Disposal Site Screening Evaluation

December 14, 2010

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Presentation Overview

- Objective: To inform EPA of proposed screening methods to develop a “short list” for use in the alternatives screening and FS
- Key Conclusions:
  - Logistically difficult and unnecessary to represent all potential disposal sites in Draft FS remedial alternatives
  - A few representative sites are proposed for use in Draft FS remedial alternatives that adequately illustrate the range of effective and implementable disposal options
  - Screening for FS purposes only. Other options not currently identified should be allowed further consideration at design, if proponent can show consistency with CERCLA and ARARs.
- All analyses are preliminary and subject to change in alternatives screening

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Disposal Sites Screening History

- Preliminary Screening Report, July 2004
- Disposal Site Working List, June 2008
  - Upland, Nearshore, and CAD
  - EPA approved: September 30, 2008
- Disposal Screening Technical Memo, June 2009

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Potential Disposal Options Considered - Upland Disposal

- Generic near-Harbor new site (upland CDF)
- Commercial licensed landfills
  - Hillsboro
  - North Wasco County
  - Columbia Ridge
  - Roosevelt Regional
  - Chemical Waste Management of the NW

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Commercial Landfill Sites

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Potential Upland Transload Facilities

- Several potential sites exist
  - Terminal 4
  - Vigor
  - Arkema
  - Terminal 2
  - Others
- Transloading not an implementability obstacle for upland sites
- Optimize for disposal option and transportation method during design
- Selection at remedial design

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Potential Disposal Options Considered - In-Water Disposal

- Nearshore CDF
  - Terminal 4
  - Swan Island Lagoon CDF
  - Arkema (specific to site-related sediment)
- CAD
  - Willamette River Mile 4/5
  - Willamette River Mile 9
  - Swan Island Lagoon CAD
  - Ross Island
  - Columbia River Mile 102.5

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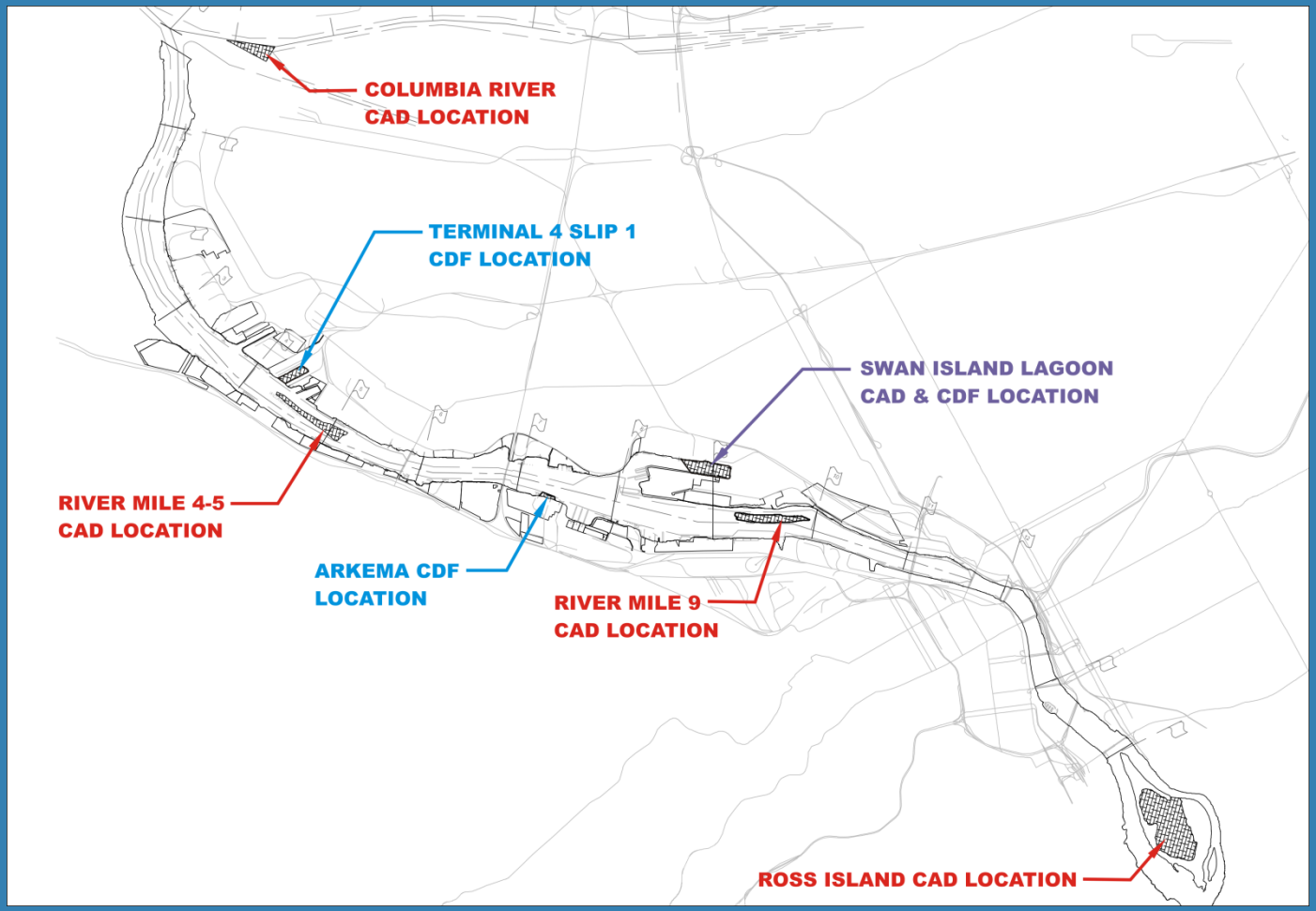
Potential In-Water Disposal Sites



