DEPARTMENT OF ECOLOGY
State of Washington

Welcome to Ecology's Online Public Meeting

We will start our presentation shortly.

No sound? We will unmute soon for sound checks.

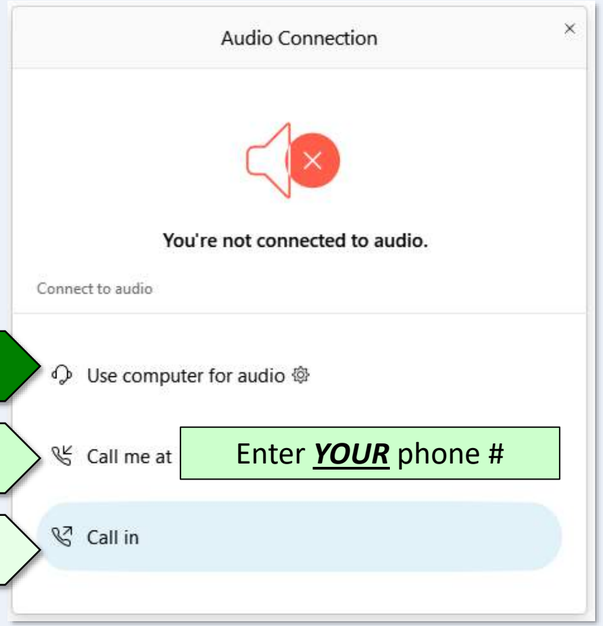
Please connect your audio.

1 → 2 → 3

1 **Move your cursor to the bottom of your screen to show Webex controls.**

2 **Select "Connect to Audio" icon.**

3 **Select Audio Connection**



Tip **Try your computer audio first.**

A **Best Option: Use computer for audio**

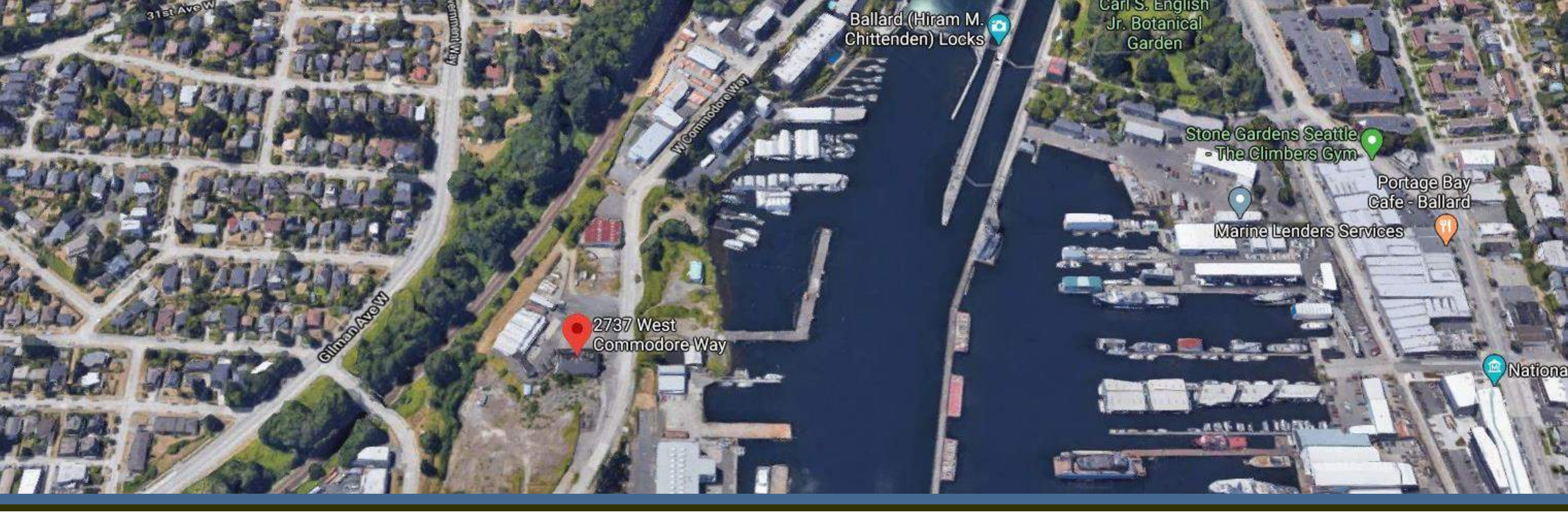
B **If computer audio does NOT work…**

C **If calling your phone does NOT work…**

If selecting "Call in"…

- Call US Toll: +1-415-655-0001
- Enter Webex-generated code "133 610 8811" followed by "#"

Trouble connecting? Type a **chat message** →



Time Oil Bulk Terminal Cleanup Site

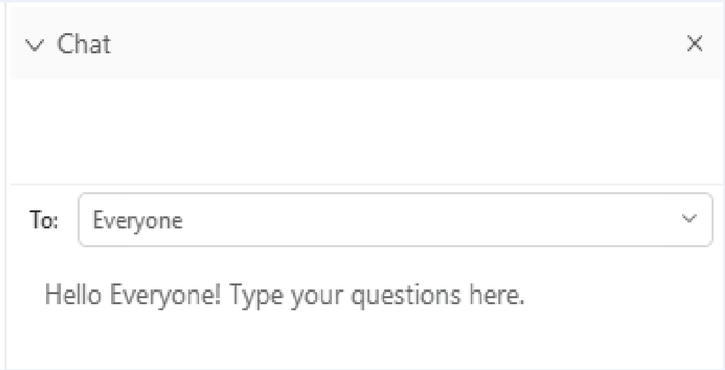
Online Public Meeting

Wednesday, July 29, 2020

DEPARTMENT OF ECOLOGY
State of Washington

Participation in Online Public Meeting

You can ask questions via the chat function



Facilitators will read your typed questions

We will either:

1. Answer your questions throughout the presentation.

--OR--

2. Collect your questions for the Q/A session at the end.

DEPARTMENT OF ECOLOGY
State of Washington

Image icons : Garcia Gallego (questions) and Adrien Coquet (presenter) from Noun project

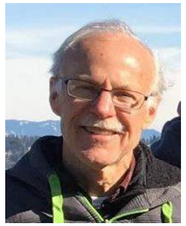
Agenda

- Welcome, Online Meeting Flow, Introductions
- MTCA Cleanup Process
- Project Overview
- Remedial Investigation
- Feasibility Study & Selected Remedy
- Next Steps
- How to Comment
- Questions/Answers

Image icons : Gregor Cresnar (presentation) from Noun project

Online Meeting Presentation Team

DEPARTMENT OF ECOLOGY
State of Washington



Mark Adams
Site Manager

Tena Seeds
Project Engineer

Brad Petrovich
Outreach Specialist

Ian Fawley
Outreach Specialist

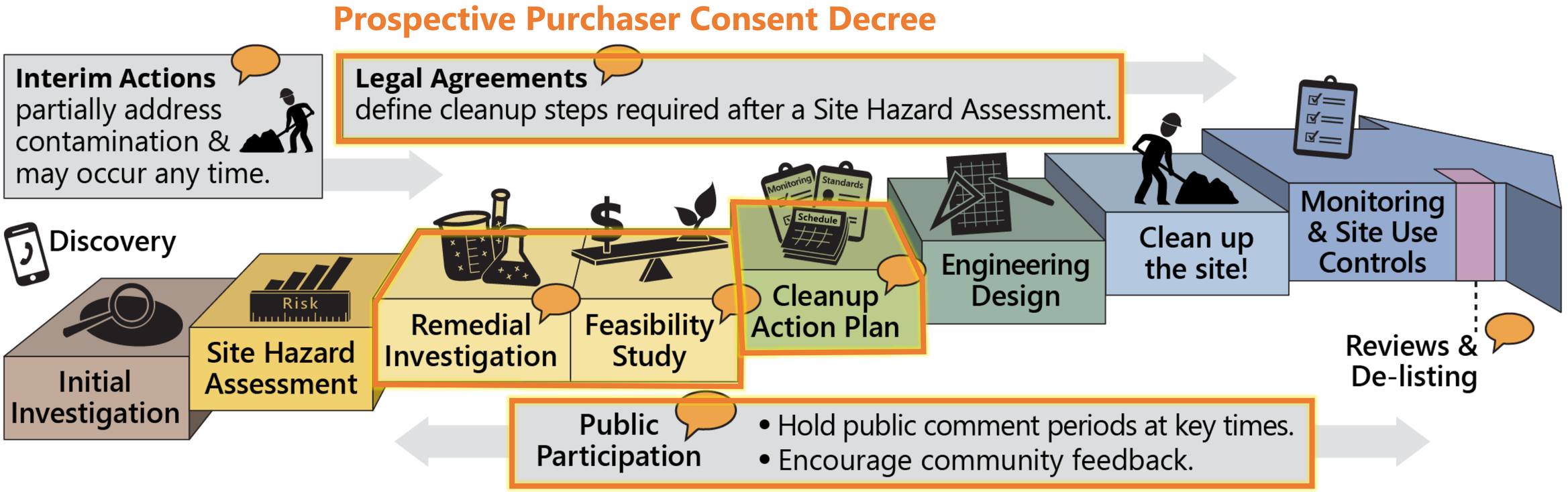
FLOYD | SNIDER
strategy ▪ science ▪ engineering

Lynn Grochala
Project Manager

Image icons : Oksana Latysheva (speaker)) from Noun project

Model Toxics Control Act (MTCA)

Washington's Formal Cleanup Process



Public review documents:

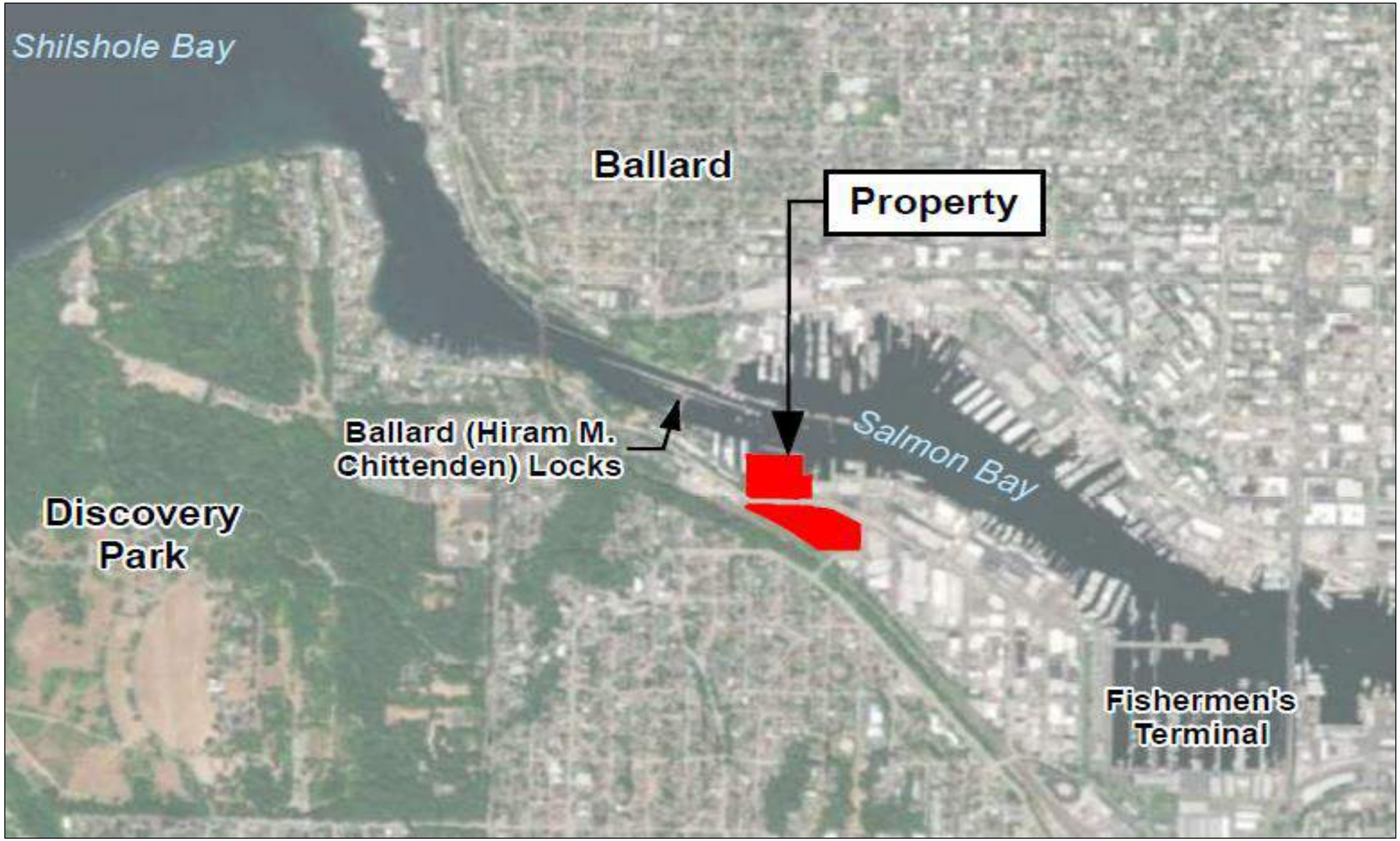
- Prospective Purchaser Consent Decree
- Remedial Investigation/Feasibility Study
- Draft Cleanup Action Plan
- Public Participation Plan
- SEPA Determination

