

Tacoma Smelter Plume

Soil Replacement Orientation Meeting

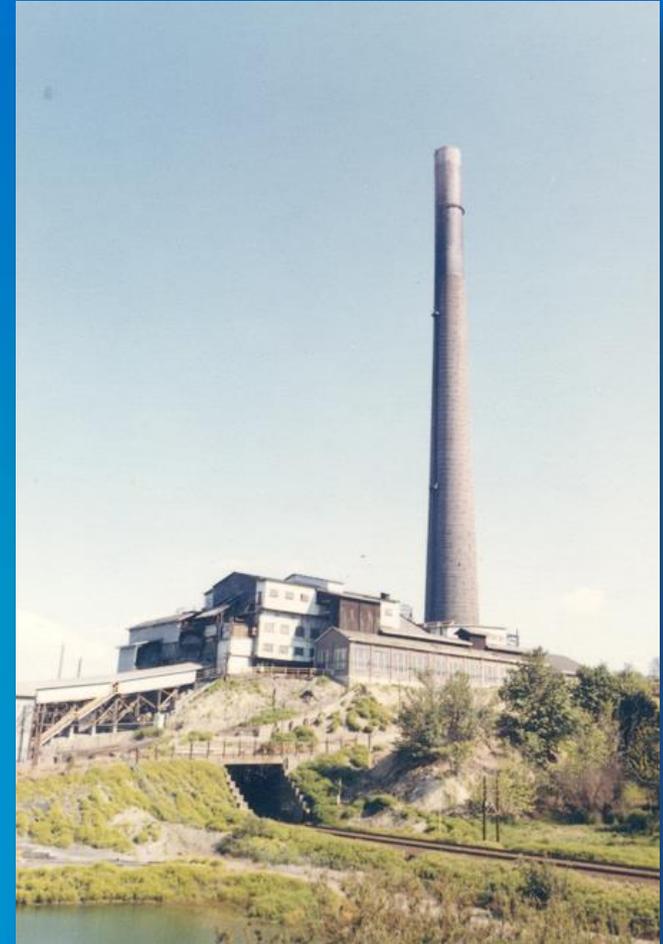
January 25th and February 1st, 2017



DEPARTMENT OF
ECOLOGY
State of Washington

Outline

- History
- Sampling data
- Soil replacement process
- Health information
- Schedule appointments



Purpose

- The goal of tonight is to prepare you for meeting with us in the coming months.
- This meeting is an orientation meeting for soil removal and replacement that will occur in 2018/2019.



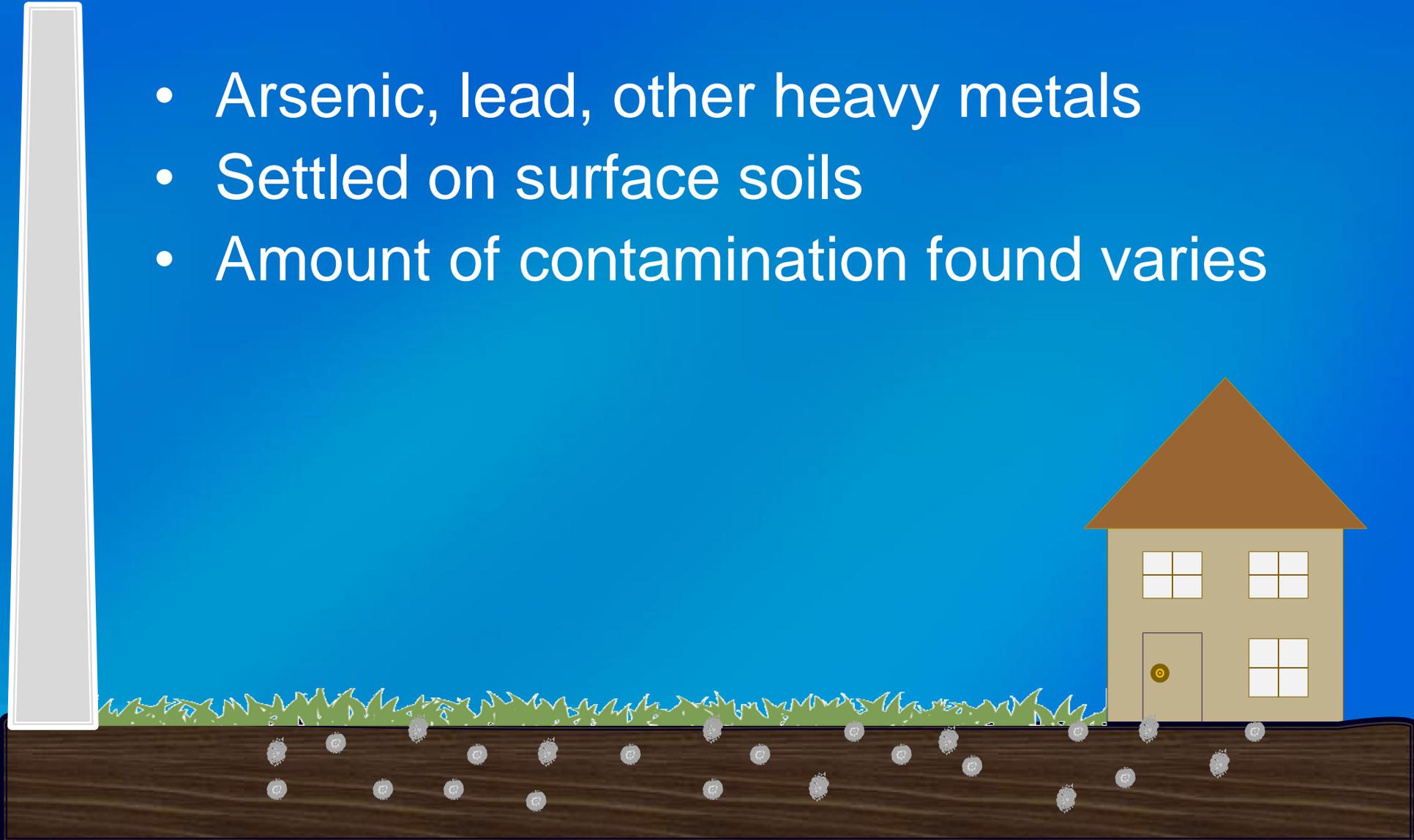
Asarco Smelter History

- **1890-1986:** Smelted lead, copper, and high arsenic ores
- **1983:** Became a Superfund site
- **1993:** EPA yard cleanup began in Ruston and north Tacoma