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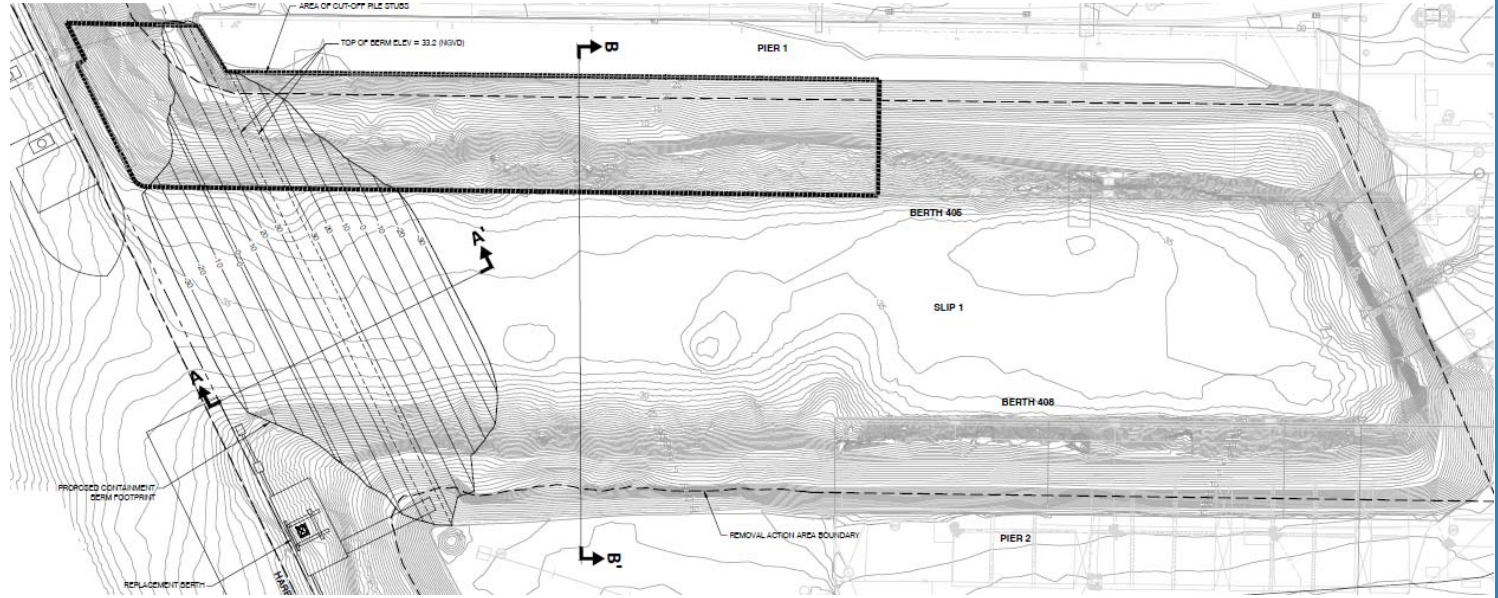
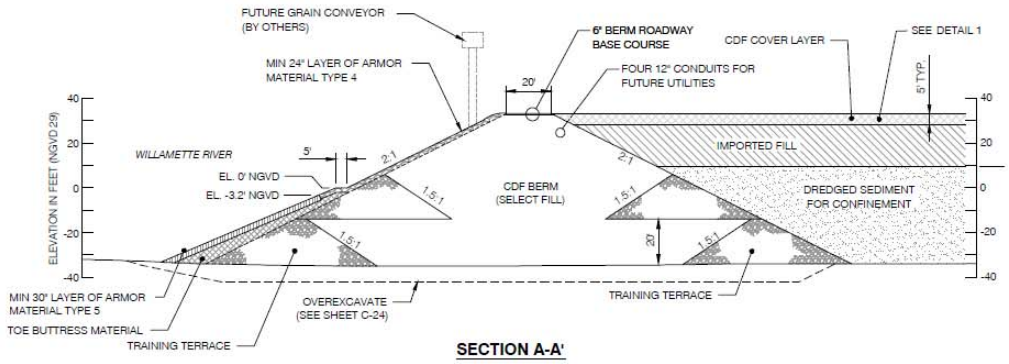
Terminal 4 CDF





