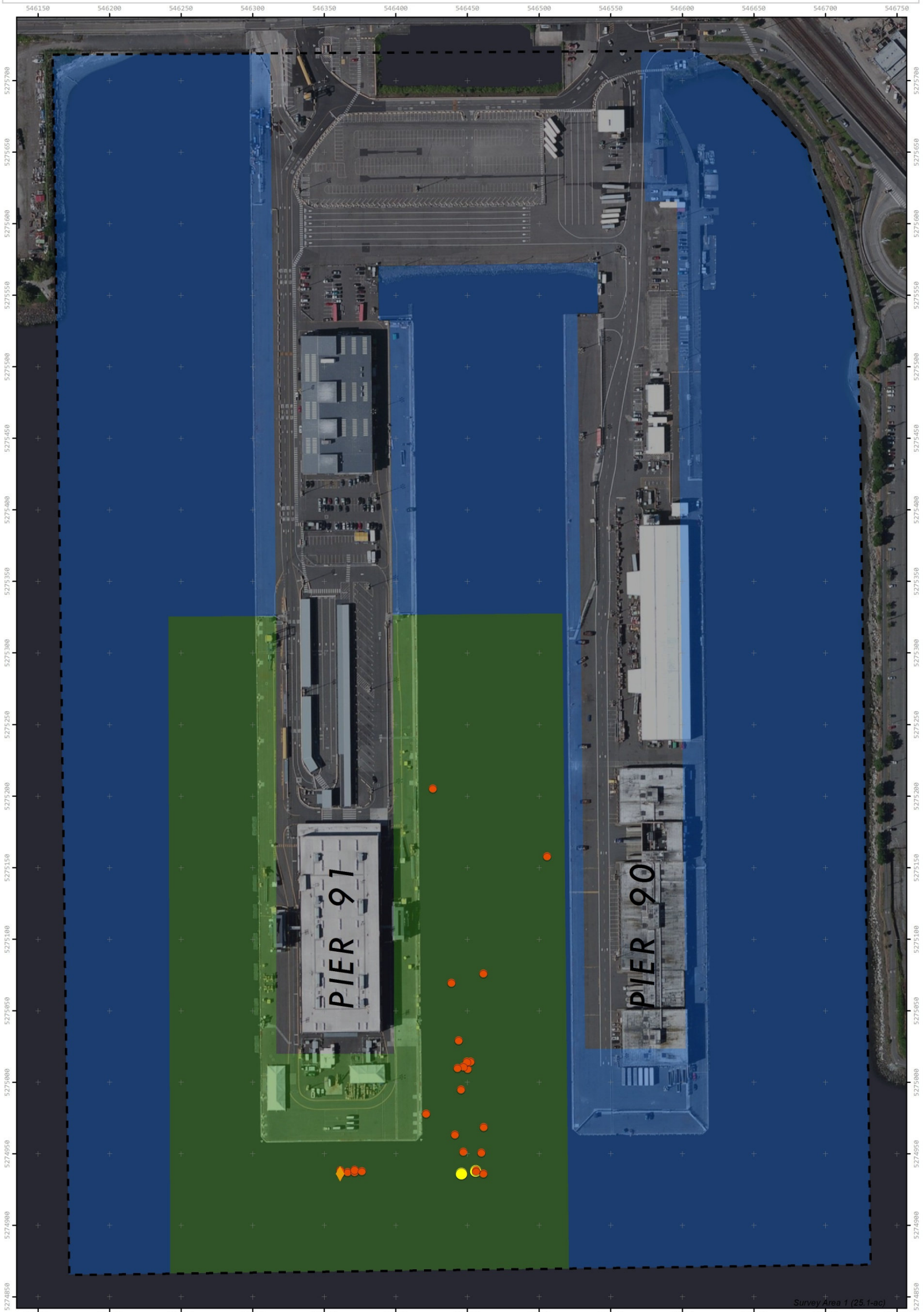


FORMER SEATTLE NAVAL SUPPLY DEPOT MUNITIONS RESPONSE SITES



PORT OF SEATTLE
 Piers 90 and 91
 Elliott Bay
 Seattle, WA

Map Units: Meters | Coordinate System: NAD 1983 UTM Zone 10N

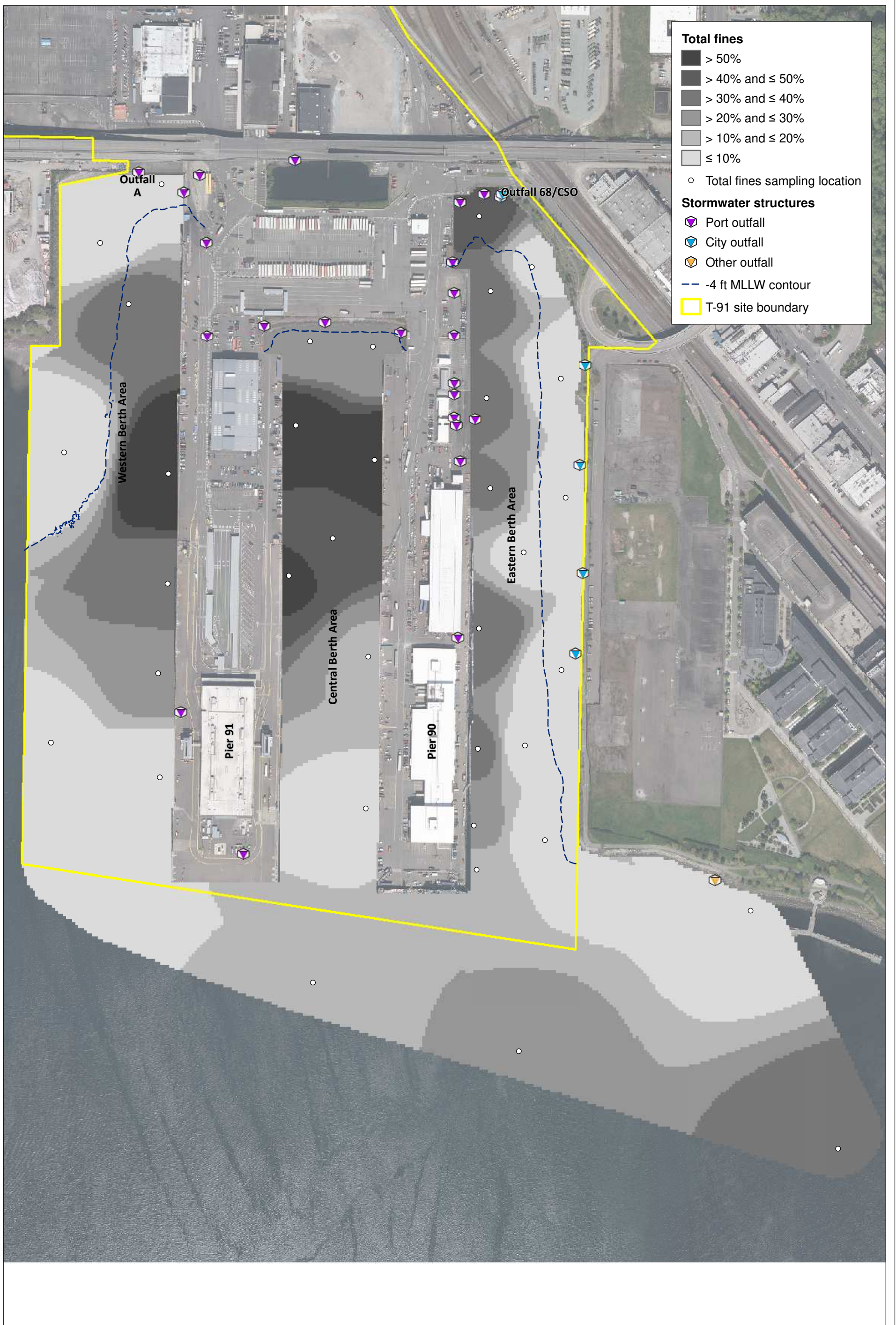
	Munitions Response Area (116.1-ac)		DMM Item Found On Surface		FSNSD MRS (25.2 acres)
	Sampling Location above LOQ		DMM Item Found Below Surface		FSNSDa MRS (61.5 acres)



Created By	P. Hille	Checked By	GMF	Approved By	D. Jennings
