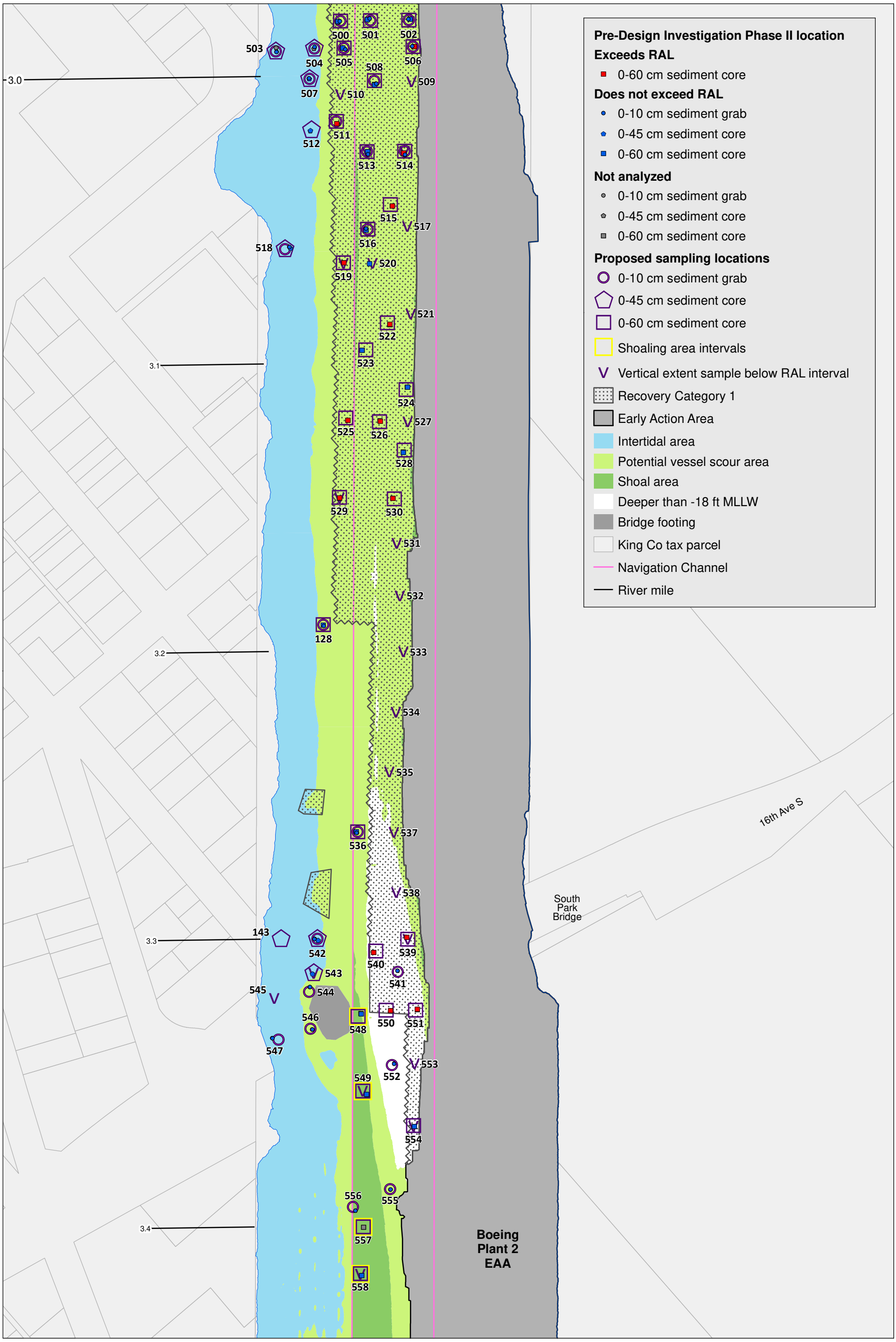


Windward environmental LLC

ANCHOR QEA

0 100 200 Feet

0 50 100 Meters

Lower Duwamish Waterway Group

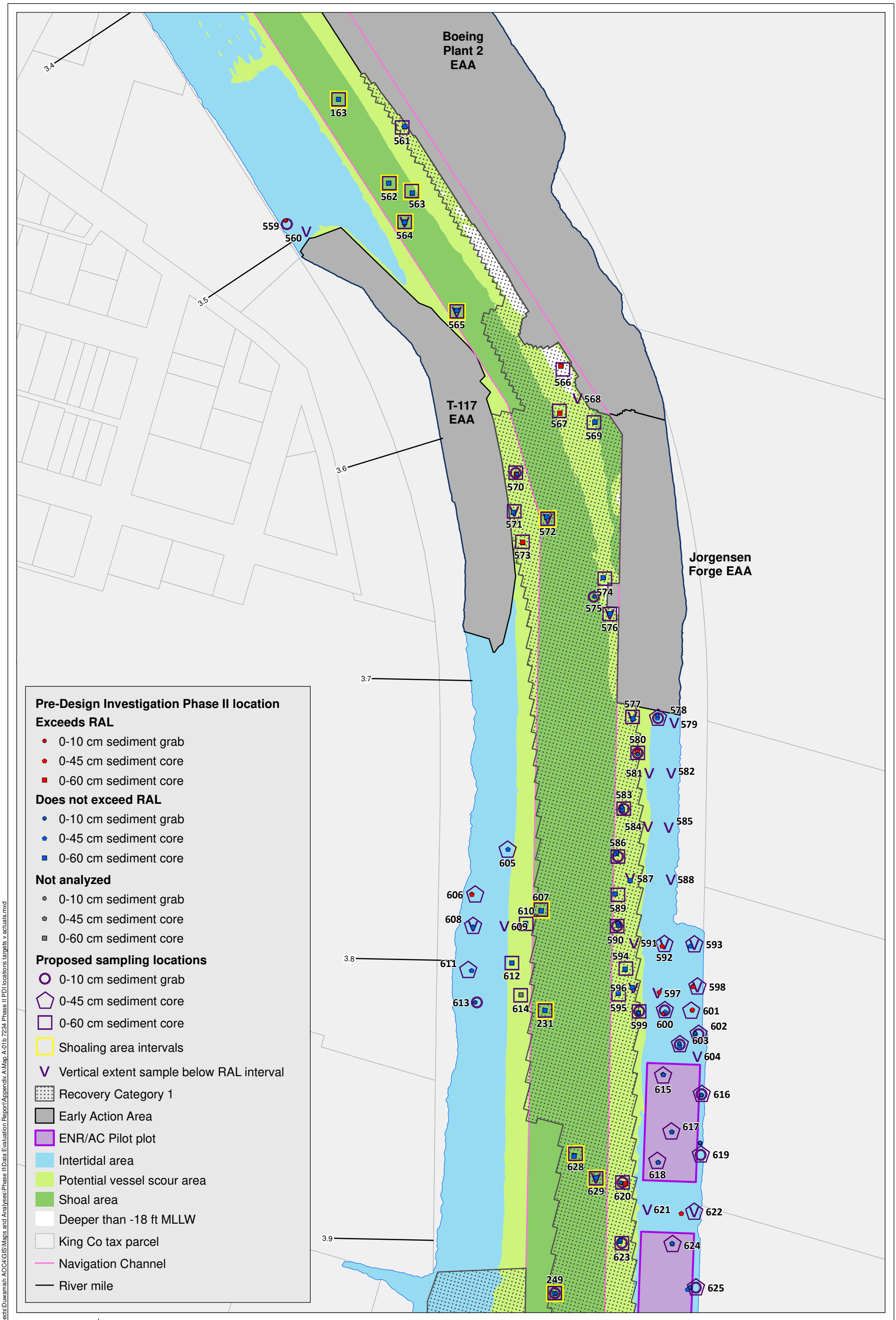
Port of Seattle / City of Seattle / King County / The Boeing Company

