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## 13 DREDGING AND DISPOSAL

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### 13.1 PREPARING TO DREDGE

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Once all necessary permits are obtained, planning for dredging and disposal can proceed. Only bottom-dump barges are authorized at DMMP non-dispersive sites. On a limited basis flat top barges may be authorized **at dispersive sites only** with prior review and approval ([DMMP, 2008a](#)). Dredgers must coordinate as follows:

- Applicant should apply for DNR Site Use Authorization (SUA) at least three weeks prior to the pre-dredge meeting to allow adequate SUA processing time (see [DMMP, 2009](#)).
- At least 14 days prior to the beginning of dredging and disposal work, notify the Corps of Engineers Regulatory Branch, at (206)764-3495.
- Submit a Dredging and Disposal Quality Control Plan for distribution to agencies, including DMMP representatives, at least 7 days prior to scheduled pre-dredge conference.
- Attend a pre-dredge conference (see Section 13.3) at least 7 days prior to the start of dredging.

Please note that some permits may have additional requirements or earlier plan submission requirements. Applicants should carefully read conditions of other permits to determine if earlier submittals are required.

### 13.2 DREDGING AND DISPOSAL QUALITY CONTROL PLAN (QCP)

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This document helps ensure that the dredging and disposal are in compliance with the DMMP suitability determination and permits, that the necessary coordination has been done, and that reporting procedures are in place. It is submitted at least 7 days prior to the pre-dredge conference and reviewed carefully at the conference. The QCP should provide the following information:

1. Project description; including project and vicinity maps, in-situ volume estimate, and bulking factor (see Section 13.5).
2. Figures showing the area to be dredged, dredging depths (including overdredge), sideslopes and disposal site.
3. Dredging and disposal vessels and equipment.
4. Schedule of dredging and disposal activities, and the allowable work windows for the dredging and disposal sites
5. Dredging/disposal personnel, responsibilities, and contact information
6. Dredging method and procedures, including:
  - measures to control or minimize potential water quality impacts
  - separation of contaminated material from sediments suitable for open-water disposal
  - decontamination of dredging equipment, if required
  - plan for removal of floatable and non-floatable debris (see 13.4)
  - horizontal and vertical controls during dredging (see 13.5)

- real-time dredged volume estimation method, such as barge measurement or daily bathymetry
7. Disposal method and procedures, including:
    - names, types (e.g. bottom dump) and capacities of barges and dump scows (see 13.5)
    - identification of tow boats (by name and call letters)
    - tug operator's name and telephone number
    - target disposal coordinates
    - navigation equipment and positioning protocol for disposal, including communication with the Coast Guard's Vessel Traffic Service for DMMP disposal sites in Puget Sound
    - procedure for initiation of dump sequence when on site
    - disposal data recording and reporting procedures
    - disposal site, whether it be in-water or upland
  8. Water quality monitoring plan and contingencies for water quality exceedances
  9. Coordination procedures with the regulatory agencies, including contact information and notification requirements
  10. Tribal coordination for nighttime disposal
  11. Spill control and response measures
  12. Post-dredge hydrographic survey

The dredging and disposal quality control plan must be approved by the DMMP agencies prior to commencement of open-water disposal.

### **13.3 PRE-DREDGE CONFERENCE**

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Most regulated projects that are evaluated under DMMP are required to have a pre-dredge conference with the regulatory agencies prior to the initiation of dredging. For projects in Puget Sound, a physical meeting is generally required, but for projects involving routine maintenance dredging over several cycles, a conference call may be substituted for a meeting on a case-by-case basis. For projects in Grays Harbor, Willapa Bay, coastal Washington or the Columbia River basin, conference call pre-dredge meetings are generally accepted in lieu of meetings due to logistical considerations. Beneficial-use projects may also require a pre-dredge conference or call depending on the size, complexity and project-specific considerations. The need for, and type of, pre-dredge conference will be determined by the DMMP agencies for each project and dredging cycle using best professional judgment.

The meeting (or conference call) will be coordinated by the Regulatory Branch, US Army Corps of Engineers. Attendees will include, at a minimum, the applicant, the dredging contractor, and representatives from the Corps, DNR and Ecology. EPA and WDFW may also choose to attend. The meeting will be used to review the disposal locations, water quality certification, dredging QCP, DNR site use authorization and any other permit conditions. Completion of the pre-dredge conference will be documented as part of the Regulatory Branch permit file.

Modifications to the QCP that are made at the predisposal conference must be incorporated into a final control plan and submitted to the agencies for approval prior to dredging. A predisposal

dry run may be required by the Corps. At the discretion of the Corps, the regulatory project manager may ride out to the disposal site during the predisposal dry run or any disposal run to verify positioning accuracy.

#### **13.4 DEBRIS MANAGEMENT**

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In general, debris is not allowed to be disposed at the DMMP open-water sites. This includes all floatable debris and large non-floatable debris such as logs, piling, rip-rap and concrete. Occasionally it may include smaller non-floatable woody debris such as sawdust, bark or wood chips, if these are inseparable from the sediment and are present in small enough proportion (less than 50% by volume). Large woody debris is most often segregated from sediment using a clamshell bucket during the dredging operation. In cases where a heterogeneous mix of smaller woody debris and sediment exists, which otherwise meets DMMP disposal guidelines, open-water disposal may occur as long as none of the debris measures more than two feet in its longest dimension. Occasionally, a relatively small quantity of rip-rap may be approved for open-water disposal. However, a 2-ft by 2-ft steel mesh must be used during the dredging operation to remove larger pieces of rip-rap. Pre- and post-disposal monitoring may be required at the disposal site, on a case-by-case basis, to verify the absence of problem debris.

#### **13.5 DREDGED MATERIAL VOLUME ESTIMATES**

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Exceedances of permitted dredging volumes may result in monetary fines or work stoppages. In addition to the SAP preparation guidance provided in Section 6.3 the following guidelines should be followed to reduce the potential for permit violations:

1. Additional shoaling may occur between the time of sampling and dredging. It is the project proponent's responsibility to identify the need for a volume adjustment as a result of any post-sampling shoaling. Volume adjustments should be made prior to issuance of the public notice. If significant shoaling occurs after the public notice has been issued, written requests for permit revisions must be made to the permitting agencies as early as possible and before dredging commences.
2. An estimate of the bulking factor, and a justification for its selection, must be included in the QCP.
3. A description of the barge measurement method for volume must be included in the QCP.
4. A description of the procedures to ensure vertical and horizontal dredging control must be included in the QCP. Such procedures prevent over-dredging and may reduce the need for confirmatory surveys in areas where suitable and unsuitable dredged materials are in close proximity.
5. Once dredging has begun, if the dredging proponent or contractor determines that significant dredging has occurred outside the permitted dredging prism, vertical and horizontal control must be re-established immediately and DNR and the Corps contacted as soon as possible.
6. When the daily barge estimates, corrected for bulking, tally to fifty percent of the permitted in-situ volume, the dredging contractor must confer with the Corps, DNR and the dredging proponent. Based on the experience of the dredging contractor during the first half of the project, a correction in the bulking factor will be made if necessary. Dredging progress (based on condition surveys or spatial coverage) will then be

compared to the corrected barge measurements (using the revised bulking factor) as a check on the adequacy of the permitted in-situ volume. A decision will be made by the DMMP as to whether permit revisions for an increased volume will be necessary. Details of this coordination procedure must be included in the QCP.