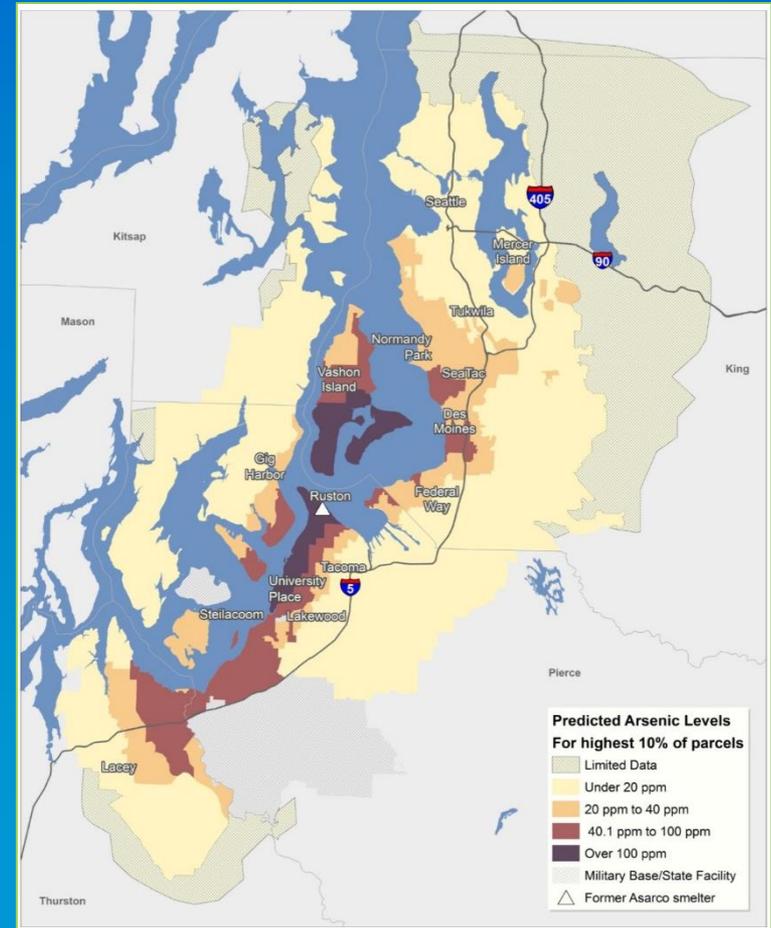
Tacoma Smelter Plume

- Arsenic, lead, other heavy metals
- Settled on surface soils
- Amount of contamination found varies



Tacoma Smelter Plume

- 1000 sq mile area
- Outreach and Education
- Soil Safety Program
- Yard Sampling and Cleanup Program
- Technical Assistance