On	04/08/2013	On	04/08/2013	On	04/08/2013

Map 2-7. DMM locations from USACE (2013)

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Total fines

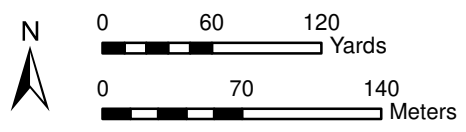
- > 50%
- > 40% and ≤ 50%
- > 30% and ≤ 40%
- > 20% and ≤ 30%
- > 10% and ≤ 20%
- ≤ 10%

○ Total fines sampling location

Stormwater structures

- ◆ Port outfall
- ◆ City outfall
- ◆ Other outfall
- - -4 ft MLLW contour
- T-91 site boundary

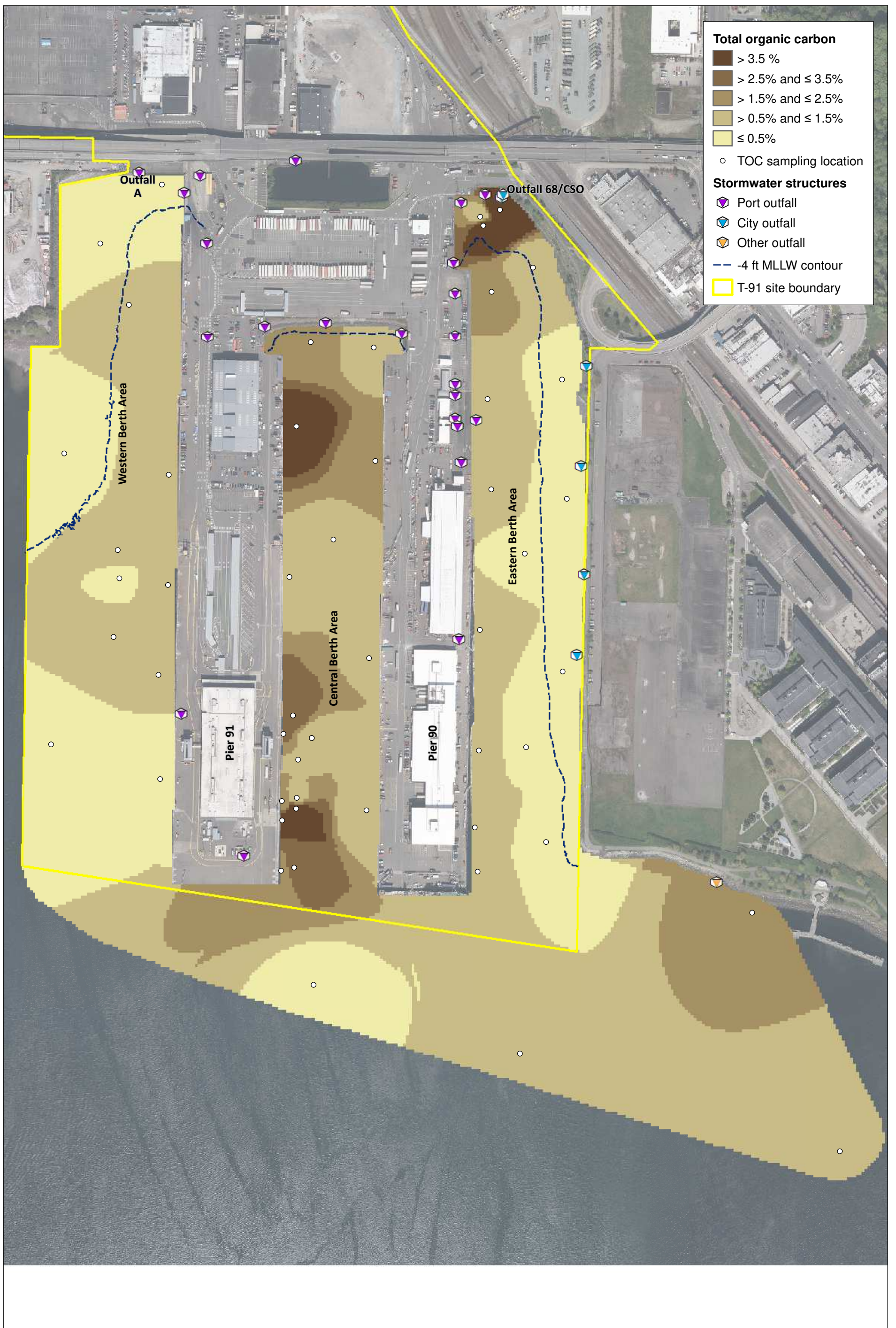
Aerial photo credit: Port of Seattle 2016, photo date unknown