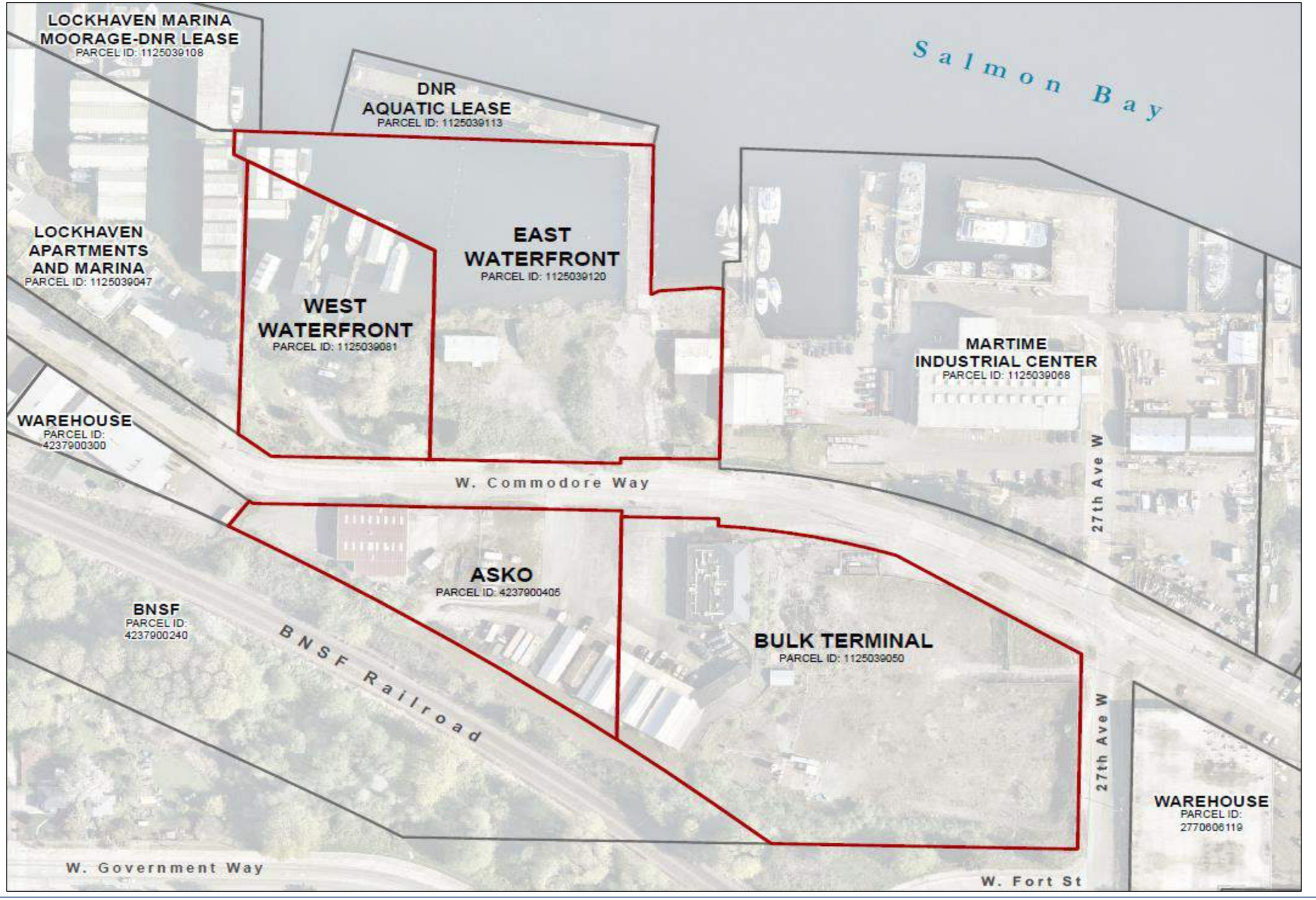
Documents for Public Review

- Prospective Purchaser Consent Decree (PPCD)
- Remedial Investigation/Feasibility Study (RI/FS)
- Draft Cleanup Action Plan (dCAP)
- SEPA Determination
- Public Participation Plan (PPP)

Image icons : Gregor Cresnar (presentation) from Noun project

Site Overview



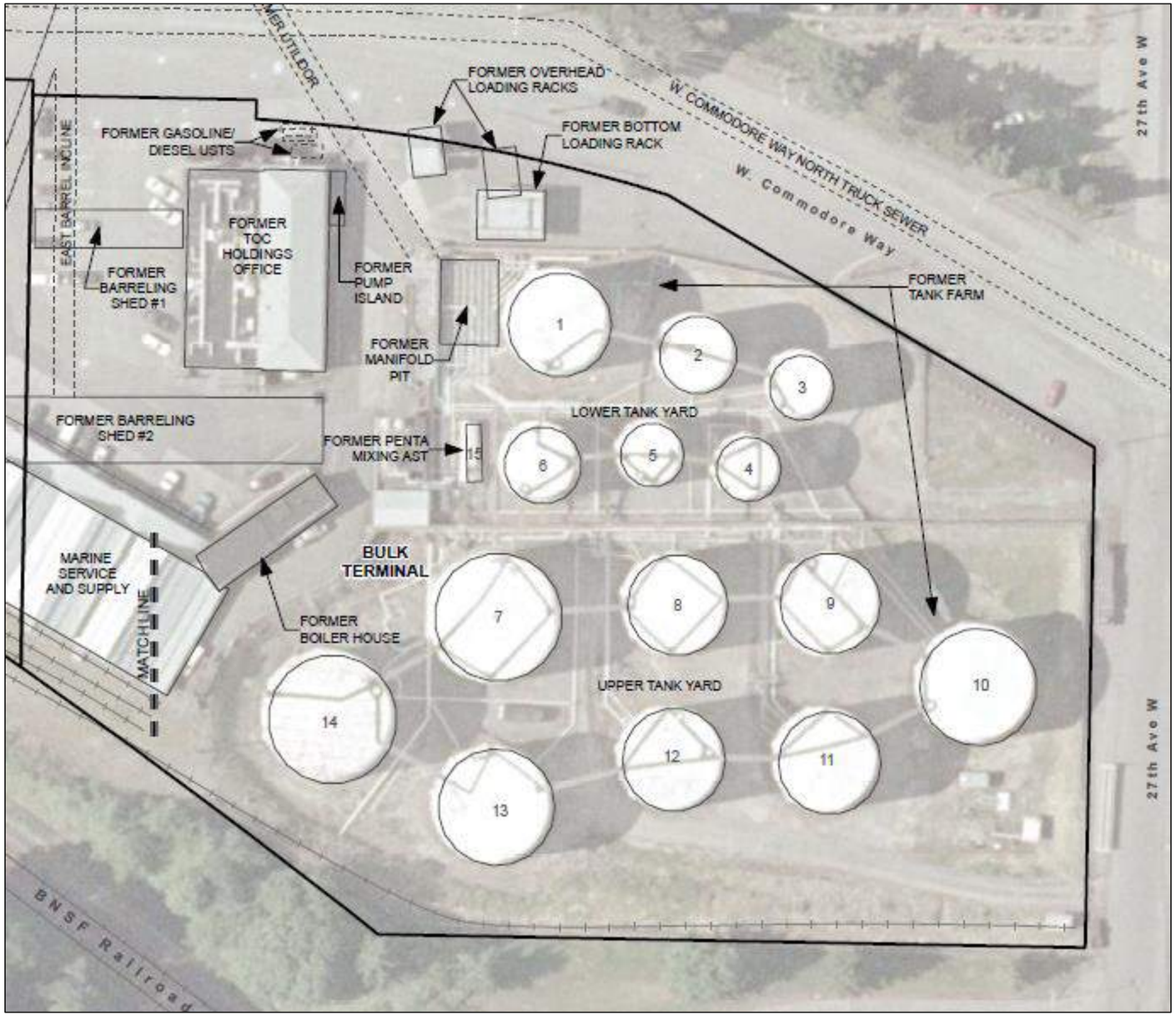

LOCKHAVEN MARINA MOORAGE-DNR LEASE
PARCEL ID: 1125039108
DNR AQUATIC LEASE
PARCEL ID: 1125039113
Salmon Bay
LOCKHAVEN APARTMENTS AND MARINA
PARCEL ID: 1125039047
EAST WATERFRONT
PARCEL ID: 1125039120
WEST WATERFRONT
PARCEL ID: 1125039081
MARTIME INDUSTRIAL CENTER
PARCEL ID: 1125039068
WAREHOUSE
PARCEL ID: 4237900300
W. Commodore Way
27th Ave W
ASKO
PARCEL ID: 4237900405
BNSF
PARCEL ID: 4237900240
BNSF Railroad
BULK TERMINAL
PARCEL ID: 1125039050
27th Ave W
WAREHOUSE
PARCEL ID: 2770606119
W. Government Way
W. Fort St

