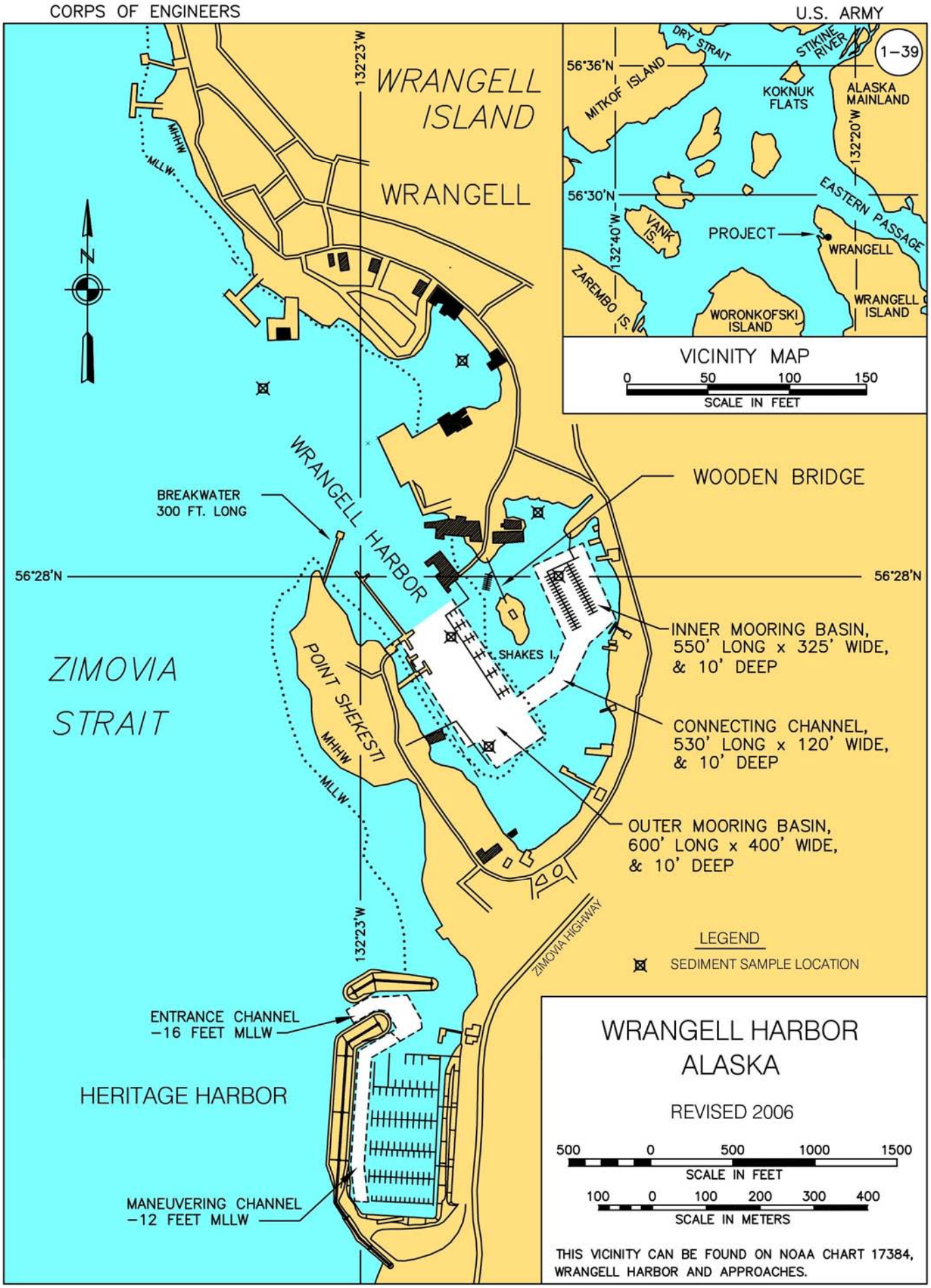
WRANGELL HARBOR


CORPS OF ENGINEERS
U.S. ARMY
1-39
WRANGELL ISLAND
WRANGELL
132°23'W
MHHW
MLLW
N
56°36'N
DRY STRAIT
STIKINE RIVER
MITKOF ISLAND
KOKNUK FLATS
ALASKA MAINLAND
132°20'W
56°30'N
EASTERN PASSAGE
VANK IS.
PROJECT
WRANGELL
132°40'W
ZAREMBO IS.
WORONKOFSKI ISLAND
WRANGELL ISLAND
VICINITY MAP
0 50 100 150
SCALE IN FEET
WRANGELL HARBOR
WOODEN BRIDGE
BREAKWATER 300 FT. LONG
56°28'N
56°28'N
INNER MOORING BASIN, 550' LONG x 325' WIDE, & 10' DEEP
ZIMOVIA STRAIT
POINT SHEKESTI
T. SHAKES I.
CONNECTING CHANNEL, 530' LONG x 120' WIDE, & 10' DEEP
OUTER MOORING BASIN, 600' LONG x 400' WIDE, & 10' DEEP
ZIMOVIA HIGHWAY
LEGEND
SEDIMENT SAMPLE LOCATION
ENTRANCE CHANNEL -16 FEET MLLW
HERITAGE HARBOR
MANEUVERING CHANNEL -12 FEET MLLW
WRANGELL HARBOR
ALASKA
REVISED 2006
500 0 500 1000 1500
SCALE IN FEET
100 0 100 200 300 400
SCALE IN METERS
THIS VICINITY CAN BE FOUND ON NOAA CHART 17384, WRANGELL HARBOR AND APPROACHES.

WRANGELL HARBOR, ALASKA
(CWIS NOS. 21500 & 10435)

Condition of Improvement 30 September 2009

AUTHORIZATION: (1) Rivers and Harbors Act, 22 September 1922 (House Doc. 161, 67th Congress, 2nd Session) as adopted, provides for a breakwater 300 feet long extending from Point Shekesti to protect the southern portion of the harbor. **(2)** Rivers and Harbors Act, 30 August 1935 (House Doc. 202, 72nd Congress, 1st Session) as adopted, provides for a mooring basin 600 feet long by 400 feet wide dredged to a depth of 10 feet below MLLW. **(3)** Rivers and Harbors Act, 2 March 1945 (House Doc. 284, 76th Congress, 1st Session) as adopted, provides for an inner mooring basin 550 feet long by 325 feet wide dredged to a depth of 10 