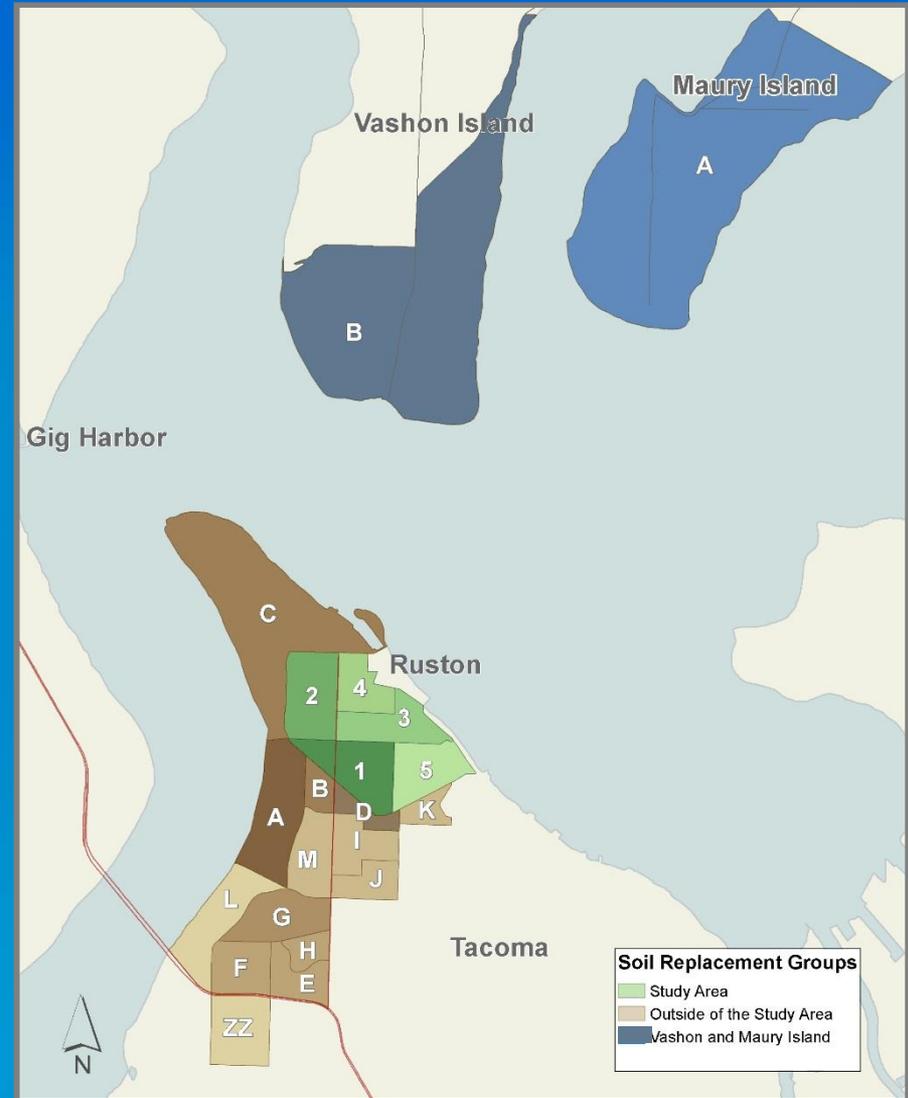
Yard Program Overview

- Existing residential
- State-led
- Voluntary

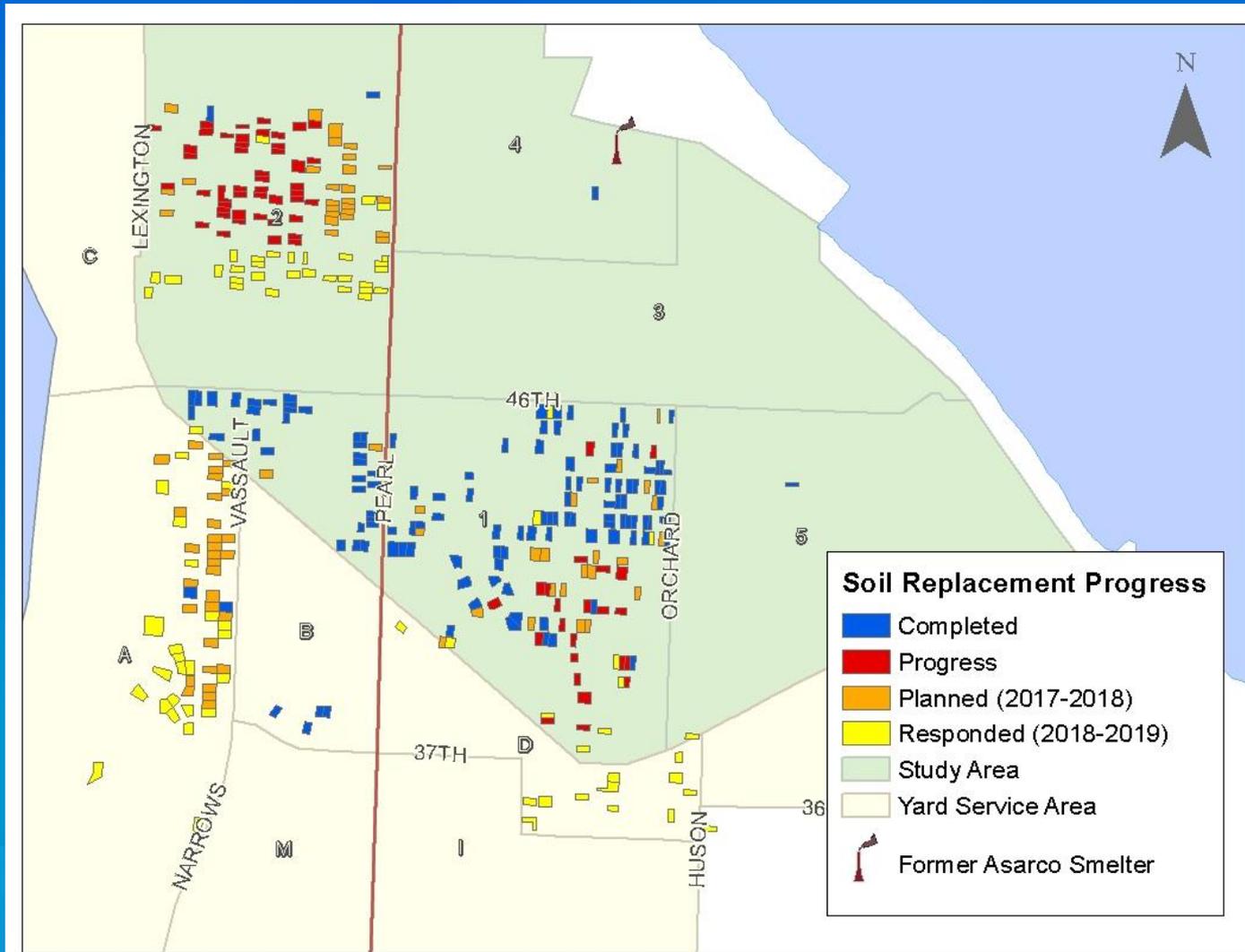
Action Levels

Average arsenic = 100 ppm

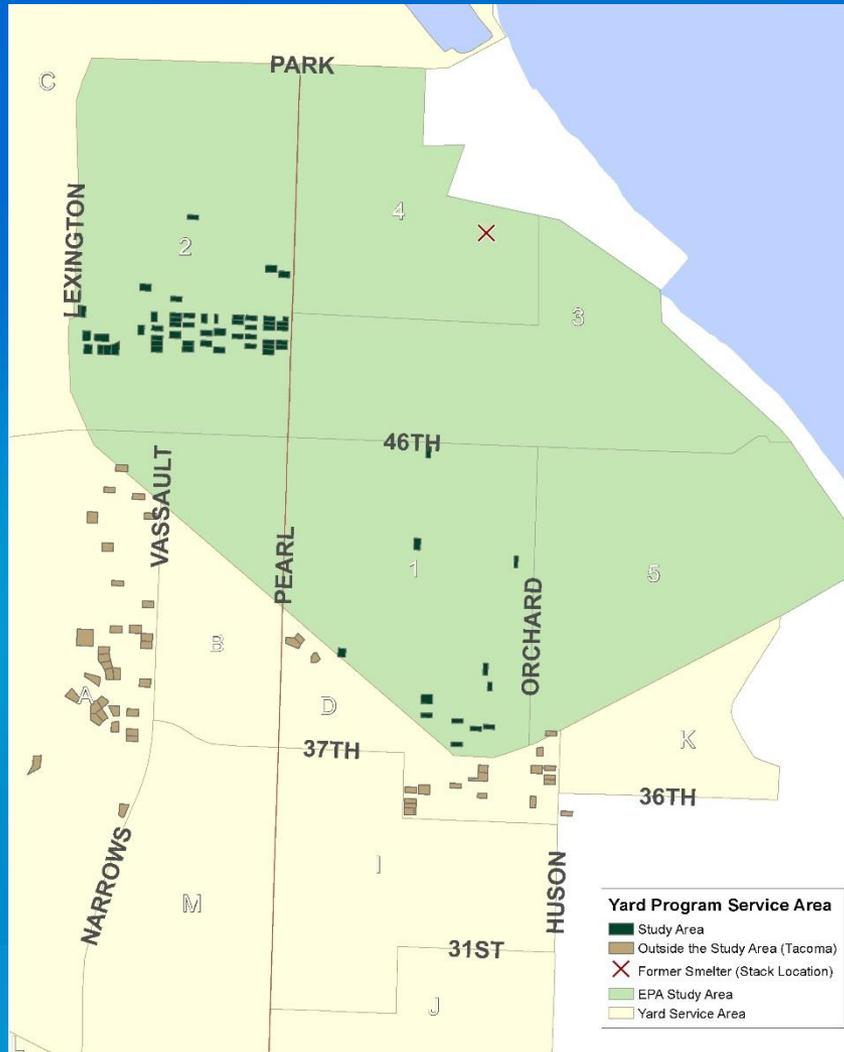
Average lead = 500 ppm



Soil Replacement Progress

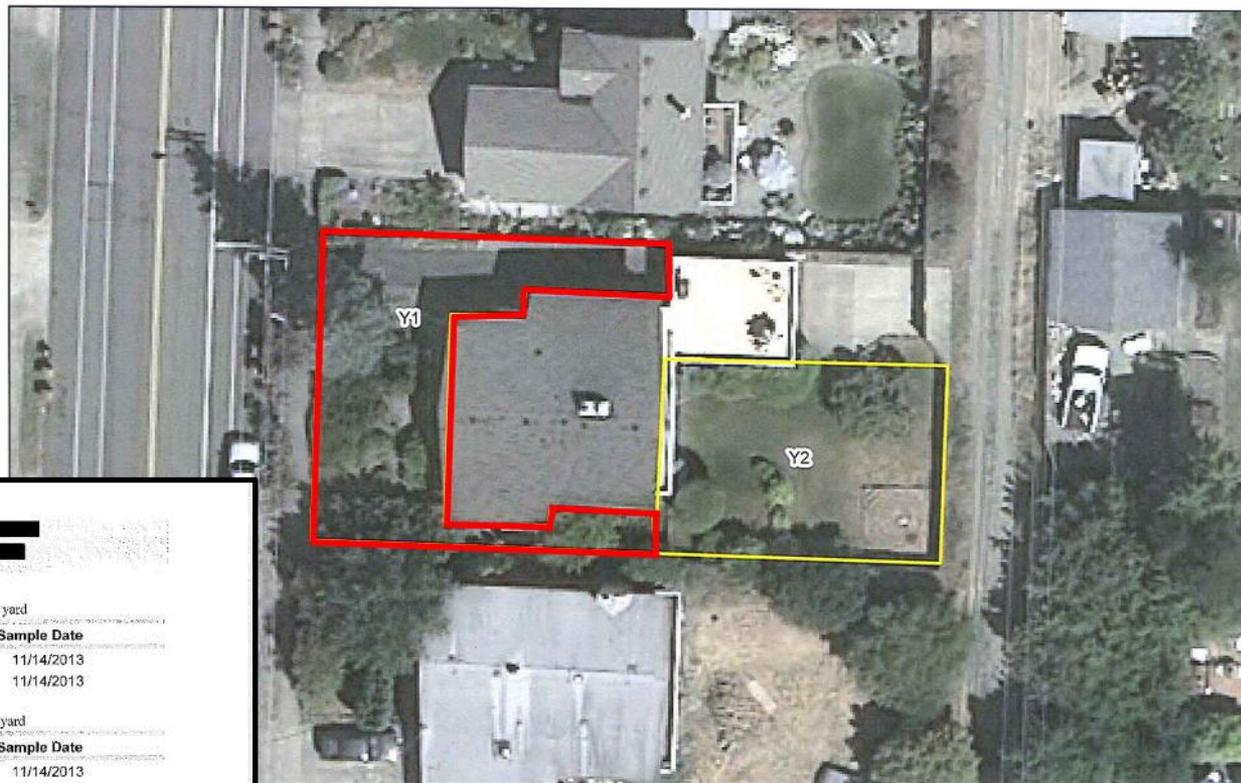


Soil Replacement Planning



Outside of the Study Area

This property qualifies for soil replacement



| Sample Results | | | |
|-----------------------------|----------------------------|----------------------|-------------|
| Property ID: [REDACTED] | Property Owner: [REDACTED] | | |
| Parcel: [REDACTED] | Site Address: [REDACTED] | | |
| | City: Tacoma | | |
| Area Y1 Ground Cover: Bark | | Location: Front yard | |
| SAMPLE ID | ANALYTE | RESULT* | Sample Date |
| [REDACTED]-Y1-1-4 | Arsenic | 150 | 11/14/2013 |
| [REDACTED]-Y1-1-4 | Lead | 190 | 11/14/2013 |
| Area Y2 Ground Cover: Grass | | Location: Back yard | |
| SAMPLE ID | ANALYTE | RESULT* | Sample Date |
| [REDACTED]-Y2-1-4 | Arsenic | 52 | 11/14/2013 |
| [REDACTED]-Y2-1-4 | Lead | 43 | 11/14/2013 |