Site History

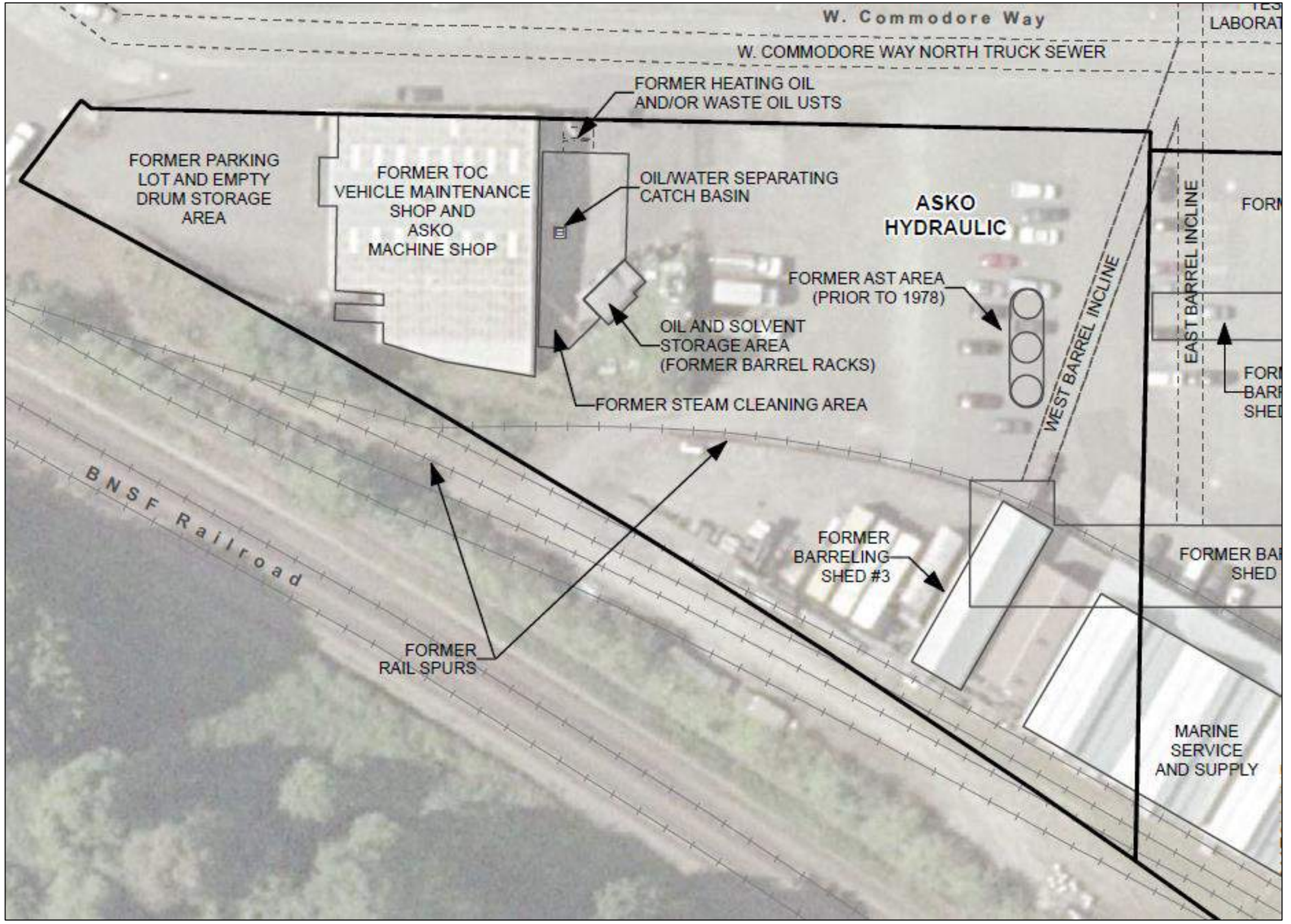
Site History

Site History

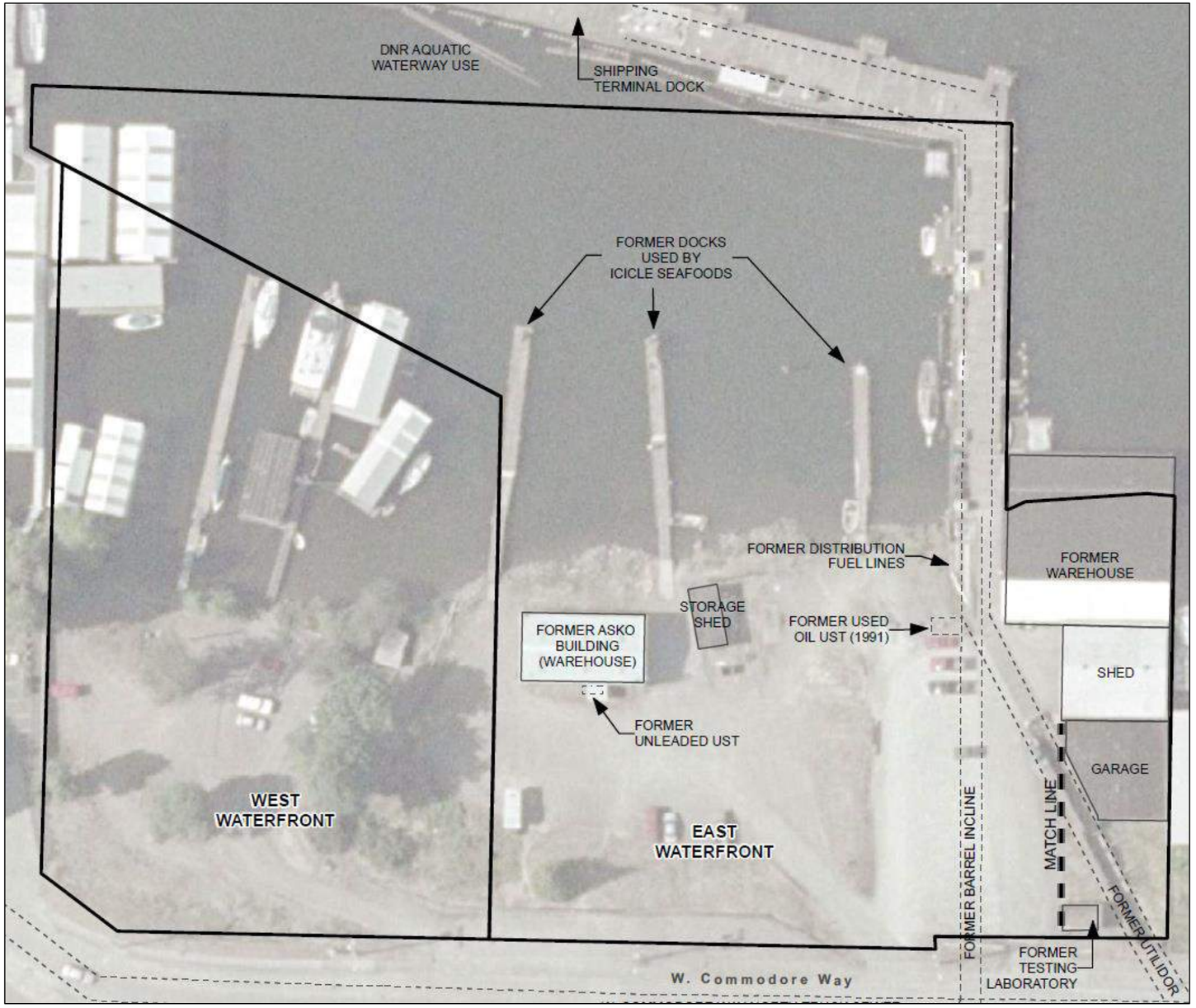
Historical Features – Bulk Terminal Parcel



Historical Features – ASKO Parcel



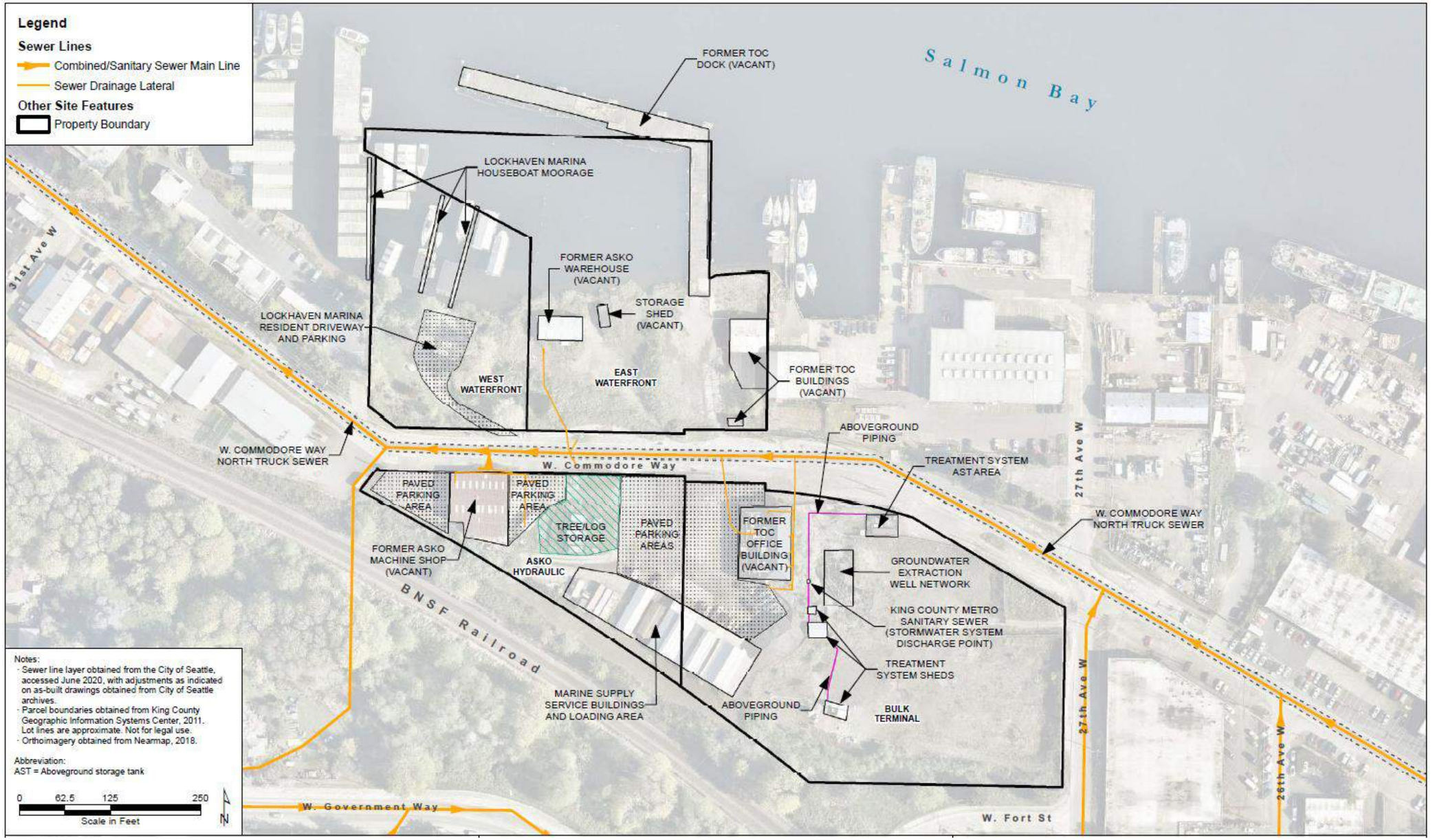
Historical Features – East Waterfront Parcel



Summary of Historical Site Uses

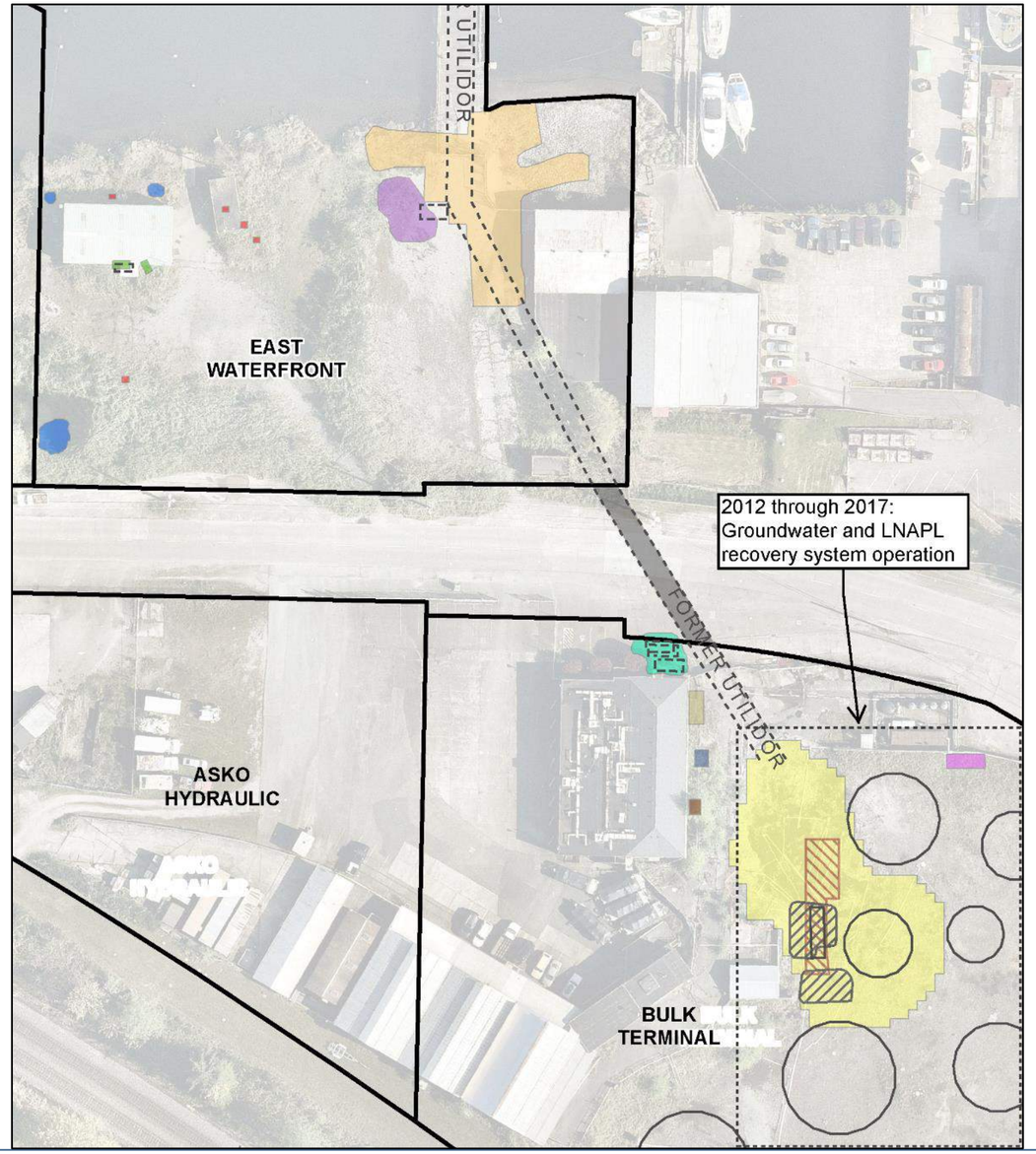
- 1900s — Residential, Agricultural
- 1920s – 1930s — Furniture Manufacturing
- 1941 – 2001 — Petroleum Bulk Storage
- 1970s – 2020 — Various Commercial & Industrial Tenants
  - Machine shop
  - Hydraulic repair shop
  - Fishing boat maintenance
  - Commercial fishing supply store

Current Conditions



Previous Cleanup Work

- 1991-2014: Numerous Interim Actions
- 2012-2017: Groundwater Treatment and Product Removal System Operation