7. As dredging proceeds, the contractor must closely monitor dredging progress and notify the agencies as soon as possible if an exceedance of the permitted volume appears likely. Revision of the permits may be made as necessary. Dredging must stop when the sum of the daily barge estimates, corrected for bulking using the revised bulking factor, reaches the permitted in-situ volume. DNR and the Corps must be notified at this time. If the dredging has not been completed, a determination will be made as to the cause of the impending volume exceedance and permit volumes revised as appropriate.
8. Post-dredge surveys will be reviewed by the agencies, as necessary, to ensure that the dredging plan has been followed.

## 13.6 DREDGING AND DISPOSAL CLOSURES

### 13.6.1 WDFW Closures

The Washington Department of Fish and Wildlife (WDFW) establishes closure periods in various parts of Puget Sound to protect aquatic resources. In-water work, including dredging and disposal, cannot be conducted during closed periods. WDFW Habitat Managers should be contacted directly to determine the closure periods for dredging and disposal of specific project.

WDFW requires additional closures at three of the Puget Sound disposal sites to protect resources (**Table 13-1**). Routine inwater work windows for ESA listed species generally apply for the disposal sites as depicted in **Table 13-2**. Dredging site closures are more variable and are established for each dredging action during endangered species act (ESA) consultation for each Section 10/404 permit to protect outmigrating salmonid juveniles and bull trout, and in Grays Harbor, there is additional consideration for green sturgeon and eulachon.

**Table 13-1. Puget Sound DMMP Site Closure Periods (Non ESA)**

Disposal Site	Disposal Site Closure Period	Reason
Port Townsend	September 1 to November 30	Fall shrimp closure
Port Angeles	September 1 to November 30	Fall shrimp closure
Bellingham Bay	November 1 to February 28	Crab/shrimp closure

**Table 13-2. Routine Inwater Work Closure Periods (ESA)**

Disposal Site	Dredging/Disposal Site Closure Period	Reason
All Puget Sound Sites	February 14 (midnight) to June 15	Outmigrating salmonid smolts and bull trout
Coastal Washington Estuarine disposal sites	February 14 (midnight) to July 15	bull trout, green sturgeon, eulachon

### 13.6.2 Native American Fisheries

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The following special site-use condition will be specified by the Corps in all permits that include open-water disposal:

*Disposal operations must not interfere with Indian treaty fishing at the disposal site, including gill nets and other fishing gear. The permittee must coordinate any nighttime disposal with the Seattle District Corps Regulatory Branch Project Manager. Approval must be received from the District Engineer prior to conducting nighttime disposal.*

### 13.6.3 Endangered Species Act

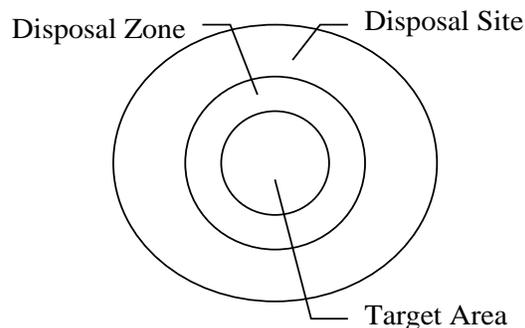
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Under the Endangered Species Act (ESA), all in-water projects are evaluated for impacts to listed species. The Seattle District Corps of Engineers undergoes formal consultation under Section 7 of the ESA to address the potential use effects of the DMMP disposal sites on federally listed species. Current programmatic Biological Evaluations, Biological Opinions and concurrence letters are posted on the DMMP website. Every five years—or when a new species is listed—the Corps updates ESA coordination and documentation. Disposal windows or restrictions may be modified as part of that coordination.

## 13.7 DISPOSAL SITE INFORMATION

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**Table 13-3** and **Table 13-4** contain descriptive information about the DMMP disposal sites. **Figure 13-1** is a schematic delineating the target area and disposal zone within a generic non-dispersive disposal site. In the non-dispersive sites the disposal barges should open within the target area to ensure dredged material is released within the disposal zone. The zone allows for some difficulties in maneuvering. For dispersive sites, the target area and the disposal zone are one and the same. **Figure 13-2** through **Figure 13-11** show all DMMP disposal sites and are suitable drawings for public notices.



**Figure 13-1. Disposal Zone vs. Target Area**

## 13.8 DISPOSAL POSITIONING

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### 13.8.1 Coast Guard Notification and VTS Monitoring

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The United States Coast Guard (USCG) must be notified by email at [D13-PF-LNM@uscg.mil](mailto:D13-PF-LNM@uscg.mil) at least 14 days prior to commencing dredging operations, so the project information can be issued in the Local Notice to Mariners. Dredging operations north of a line between Bush Point on Whidbey Island and Nodule Point on Marrowstone Island must monitor VHF-FM Channels 13 and 5A. Dredging operations south of this line must monitor VHF-FM Channels 13 and 14.

For projects using the DMMP disposal sites in Puget Sound, The USCG Puget Sound Vessel Traffic Service (VTS) also known as “Seattle Traffic” must be contacted by radio prior to each disposal for positioning and verification of location within the disposal site target area. Disposal may not commence until verification is received from the USCG. Information required by the USCG must be provided for recording of the dump.

Use of the Port Angeles dispersive site will require special coordination with VTS because the disposal site is located within the shipping lanes into Port Angeles Harbor. Applicants using this disposal site will be required to follow the Port Angeles VTS Coordination Operations Plan.

### **13.8.2 Dump-Site Position Recording Equipment**

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Projects using hopper dredges are required to use monitoring equipment from the National Dredging Quality Management (DQM) program, administered by the Corps of Engineers. This equipment utilizes differential global positioning to provide a record of disposal events.

For more information about DQM, see <http://dqm.usace.army.mil>

### **13.8.3 Flowlane Disposal**

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This alternative is generally used for dispersive disposal within the Columbia River, and has been used selectively in Willapa Bay since 2009. The DMMP agencies will generally require a simulation of flowlane disposal based on the characteristics of the fine grained material proposed for dredging using the Corps’ DREDGE model to evaluate total suspended solids (TSS) relative to the plume as compared to background observed at a distance of approximately 1,000 ft from the discharge point. The DMMP agencies would review the characteristics of the material and the results of the DREDGE model analysis to determine whether flowlane disposal would be authorized or not on a project-specific basis. However, before authorizing the use of a flowlane disposal site for repeated use, the DMMP agencies would have to formally review and approve this disposal alternative under NEPA/SEPA.