Map A-1a. Phase II PDI sediment sampling location targets versus actuals, RM 3.0 to RM 3.4

PRE-DESIGN INVESTIGATION DATA EVALUATION REPORT FOR THE LDW UPPER REACH

JULY 15, 2022

Prepared by craigh, 7/18/22: W:\Projects\Duwamish AOC4\GIS\Maps and Analyses\Phase II\Data Evaluation Report\Appendix A\Map A-01a 7234 Phase II PDI locations targets v actuals.mxd


Boeing Plant 2 EAA
T-117 EAA
Jorgensen Forge EAA
3.4
3.5
3.6
3.7
3.8
3.9
163
561
562
563
564
559
560
565
566
567
568
569
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602
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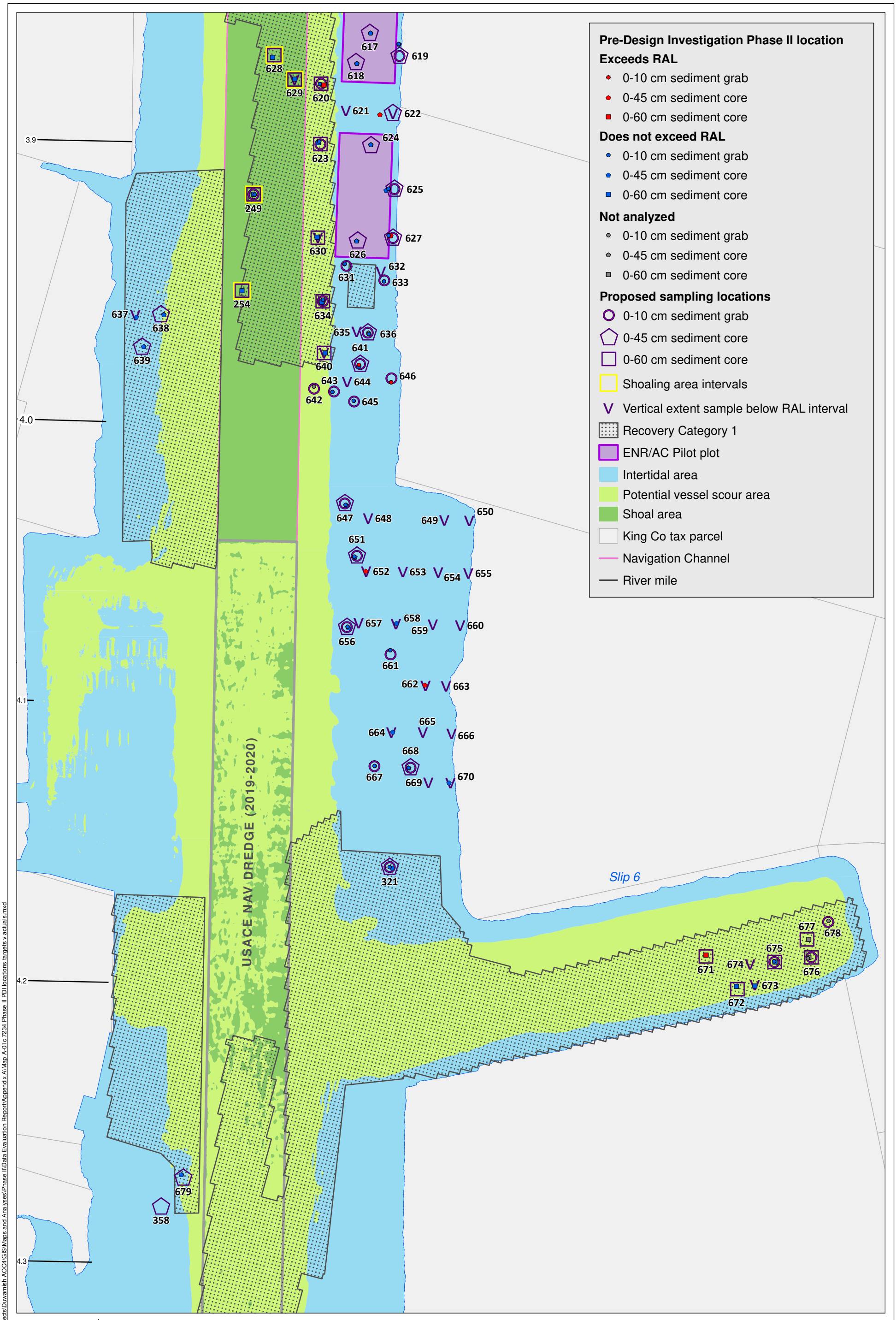
604
605
606
607
608
609
610
611
612
613
614
231
615
616
617
618
619
620
621
622
623
624
625
628
629
249
Pre-Design Investigation Phase II location
Exceeds RAL
0-10 cm sediment grab
0-45 cm sediment core
0-60 cm sediment core
Does not exceed RAL
0-10 cm sediment grab
0-45 cm sediment core
0-60 cm sediment core
Not analyzed
0-10 cm sediment grab
0-45 cm sediment core
0-60 cm sediment core
Proposed sampling locations
0-10 cm sediment grab
0-45 cm sediment core
0-60 cm sediment core
Shoaling area intervals
Vertical extent sample below RAL interval
Recovery Category 1
Early Action Area
ENR/AC Pilot plot
Intertidal area
Potential vessel scour area
Shoal area
Deeper than -18 ft MLLW
King Co tax parcel
Navigation Channel
River mile
Windward environmental LLC
ANCHOR QEA
Lower Duwamish Waterway Group
Port of Seattle / City of Seattle / King County / The Boeing Company
N
0 100 200 Feet
0 50 100 Meters
Map A-1b. Phase II PDI sediment sampling location targets versus actuals, RM 3.4 to RM 3.9
Pre-Design Investigation Data Evaluation Report for the LDW Upper Reach
JULY 15, 2022
Prepared by craigh, 7/15/22; W:\Projects\Duwamish AOC4\GIS\Maps and Analyses\Phase II\Data Evaluation Report\Appendix A\Map A-01b 7234 Phase II PDI locations targets v actuals.mxd