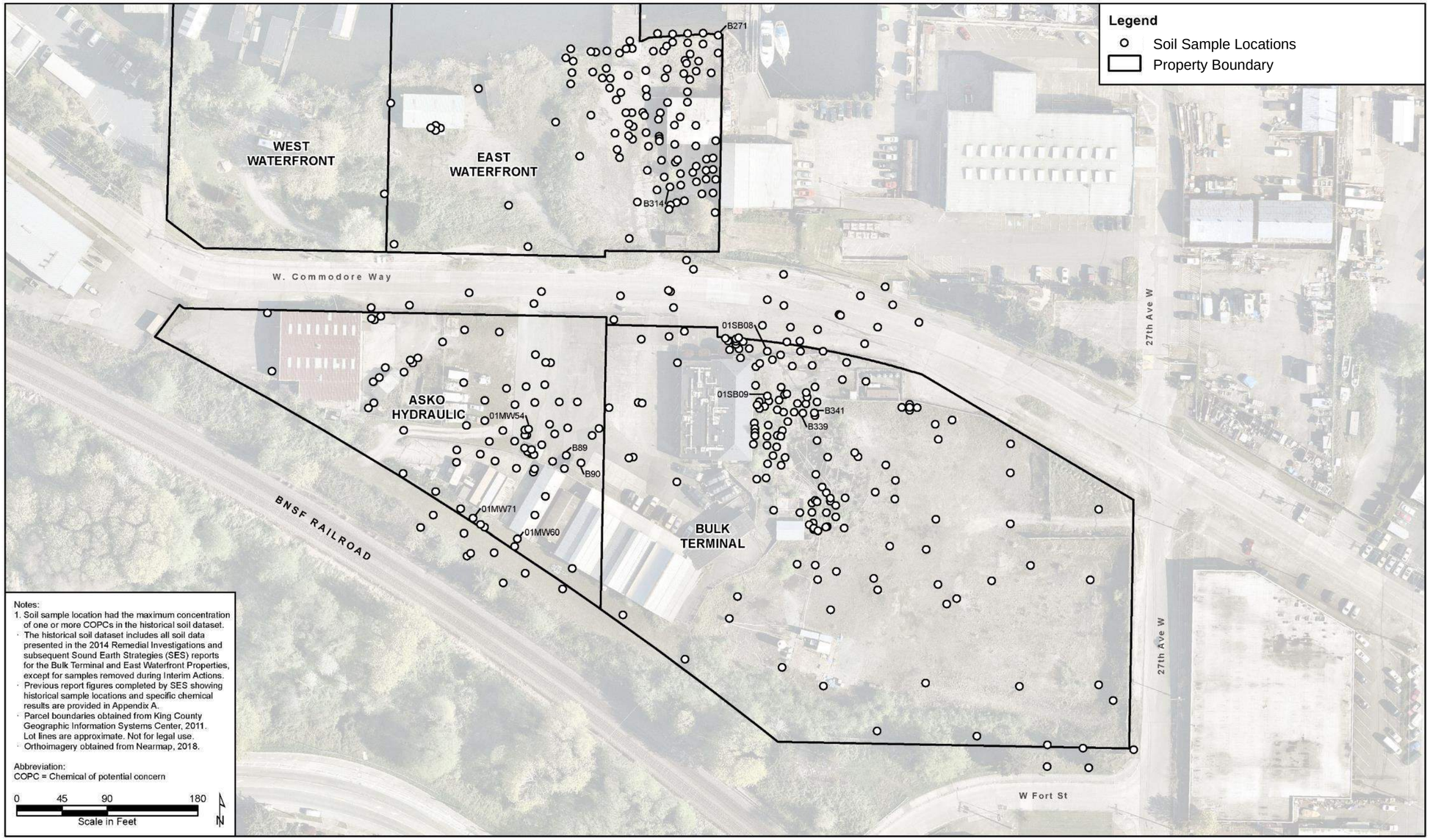


Remedial Investigation Summary

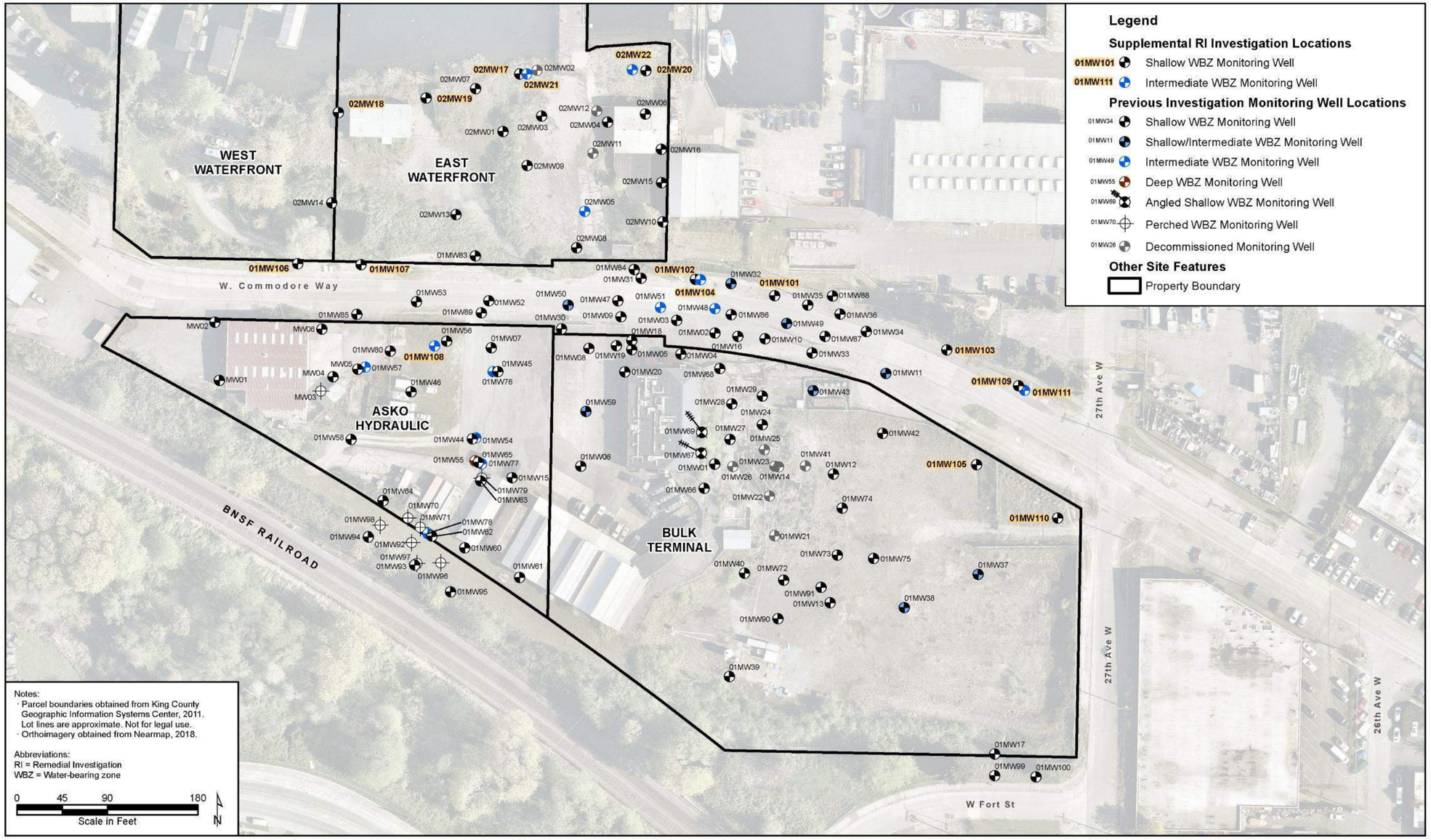
Soil and Groundwater Investigations

- 1991-2006
  - Numerous Focused Investigations
- 2006-2014
  - Previous Remedial Investigations
- 2014
  - RI Reports - one for each parcel (Bulk Terminal, ASKO, and East Waterfront)
    - Comprehensive data summary for investigations 1991-2014
- 2018-2020
  - Supplemental Upland RI
    - Filled data gaps
    - Additional soil and groundwater sample collection in 2019
    - Identified and delineated areas that need cleanup