**Table 13-3. Puget Sound Disposal Site Descriptions**

Site	Area (acres)	Depth (ft)	Disposal Zone diameter (ft)	Target Area diameter (ft)	Disposal Site Dimensions (ft)	Disposal Coordinates (NAD83: Lat/Long)	Positioning VTS/ DGPS
Anderson/Ketron Island (nondispersive)	318	360-480	1,800 (circle)	1,200 (circle)	4,400 x 3,600 (ellipsoid)	Lat: 47° 09.42' Long: 122° 39.47'	VTS (AIS)*
Bellingham Bay (nondispersive)	260	96	1,800 (circle)	1,200 (circle)	3,800 x 3,800 (circular)	Lat: 48° 42.82' Long: 122° 33.11'	VTS (AIS)
Commencement Bay (nondispersive)	310	420-560	1,800 (circle)	1,200 (circle)	4,600 x 3,800 (ellipsoid)	Lat: 47° 18.145' Long: 122° 27.815'	VTS
Elliott Bay (nondispersive)	415	210-390	1,800 (circle)	1,200 (circle)	6,200 x 4,000 (Tear drop shape)	Lat: 47° 35.91' Long: 122° 21.45'	VTS
Port Gardner (nondispersive)	318	420	1,800 (circle)	1,200 (circle)	4,200 x 4,200 (circular)	Lat: 47° 58.85' Long: 122° 16.74'	VTS
Port Angeles (dispersive)	884	435	3,000 (circle)	none	7,000 x 7,000 (circular)	Lat: 48° 11.67' Long: 123° 24.94'	VTS
Port Townsend (dispersive)	884	361	3,000 (circle)	none	7,000 x 7,000 (circular)	Lat: 48° 13.61' Long: 122° 59.03'	VTS
Rosario Strait (dispersive)	650	97-142	3,000 (circle)	none	6,000 x 6,000 (circular)	Lat: 48° 30.87' Long: 122° 43.56'	VTS

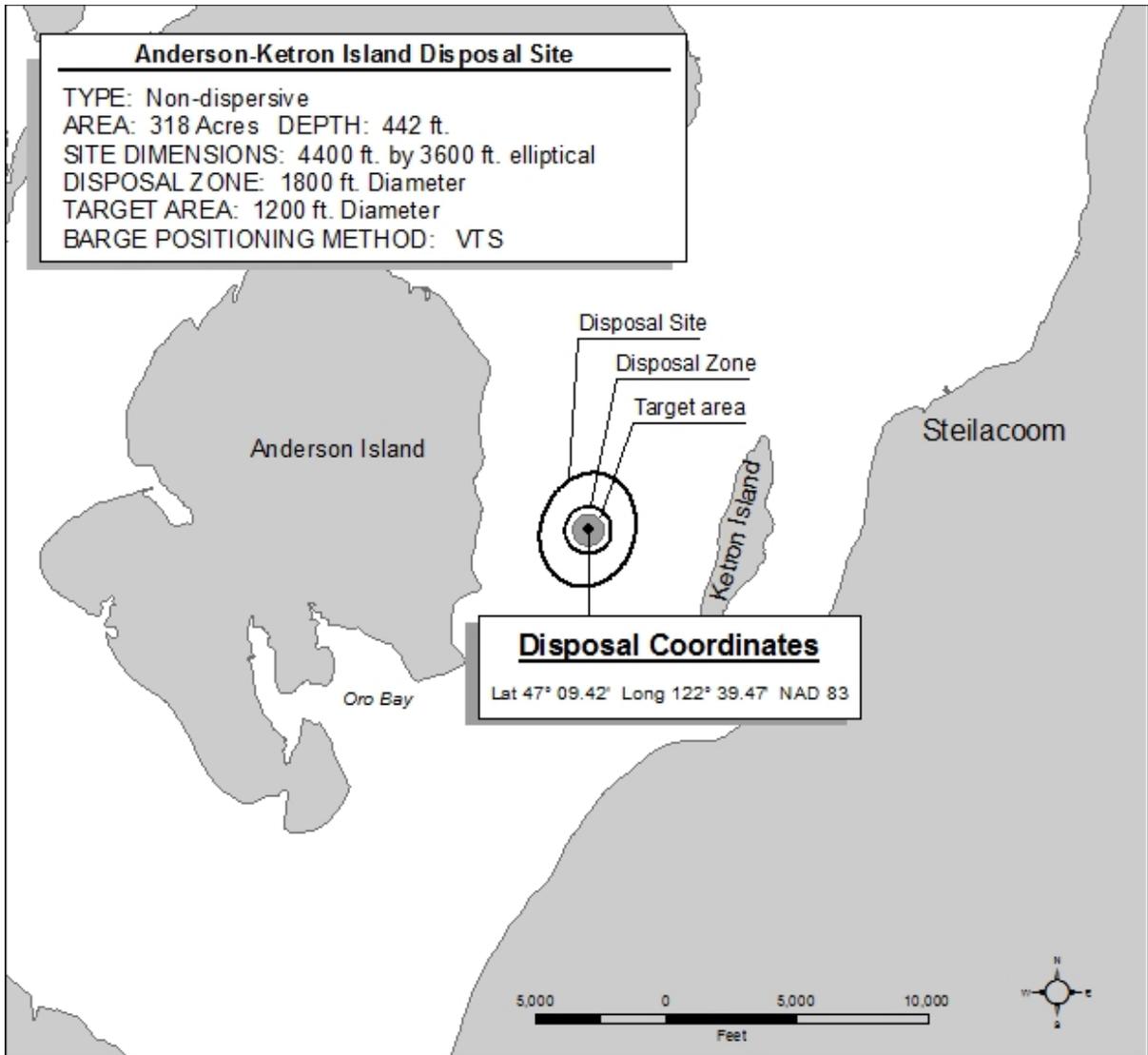
**VTS** = USCG Vessel Traffic Service; **DGPS** = Differential Global Positioning System; **AIS** = Automatic Identification System

\*Automatic Identification Systems (AIS) are designed to be capable of automatically providing information about a ship to other ships as well as to coastal authorities.

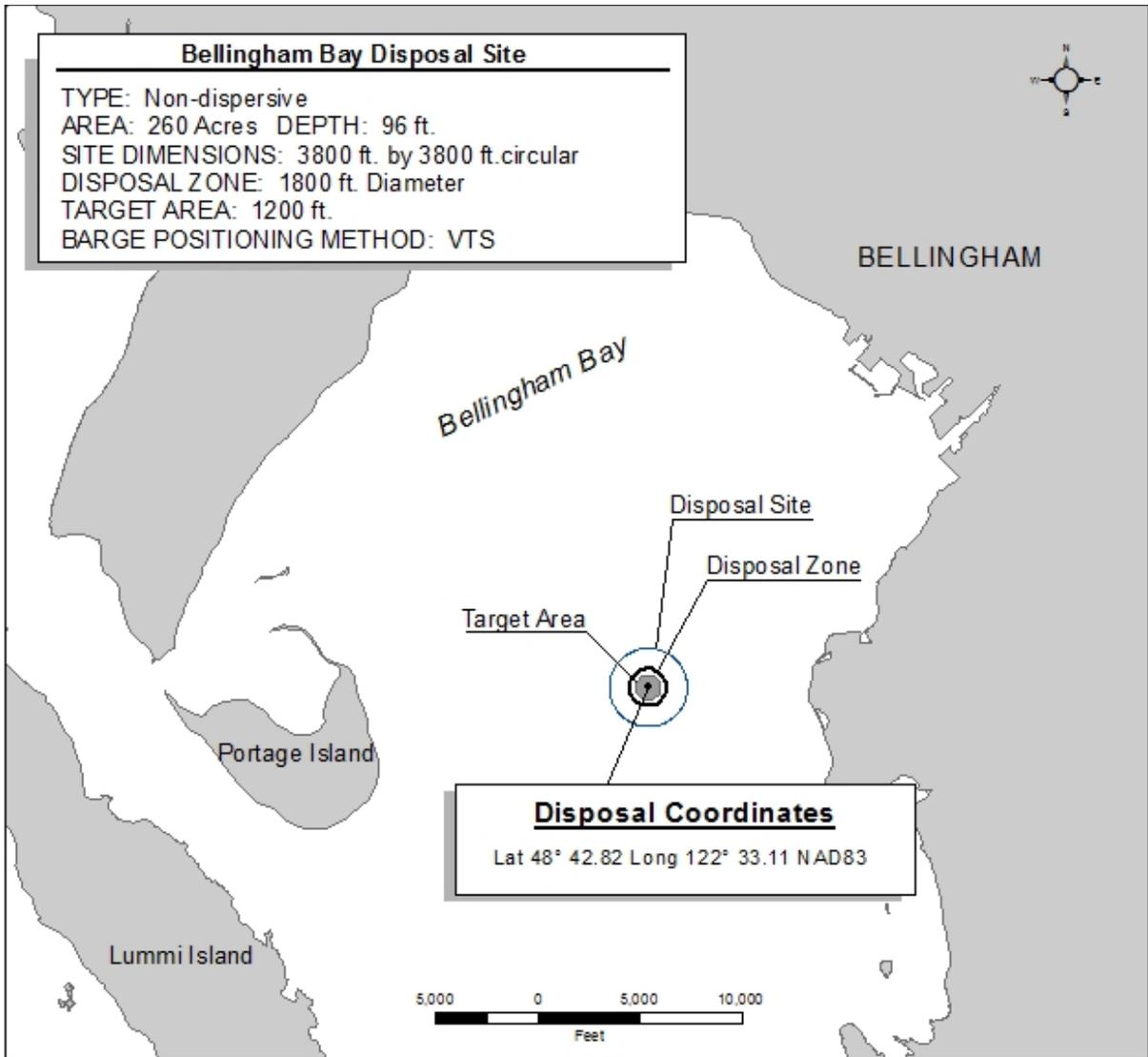
**Table 13-4. Grays Harbor and Willapa Bay Disposal Site Descriptions**