Pre-Design Investigation Phase II location
Exceeds RAL
0-10 cm sediment grab
0-45 cm sediment core
0-60 cm sediment core
Does not exceed RAL
0-10 cm sediment grab
0-45 cm sediment core
0-60 cm sediment core
Not analyzed
0-10 cm sediment grab
0-45 cm sediment core
0-60 cm sediment core
Proposed sampling locations
0-10 cm sediment grab
0-45 cm sediment core
0-60 cm sediment core
Shoaling area intervals
Vertical extent sample below RAL interval
Recovery Category 1
ENR/AC Pilot plot
Intertidal area
Potential vessel scour area
Shoal area
King Co tax parcel
Navigation Channel
River mile
USACE NAV DREDGE (2019-2020)
Slip 6
3.9
4.0
4.1
4.2
4.3
617
618
619
628
629
620
621
622
624
623
625
249
627
630
626
631
632
633
254
634
637
638
635
636
641
639
640
643
644
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642
645
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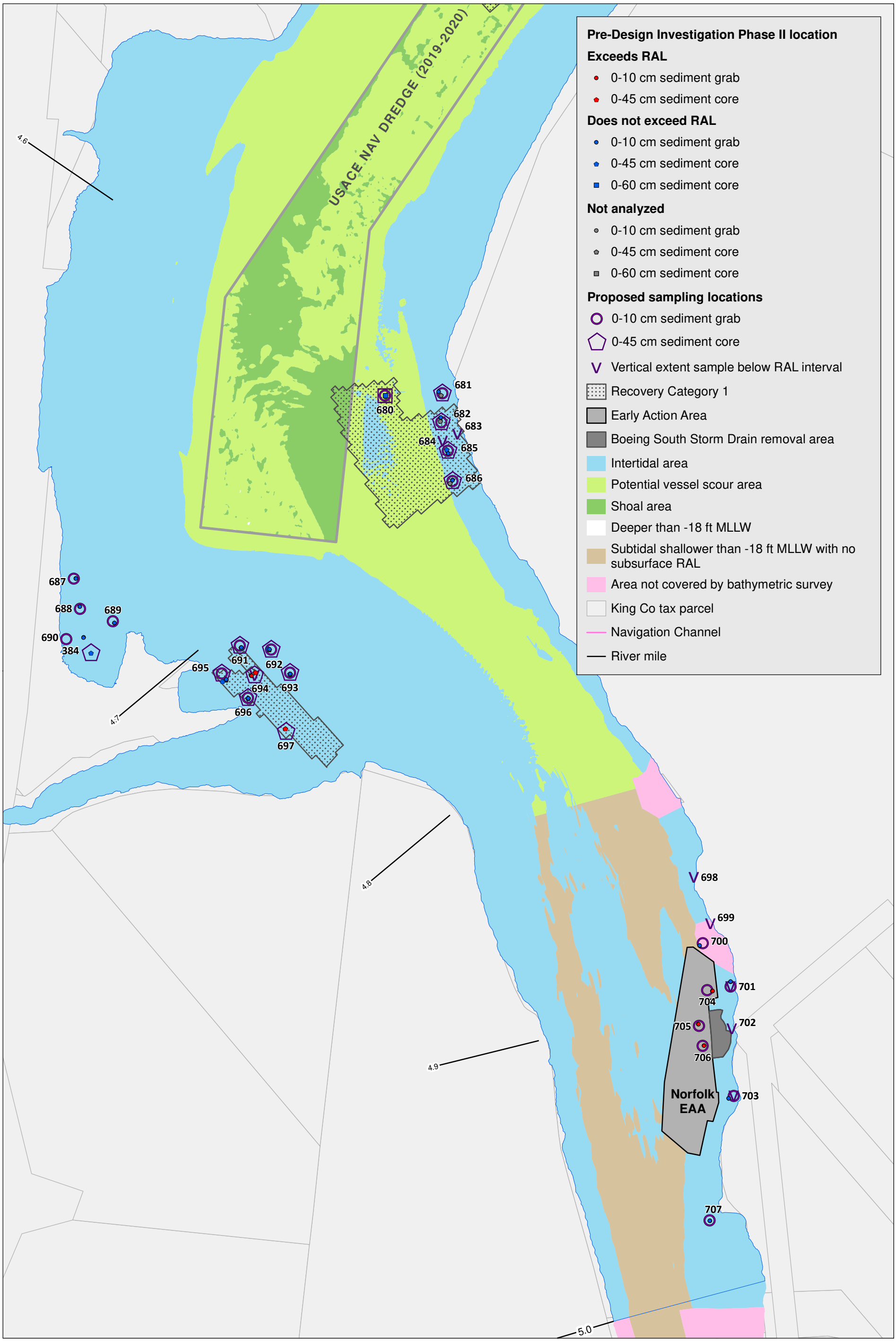
651
652
653
654
655
657
658
659
660
656
661
662
663
665
664
666
668
667
669
670
321
671
674
675
677
678
676
673
672
679
358
0
100
200
Feet
0
50
100
Meters
N
Windward environmental LLC
ANCHOR QEA
Lower Duwamish Waterway Group
Port of Seattle / City of Seattle / King County / The Boeing Company
Map A-1c. Phase II PDI sediment sampling location targets versus actuals, RM 3.9 to RM 4.3
Pre-Design Investigation Data Evaluation Report for the LDW Upper Reach
JULY 15, 2022
Prepared by craigh, 7/15/22; W:\Projects\Duwamish AOC4\GIS\Maps and Analyses\Phase II\Data Evaluation Report\Appendix A\Map A-01c 7234 Phase II PDI locations targets v actuals.mxd