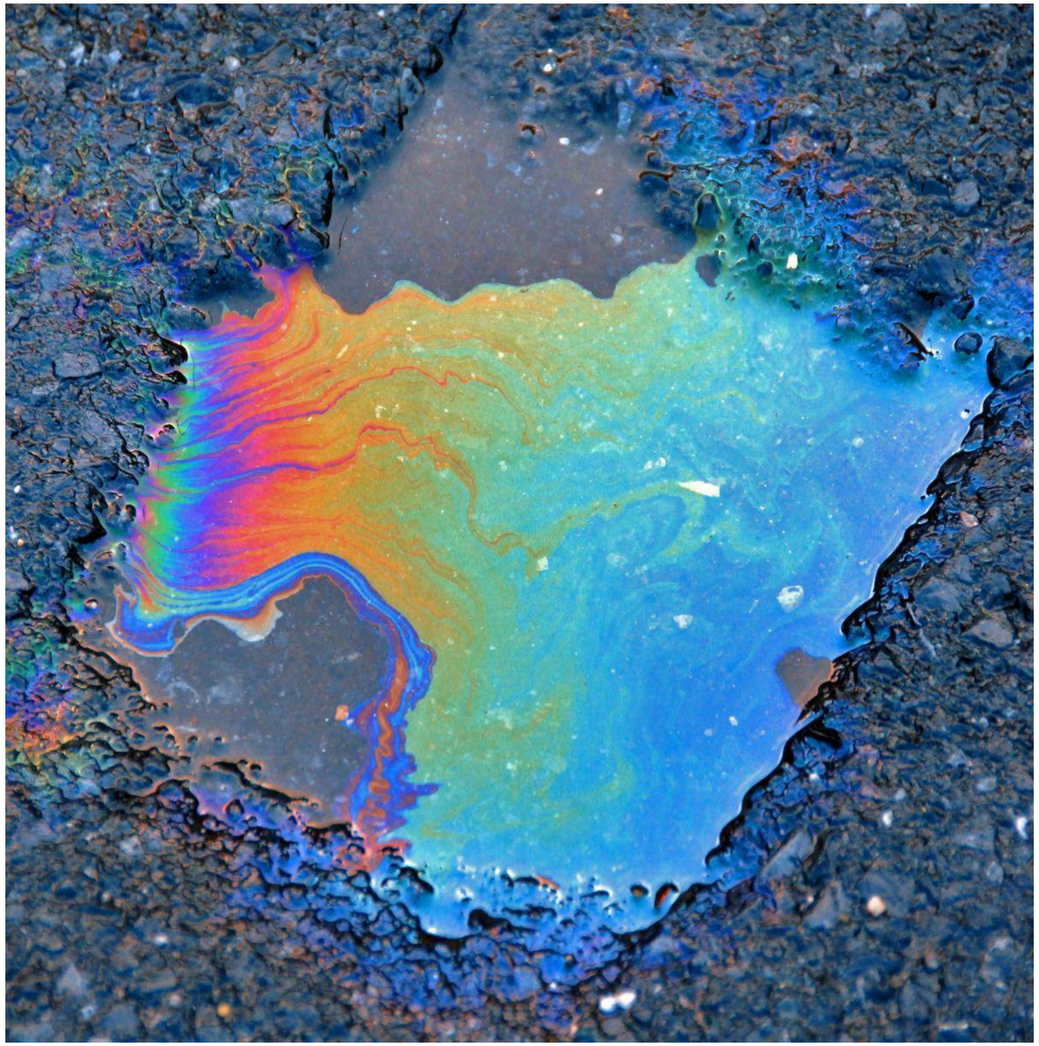
Soil Investigation Locations



Groundwater Investigation Locations



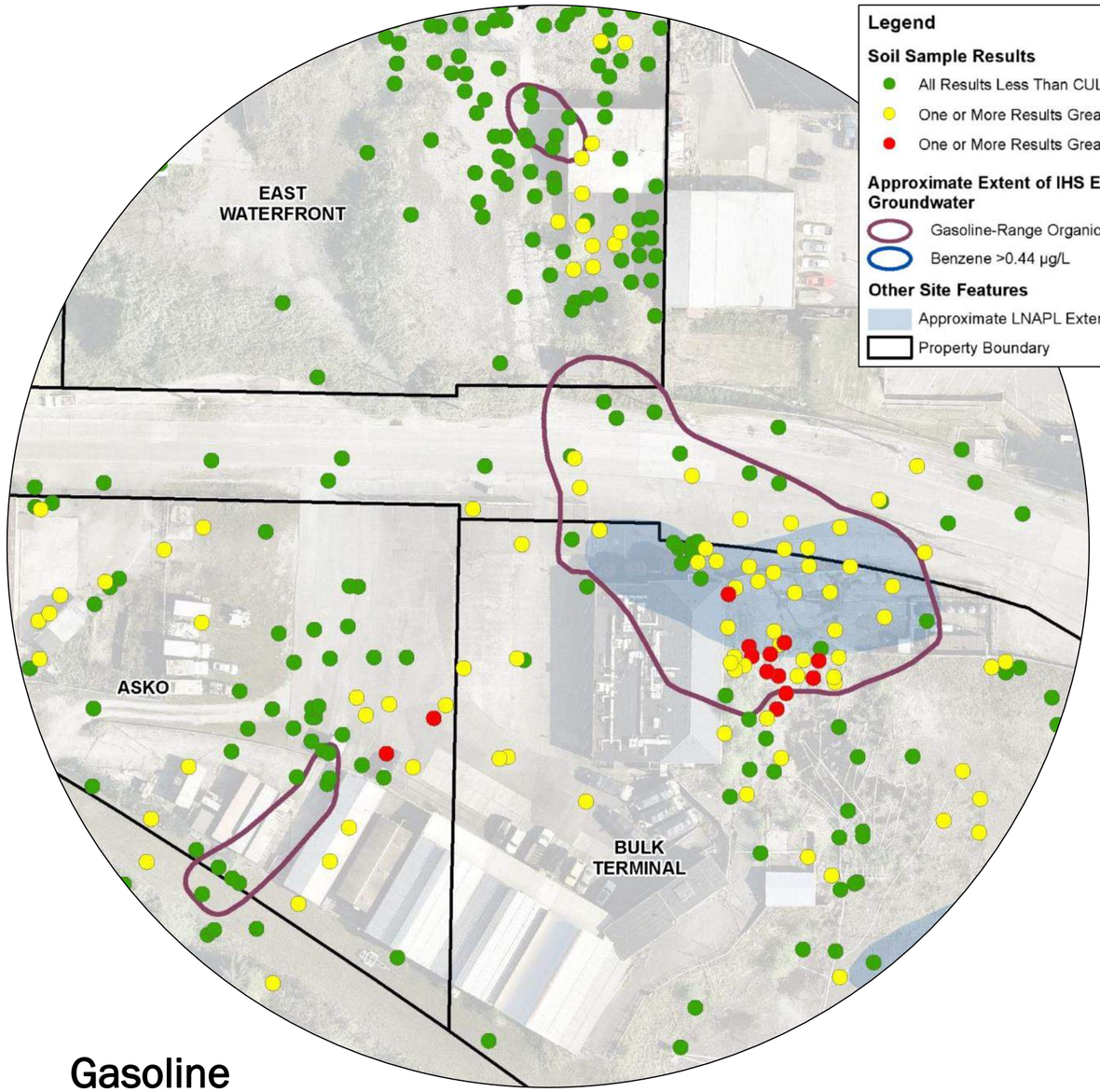
Contaminants of Concern



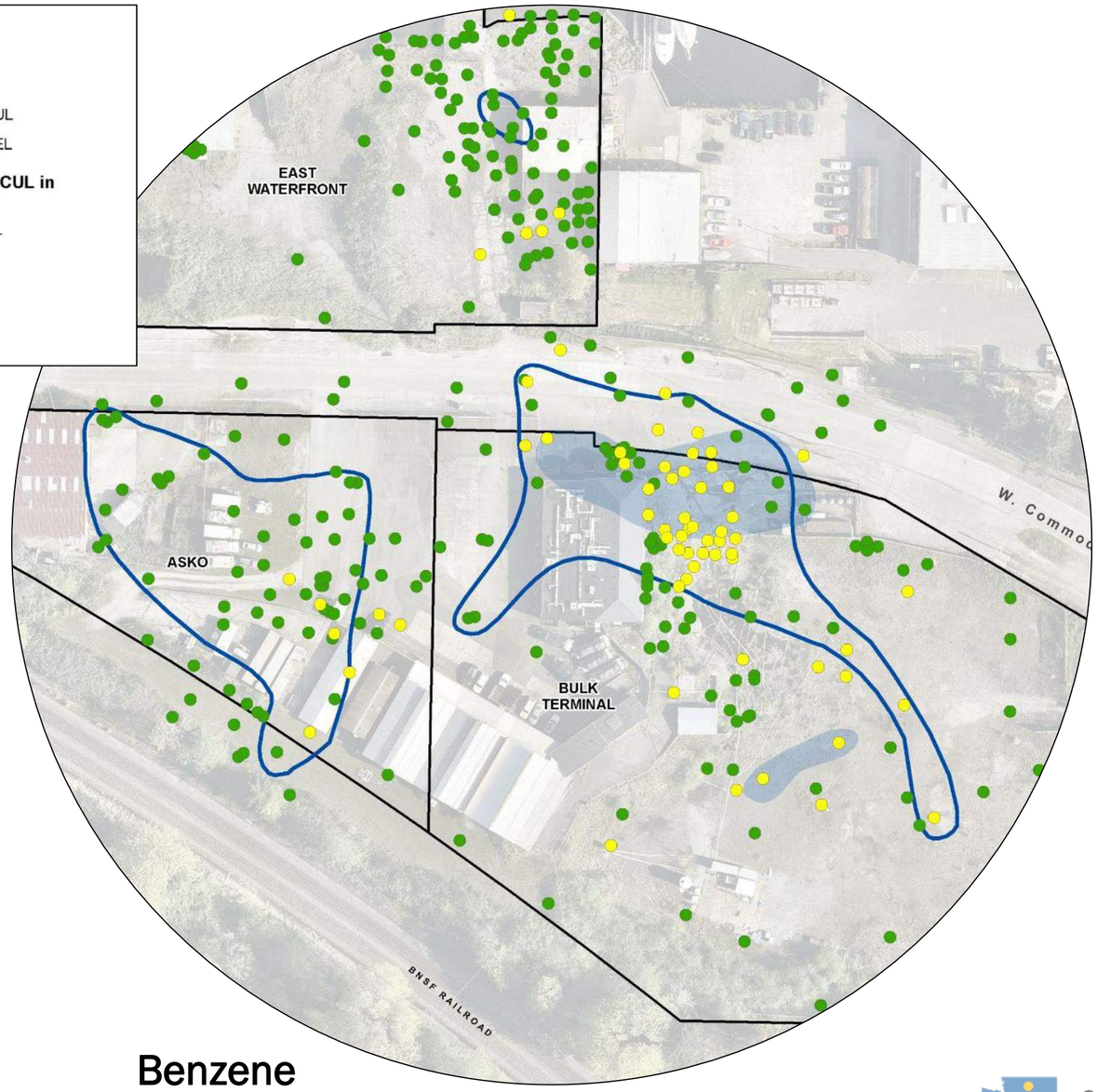
- **Petroleum hydrocarbons (TPH)**
  - Gasoline
  - Diesel and oil
- **Volatile organic compounds**
  - Benzene
  - Chlorinated solvents
    - Trichloroethene (TCE)
    - Vinyl chloride
- **Metals**
  - Arsenic
- **Pentachlorophenol (penta)**

Diesel and Oil Contamination in Soil and Groundwater

Gasoline and Benzene Contamination in Soil and Groundwater



Gasoline



Benzene

Legend

Soil Sample Results

- All Results Less Than CUL
- One or More Results Greater Than CUL
- One or More Results Greater Than REL

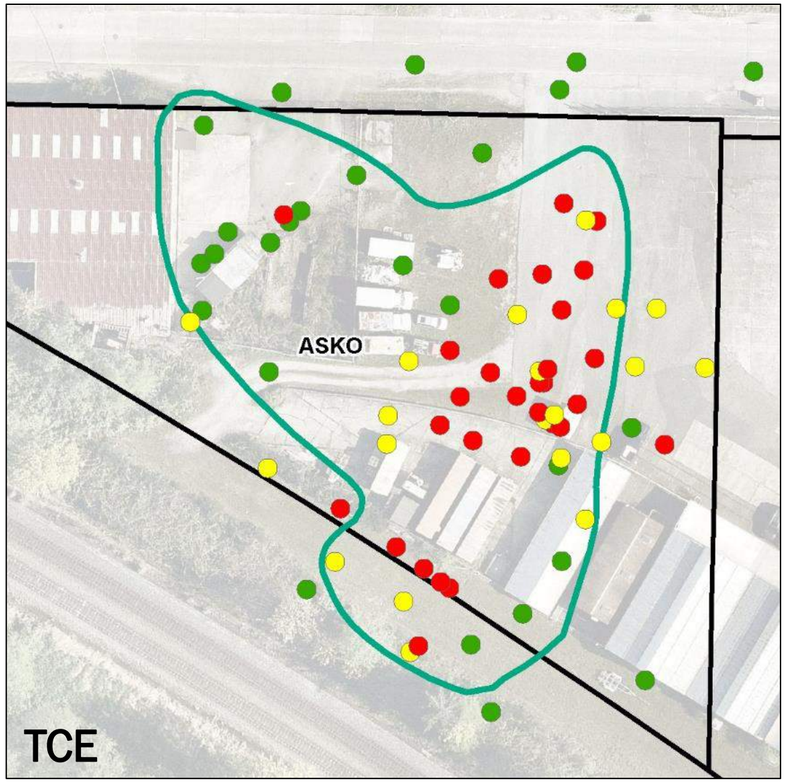
Approximate Extent of IHS Exceeding CUL in Groundwater

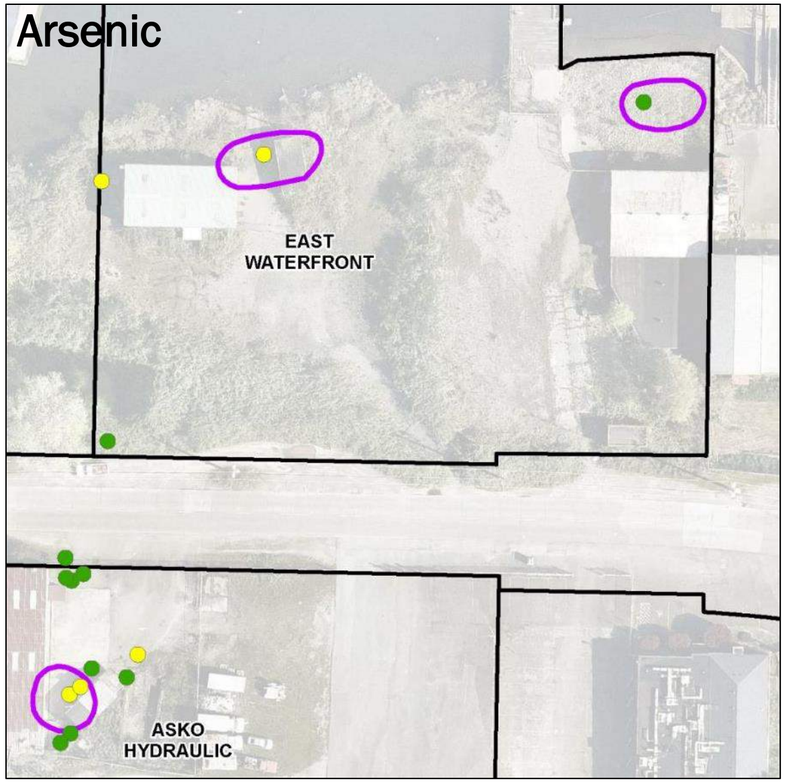
- Gasoline-Range Organics >800 µg/L
- Benzene >0.44 µg/L