Area	Site (Dispersive)	Area (acres)	Depth (ft)	Disposal Zone	Disposal Site Dimensions (ft)	Site Coordinates (NAD83) (Latitude/Longitude)		Positioning VTS/DGPS
<b>GRAYS HARBOR</b>	Point Chehalis (Estuarine)	229.6	>50 ft	Within rectangle, partitioned into 3 cells (2,000 x 5,000 ft)	2,000 x 5,000 ft. (rectangle)	46°55'00.51"	124°08'06.94"	DGPS
						46°55'04.49"	124°07'50.66"	
						46°55'10.46"	124°07'26.23"	
						46°55'17.09"	124°06'59.10"	
						46°54'41.91"	124°07'57.26"	
						46°54'45.90"	124°07'40.98"	
						46°54'51.87"	124°07'16.55"	
						46°54'58.50"	124°06'49.42"	
						(Corners of 3 cells within rectangle)		
	South Jetty (Estuarine)	55.1	>50 ft	Within rectangle (800 X 3,000 ft)	800 X 3,000 ft. (rectangle)	46°54'34.82"	124°09'30.67"	DGPS
						46°54'32.06"	124°08'47.65"	
						46°54'26.96"	124°09'31.74"	
						46°54'24.20"	124°08'48.72"	
						(4 corners of rectangle)		
	Half Moon Bay (beneficial use)	2.9 (1A) 52.6 (1) 37.3 (2)	15.5 ft (1A) 10-15 ft (1) 11-26 ft (2)	Variable within each subarea, see Figure	Variable within each subarea (Area 1A, Area 1, Area 2), see Figure	Variable within each subarea		DGPS
	South Beach (beneficial use)	1,223.4	17-46 ft	Within Quadrilateral (6,400 x 7,700 ft x 6,200 x 9,500 ft)	6,400 x 7,700 ft x 6,200 x 9,500 ft (Quadrilateral)	46°54'23.23"	124°10'14.39"	DGPS
						46°54'29.23"	124°08'42.22"	
						46°52'51.62"	124°09'41.30"	
						46°53'05.60"	124°08'14.60"	
						(4 corners of Quadrilateral)		

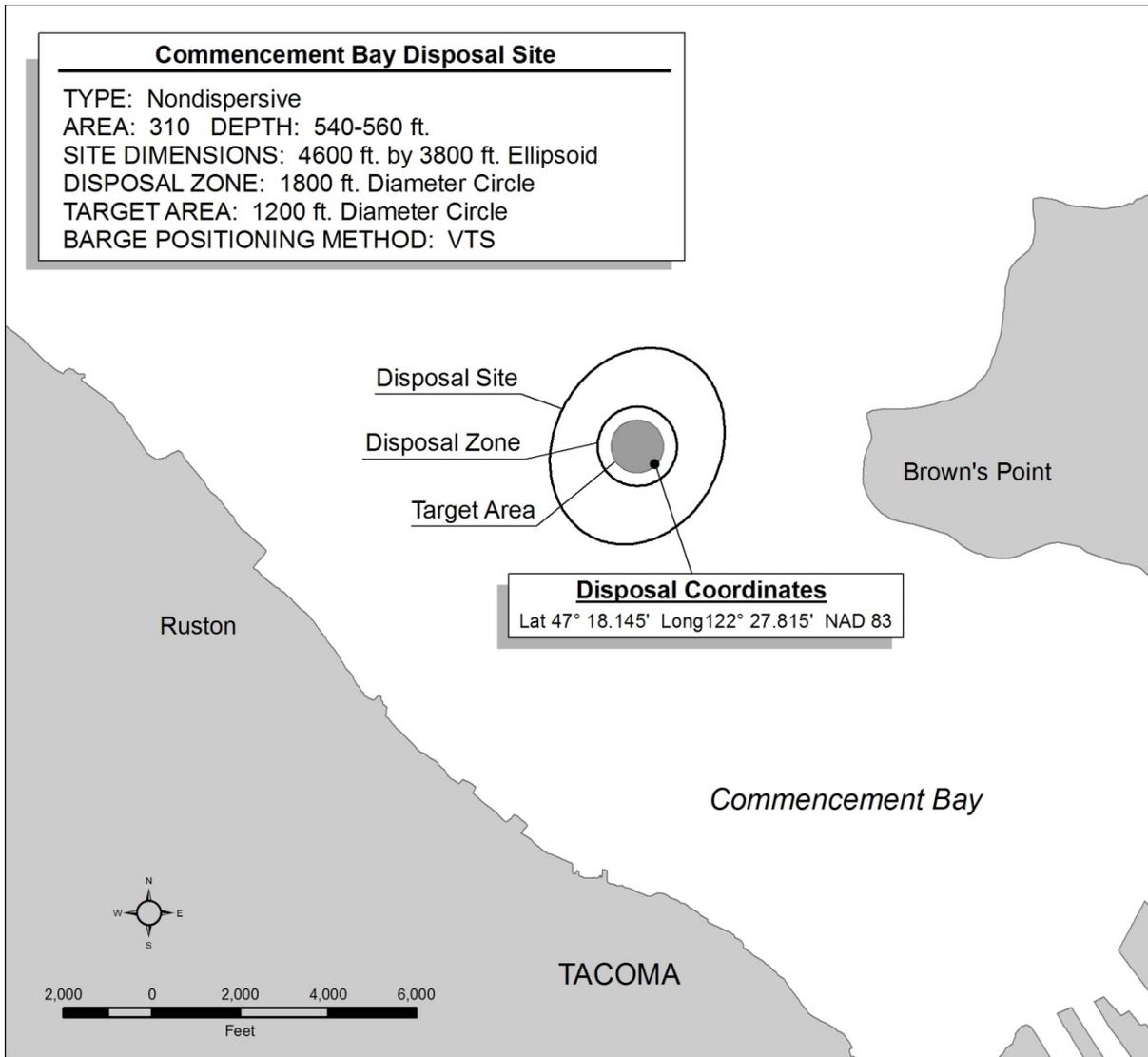
Area	Site (Dispersive)	Area (acres)	Depth (ft)	Disposal Zone	Disposal Site Dimensions (ft)	Site Coordinates (NAD83) (Latitude/Longitude)		Positioning VTS/DGPS
	3.9-Mile SW Ocean Site	58.4 (circle) 1,056.6 (parallelogram)	>120 ft	1,800 ft diameter circle within parallelogram	6,000 x 8,000 ft. (parallelogram)	Site presently inactive		DGPS
						46°51'55.68	124°14'40.53	
						(center of circle)		
						46°51'56.19"	124°15'03.91"	
						46°52'57.51"	124°13'51.34"	
						46°52'08.67"	124°13'02.50"	
46°51'07.35"	124°14'15.06"							
(4 corners of parallelogram)								
(center of circle)								
WILLAPA BAY	Cape Shoalwater (Estuarine)	178.9	5-19 ft	USCG buoy G "13"	3,000 x 5,196 x 6,000 ft. triangle	46°42'05.34"	124°01'21.50"	USCG Buoy G13
	(coordinates for USCG buoy G "13")							
	Goose Point (Estuarine)	58.4	30-48 ft	1,800 ft diameter circle	1,800 ft diameter circle	46°39'27.60"	123°59'46.04"	DGPS