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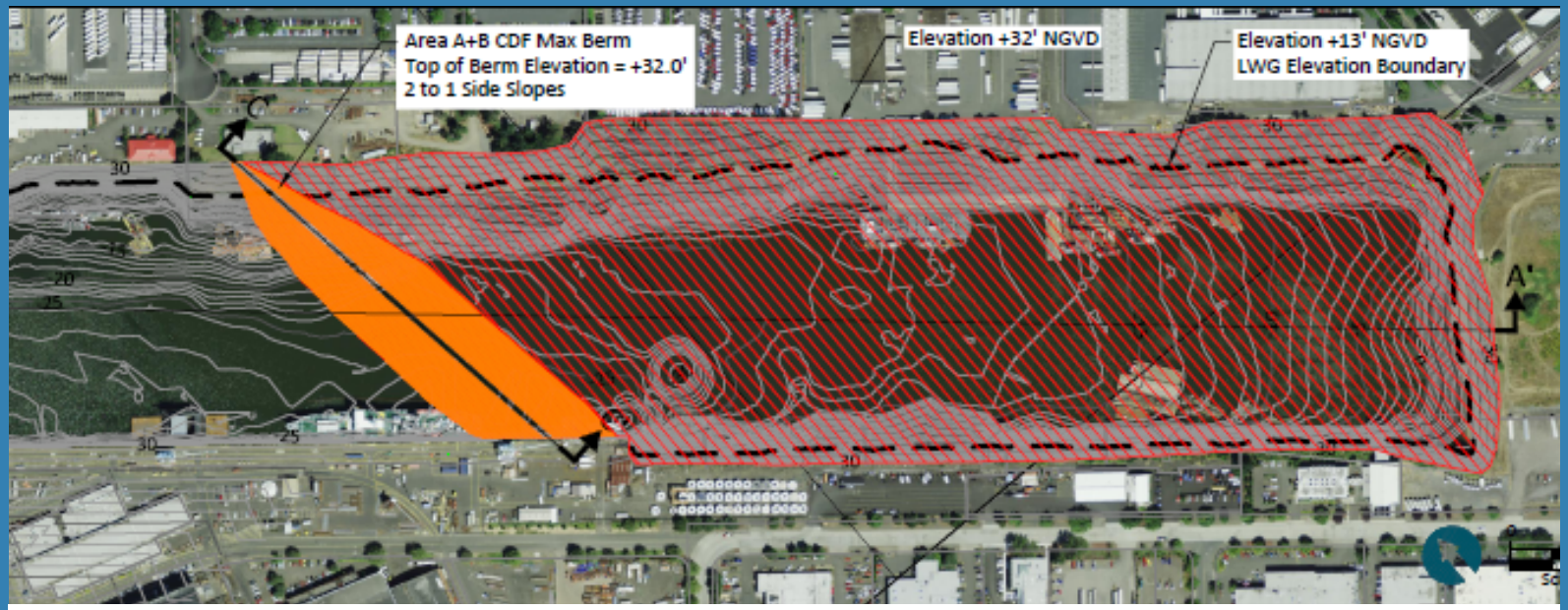
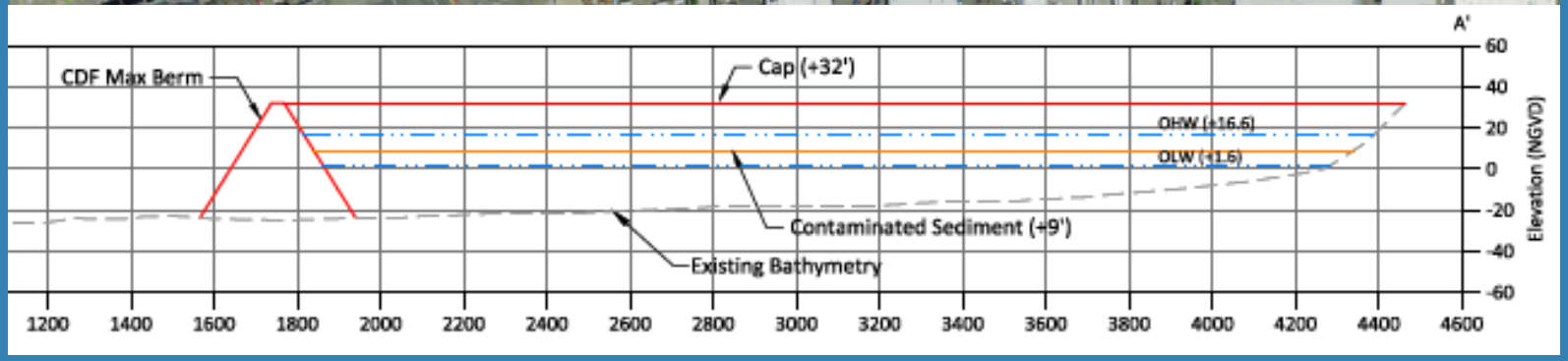
Swan Island Lagoon CDF