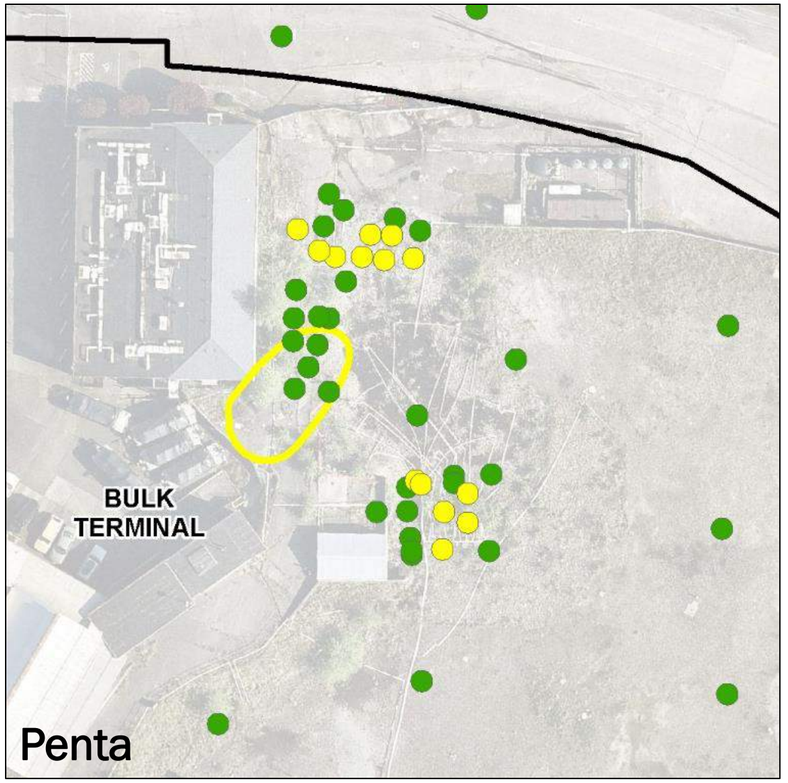
Other Site Features

- Approximate LNAPL Extent
- Property Boundary

TCE, Arsenic, and Penta Contamination in Soil and Groundwater





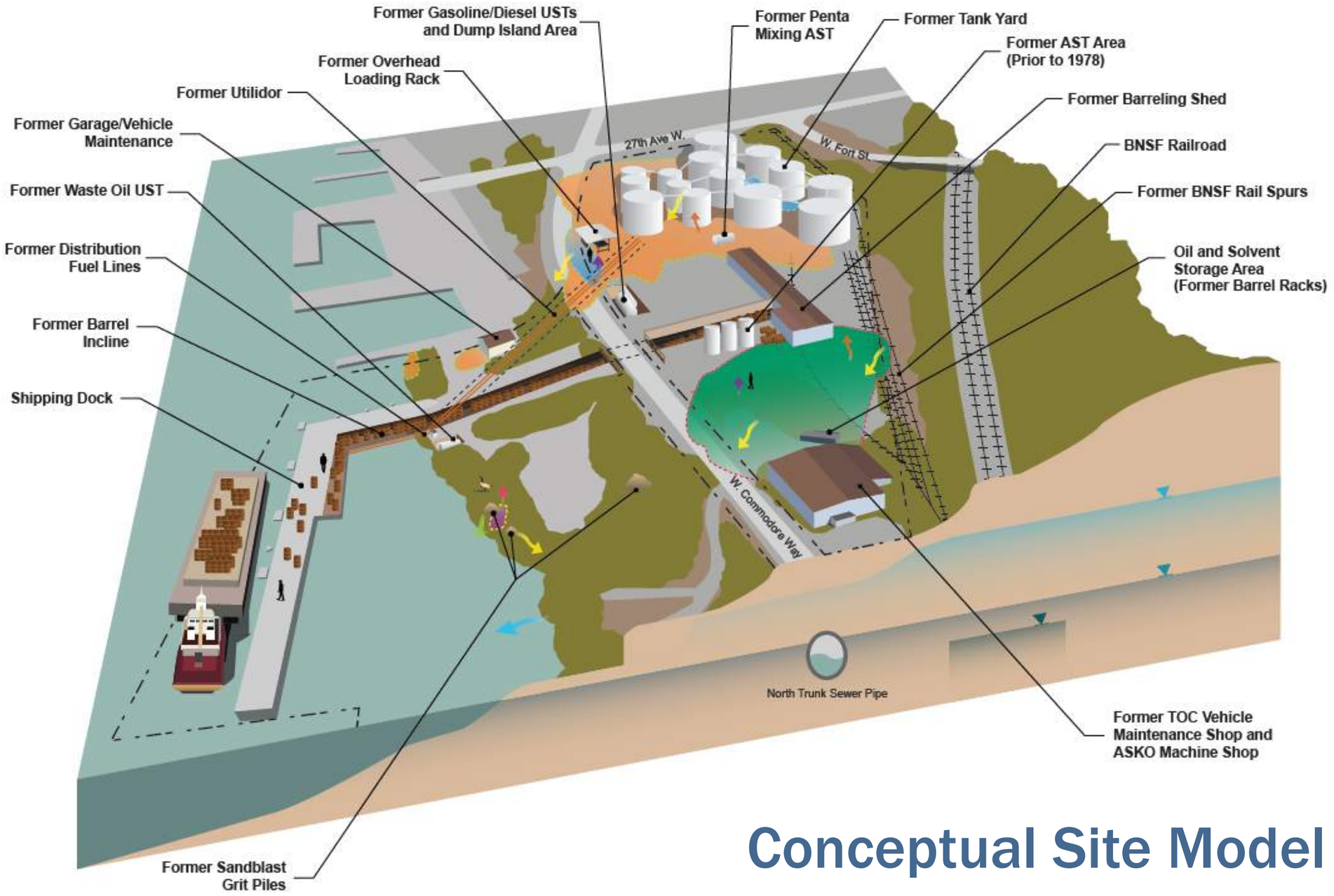


Soil Sample Results

- All Results Less Than CUL
- One or More Results Greater Than CUL
- One or More Results Greater Than REL

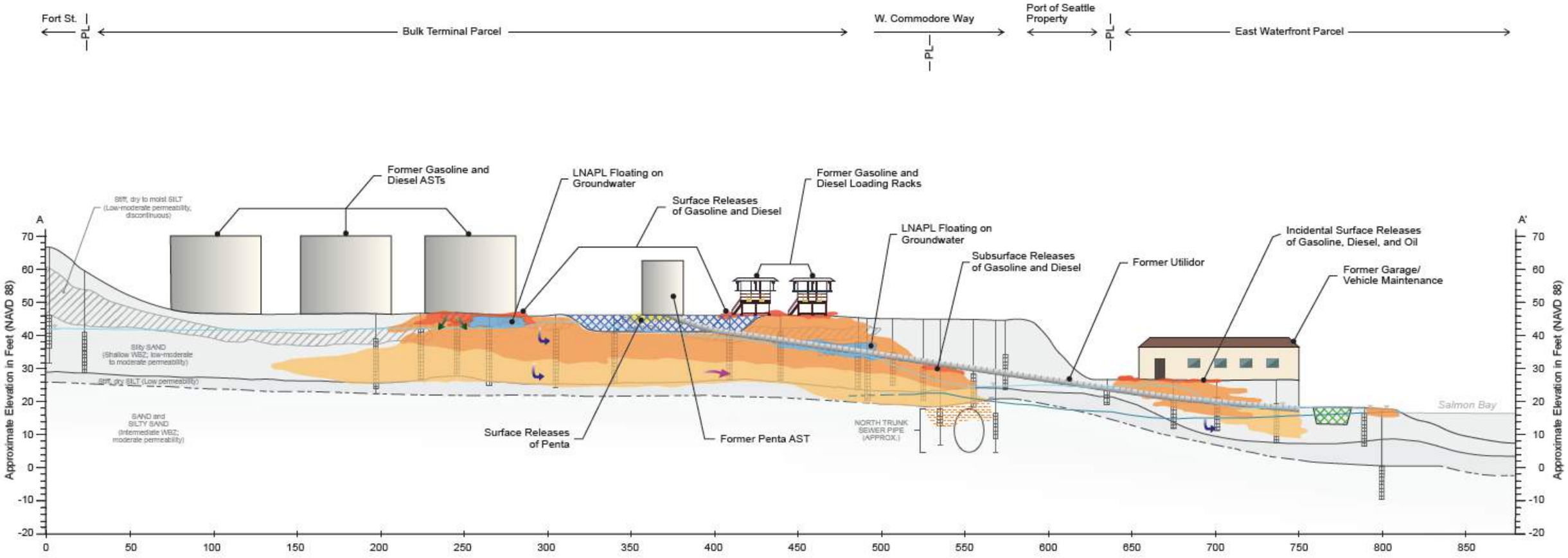
Approximate Extent of IHS Exceeding CUL in Groundwater