**Figure 13-2. Anderson-Ketron Non-Dispersive Disposal Site**



**Figure 13-3. Bellingham Bay Non-Dispersive Disposal Site**



**Figure 13-4. Commencement Bay Non-Dispersive Disposal Site**

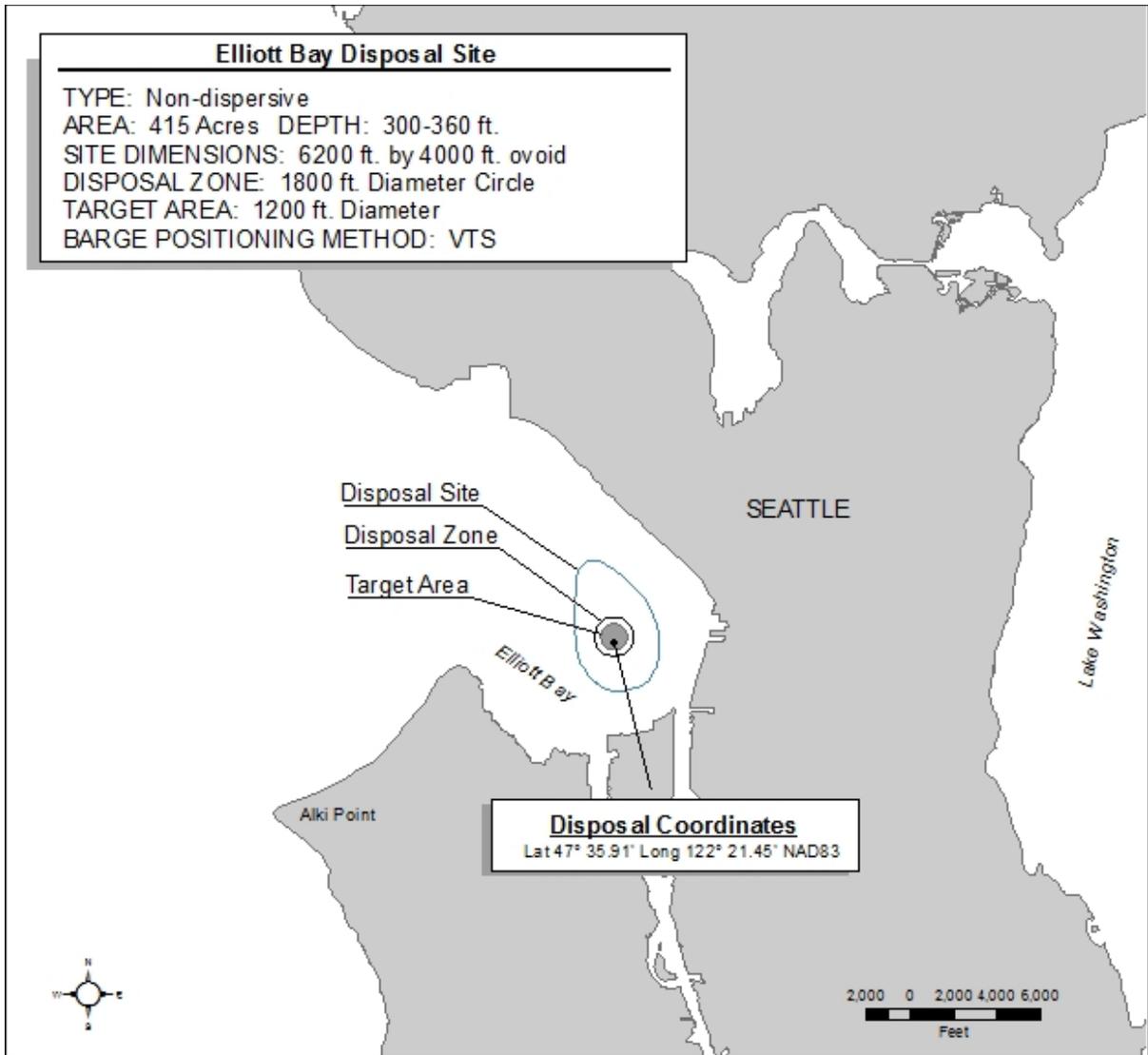
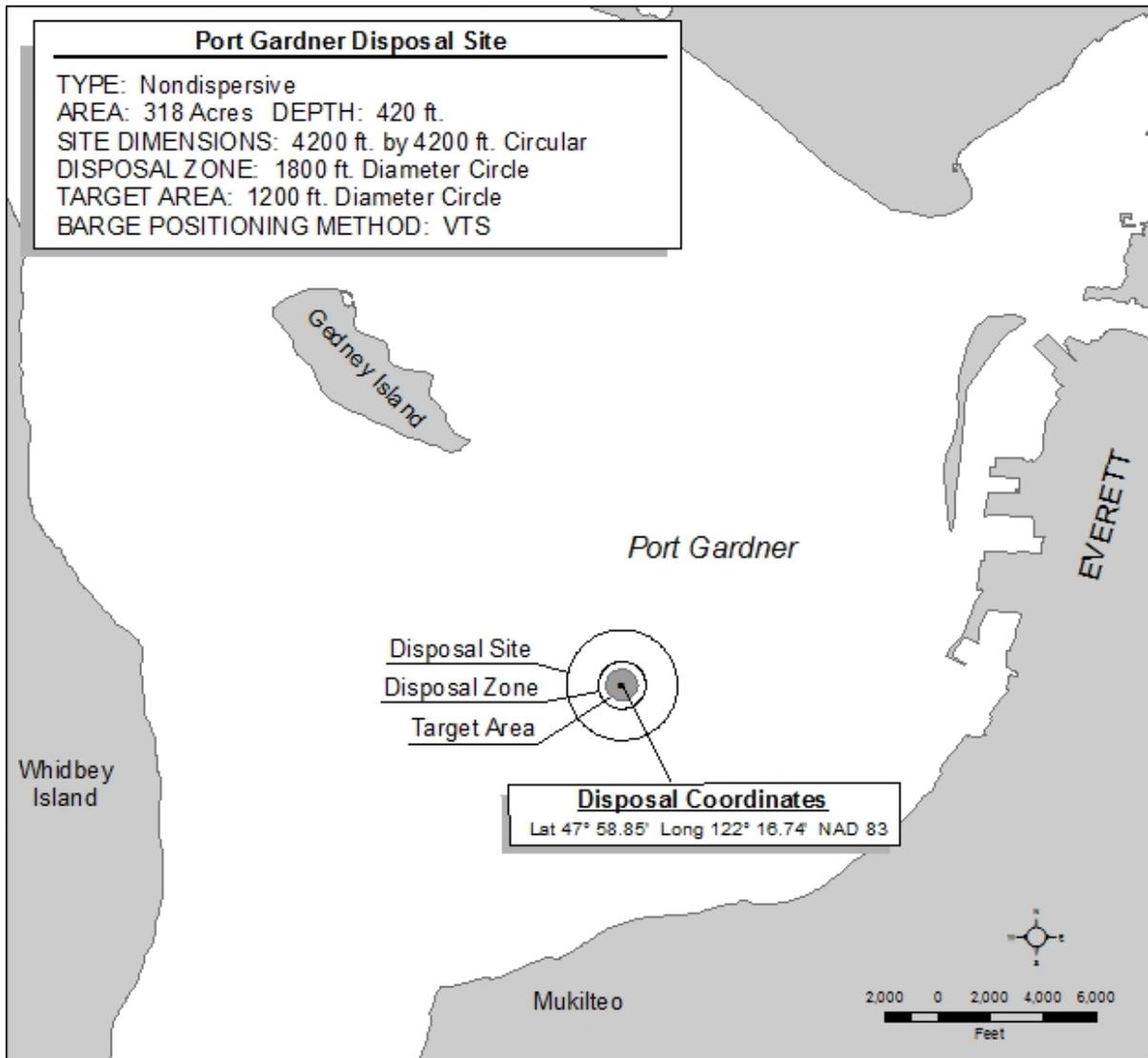
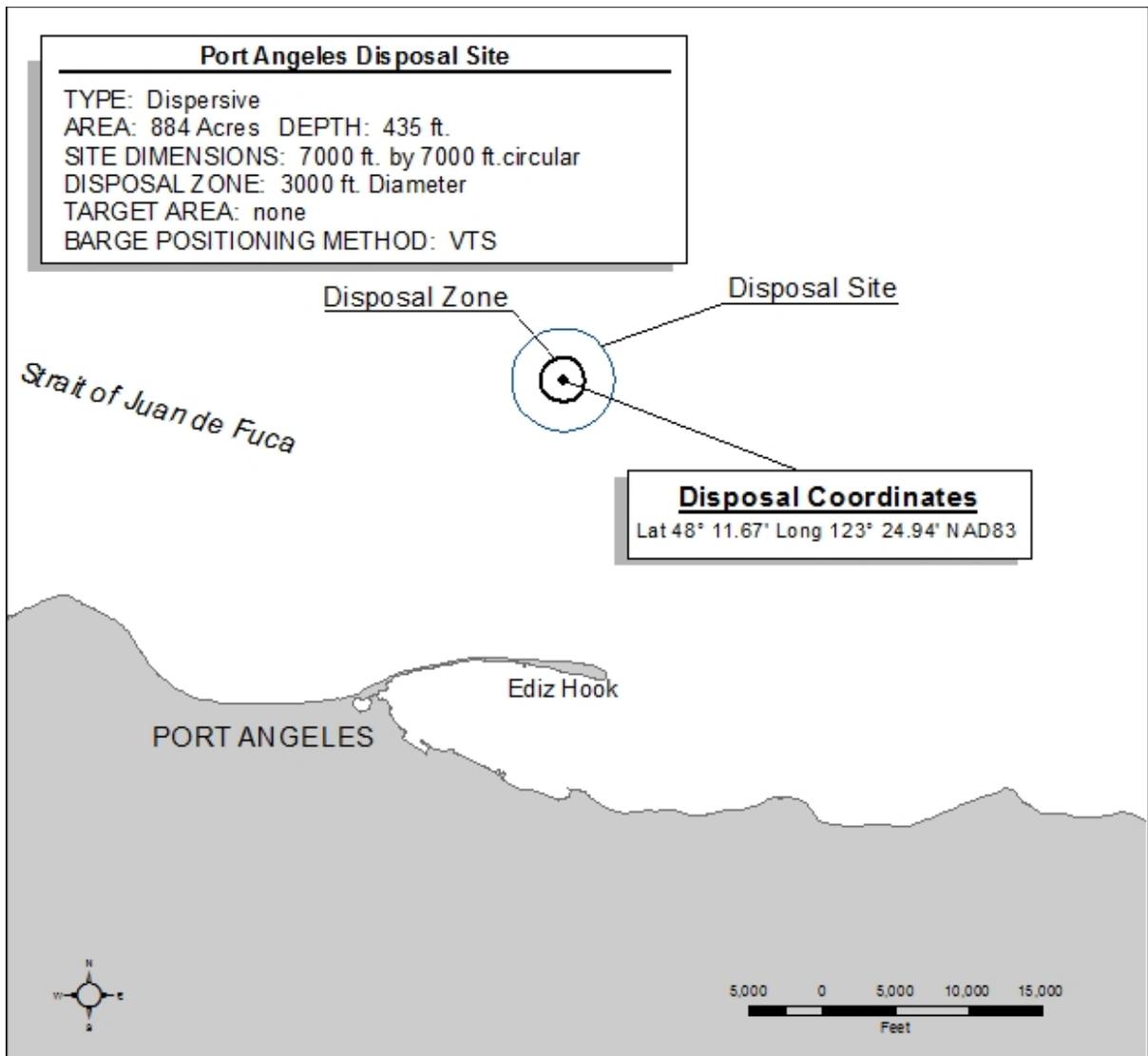