feet below MLLW and connected to the outer mooring basin by a connecting channel 530 feet long by 120 feet wide at a depth of 10 feet below MLLW; includes authorization for a breakwater 320 feet long on the reef north of Shakes Island. **(4)** WRDA 99 authorizes the construction of Heritage Harbor to include two breakwaters, an entrance channel, and inner harbor area. **(5)** WRDA 2007 Section 5035 provides (a) General Navigation Features - In carrying out the project for navigation, Wrangell Harbor, Alaska, authorized by section 101(b)(1) of the Water Resources Development Act of 1999 (113 Stat. 279), the Secretary shall consider the dredging of the mooring basin and construction of the inner harbor facilities to be general navigation features for purposes of estimating the non-Federal share of project costs.

EXISTING PROJECT:	LENGTH	DEPTH	WIDTH
• Outer Mooring Basin	600 ft	-10 ft	400 ft
• Connecting channel	30 ft	-10 ft	120 ft
• Inner Mooring Basin	550 ft	-10 ft	325 ft
• Breakwater	300 ft		
Heritage Harbor			
• Entrance Channel	650 ft	-16 ft	120 ft
• Maneuvering Channel	1,050 ft	-12 ft	80 ft
• Basin (maintained by others)	1,215 ft	- 12 ft	525 ft
• North Breakwater	542 ft		
• West Breakwater	1,802 ft		

PROJECT USAGE: The original interconnected small boat basins have a capacity of 300 vessels and are used as an operating base for commercial fishing. The new Heritage Harbor can accommodate up to 271 vessels with lengths from 19 to 66 feet. The City of Wrangell has a dual economy based on the timber and fishing industries.

PROGRESS OF WORK:

1926 - Point Shekesti breakwater is constructed.
1936 - The outer mooring basin (original project) is dredged to project depth.