Windward environmental LLC

ANCHOR QEA

0 100 200 Feet

0 50 100 Meters

Lower Duwamish Waterway Group

Port of Seattle / City of Seattle / King County / The Boeing Company

Map A-1d. Phase II PDI sediment sampling location targets versus actuals, RM 4.6 to RM 5.0

PRE-DESIGN INVESTIGATION DATA EVALUATION REPORT FOR THE LDW UPPER REACH

JULY 15, 2022

Prepared by craigh, 7/15/22: W:\Projects\Duwamish AOC4\GIS\Maps and Analyses\Phase II\Data Evaluation Report\Appendix A\Map A-01d 7234 Phase II PDI locations targets v actuals.mxd

Duwamish Waterway Park

3.0

3.1

3.2

3.3

3.4

3.5

3.6

3.7

3.8

3.9

4.0

16th Ave S

South Park Bridge

Boeing Plant 2 EAA

SOUTH PARK

T-117 EAA

Jorgensen Forge EAA

14th Ave S

PCB surface sediment sampling location and concentration (µg/kg dw)[a]

- > 720
- > 240 and ≤ 720
- > 130 and ≤ 240
- > 65 and ≤ 130
- ≤ 65

RAL exceedance area[b]

Early Action Area

ENR/AC Pilot plot

Recovery Category 1

Intertidal area

Potential vessel scour area

Shoal area

Deeper than -18 ft MLLW

Bridge footing

King Co tax parcel

Navigation channel

River mile

[a] Concentration bins are based on two values: the dry weight total PCB surface sediment RAL (130 µg/kg) and the dry weight concentration that corresponds to the organic carbon normalized RAL (12 mg/kg OC) with a TOC of 2% (240 µg/kg). The other bins are multiples of these values.

[b] ROD Table 28 is the source of RALs that were used to determine RAL exceedance areas.

Note: The federally regulated channel depth in the upper reach is -15 ft MLLW.

Windward environmental LLC

ANCHOR QEA

Lower Duwamish Waterway Group

Port of Seattle / City of Seattle / King County / The Boeing Company

N

0 250 500 Feet

0 100 200 Meters

Map A-2a. Surface sediment total PCB concentrations in the design dataset, RM 3.0 RM 4.0

PRE-DESIGN INVESTIGATION DATA EVALUATION REPORT FOR THE LDW UPPER REACH

JULY 15, 2022

Prepared by craigh, 7/15/22; W:\Projects\Duwamish AOC4\GIS\Maps and Analyses\Phase II\Data Evaluation Report\Appendix A\Map A-02a 7302 Dry wt concentrations - PCBs - Surface RM 3-4.mxd

East Marginal Way S

4.0

4.1

Slip 6

RECENTLY DREDGED - NO SAMPLES COLLECTED

4.2

4.3

4.4

4.5

4.6

Turning Basin

4.7

4.8

4.9

5.0

Norfolk EAA

PCB surface sediment sampling location and concentration (µg/kg dw)[a]

- > 720
- > 240 and ≤ 720
- > 130 and ≤ 240
- > 65 and ≤ 130
- ≤ 65
- RAL exceedance area[b]
- Early Action Area
- Boeing South Storm Drain removal area
- ENR/AC Pilot plot
- USACE 2018-2020
- Recovery Category 1
- Intertidal area
- Potential vessel scour area
- Shoal area
- Deeper than -18 ft MLLW
- Subtidal shallower than -18 ft MLLW with no subsurface RAL
- Area not covered by bathymetric survey
- LDW Superfund Site
- King Co tax parcel
- Navigation channel
- River mile

[a] Concentration bins are based on two values: the dry weight total PCB surface sediment RAL (130 µg/kg) and the dry weight concentration that corresponds to the organic carbon normalized RAL (12 mg/kg OC) with a TOC of 2% (240 µg/kg). The other bins are multiples of these values.
[b] ROD Table 28 is the source of RALs that were used to determine RAL exceedance areas.
Note: The federally regulated channel depth in the upper reach is -15 ft MLLW.

Windward environmental LLC

ANCHOR QEA

Lower Duwamish Waterway Group
Port of Seattle / City of Seattle / King County / The Boeing Company