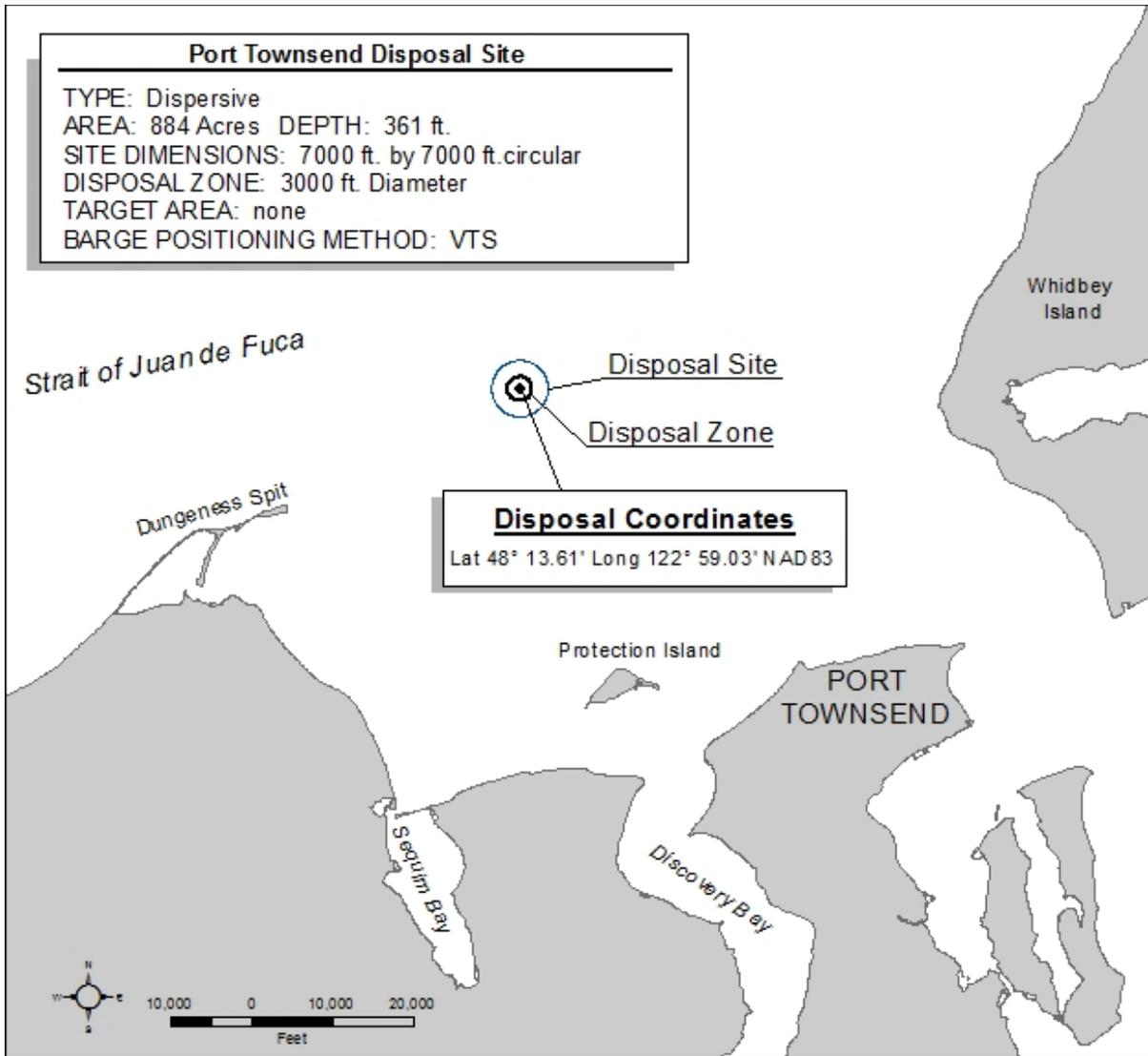
Figure 13-5. Elliott Bay Non-Dispersive Disposal Site



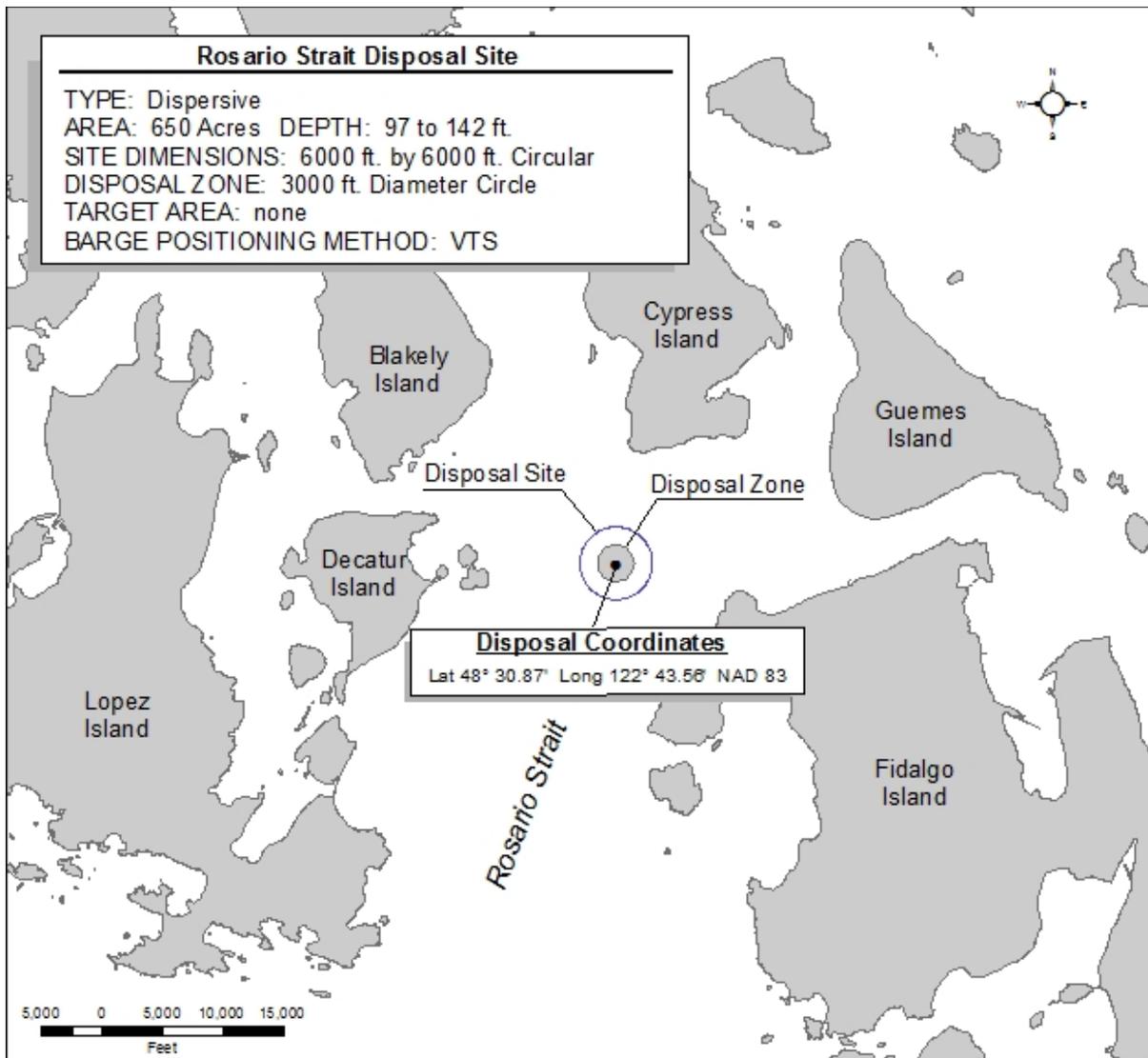
**Figure 13-6. Port Gardner Non-Dispersive Disposal Site**