- Trichloroethene >0.50 µg/L
- Arsenic >5.0 µg/L
- Penta >0.20 µg/L

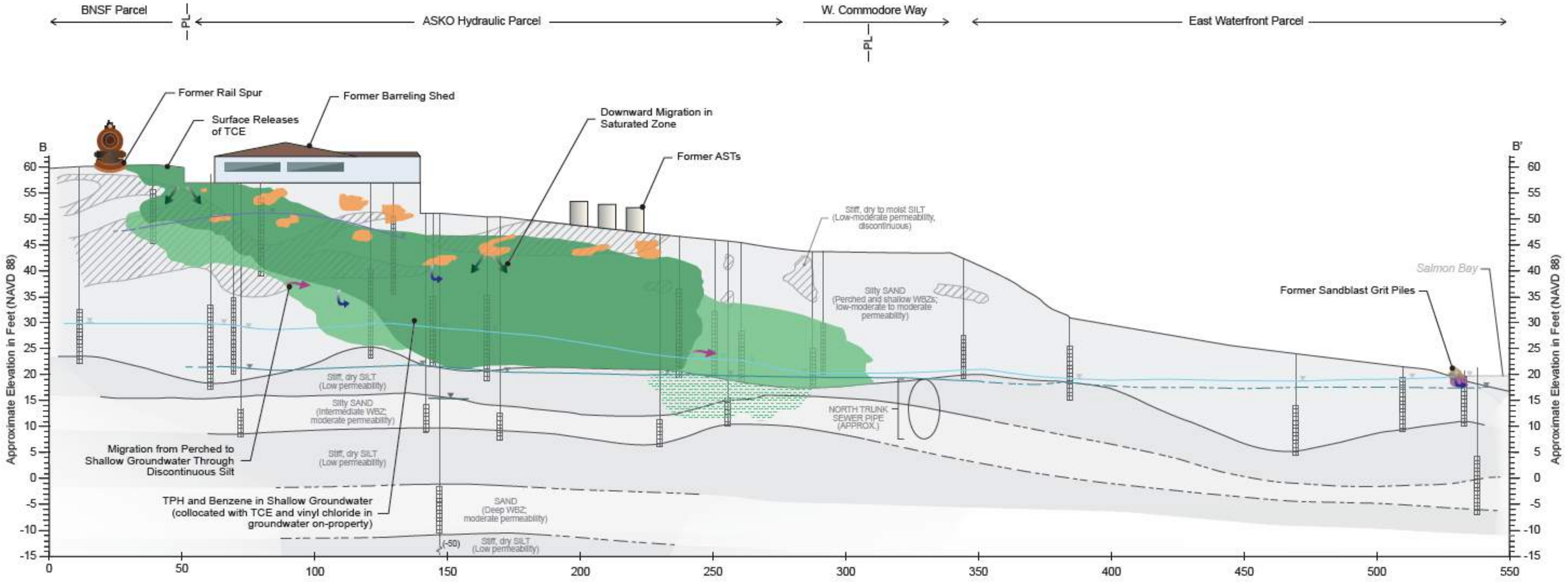


Conceptual Site Model

Conceptual Site Model - Bulk Terminal to Waterfront



Conceptual Site Model - ASKO to Waterfront



Feasibility Study Summary

Cleanup Alternatives Evaluation

Remedial Technologies

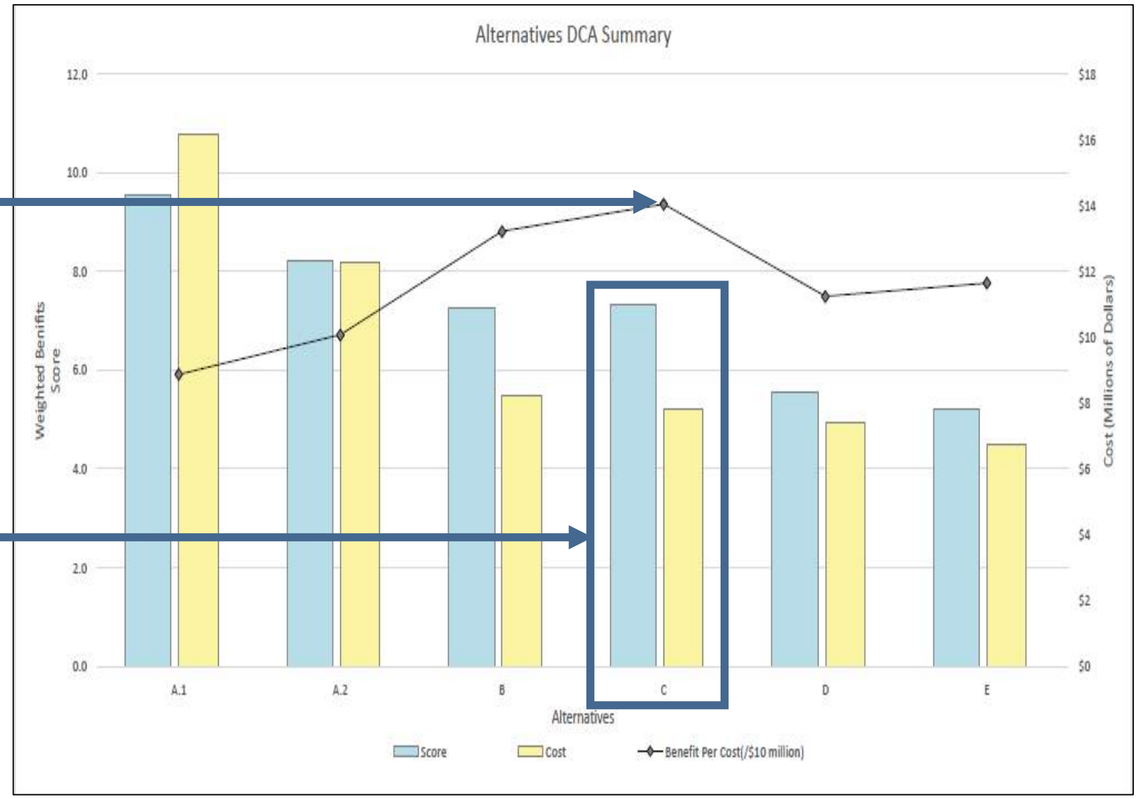
Assemble Alternatives

Alternatives Cost Range:
$7M to $16M

Disproportionate Cost Analysis

Greatest Benefit Per Cost

Preferred Alternative



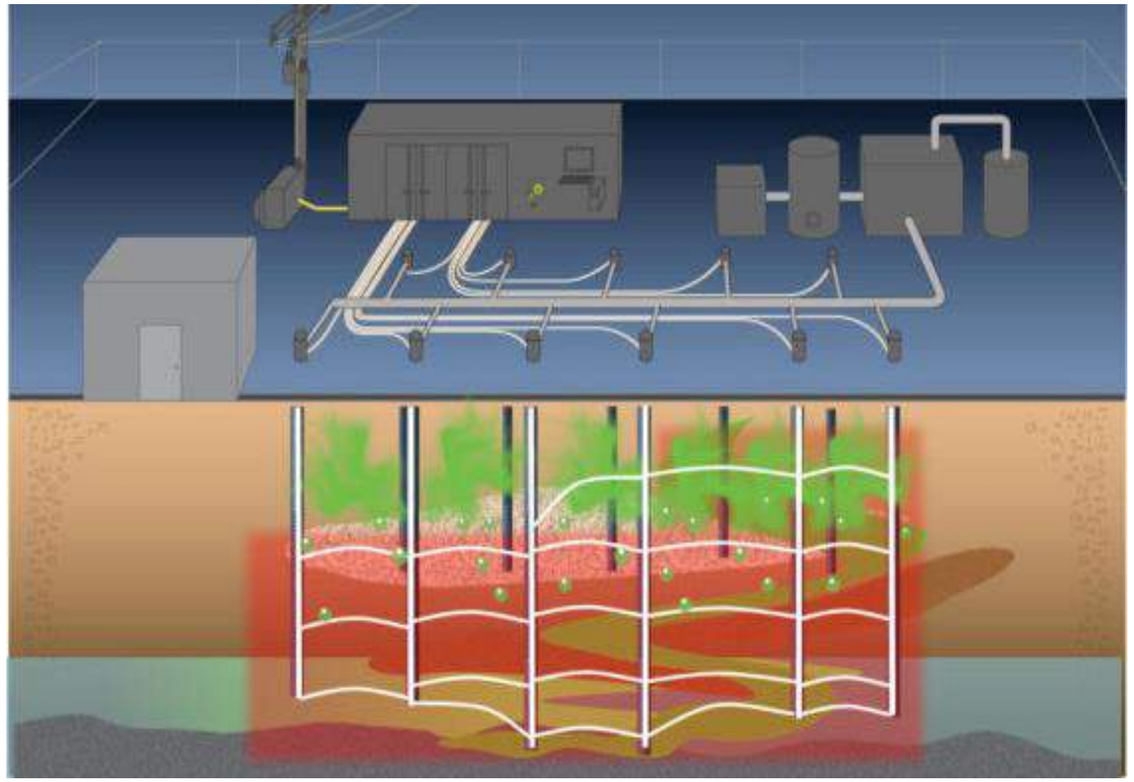
Remedial Technologies Considered

Excavation and Offsite Disposal

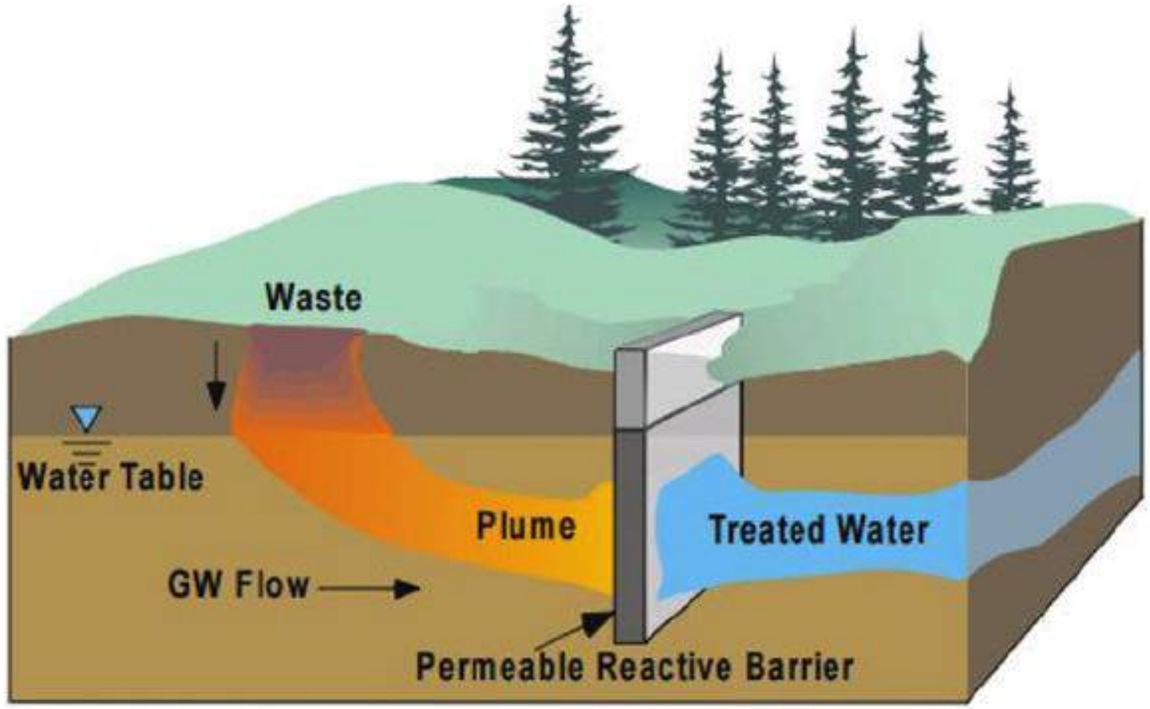
Soil Treatment – In Situ Solidification/Stabilization "ISS"

Remedial Technologies Considered

In Situ Thermal Treatment

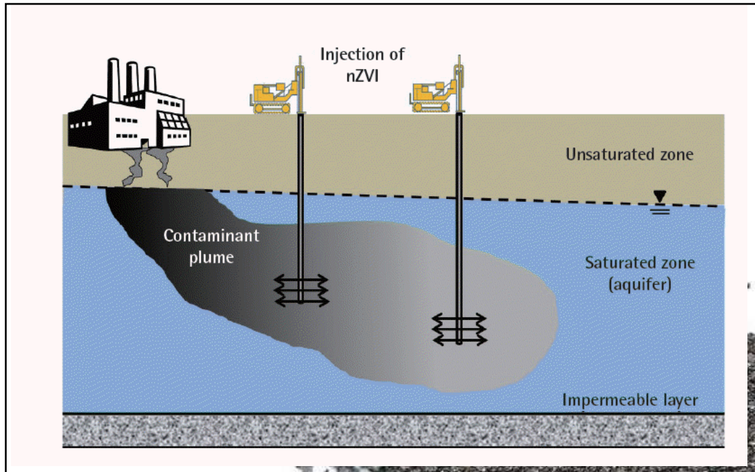


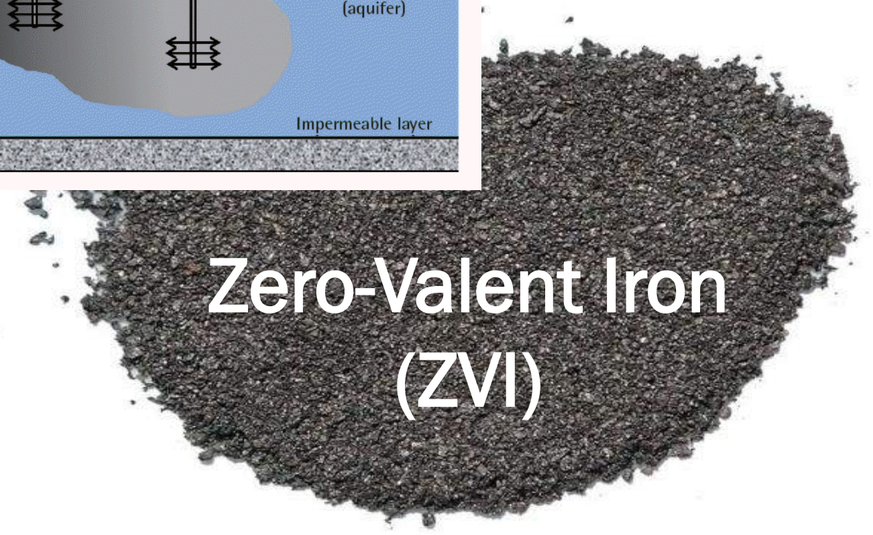
Permeable Reactive Barrier (PRB)



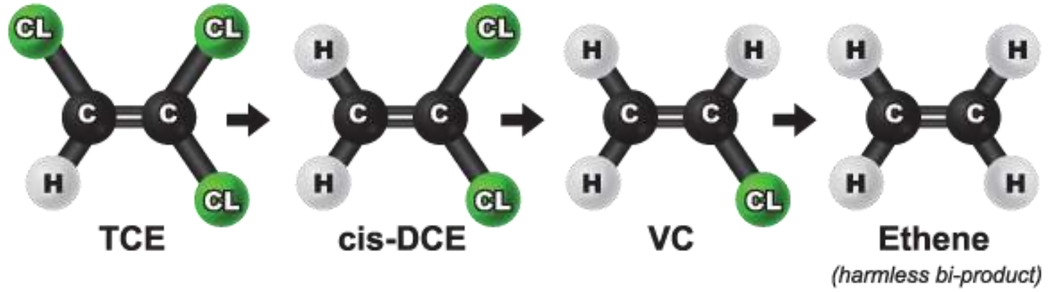
Remedial Technologies Considered

In Situ Groundwater Treatment:





Zero-Valent Iron
(ZVI)

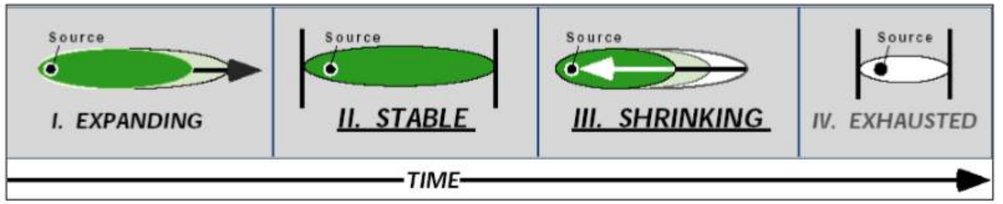


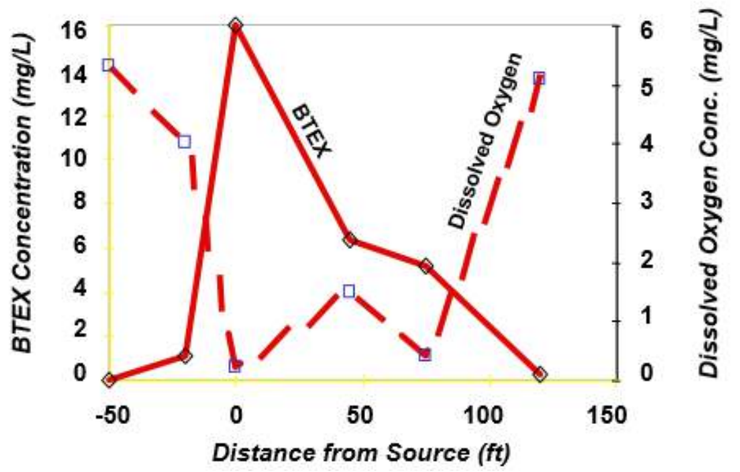
Enhanced Reductive
Dechlorination (ERD)

