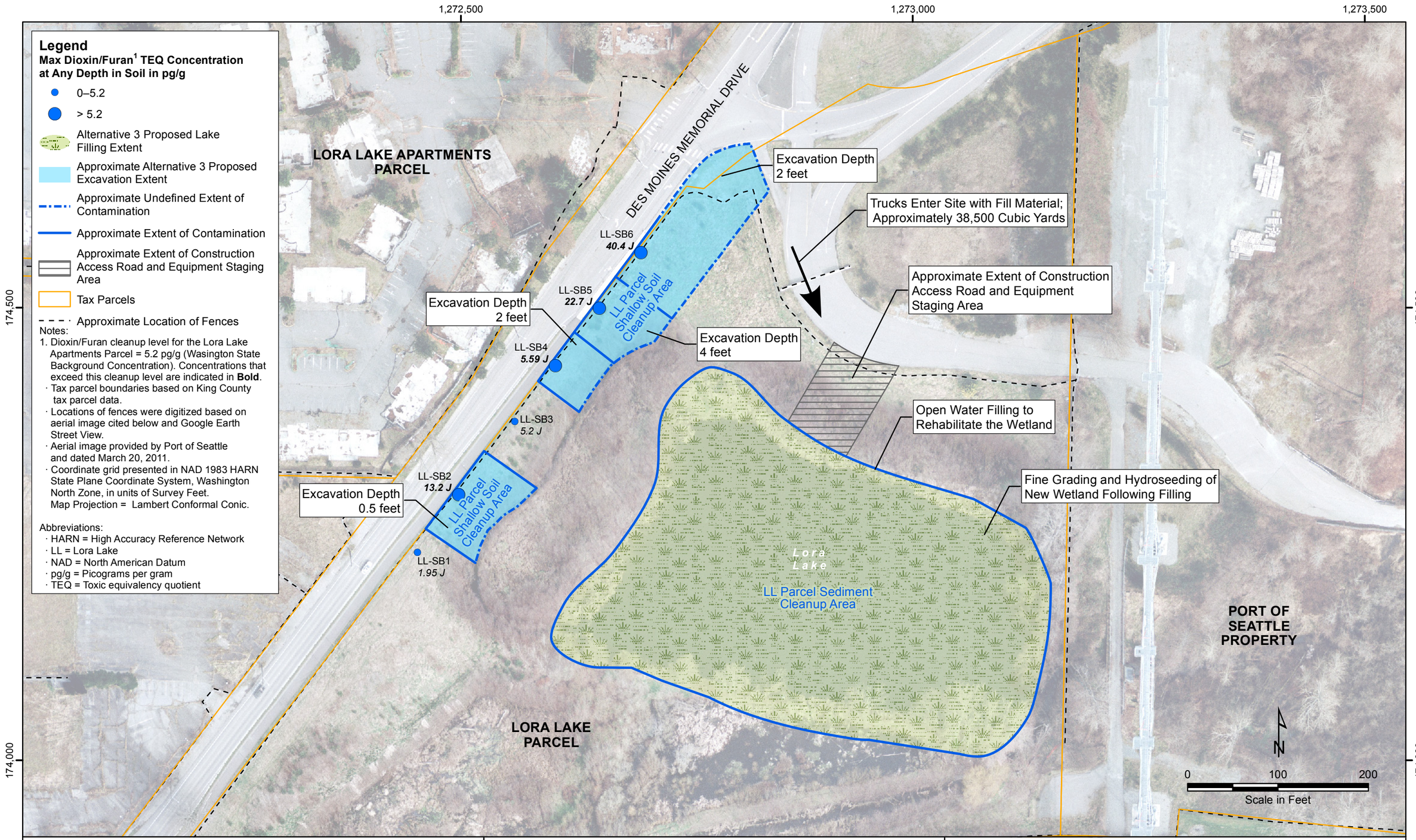



FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 18.1
Alternative 2 Remedy Components

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 18.1 Alternative 2 Remedy Components.mxd
9/2/2014




FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 18.2
Alternative 3 Remedy Components

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 18.2 Alternative 3 Remedy Components.mxd
9/2/2014

1,272,500 1,273,000 1,273,500

174,500 174,500

## Legend

**Max Dioxin/Furan[1] TEQ Concentration at Any Depth in Soil in pg/g**

- 0–5.2
- > 5.2
- Approximate Alternative 4 Proposed Excavation Extent
- Approximate Alternative 4 Proposed Dredging and Sediment Capping Extent
- Approximate Undefined Extent of Contamination
- Approximate Extent of Contamination
- Approximate Location of Hydraulic Dredge Spoils and Return Water Conveyance
- Approximate Extent of Construction Access Road and Equipment Staging Area
- Approximate Extent of 1982 Dredged Material Containment Area
- Tax Parcels
- Approximate Location of Fences