N

0 250 500 Feet

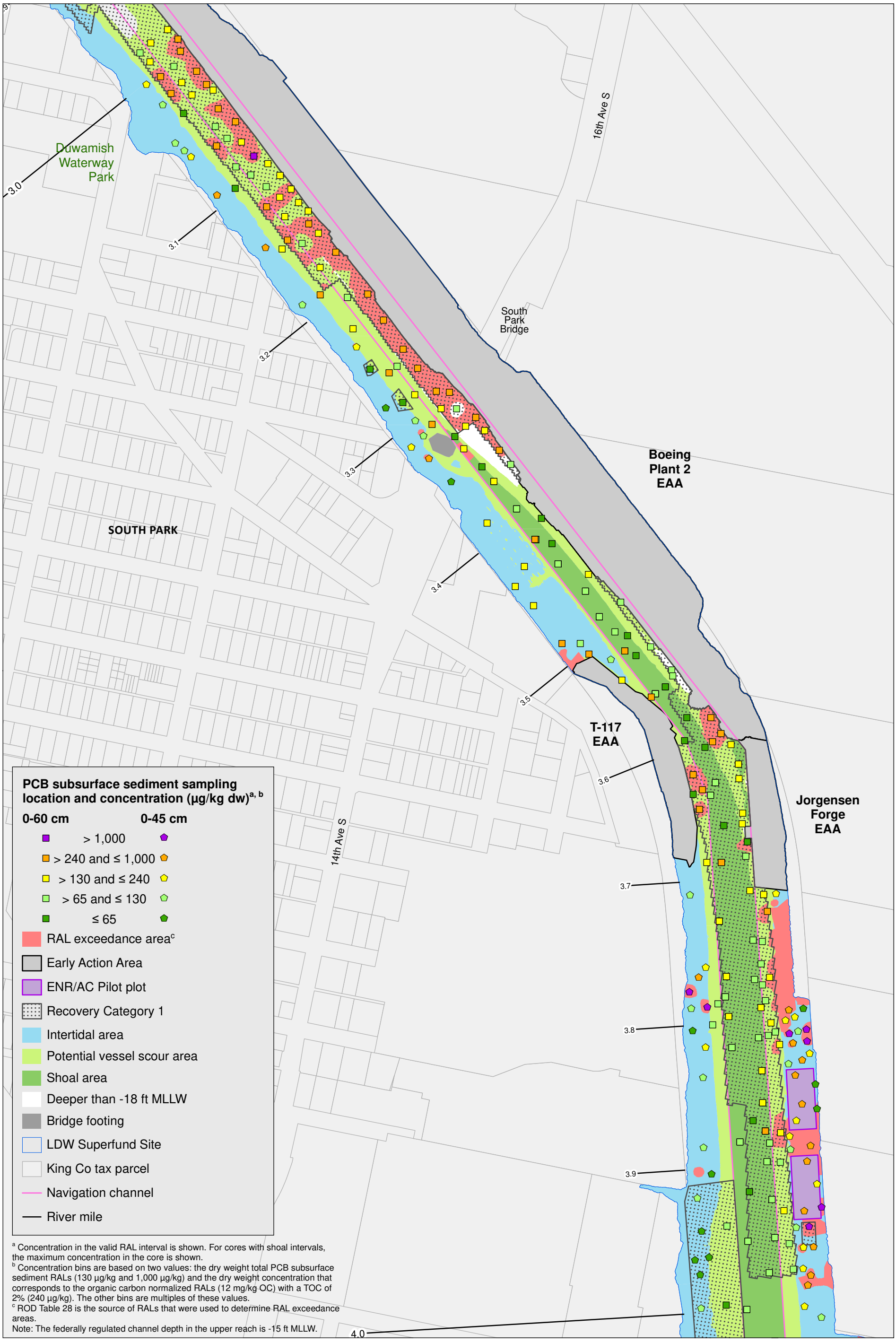
0 100 200 Meters

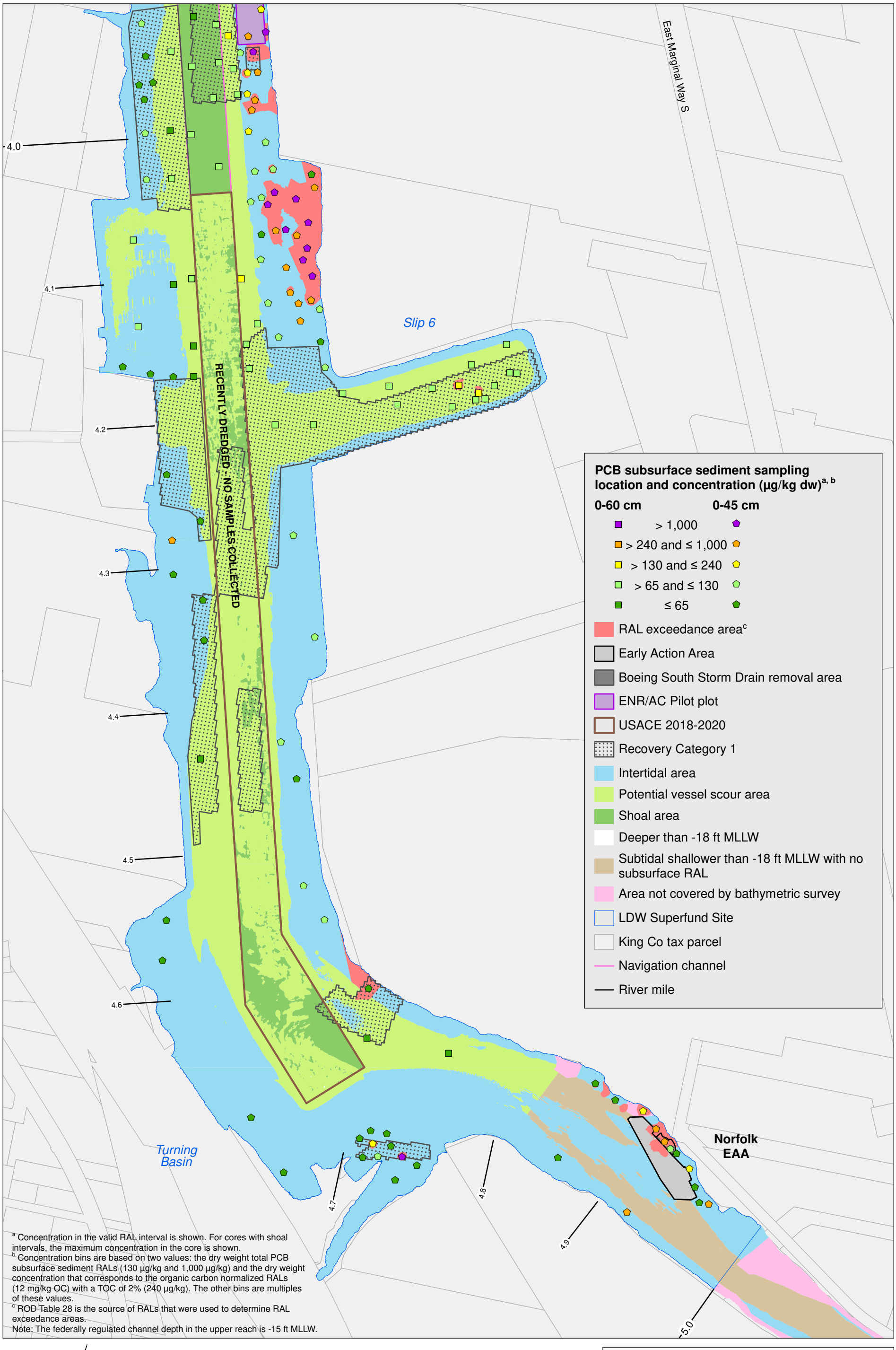
Map A-2b. Surface sediment total PCB concentrations in the design dataset, RM 4.0 to RM 5.0