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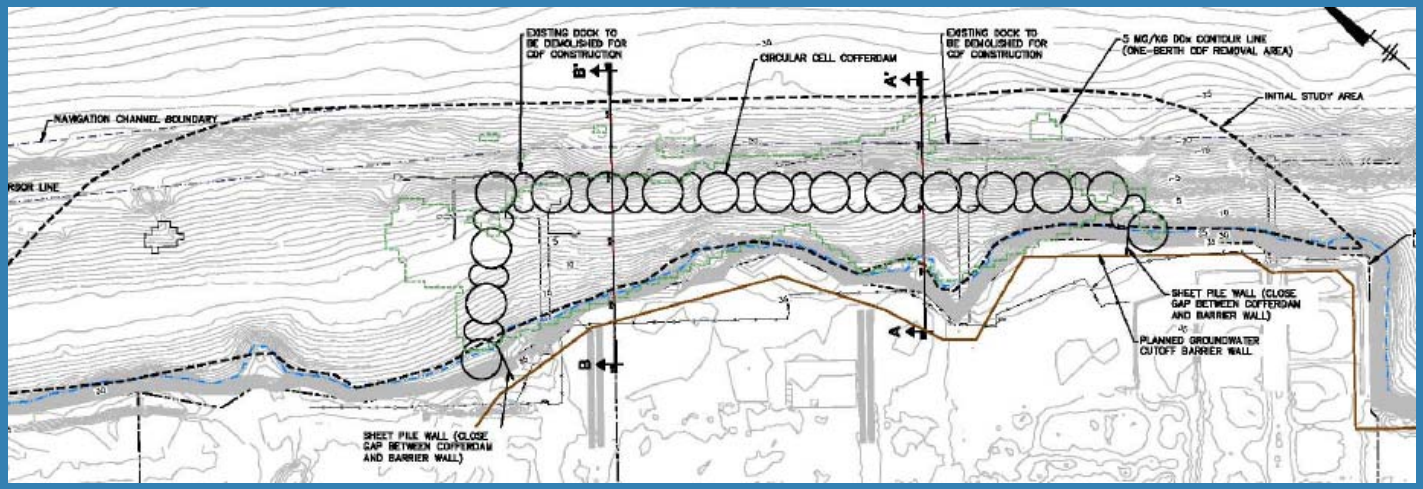
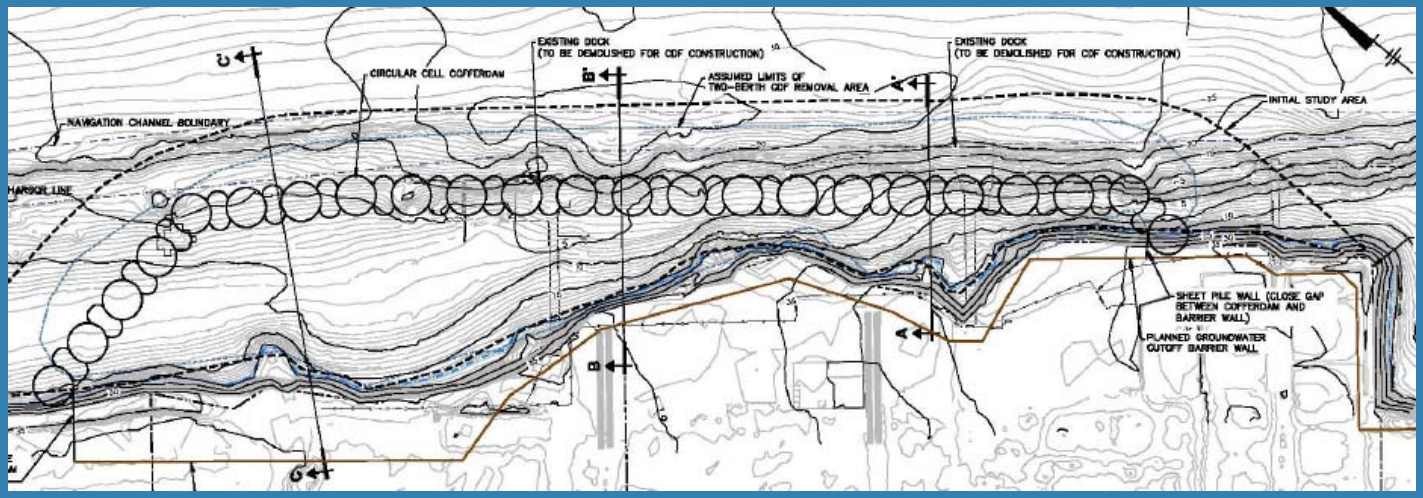
Arkema CDF Options

One Berth



Two Berth



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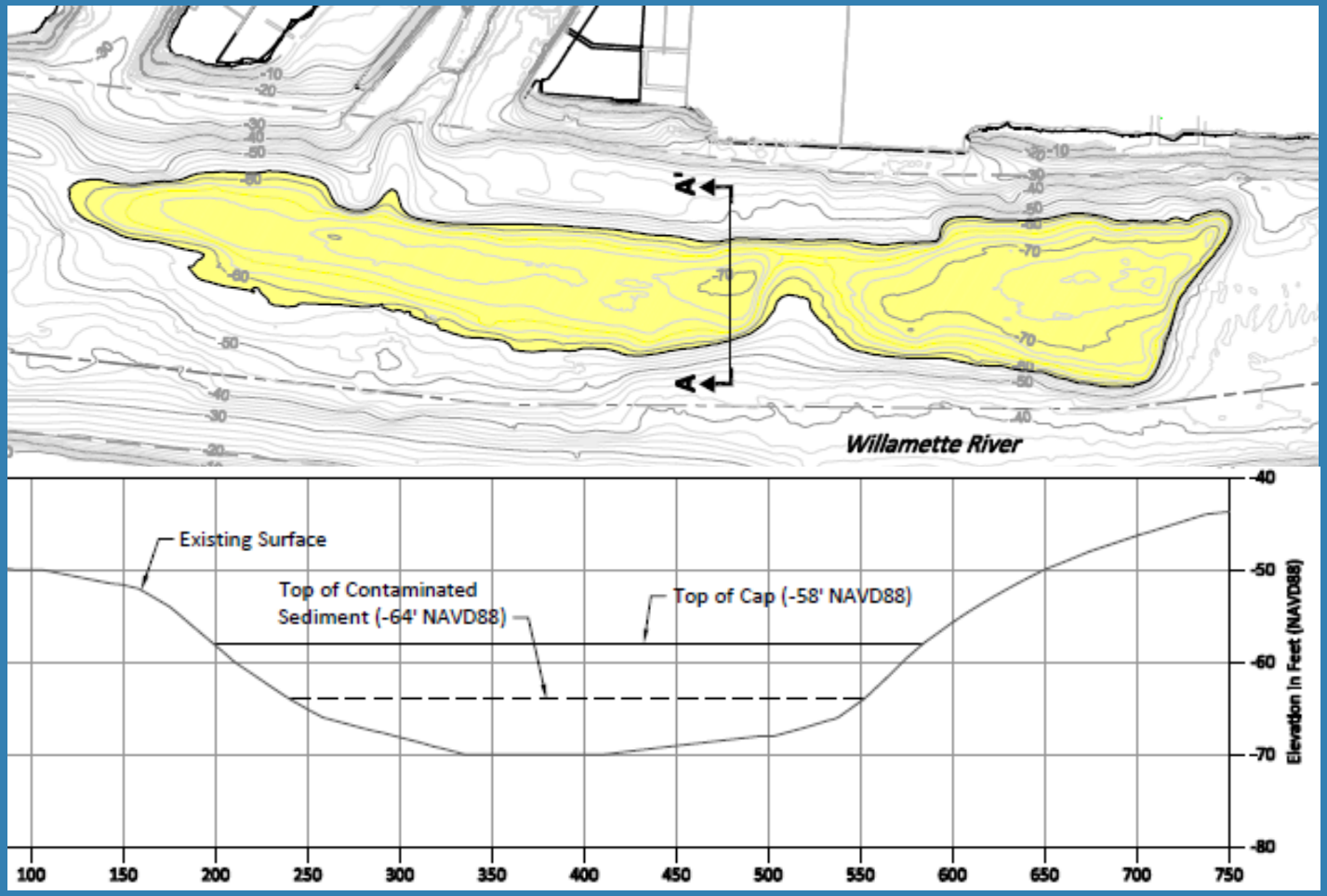
Willamette River Mile 4/5 CAD