Map 3-1. Sediment percent fines

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Prepared by nicolase, 12/30/2020; W:\Projects\Port of Seattle - T-91 RIFSGIS\Maps and Analyses\Work Plan\Map 3-1 7205 Total fines.surfced - IDW.mxd



Total organic carbon

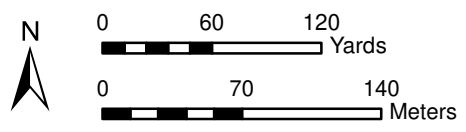
- > 3.5 %
- > 2.5% and $\le 3.5\%$
- > 1.5% and $\le 2.5\%$
- > 0.5% and $\le 1.5\%$
- $\le 0.5\%$

○ TOC sampling location

Stormwater structures

- Port outfall
- City outfall
- Other outfall
- - - -4 ft MLLW contour
- T-91 site boundary

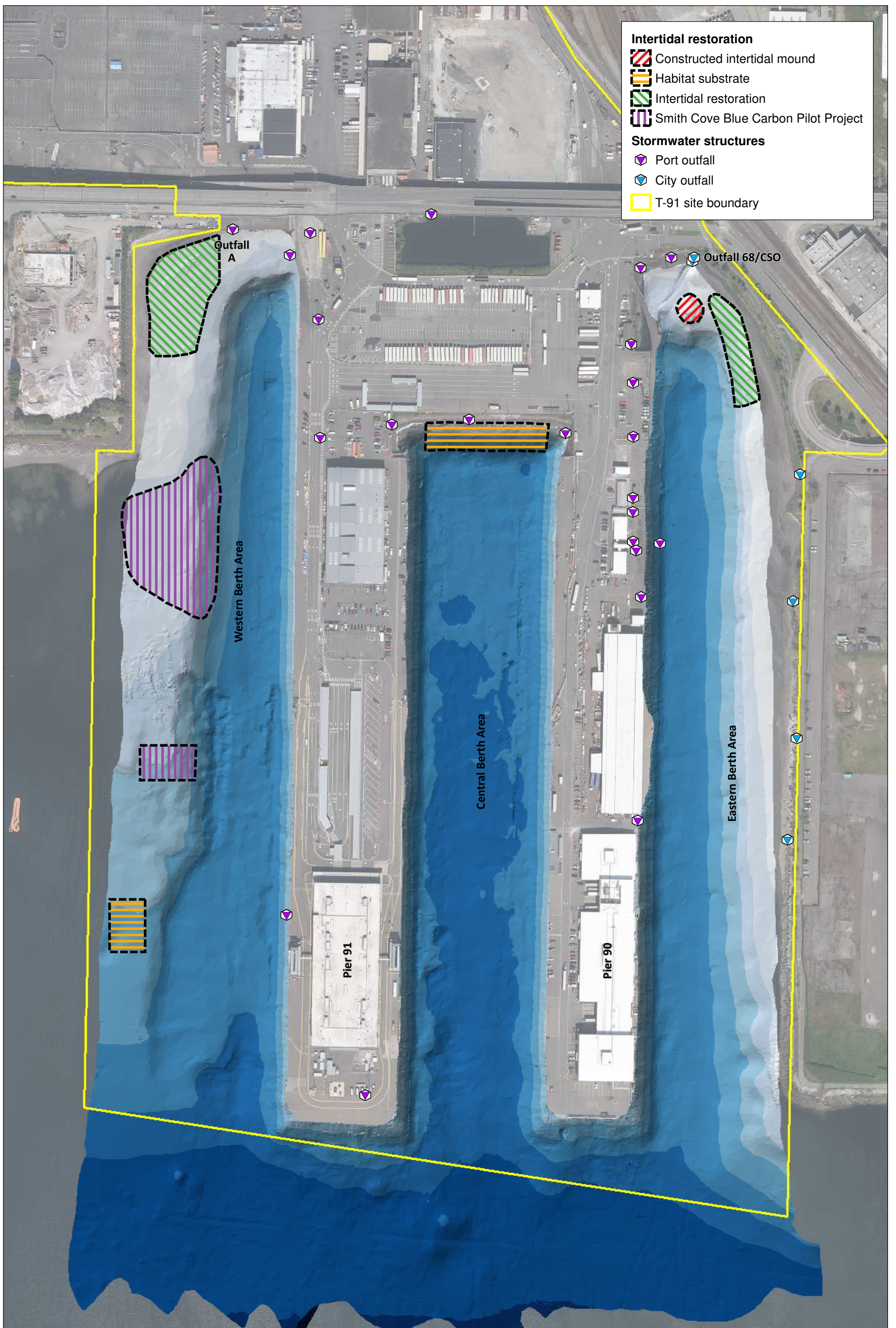
Aerial photo credit: Port of Seattle 2016, photo date unknown