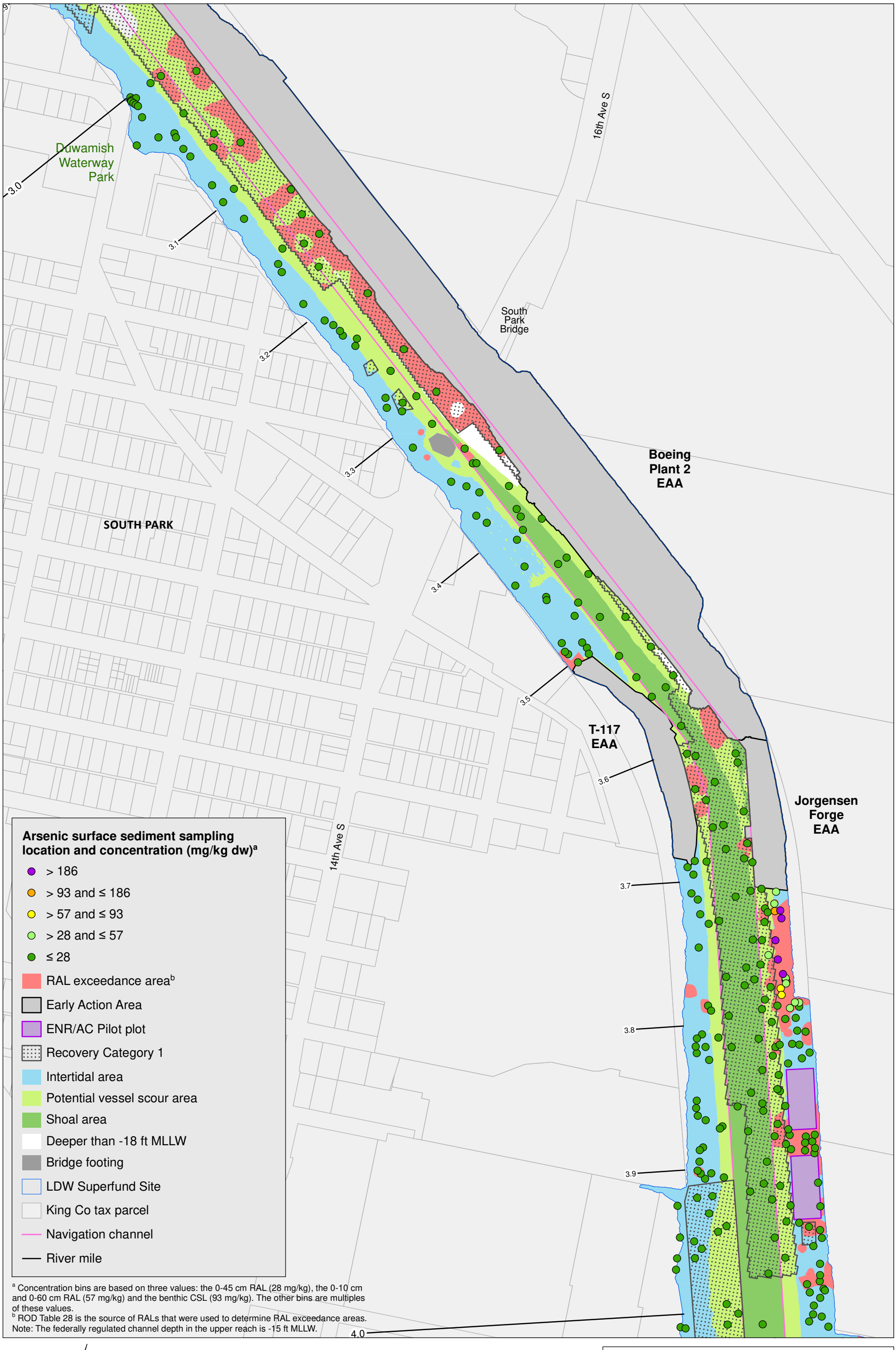
PRE-DESIGN INVESTIGATION DATA EVALUATION REPORT FOR THE LDW UPPER REACH

JULY 15, 2022

Prepared by craigh, 7/15/22: W:\Projects\Duwamish AOC4\GIS\Maps and Analyses\Phase II\Data Evaluation Report\Appendix A\Map A-02b 7302 Dry wt concentrations - PCBs - Surface RM 4-5.mxd


Duwamish Waterway Park
SOUTH PARK
16th Ave S
South Park Bridge
14th Ave S
Boeing Plant 2 EAA
T-117 EAA
Jorgensen Forge EAA
3.0
3.1
3.2
3.3
3.4
3.5
3.6
3.7
3.8
3.9
4.0
PCB subsurface sediment sampling location and concentration (µg/kg dw)[a, b]
0-60 cm
0-45 cm
> 1,000
> 240 and ≤ 1,000
> 130 and ≤ 240
> 65 and ≤ 130
≤ 65
RAL exceedance area[c]
Early Action Area
ENR/AC Pilot plot
Recovery Category 1
Intertidal area
Potential vessel scour area
Shoal area
Deeper than -18 ft MLLW
Bridge footing
LDW Superfund Site
King Co tax parcel
Navigation channel
River mile
[a] Concentration in the valid RAL interval is shown. For cores with shoal intervals, the maximum concentration in the core is shown.
[b] Concentration bins are based on two values: the dry weight total PCB subsurface sediment RALs (130 µg/kg and 1,000 µg/kg) and the dry weight concentration that corresponds to the organic carbon normalized RALs (12 mg/kg OC) with a TOC of 2% (240 µg/kg). The other bins are multiples of these values.
[c] ROD Table 28 is the source of RALs that were used to determine RAL exceedance areas.
Note: The federally regulated channel depth in the upper reach is -15 ft MLLW.
Windward environmental LLC
ANCHOR QEA
Lower Duwamish Waterway Group
Port of Seattle / City of Seattle / King County / The Boeing Company
N
0 250 500 Feet
0 100 200 Meters
Map A-3a. Subsurface sediment total PCB concentrations in the design dataset, RM 3.0 to RM 4.0
Pre-Design Investigation Data Evaluation Report for the LDW Upper Reach
JULY 15, 2022
Prepared by craigh, 7/15/22: W:\Projects\Duwamish AOC4\GIS\Maps and Analyses\Phase II\Data Evaluation Report\Appendix A\Map A-03a 7302 Dry wt concentrations - PCBs - Subsurface RM 3-4.mxd