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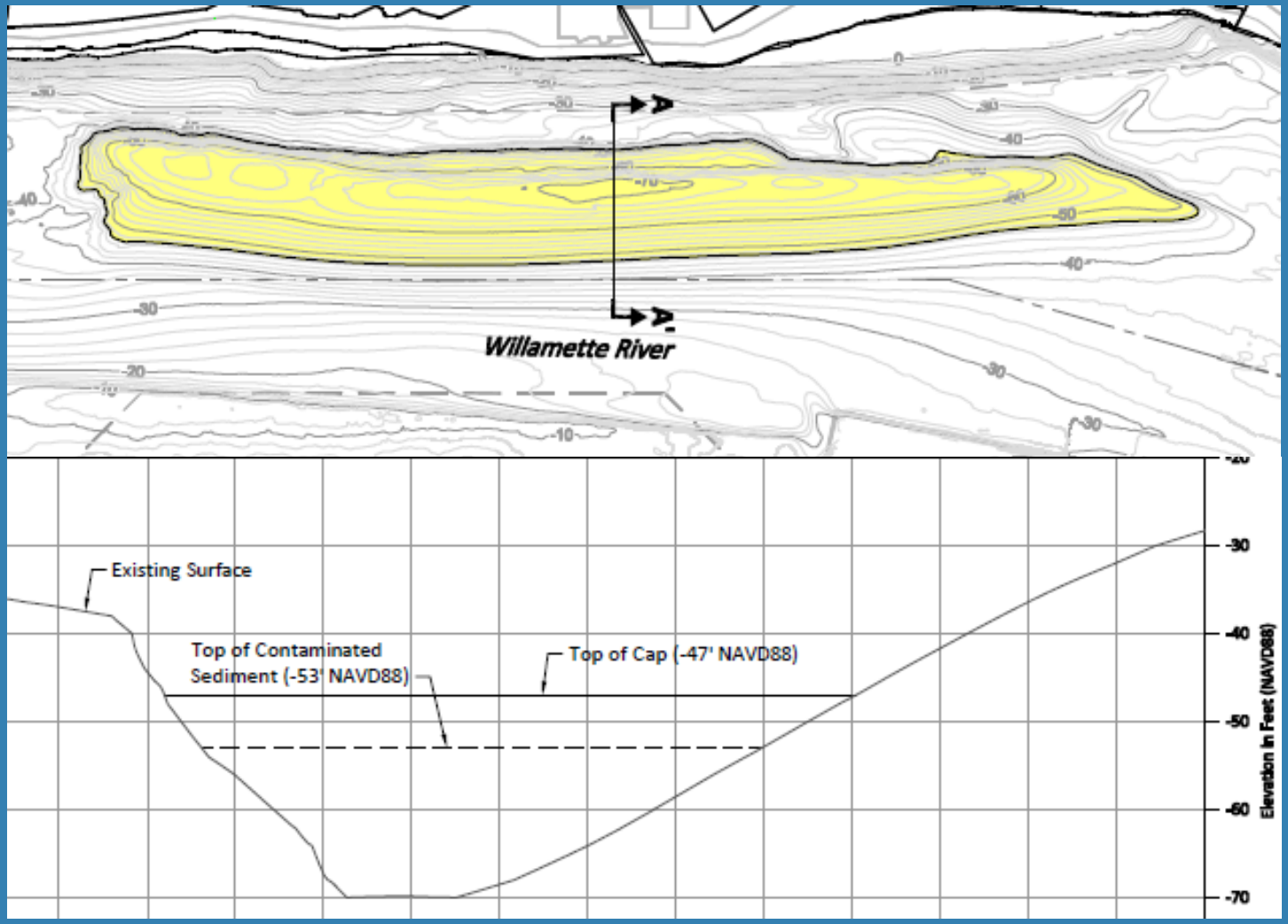
Willamette River Mile 9