Notes:
1. Dioxin/Furan cleanup level for the Lora Lake Apartments Parcel = 5.2 pg/g (Wasington State Background Concentration). Concentrations that exceed this cleanup level are indicated in **Bold**.
- Tax parcel boundaries based on King County tax parcel data.
- Locations of fences were digitized based on aerial image cited below and Google Earth Street View.
- Aerial image provided by Port of Seattle and dated March 20, 2011.
- Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of Survey Feet. Map Projection = Lambert Conformal Conic.

Abbreviations:
- HARN = High Accuracy Reference Network
- LL = Lora Lake
- NAD = North American Datum
- pg/g = Picograms per gram
- TEQ = Toxic equivalency quotient

LORA LAKE APARTMENTS PARCEL

DES MOINES MEMORIAL DRIVE

1982 DREDGED MATERIAL CONTAINMENT AREA (Dredged Material Dewatering and Management Area)

Excavation Depth 2 feet

Trucks Enter Site with Sand Cap Material; Approximately 8,900 Cubic Yards

Trucks Leave Site with Dredge Spoils; Approximately 14,000 Cubic Yards

Approximate Extent of Construction Access Road and Equipment Staging Area

LL-SB6 ***40.4 J***

LL-SB5 ***22.7 J***

LL Parcel Shallow Soil Cleanup Area

Excavation Depth 2 feet

Excavation Depth 4 feet

LL-SB4 ***5.59 J***

Approximate Location of Hydraulic Dredge Spoils and Return Water Conveyance

Excavation Depth 0.5 feet

LL-SB3 *5.2 J*

LL-SB2 ***13.2 J***

LL Parcel Shallow Soil Cleanup Area

Dredge Depth 3 feet

Post Dredge Sediment Sand Cap Thickness 2 Feet

LL-SB1 *1.95 J*

*Lora Lake*

LL Parcel Sediment Cleanup Area

PORT OF SEATTLE PROPERTY

LORA LAKE PARCEL

N

0 100 200

Scale in Feet

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 18.3
Alternative 4 Remedy Components

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 18.3 Alternative 4 Remedy Components.mxd
9/2/2014

1,272,500 1,273,000 1,273,500

174,500 174,000

## Legend

**Remedy Components**

- Open Water Filling to Rehabilitate the Wetland - Approximate Extent and Institutional Controls
- Excavation and Off-site Soil Disposal
- Approximate Undefined Extent of Contamination
- Approximate Extent of Contamination
- Approximate Extent of Construction Access Road and Equipment Staging Area
- Tax Parcels
- Approximate Location of Fences

Notes:
- Tax parcel boundaries based on King County tax parcel data.
- Locations of fences were digitized based on aerial image cited below and Google Earth Street View.
- Aerial image provided by Port of Seattle and dated March 20, 2011.
- Coordinate grid presented in NAD 1983 HARN State Plane Coordinate System, Washington North Zone, in units of Survey Feet. Map Projection = Lambert Conformal Conic.

Abbreviations:
- HARN = High Accuracy Reference Network
- LL = Lora Lake
- NAD = North American Datum

LORA LAKE APARTMENTS PARCEL

Excavation Depth 2 feet

Trucks Enter Site with Fill Material; Approximately 38,500 Cubic Yards

Approximate Extent of Construction Access Road and Equipment Staging Area

Excavation Depth 2 feet

LL Parcel Shallow Soil Cleanup Area

Excavation Depth 4 feet

Open Water Filling to Rehabilitate the Wetland

Fine Grading and Hydroseeding of New Wetland Following Filling

Excavation Depth 0.5 feet

LL Parcel Shallow Soil Cleanup Area

DES MOINES MEMORIAL DRIVE

Lora Lake

LL Parcel Sediment Cleanup Area

LORA LAKE PARCEL

PORT OF SEATTLE PROPERTY

N

0 100 200

Scale in Feet

FLOYD | SNIDER
strategy ▪ science ▪ engineering

**Remedial Investigation/Feasibility Study**
**Port of Seattle**
**Lora Lake Apartments Site**
**Burien, Washington**

Figure 20.1
Proposed Preferred Remedial Alternative Remedy Components

I:\GIS\Projects\POS_LLA\MXD\T6030\Figure 20.1 Proposed Preferred Remedial Alternative Components.mxd
9/2/2014