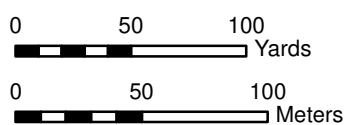
Map 3-2. Sediment total organic carbon

DRAFT

Prepared by nicolase, 12/30/2020; W:\Projects\Port of Seattle - T-91 RIFSGIS\Maps and Analyses\Work Plan\Map 3-2 7205 Total TOC surfed - IDW.mxd



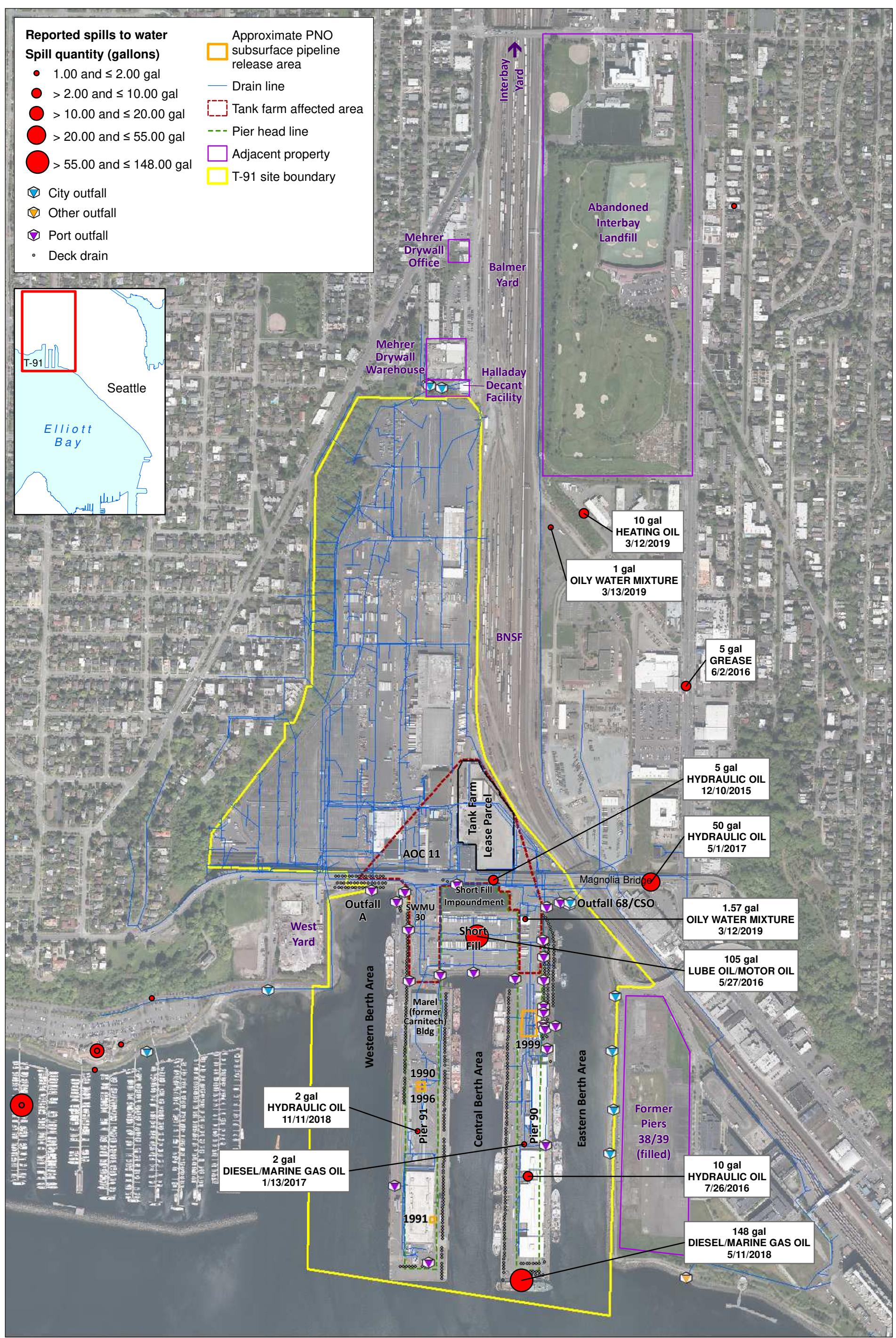
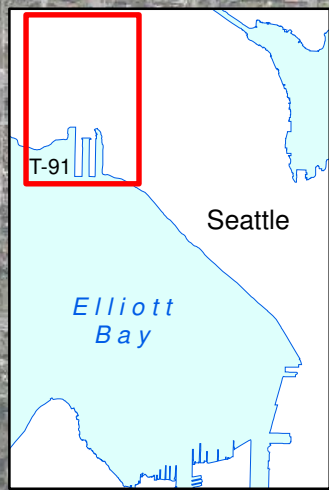
Aerial photo credit: Port of Seattle 2016, photo date unknown