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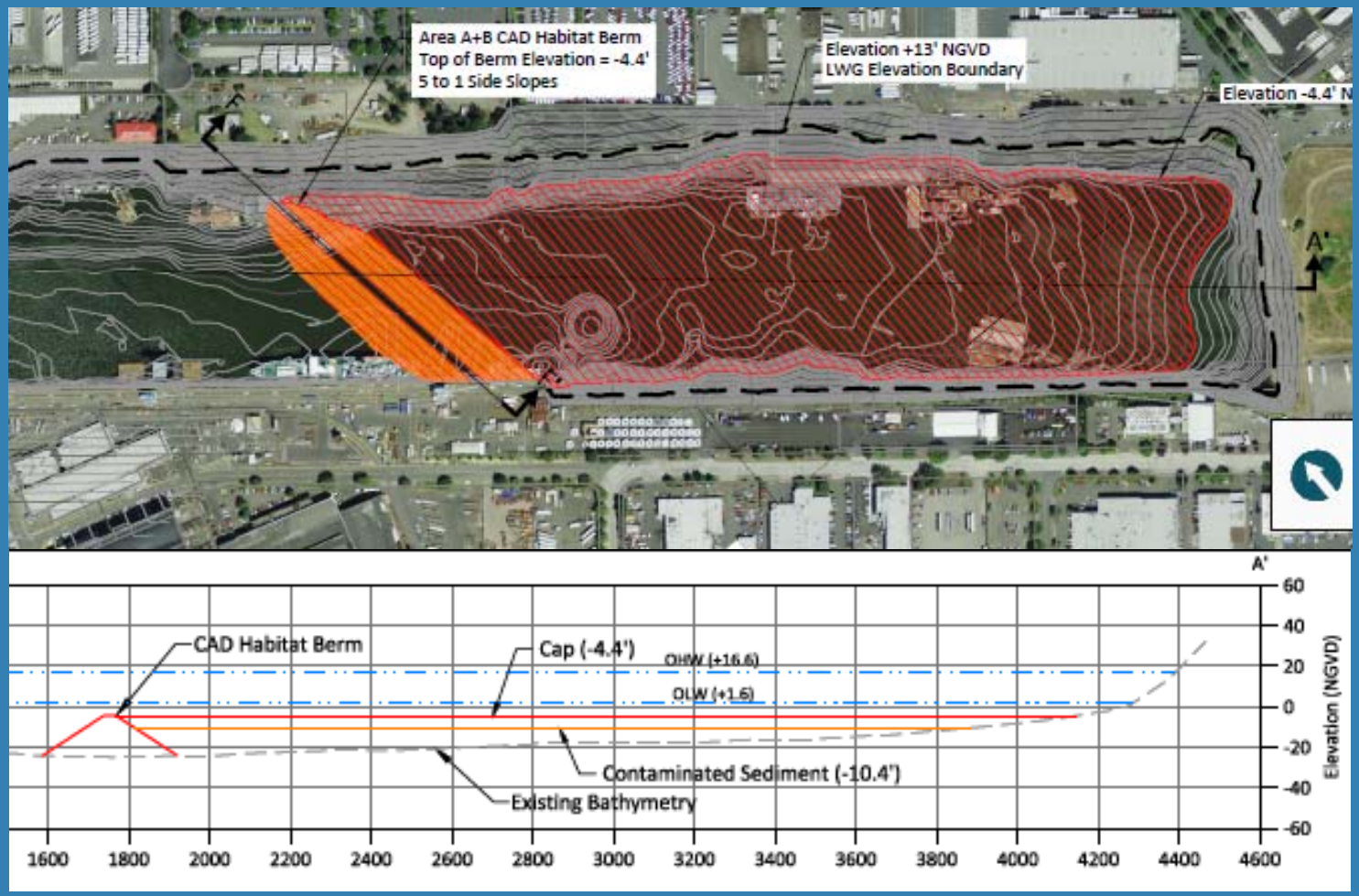
Swan Island Lagoon CAD