East Marginal Way S
Slip 6
RECENTLY DREDGED - NO SAMPLES COLLECTED
4.0
4.1
4.2
4.3
4.4
4.5
4.6
4.7
4.8
4.9
5.0
Turning Basin
Norfolk EAA
PCB subsurface sediment sampling location and concentration (µg/kg dw)[a, b]
0-60 cm
0-45 cm
> 1,000
> 240 and ≤ 1,000
> 130 and ≤ 240
> 65 and ≤ 130
≤ 65
RAL exceedance area[c]
Early Action Area
Boeing South Storm Drain removal area
ENR/AC Pilot plot
USACE 2018-2020
Recovery Category 1
Intertidal area
Potential vessel scour area
Shoal area
Deeper than -18 ft MLLW
Subtidal shallower than -18 ft MLLW with no subsurface RAL
Area not covered by bathymetric survey
LDW Superfund Site
King Co tax parcel
Navigation channel
River mile
[a] Concentration in the valid RAL interval is shown. For cores with shoal intervals, the maximum concentration in the core is shown.
[b] Concentration bins are based on two values: the dry weight total PCB subsurface sediment RALs (130 µg/kg and 1,000 µg/kg) and the dry weight concentration that corresponds to the organic carbon normalized RALs (12 mg/kg OC) with a TOC of 2% (240 µg/kg). The other bins are multiples of these values.
[c] ROD Table 28 is the source of RALs that were used to determine RAL exceedance areas.
Note: The federally regulated channel depth in the upper reach is -15 ft MLLW.
N
0 250 500 Feet
0 100 200 Meters
Windward environmental LLC
ANCHOR QEA
Lower Duwamish Waterway Group
Port of Seattle / City of Seattle / King County / The Boeing Company
Map A-3b. Subsurface sediment total PCB concentrations in the design dataset, RM 4.0 to RM 5.0
Pre-Design Investigation Data Evaluation Report for the LDW Upper Reach
JULY 15, 2022
Prepared by craigh, 7/15/22, W:\Projects\Duwamish AOC4\GIS\Maps and Analyses\Phase II\Data Evaluation Report\Appendix A\Map A-03b 7302 Dry wt concentrations - PCBs - Subsurface RM 4-5.mxd



[a] Concentration bins are based on three values: the 0-45 cm RAL (28 mg/kg), the 0-10 cm and 0-60 cm RAL (57 mg/kg) and the benthic CSL (93 mg/kg). The other bins are multiples of these values.
[b] ROD Table 28 is the source of RALs that were used to determine RAL exceedance areas.
Note: The federally regulated channel depth in the upper reach is -15 ft MLLW.

Windward environmental LLC

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Port of Seattle / City of Seattle / King County / The Boeing Company

N

0 250 500 Feet

0 100 200 Meters

Map A-4a. Surface sediment arsenic concentrations in the design dataset, RM 3.0 to RM 4.0

PRE-DESIGN INVESTIGATION DATA EVALUATION REPORT FOR THE LDW UPPER REACH

JULY 15, 2022

Prepared by craigh, 7/15/22: W:\Projects\Duwamish AOC4\GIS\Maps and Analyses\Phase II\Data Evaluation Report\Appendix A\Map A-04a 7302 Dry wt concentrations - As - Surface RM 3-4.mxd

East Marginal Way S

4.0

4.1

Slip 6

RECENTLY DREDGED - NO SAMPLES COLLECTED

4.2

4.3

4.4

4.5

4.6

Turning Basin

4.7

4.8

4.9

5.0

Norfolk EAA

Arsenic surface sediment sampling location and concentration (mg/kg dw)[a]

- > 28 and ≤ 57
- ≤ 28
- RAL exceedance area[b]
- Early Action Area
- Boeing South Storm Drain removal area
- ENR/AC Pilot plot
- USACE 2018-2020
- Recovery Category 1
- Intertidal area
- Potential vessel scour area
- Shoal area
- Deeper than -18 ft MLLW
- Subtidal shallower than -18 ft MLLW with no subsurface RAL
- Area not covered by bathymetric survey
- LDW Superfund Site
- King Co tax parcel
- Navigation channel
- River mile

[a] Concentration bins are based on two values: the 0-45 cm RAL (28 mg/kg) and the 0-10 cm and 0-60 cm RAL (57 mg/kg).
[b] ROD Table 28 is the source of RALs that were used to determine RAL exceedance areas.
Note: The federally regulated channel depth in the upper reach is -15 ft MLLW.

Windward environmental LLC

ANCHOR QEA

Lower Duwamish Waterway Group
Port of Seattle / City of Seattle / King County / The Boeing Company