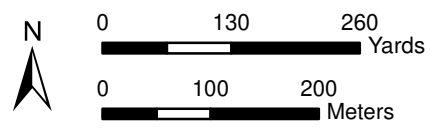
Map 3-3. Constructed habitat areas

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- Reported spills to water**
- Spill quantity (gallons)**
- 1.00 and ≤ 2.00 gal
 - > 2.00 and ≤ 10.00 gal
 - > 10.00 and ≤ 20.00 gal
 - > 20.00 and ≤ 55.00 gal
 - > 55.00 and ≤ 148.00 gal
- Approximate PNO subsurface pipeline release area
 - Drain line
 - Tank farm affected area
 - Pier head line
 - Adjacent property
 - T-91 site boundary
- ◇ City outfall
 - ◇ Other outfall
 - ◇ Port outfall
 - Deck drain



Aerial photo credit: Port of Seattle 2016, photo date unknown



Map 3-4. Outfalls and drainage areas

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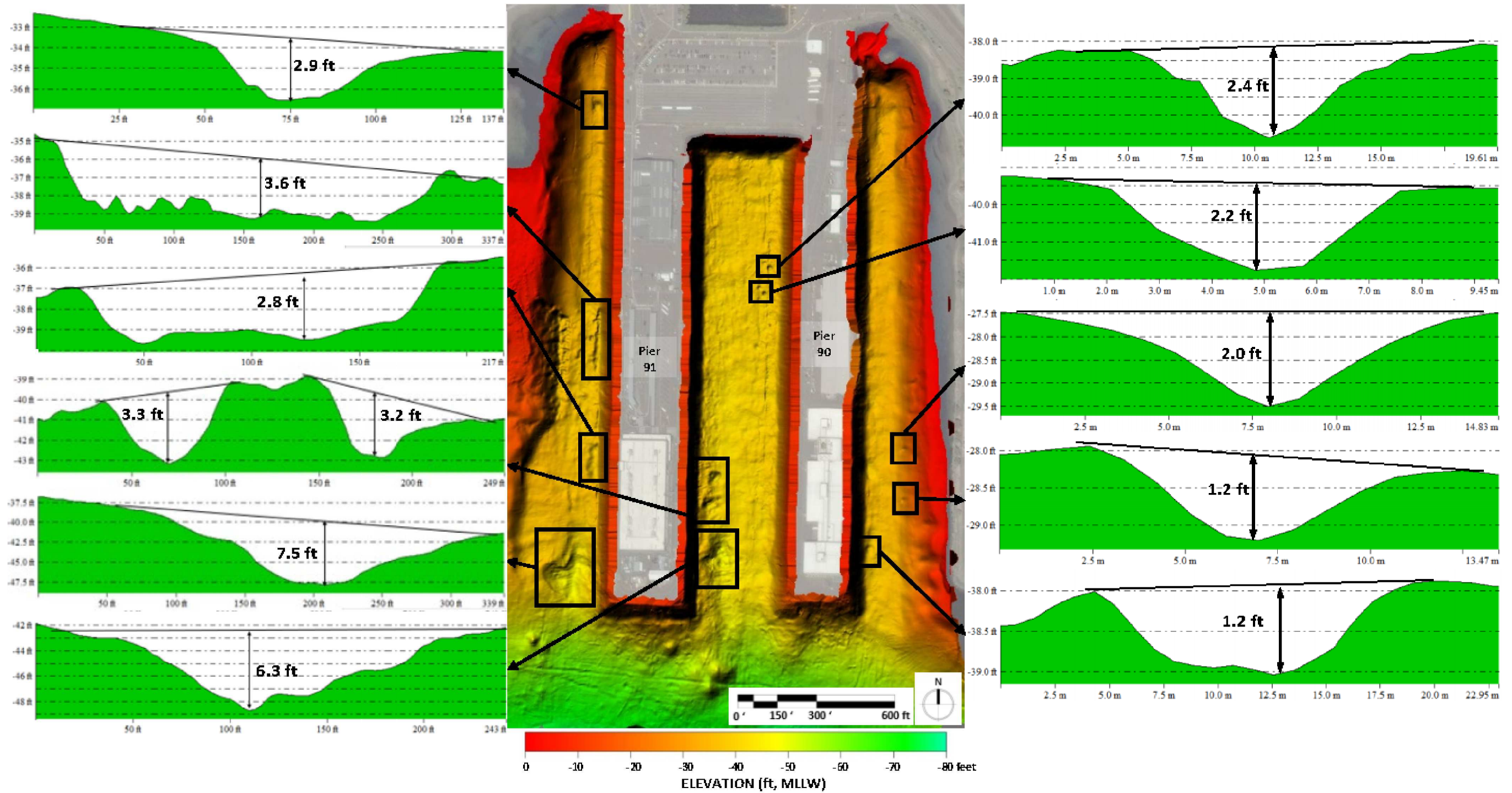
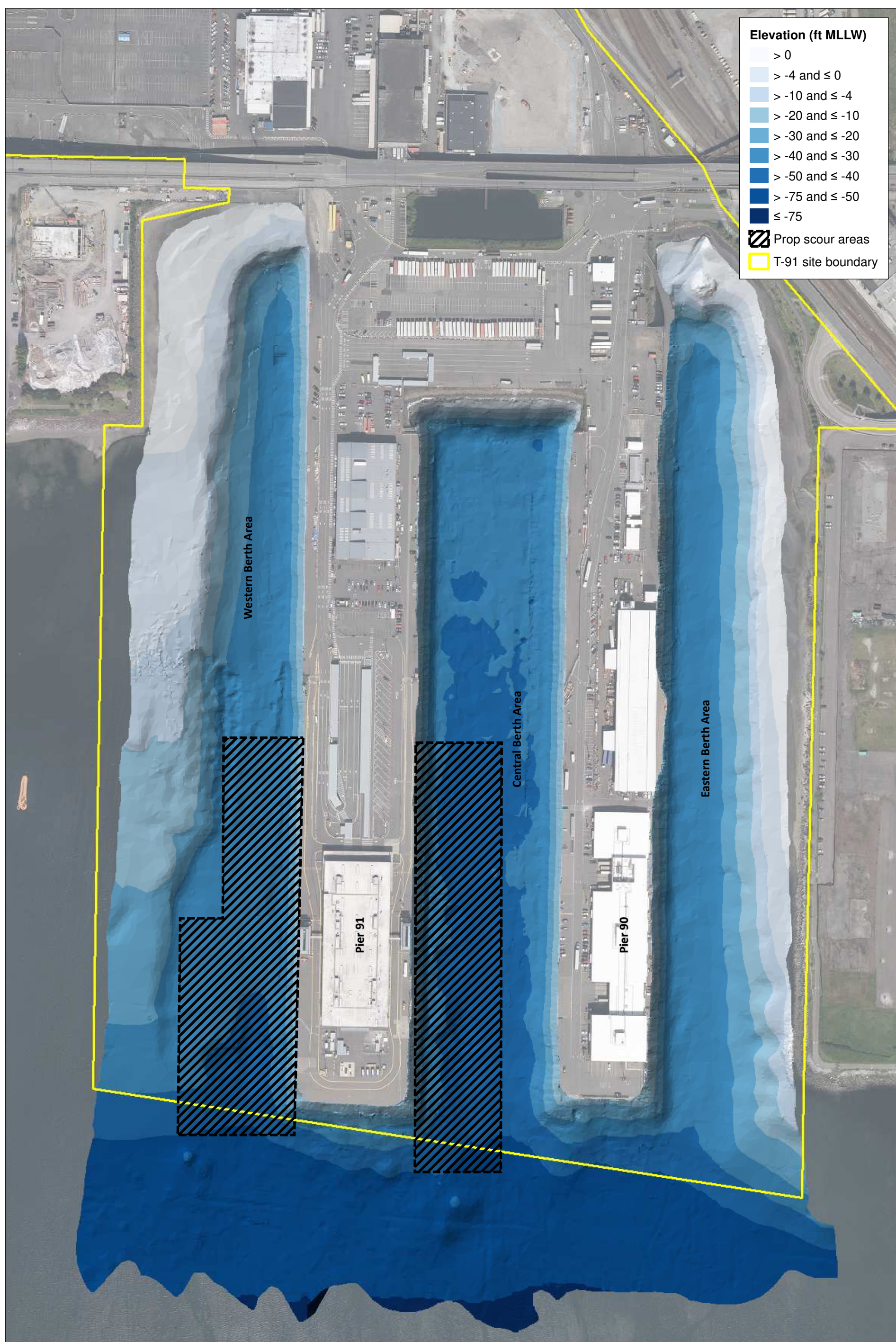
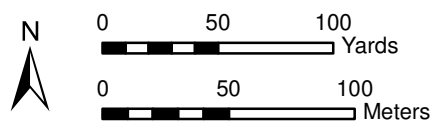