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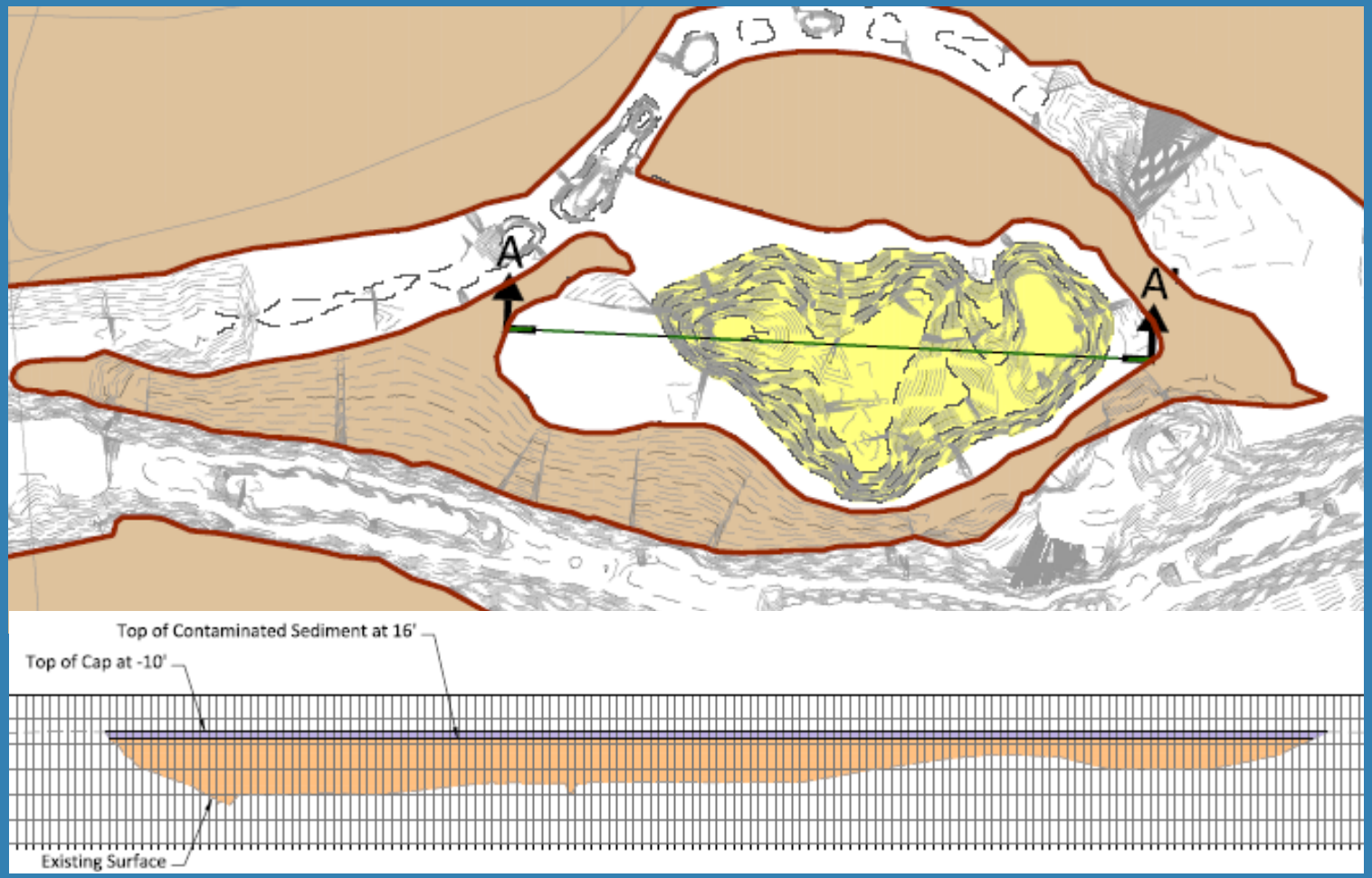
Ross Island



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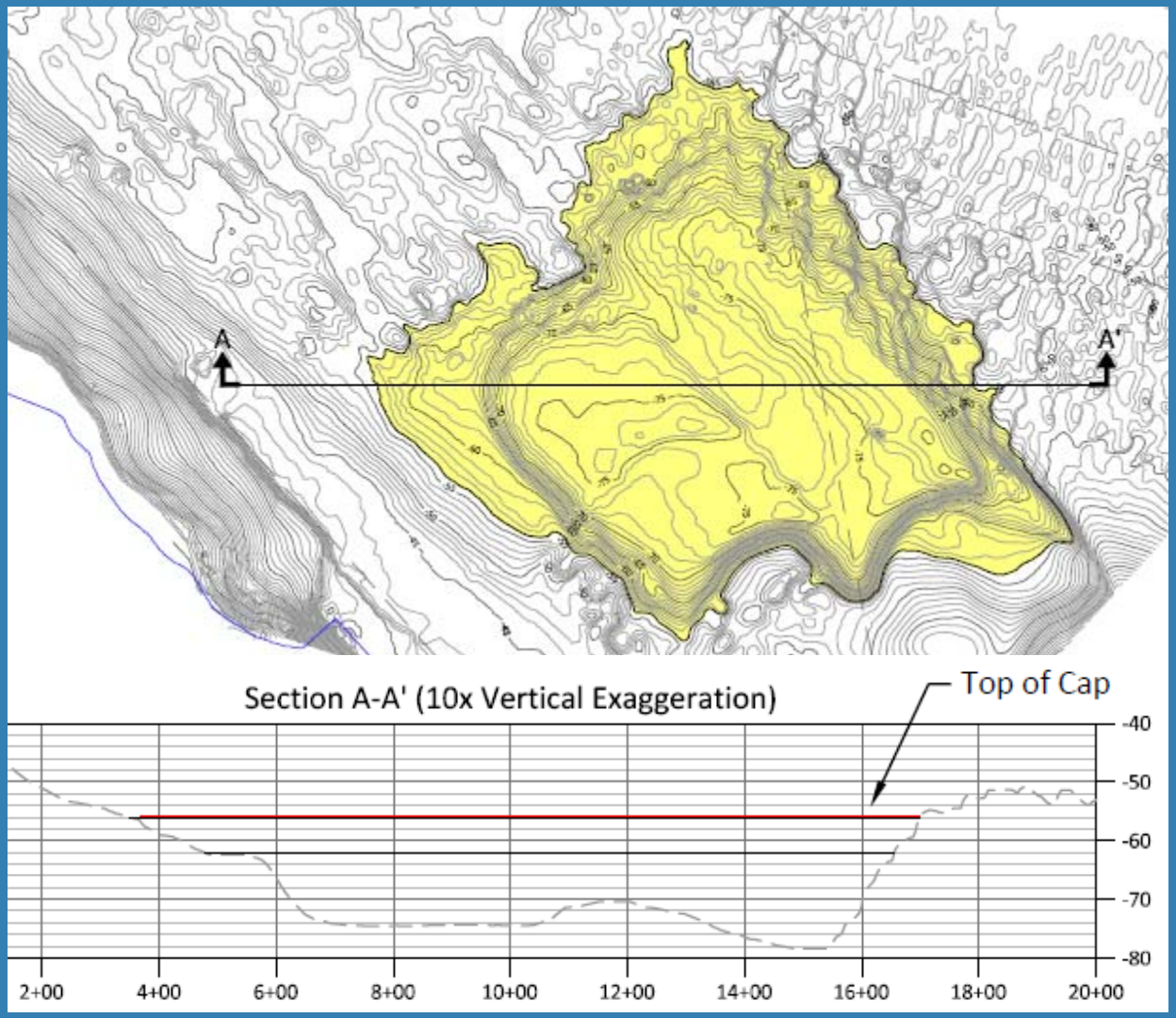
Columbia River Mile 102