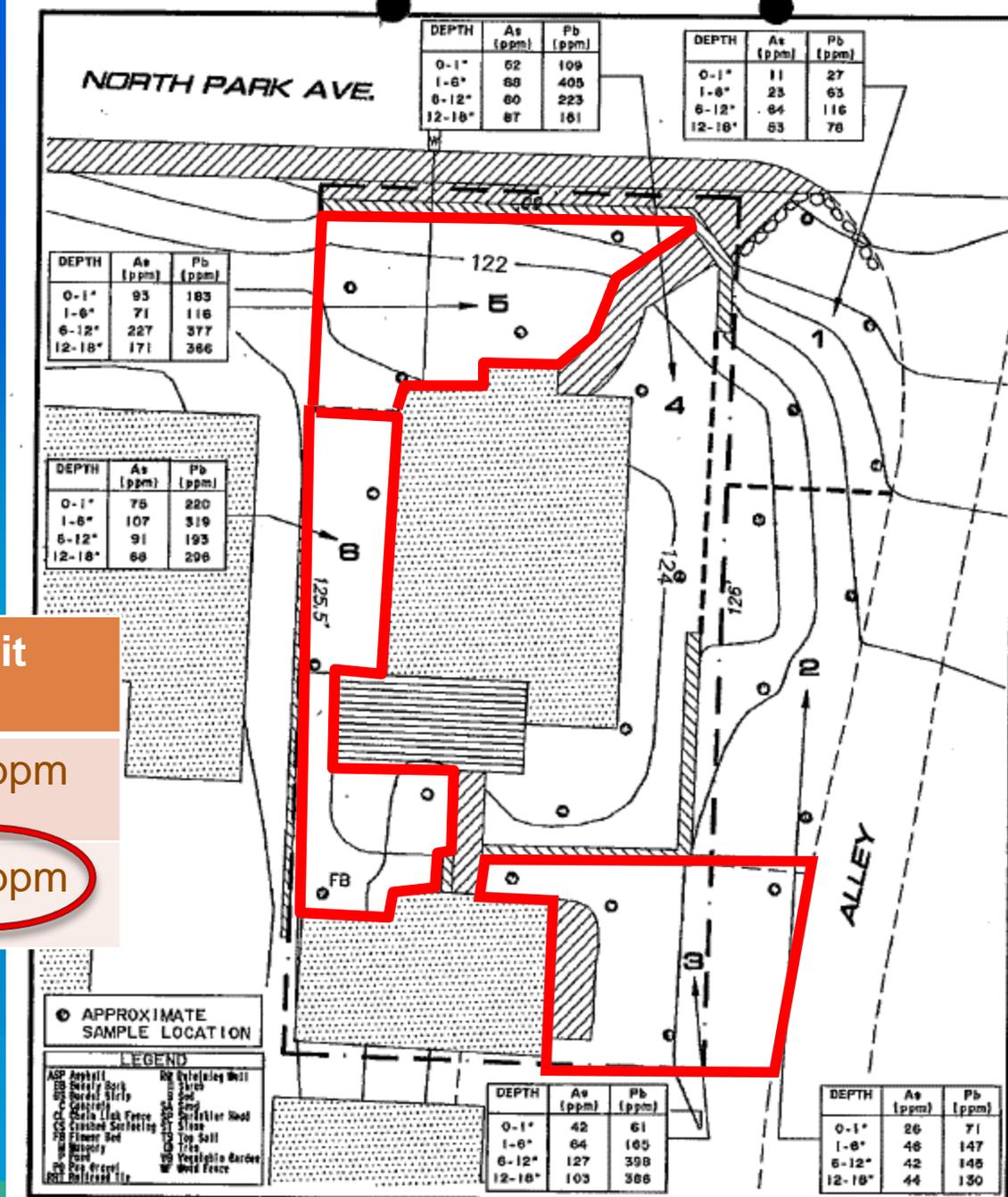
Subunit Y1 is >100 ppm for Arsenic

Inside the Study Area

EPA Property qualifies for soil replacement

| Depth | Parcel average | Subunit max |
|-------|----------------|-------------|
| 0-6" | 64 ppm | 101 ppm |
| 6-12" | 100 ppm | 227 ppm |

Subunits 3, 5, 6 are >100 ppm



Planning Visit Coordinators



Aaron Waggoner
GeoEngineers
Awaggoner@geoengineers.com
(253) 722-2449



1st Planning Meeting

- Sampling results
- Measurements and photos
- Excluded areas
- Access
- Restoration options
- Timeline



Before the 1st meeting

Consider:

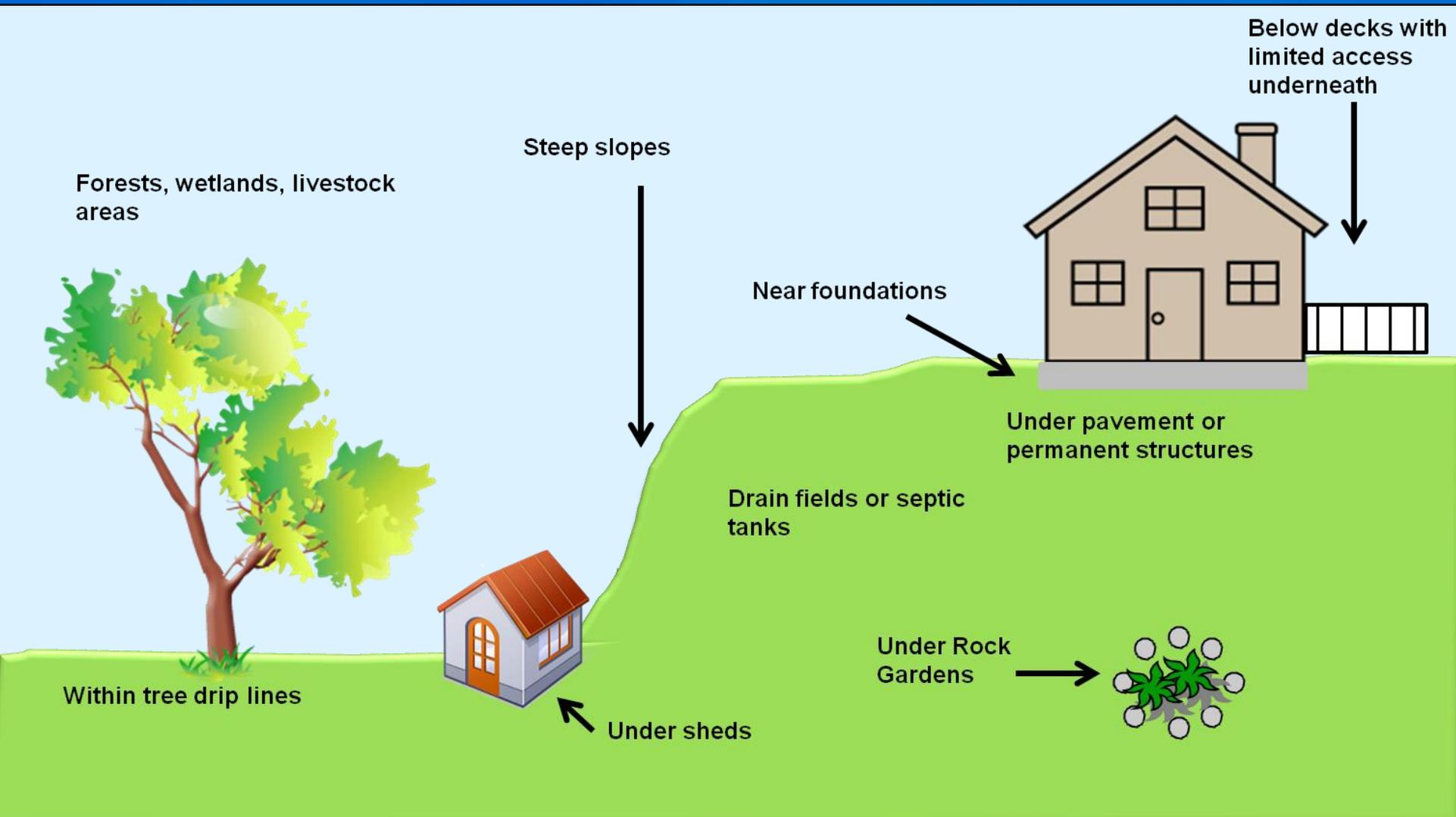
- Plants
- Landscaping
- Utilities
- Pets