Image originally created by and used with the permission of Blue Coast Engineering.

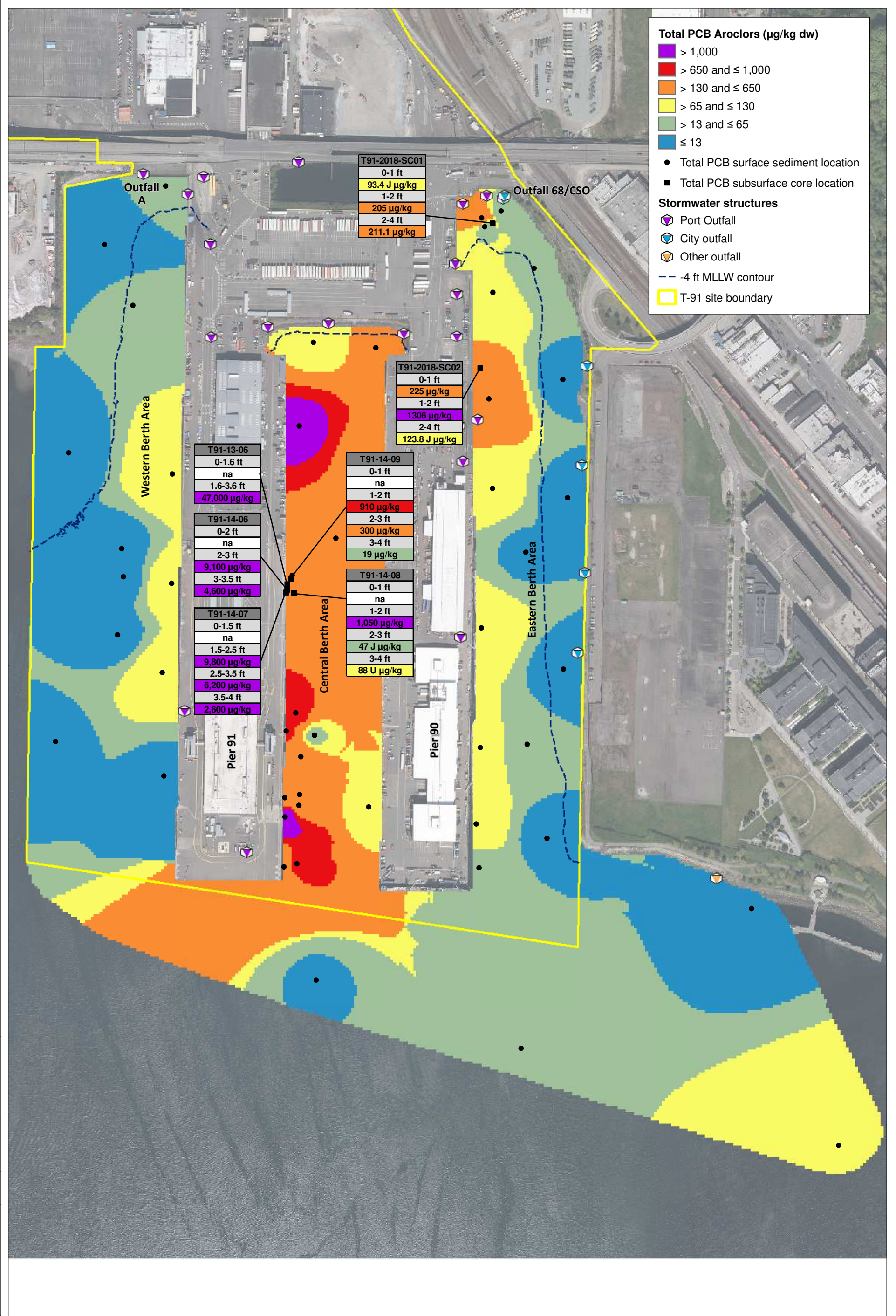


Aerial photo credit: Port of Seattle 2016, photo date unknown



Map 3-6. Preliminary areas of concern for propeller scour

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Total PCB Aroclors ($\mu\text{g}/\text{kg dw}$)

- > 1,000
- > 650 and \leq 1,000
- > 130 and \leq 650
- > 65 and \leq 130
- > 13 and \leq 65
- \leq 13

• Total PCB surface sediment location
 ■ Total PCB subsurface core location

Stormwater structures

- Port Outfall
- City outfall
- Other outfall
- - -4 ft MLLW contour
- T-91 site boundary

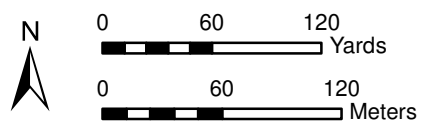
T91-13-06
0-1.6 ft
na
1.6-3.6 ft
47,000 $\mu\text{g}/\text{kg}$
T91-14-06
0-2 ft
na
2-3 ft
9,100 $\mu\text{g}/\text{kg}$
3-3.5 ft
4,600 $\mu\text{g}/\text{kg}$
T91-14-07
0-1.5 ft
na
1.5-2.5 ft
9,800 $\mu\text{g}/\text{kg}$
2.5-3.5 ft
6,200 $\mu\text{g}/\text{kg}$
3.5-4 ft
2,600 $\mu\text{g}/\text{kg}$

T91-14-09
0-1 ft
na
1-2 ft
910 $\mu\text{g}/\text{kg}$
2-3 ft
300 $\mu\text{g}/\text{kg}$
3-4 ft
19 $\mu\text{g}/\text{kg}$
T91-14-08
0-1 ft
na
1-2 ft
1,050 $\mu\text{g}/\text{kg}$
2-3 ft
47 J $\mu\text{g}/\text{kg}$
3-4 ft
88 U $\mu\text{g}/\text{kg}$

T91-2018-SC01
0-1 ft
93.4 J $\mu\text{g}/\text{kg}$
1-2 ft
205 $\mu\text{g}/\text{kg}$
2-4 ft
211.1 $\mu\text{g}/\text{kg}$

T91-2018-SC02
0-1 ft
225 $\mu\text{g}/\text{kg}$
1-2 ft
1306 $\mu\text{g}/\text{kg}$
2-4 ft
123.8 J $\mu\text{g}/\text{kg}$

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Map 3-7. Surface sediment interpolated PCB concentrations and subsurface sediment PCB concentrations

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cPAH TEQ ($\mu\text{g}/\text{kg dw}$) in surface sediment

- > 20,000
- > 10,000 and \leq 20,000
- > 5,000 and \leq 10,000
- > 1,000 and \leq 5,000
- > 310 and \leq 1,000
- \leq 310

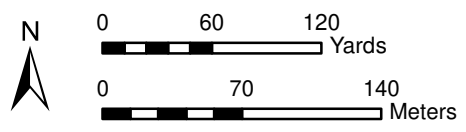
- cPAH surface sediment sampling location

Stormwater structures

- ▲ Port outfall
- ▲ City outfall
- ▲ Other outfall
- - -4 ft MLLW contour
- T-91 site boundary