Remedial Technologies Considered

Capping/Containment

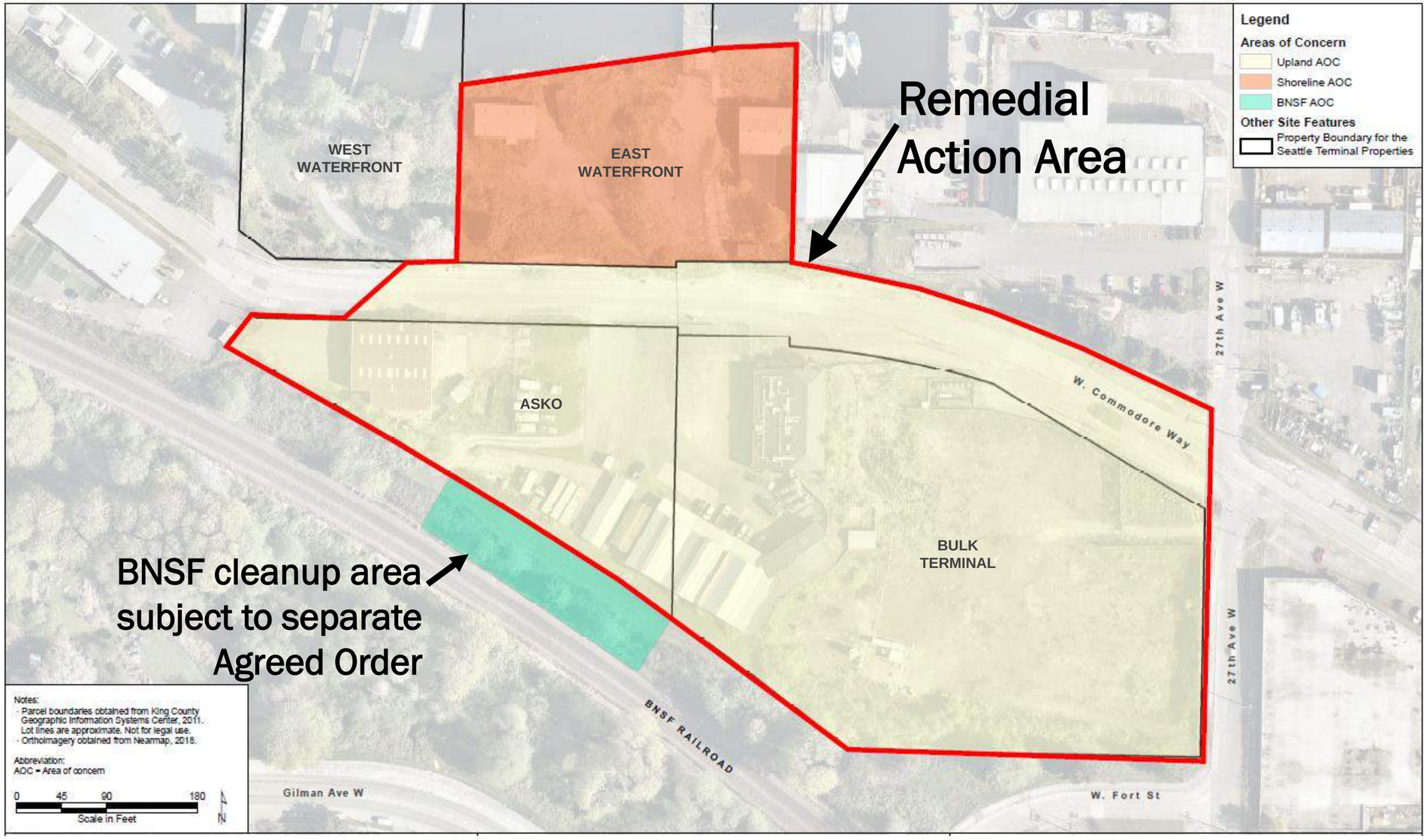
Monitored Natural Attenuation

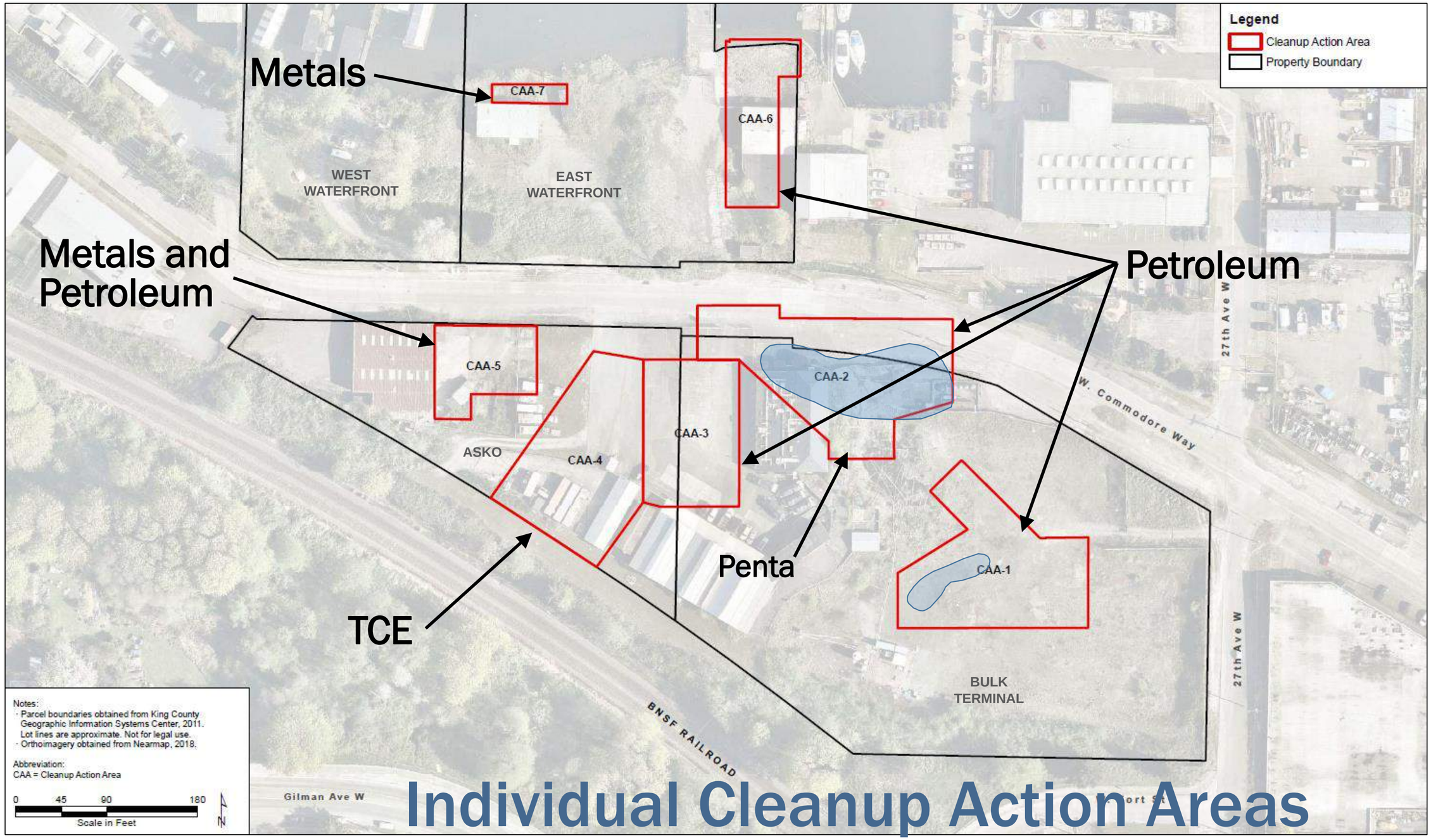




Draft Cleanup Action Plan Summary

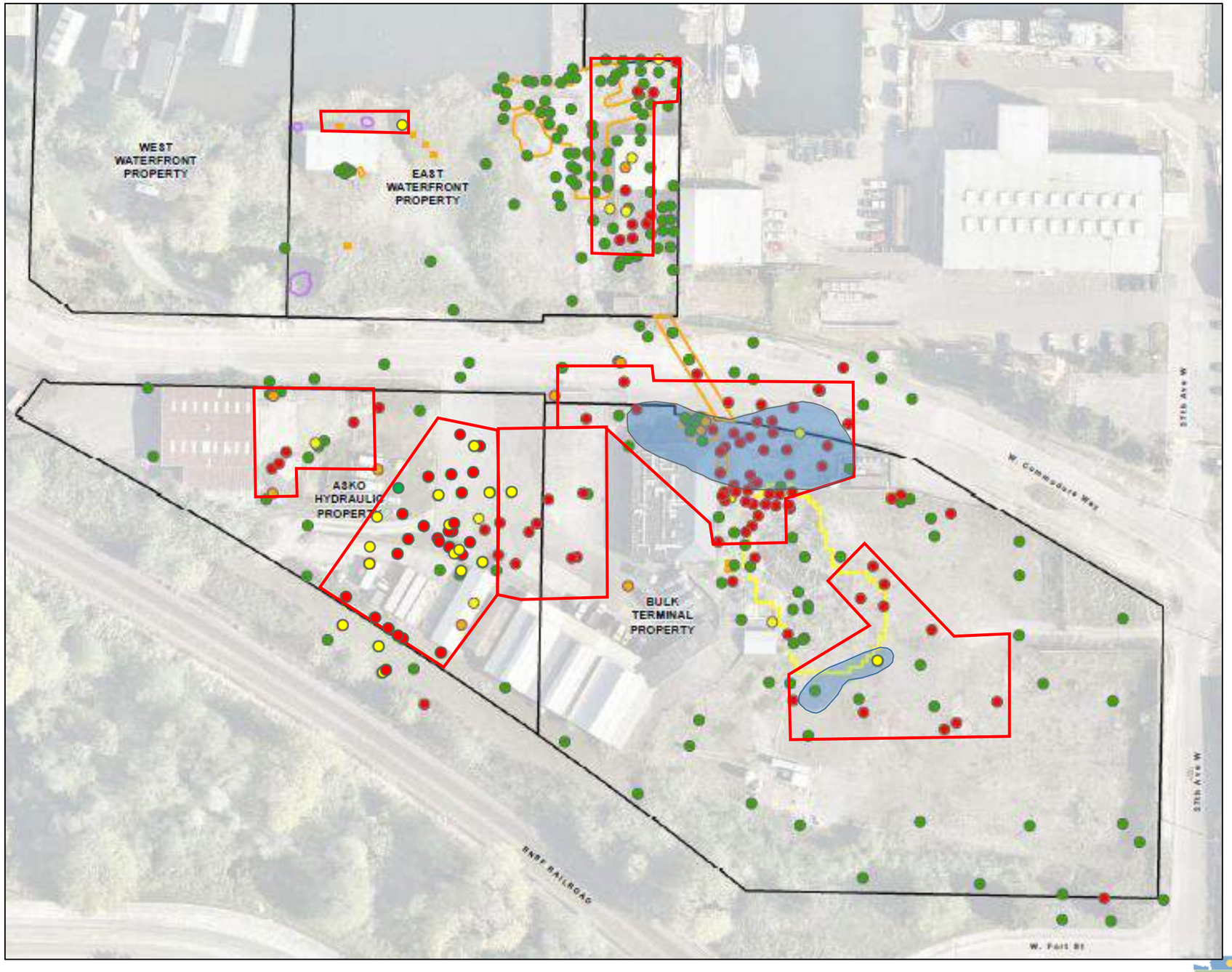
Remedial Action Area





Individual Cleanup Action Areas

CAAs and Contamination in Soil



Selected Cleanup Action

- Excavation
- ISS
- PRB Wall
- ZVI & ERD
- Cap

Compliance Monitoring

COST AND SCHEDULE

- Estimated cleanup cost: $8.3M
- Remedial construction: 2020-2021
- Property development/cap construction estimated to begin in 2021

Next Steps

July 20 – Aug 18, 2020

30-day Comment Period on 5 documents:

Open Now!

1. Prospective Purchaser Consent Decree
2. Remedial Investigation/Feasibility Study
3. Draft Cleanup Action Plan
4. Public Participation Plan
5. State Environmental Policy Act (SEPA) Determination

July 29, 2020

Online Public Meeting

Tonight!

Later 2020

Ecology will review comments received and respond accordingly

Finalize Documents & Sign PPCD

Late 2020/Early 2021

Cleanup action proposed to start

How to Comment

July 20 – August 18, 2020

DEPARTMENT OF ECOLOGY
State of Washington

1.) Comment Online

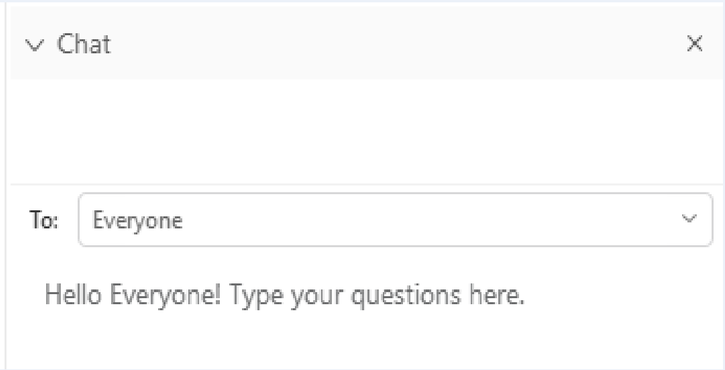
- www.bit.ly/TimeOilComments
- www.bit.ly/TimeOilBulkTerminal

2.) Contact Site Manager

Mark Adams– Site Manager
3190 160th Ave SE
Bellevue, WA 98008-5452
Mark.Adams@ecy.wa.gov

Questions?

You can ask questions via the chat function



Facilitators will read your typed questions

DEPARTMENT OF ECOLOGY State of Washington

Image icons : Garcia Gallego (questions) and Adrien Coquet (presenter) from Noun project

Thank you for attending!

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Reminder:
A digital PDF of this presentation will be available on Ecology's Time Oil Bulk Terminal webpage:
www.bit.ly/TimeOilBulkTerminal