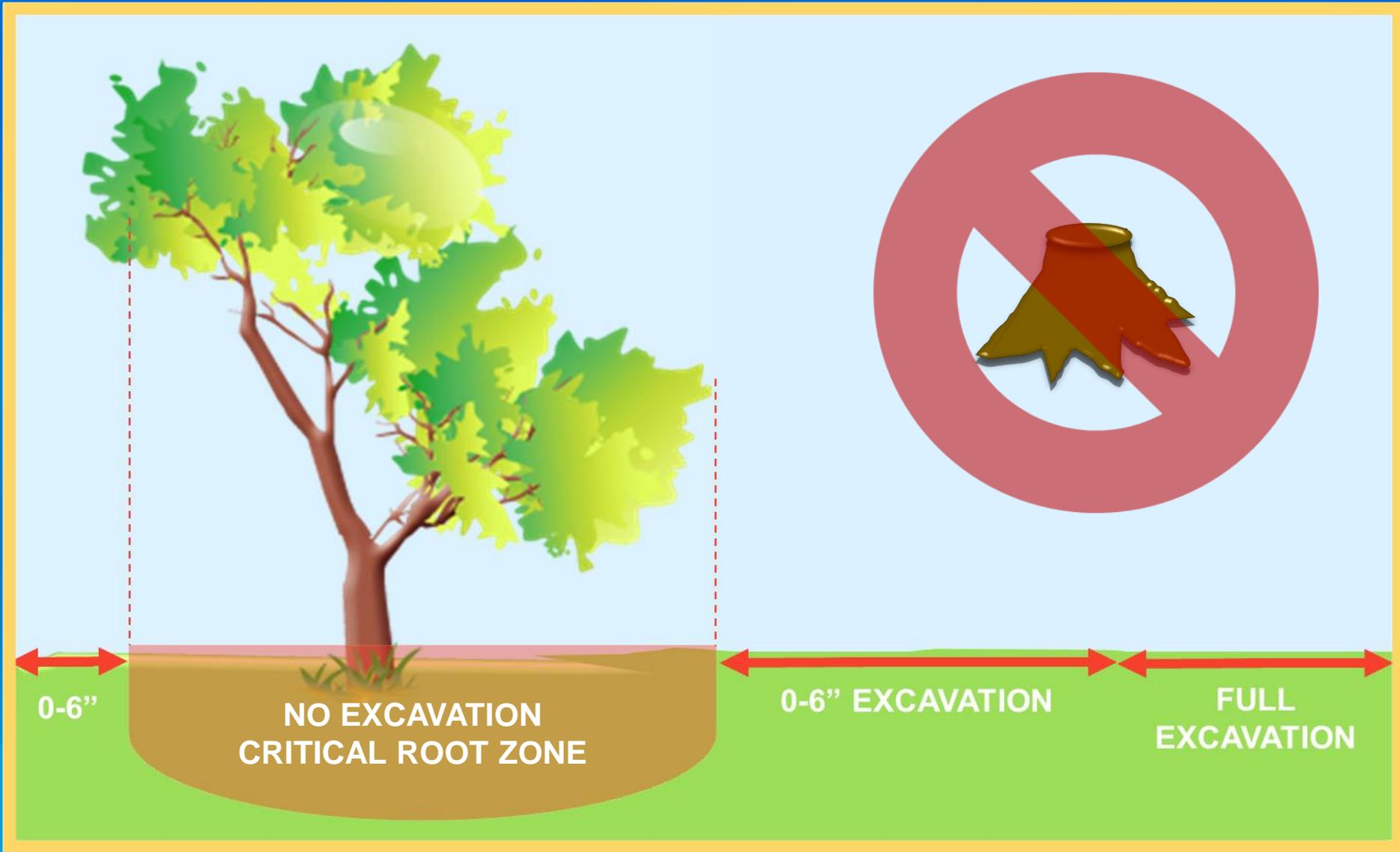
Restoration options



Areas that are Excluded



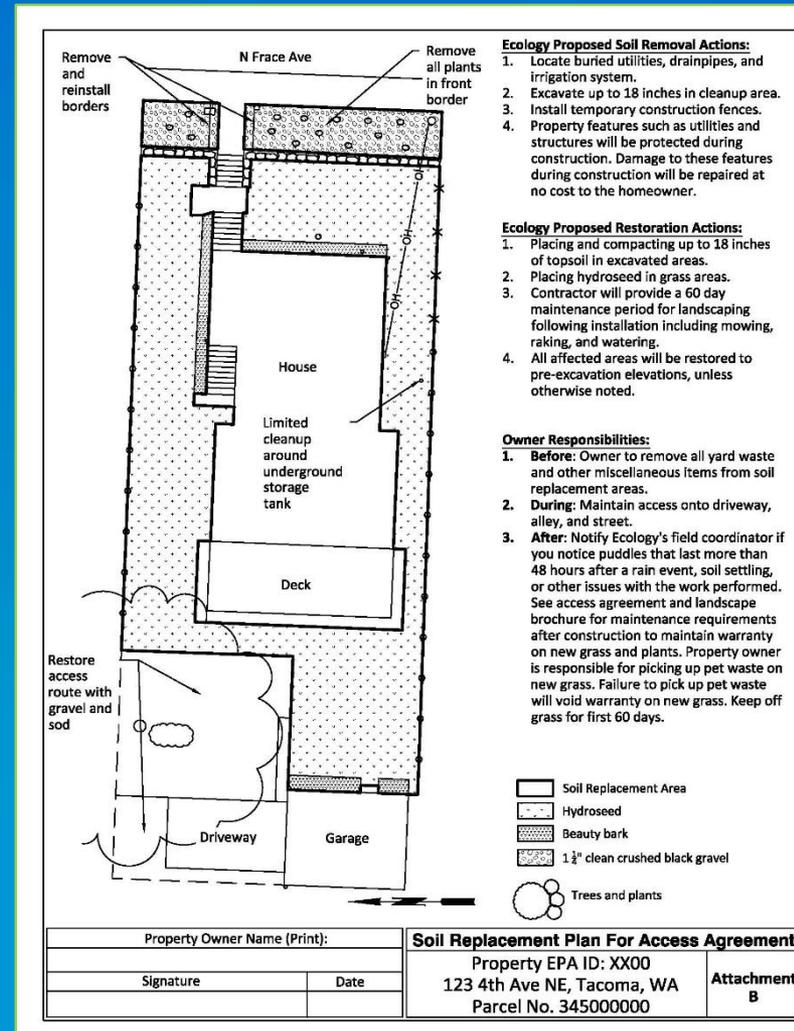
Tree Critical Root Zones



Draft Plan/Agreement

Includes:

- Soil replacement
- Restoration Information
- Owners Responsibilities



2nd Planning Meeting

- Review the draft plan
- Review the agreement
- Sign the plan & agreement

We approve of the recommended Yard Program Cleanup and Restoration Plan as attached, and agree to follow the plan under the conditions in this agreement.