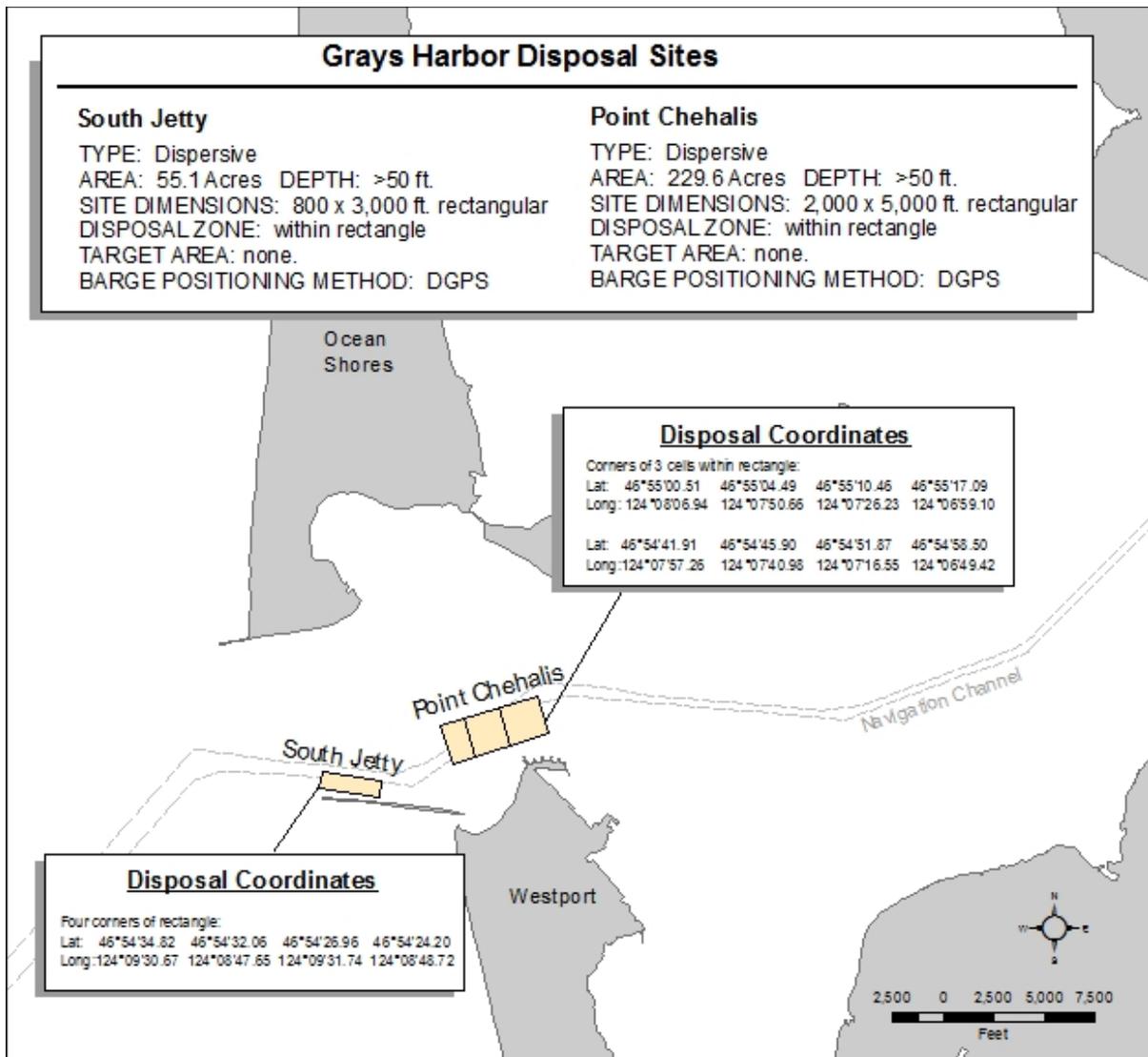
**Figure 13-7. Port Angeles Dispersive Disposal Site**



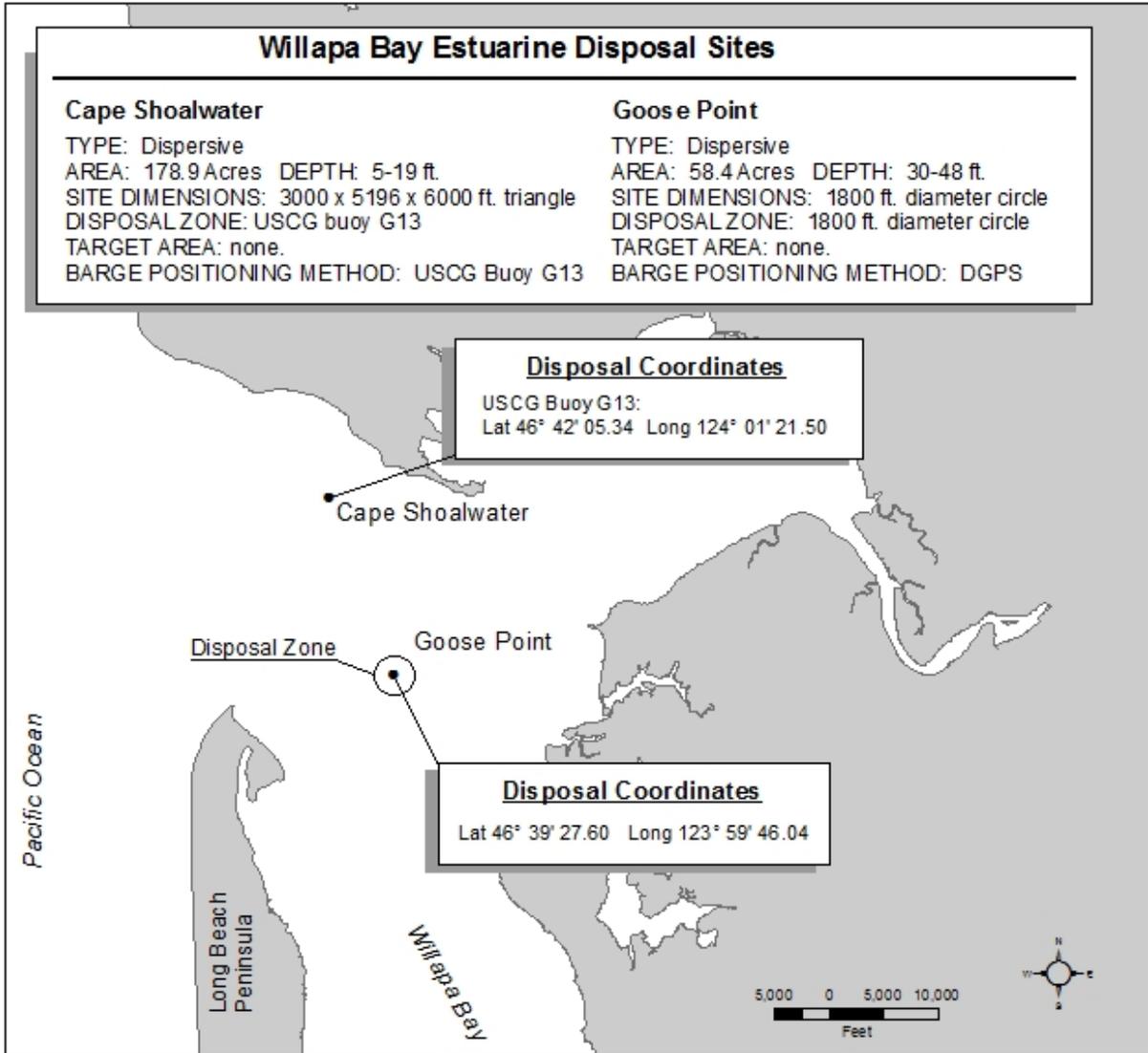
**Figure 13-8. Port Townsend Dispersive Disposal Site**



**Figure 13-9. Rosario Strait Dispersive Disposal Site**



**Figure 13-10. Grays Harbor Dispersive Disposal Sites**



**Figure 13-11. Willapa Bay Dispersive Disposal Sites**