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Additional Screening – Criteria for Upland Disposal

- Effectiveness
  - Adequate capacity
- Implementability
  - Waste acceptance criteria
  - Transload facility
  - Transportation
- Cost

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Additional Screening – Criteria for In-Water Disposal

- Effectiveness
  - Adequate capacity
  - Short-term water quality
  - Long-term water quality
- Implementability
  - Constructability
  - Site-use compatibility
- Cost

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Upland Disposal Screening Results

- Commercial landfills all retained
- These landfills will be used to prepare reasonable cost points or ranges that represent upland disposal overall in the FS
- ChemWaste for non-Subtitle D sediment
- Distinctions in evaluation
  - Columbia Ridge and Roosevelt accept wet waste
  - Columbia Ridge and Roosevelt rail transportation
  - Hillsboro & North Wasco County lower fees
  - Truck option traffic hazards and carbon footprint
- Generic new near-site upland CDF option screened out
  - No likely property identified
  - Floodplain location makes upland disposal more difficult

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CAD Screening Results

- Swan Island Lagoon retained as SMA-specific option
- Other CAD sites screened out
  - Capacity (details on following slide)
  - Cap effectiveness (high capacity-to-surface area desirable)
    - Cap maintenance in navigation area
    - Need to cap between seasons “steals” capacity
    - Short-term water quality impacts greater, although not necessarily unacceptable
  - Site-use incompatibilities
    - Navigation restrictions (in-channel sites)
    - Reclamation plan (Ross Island)
- <u>Screening for FS purposes only:</u> Most options should be allowed further consideration at design if proponent can show consistency with CERCLA and ARARs

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CAD Capacity & Cap Surface Area

Disposal Site	Approx. Capacity (cy)	Cap Surface Area (acres)	Capacity: Cap Surface Area (cy/acre)	Top of Cap Elevation (ft NGVD)	Navigation Channel
Willamette RM 4/5	201,000	36	6,000	-58	In Channel
Willamette RM 9	374,000	28	13,000	-47	In Channel
Columbia River	306,000	21	15,000	-56	Partial
Ross Island*	2,782,000	73	38,000	-10	Out
Swan Island	280,000	29	10,000	-4.4	Out

* Ross Island capacity is estimated from the most recent bathymetry available (September 1999). Capacity has been reduced significantly in the last 10 years by the placement of fill.

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Navigation/Site Constraints (In-Channel CAD Sites)

- General review of controls for screening
- Potential institutional controls:
  - Restrictive covenants and deed notices
  - Restricted Navigational Areas (RNA)
  - Anchorage restrictions
  - State of Oregon access/lease agreements
  - Access restriction (City-based)
  - Informational Devices
    - Posted speed and wake regulations (No-wake zone)
    - No Trespassing
    - Public notices/mailings
  - Special update to NOAA Marine Chart Division

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Site Reclamation (Ross Island)

- Existing permit with reclamation requirements and schedule (2013 completion) incompatible with Portland Harbor remedial action schedule
- Sediment acceptance criteria would require modification
- Significant filling already completed; “deep holes” may be gone already or before remedial action begins

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CDF Screening Results

- Terminal 4 and Swan Island Lagoon
  - Retained for harbor-wide use
  - No “fatal flaws” relative to EPA CDF performance standards
- These CDFs will be used to prepare reasonable cost points or ranges that represent this option overall in the FS
- Also, specific CDFs will be included in some comprehensive alternatives

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CDF Screening Results

- Arkema
  - Retained for site-specific use (capacity too small for site-wide facility)
  - Evaluation by LSS and EPA underway
- Screening for FS purposes only. Other options not currently identified should be allowed further consideration at design, if proponent can show consistency with CERCLA and ARARs.

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CDF Capacity

Disposal Site	Approximate Capacity (cy)	Berm Face Area (sf)	Top of Cap Elevation (ft NGVD)
Terminal 4	870,000	38,000	+33.2
Swan Island	1,359,000	63,000	+32
Arkema (1-berth)*	55,000	45,000	+32.5
Arkema (2-berth)*	164,000	65,000	+32.5

* Proposed Arkema CDF options use circular cofferdams for containment rather than berms. Dimensions from May 2010 CDF Evaluation report (Arcadis).

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Presentation Conclusions

- Logistically difficult and unnecessary to represent all potential disposal sites in Draft FS remedial alternatives
- A few representative sites are proposed for use in Draft FS remedial alternatives that adequately illustrate the range of effective and implementable disposal options
- Screening for FS purposes only. Other options not currently identified should be allowed further consideration at design, if proponent can show consistency with CERCLA and ARARs.
- Substantial additional evaluations of representative disposal sites will be conducted in the draft FS
- All analyses are preliminary and subject to change in alternatives screening

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