Rebecca S. Lawson, PE, LHG
Regional Section Manager
Toxics Cleanup Program
Southwest Regional Office
Washington Department of Ecology

Date

[PROPERTY OWNER NAME]

Date

(13) Cleanup enforcement

Ecology's general policy is to not enforce cleanup against residential home owners. Ecology will not require further action unless contamination poses an immediate and serious threat to human or environmental health.

(14) Other information about the agreement:

This agreement is the entire agreement between the parties. Changes to this agreement are only valid if they are put in writing and signed by the Ecology and the property owner. This agreement shall be interpreted in accordance with the laws of the State of Washington. This agreement shall be effective as of the date signed.

We approve of the recommended Yard Program Cleanup and Restoration Plan as attached, and agree to follow the plan under the conditions in this agreement.

Rebecca S. Lawson, PE, LHG
Regional Section Manager
Toxics Cleanup Program
Southwest Regional Office
Washington Department of Ecology

Date

[PROPERTY OWNER NAME]

Date

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Owner Initials: _____

General Timeline

1. Out to Bid

2. General pre-construction meeting

3. Contract Award

4. Property Sequence/Letter with
Contract Start Date

5. Individual pre-construction meeting
(1 week prior to construction start)

Soil Removal Process



Soil Replacement Process



Landscape Restoration



Landscape Care

A new lawn needs extra care, water and fertilizer:

- Keep you and your pets off the grass
- Water weekly
- Fertilize in the spring and fall

Lawn and Plant Care After Soil Cleanup



Tacoma Smelter Plume

March 2014

You should now be caring for your new lawn and landscape. Ecology has a one year warranty for the work done on your property but **only if you follow all of these lawn care recommendations**. If you have any questions, please call Ecology at (360) 407-7688.

1. Water your lawn and plants

Water your new lawn and plants regularly from May to October. In the summer, lawns need one inch of water per week. Plants may need less but watch for signs of wilting.



- During the first year, water twice a week; during the second year and beyond, water one time per week.
- Water more if you see a blue or gray tint, brown spots, or if footprints stay for more than 30 seconds.
- Water in early morning to reduce evaporation. Water when "dew" usually appears naturally.
- Lay soaker hoses or drip lines on new plants and shrubs. You'll use less water and plants will be healthier, with fewer weeds or diseases. Cover them with mulch for more water savings and less work.

2. Fertilize your lawn

As part of cleanup, Ecology's contractors will apply fertilizers to your lawn immediately after cleanup. However, you should apply additional fertilizer the next spring and fall.



- Use organic and slow release fertilizers; they feed your lawn for a longer period of time.
- Use fertilizers high in nitrogen but no more than 18%.
- Fertilize in spring (April or May) and again in fall (October or November) to build strong roots.
- Apply fertilizer evenly to prevent your lawn from developing 'bands' of different colors.
- For more information about fertilizers, we recommend visiting your garden supply store.

3. Keep dogs off new lawn and pick up pet waste

Dogs can cause damage to lawns with their paws and waste. Dog paws may compact soil. Dog waste can be highly acidic, leaving dead spots if left too long.



- Pick up pet waste daily to make sure you do not create any dead spots.
- Keep pets off the grass as much as possible to reduce wear on the new lawn.

4. Leave lawn at least 2-3 inches high

This will help protect your lawn from drought and reduce chances of weed invasion. A longer length will also help to establish a healthy root system.

- Taller grass means deeper roots. You may need to adjust your lawn mower's clipper height to ensure the cut grass is not too short.
- Mow high and leave lawn clippings on lawn to recycle nutrients. Shorter clippings decompose quickly.



Publication Number: 14-09-143

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Please reuse and recycle

Landscape Care

Call Ecology immediately if you notice settling or water pooling for more than 48 hours.



New lawn is planted

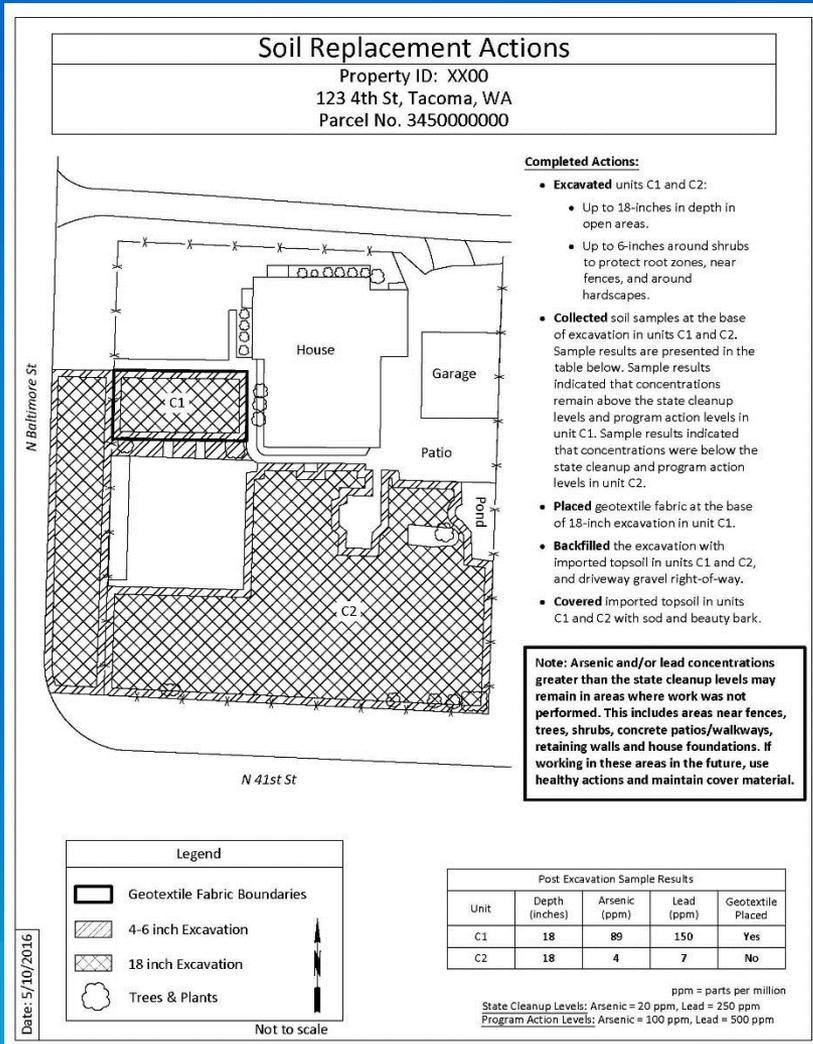
- 1-2" of water per week
- Pick up pet waste
- Compost and fertilize

Ecology takes quarterly photos

Ecology completes a final inspection

1 year

Completion Packet



Completion Packet

- Mailed to homeowner and put on public database



Arsenic in Soil Database



Arsenic in Soil Database (AREIS)



Find Property



Project Information

Arsenic and lead in the soil

The mining company Asarco once operated two copper smelters in Washington State; in Everett and Tacoma. Emissions of arsenic and lead contaminated soils for miles around the former stacks.