N

0 250 500 Feet

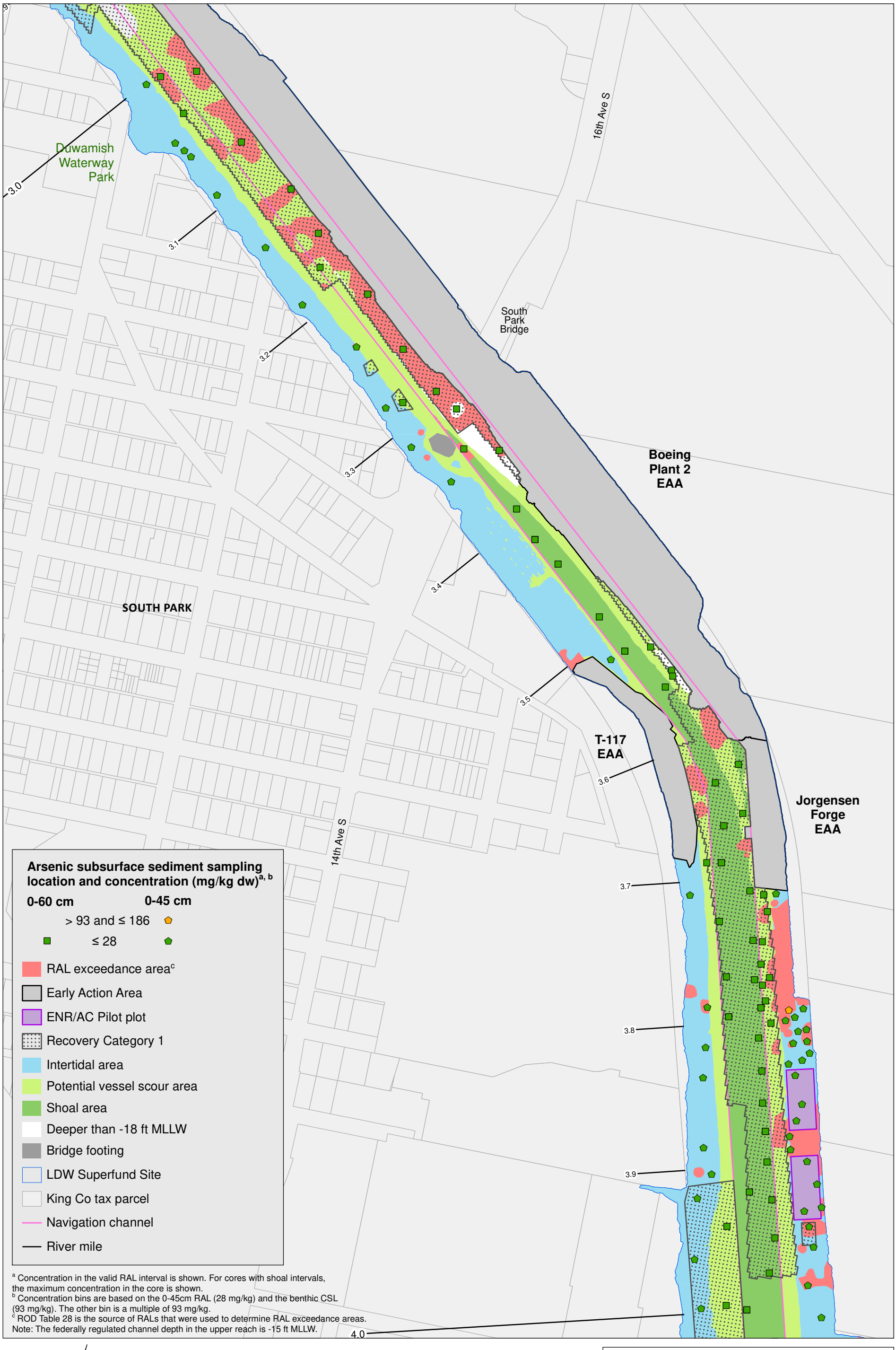
0 100 200 Meters

Map A-4b. Surface sediment arsenic concentrations in the design dataset, RM 4.0 to RM 5.0

PRE-DESIGN INVESTIGATION DATA EVALUATION REPORT FOR THE LDW UPPER REACH

JULY 15, 2022

Prepared by craigh, 7/15/22: W:\Projects\Duwamish AOC4\GIS\Maps and Analyses\Phase II\Data Evaluation Report\Appendix A\Map A-04b 7302 Dry wt concentrations - As - Surface RM 4-5.mxd



[a] Concentration in the valid RAL interval is shown. For cores with shoal intervals, the maximum concentration in the core is shown.
[b] Concentration bins are based on the 0-45cm RAL (28 mg/kg) and the benthic CSL (93 mg/kg). The other bin is a multiple of 93 mg/kg.
[c] ROD Table 28 is the source of RALs that were used to determine RAL exceedance areas.
Note: The federally regulated channel depth in the upper reach is -15 ft MLLW.

Windward environmental LLC

ANCHOR QEA

Lower Duwamish Waterway Group
Port of Seattle / City of Seattle / King County / The Boeing Company

N

0 250 500 Feet

0 100 200 Meters

Map A-5a. Subsurface sediment arsenic concentrations in the design dataset, RM 3.0 to RM 4.0

PRE-DESIGN INVESTIGATION DATA EVALUATION REPORT FOR THE LDW UPPER REACH

JULY 15, 2022

Prepared by craigh. 7/15/22. W:\Projects\Duwamish AOC4\GIS\Maps and Analyses\Phase II\Data Evaluation Report\Appendix A\Map A-05a 7302 Dry wt concentrations - As - Subsurface RM 3-4.mxd

East Marginal Way S

Slip 6

RECENTLY DREDGED - NO SAMPLES COLLECTED

4.0
4.1
4.2
4.3
4.4
4.5
4.6
4.7
4.8
4.9
5.0

Turning Basin

Norfolk EAA

Arsenic subsurface sediment sampling location and concentration (mg/kg dw)[a, b]

0-60 cm **0-45 cm**

≤ 28

- RAL exceedance area[c]
- Early Action Area
- Boeing South Storm Drain removal area
- ENR/AC Pilot plot
- USACE 2018-2020
- Recovery Category 1
- Intertidal area
- Potential vessel scour area
- Shoal area
- Deeper than -18 ft MLLW
- Subtidal shallower than -18 ft MLLW with no subsurface RAL
- Area not covered by bathymetric survey
- LDW Superfund Site
- King Co tax parcel
- Navigation channel
- River mile

[a] Concentration in the valid RAL interval is shown. For cores with shoal intervals, the maximum concentration in the core is shown.
[b] Concentration bin is based on the 0-45cm RAL (28 mg/kg).
[c] ROD Table 28 is the source of RALs that were used to determine RAL exceedance areas.
Note: The federally regulated channel depth in the upper reach is -15 ft MLLW.

Windward environmental LLC

ANCHOR QEA

Lower Duwamish Waterway Group
Port of Seattle / City of Seattle / King County / The Boeing Company

N

0 250 500 Feet

0 100 200 Meters

Map A-5b. Subsurface sediment arsenic concentrations in the design dataset, RM 4.0 to RM 5.0

PRE-DESIGN INVESTIGATION DATA EVALUATION REPORT FOR THE LDW UPPER REACH

JULY 15, 2022

Prepared by craigh, 7/15/22, W:\Projects\Duwamish AOC4\GIS\Maps and Analyses\Phase II\Data Evaluation Report\Appendix A\Map A-05b 7302 Dry wt concentrations - As - Subsurface RM 4-5.mxd