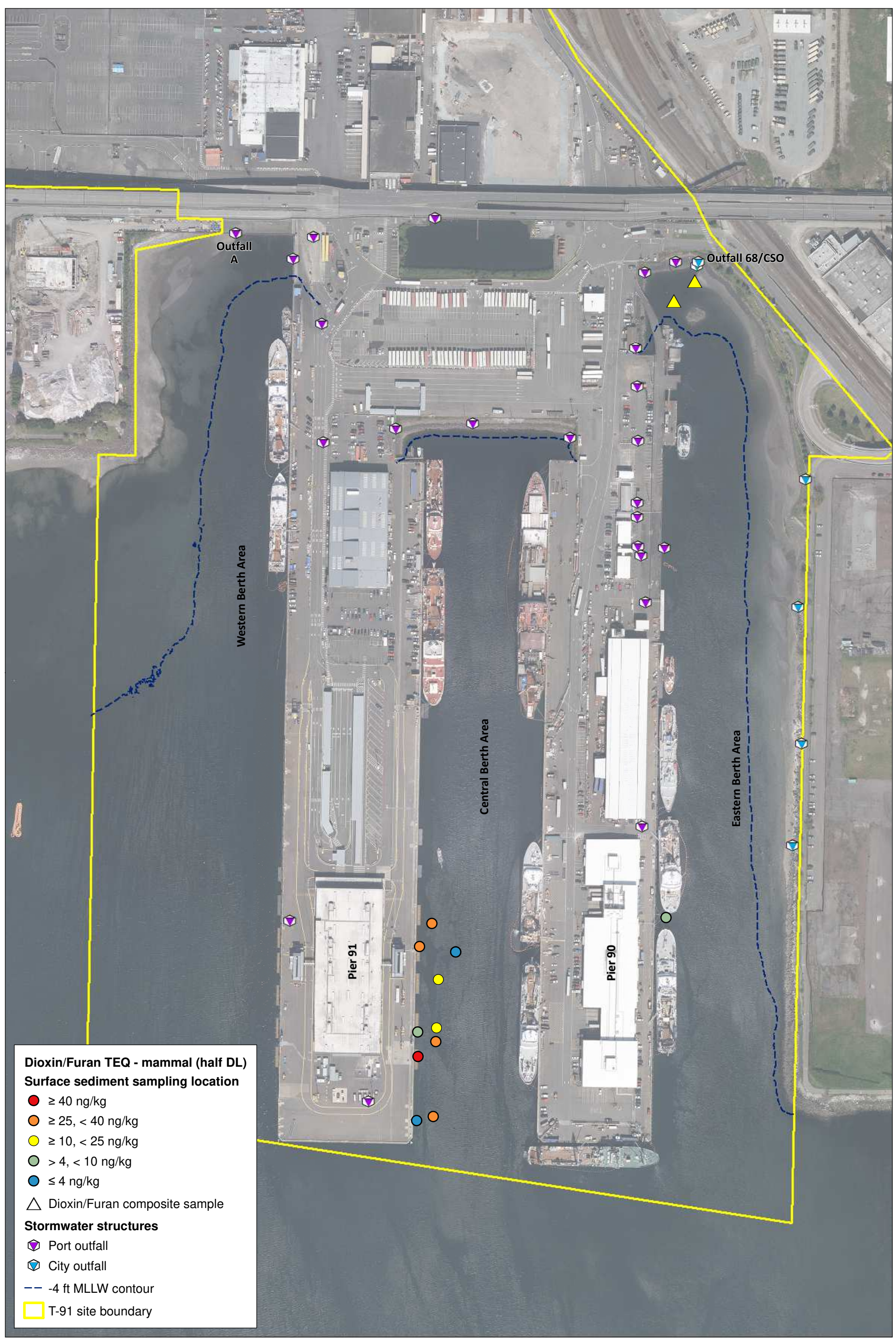
Prepared by nicolase, 12/30/2020; W:\Projects\Port of Seattle - T-91 RIFSGIS\Maps and Analyses\Work Plan\Map 3-8 7228 cPAH Surface Sediment Interpolation.mxd

Aerial photo credit: Port of Seattle 2016, photo date unknown



Map 3-8. Surface sediment interpolation of cPAH TEQ values

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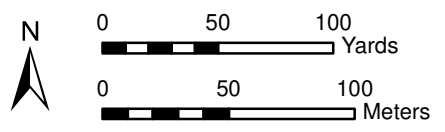
Dioxin/Furan TEQ - mammal (half DL)
Surface sediment sampling location

- ≥ 40 ng/kg
- ≥ 25, < 40 ng/kg
- ≥ 10, < 25 ng/kg
- > 4, < 10 ng/kg
- ≤ 4 ng/kg
- △ Dioxin/Furan composite sample

Stormwater structures

- ◆ Port outfall
- ◆ City outfall
- - -4 ft MLLW contour
- T-91 site boundary

Aerial photo credit: Port of Seattle 2016, photo date unknown



Map 3-9. Dioxin/Furan TEQ values

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- Surface sediment SMS exceedance status**
- \geq CSL exceedances
 - $>$ SCO and \leq CSL exceedances
 - No exceedances
- Total organic carbon**
- $<$ 0.5%
 - $>$ 3.5%
- Stormwater structures**
- ◆ Port outfall
 - ◆ City outfall
 - - -4 ft MLLW contour
 - T-91 site boundary



Outfall A

Outfall 68/CSO

Western Berth Area

Central Berth Area

Eastern Berth Area

Pier 91

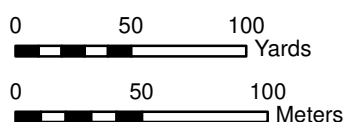
Pier 90

Box Legend

Location Name	
Analyte	Exceedance Factor
Total PCBs	2.2
PAHs	1.2

Black text represents SCO exceedance
Red text represents CSL exceedance

Aerial photo credit: Port of Seattle 2016, photo date unknown



Map 3-10. SMS exceedance map

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