The [Tacoma Smelter Plume](#) covers 1,000 square miles of King, Pierce, and Thurston counties. Ecology and [EPA](#) have been cleaning up yards and play areas in Tacoma since 1993. The [Everett Smelter](#) contaminated a one square mile area in north Everett. Ecology has been cleaning up yards in Everett since 1999.

[Information about arsenic and lead](#)

[Healthy Actions](#) to reduce contact with soil

Search here for soil sampling results and cleanup records!

Right now, the database only has records for 2,000 properties in Ruston and north Tacoma.

1. Enter your address or parcel number and click "search."
2. You will see a map of the area.
3. The property you searched for should be in the center of the screen. Click on the dot, check the address and see what records are available.

I can't find my property/I live outside of north Tacoma

Within the next year, we plan to add records for the Everett smelter cleanup and more areas of the Tacoma Smelter Plume.

Search for a Property

 Address search

(do not include the city or state)

- OR -

 Parcel search

Health Effects

Arsenic and lead can contribute to poor health, especially in children. Children are more sensitive because their bodies are smaller and still developing.

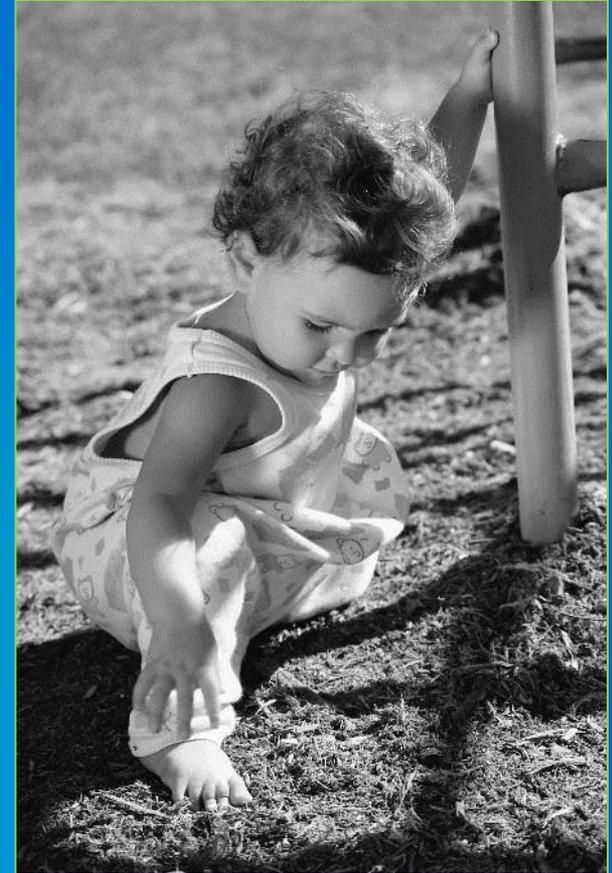
Lead can cause developmental disabilities in children and can permanently lower I.Q.



Arsenic can contribute to cancer, diabetes and heart disease later in life.

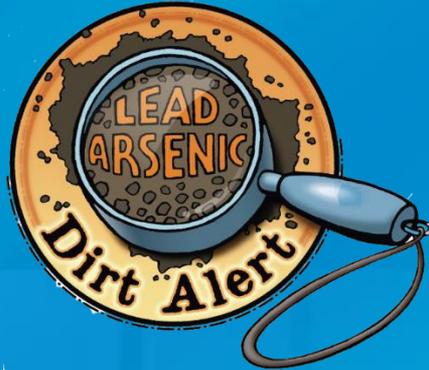
Health Effects

- Know the portions of your yard getting soil replacement.
- The health concern is from long-term exposure to arsenic & lead.
- Exposure comes from breathing and swallowing dust or soil.
- Children are most at risk.



Healthy Actions

- Remove your shoes.
- Wash hands with plenty of soap and water.
- Mop, damp-dust and vacuum regularly.



Healthy Actions

- Keep pets clean.
- Give pets their own bed.
- Wipe pets' paws before entering the house.
- Eat a healthy diet.



Gardening in contaminated soil

- Wear gloves and wash hands.
- Wear a dust mask during dry weather.
- Don't wear dirty work clothes into the house.
- Wash dirty or muddy clothes separately.
- Cover bare patches of soil in the yard.



Growing Fruits and Vegetables

- Garden in raised beds or ceramic pots.
- Wash and peel your produce.
- Mix compost or manure into your bed.
- Ask your soil supplier about soil quality.



Soil Sampling and Health Questions

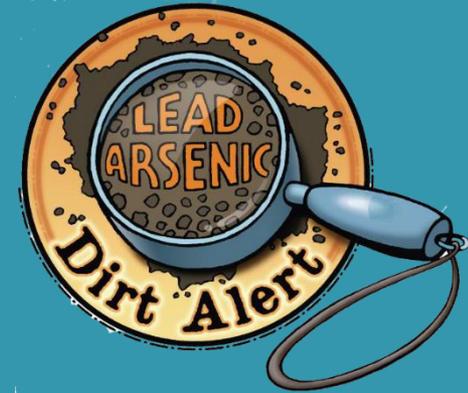
Contact

Jeremy Bush

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Phone: (253) 255-8135

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Questions?



Contact

Crescent Calimpong, Outreach Coordinator

Email: Crescent.Calimpong@ecy.wa.gov

Phone: (360) 407-6790

Amy Hargrove, Remediation Manager

Email: Amy.Hargrove@ecy.wa.gov

Phone: (360) 407-6262

Website: ecy.wa.gov/toxics/tacoma-smelter.html



DEPARTMENT OF
ECOLOGY
State of Washington

Questions?

Please stick around to schedule an appointment