Continues of page 1-51a

WRANGELL HARBOR, ALASKA (continued)

30 September 2009

1956 - Expansion of the harbor facilities begins in May with the dredging of the inner basin and connecting channel. The 320 foot rock mound breakwater north of Shakes Island is placed on inactive status.
1957 - Harbor expansion is completed in March to the present existing project.
1968 - Maintenance dredging is performed in September and October, where necessary to meet project depth, resulting in the removal of 13,644 cubic yards of material.
1992 - The concrete parapet wall atop the breakwater undergoes rehabilitation.
1993 - Sampling and testing of bottom sediments is completed; the Federal project is dredged by contract in October with the removal of 3,575 cubic yards.
1998 - A condition survey is conducted from 29 March - 2 April.
2001 - A multi-beam survey provides full swath coverage of the harbor in April.
2004 - The most recent condition survey of the federal project is conducted in July with single beam techniques. A dredging contractor removes 220 cubic yards from beneath the inner harbor float to prevent recurring damage to the structure at extreme low tides. Construction begins on Heritage Harbor in June.
2005 - Construction of Heritage Harbor is completed in April.
2007 - Condition surveys of the original downtown harbor and the new Heritage Harbor are conducted in May.
2009 - A project condition survey was completed for Wrangell and Heritage Harbor.

COST TO DATE:

GI PED Appropriation 10435	$386,000		CG Costs 10435	$13,133,802
GI PED Costs 10435	$386,000		CG Contributed Appropriation 10435	$3,547,000
GI PED Contributed Appropriation 10435	$150,000		CG Contributed Costs 10435	$3,012,358
GI PED Contributed Costs 10435	$110,642		O&M Appropriation 21500	$1,121,339
CG Appropriation 10435	$13,209,337		O&M Costs 21500	$1,121,339

RANGE OF TIDE:

Mean Range	Diurnal Range	Extreme Range
13.3'	15.7'	26.5'

CONTROLLING DEPTH: For the Outer Mooring Basin in Wrangell Harbor, -4.6 feet MLLW controls near the southeast edge of the project limits. For the Connecting Channel, -4.5 feet MLLW controls near Daybeacon 5. Project depth is effectively available in the Inner Mooring Basin except along the northern portion of the limits in which -1.6 feet MLLW controls. Finally, the project depth is available through the Entrance Channel of Heritage Harbor. A depth of -11.5 feet MLLW controls in the Maneuvering Channel near the south end of the project limits, August 2009.
Continues on page 1-51b

WRANGELL HARBOR, ALASKA (continued)

30 September 2009

MAINTENANCE DREDGING SUPPLEMENT:

A. General

1. The Federal project was last dredged in October 1993; the only previous maintenance dredging occurred in 1968 with the removal of 13,644 cubic yards of material.
2. Shoaling was most apparent along the eastern limit of the outer basin, both sides of the connecting channel, and along the northern limit and southeast corner of the inner basin.
3. The "no-dredging" window runs from 15 March to 1 June as established by the State of Alaska.
4. The project was last dredged with a hydraulic cutterhead and suction pipeline. Hard bottom conditions were encountered in all three areas of the project thwarting efforts at an additional foot of advance maintenance and resulting in a large underrun. Of the 13,100 cubic yards reportedly possible for dredging, the contractor was able to remove only 3,600 cubic yards.

B. Sampling & Testing

1. Three sites were sampled within the Federal project, September 1992, and classified as silty sand (SM), sandy silt (ML), and silt with sand (ML).
2. Chemical analysis was conducted using (5) test methods as outlined with results below:

Method 415.1	Total Organic Carbon	ND - 3.48 %
Series 6000-7000's	(8) RCRA Metals (6) of (8) detected	Mercury 0.3 - 0.5 marginal, all others below minimum management levels
Method 8270	Semi-volatile Organics	(12) above management levels
Method 8080	Pesticides and PCB's	none detected
Method 8260	Volatile Organic Compounds	Methylene Chloride 25 - 58 ppb,* all others ND or below management levels

* Low levels detected in all samples; laboratory contamination suspected.

C. Disposal

1. Dredge spoils were conveyed via portable pipeline and discharged in the deepwater of Zimovia Strait. The primary intertidal site north of project, with center at 56°28'13.33"N 132°22'50"W, was not utilized.
2. The deepwater disposal site is located a minimum of 900 feet west of the main breakwater tip in water 100 feet deep or greater. The offshore geographic coordinates for a single discharge point are 56°28'2.5"N and 132°23'19.9"W.
3. The future location of the disposal site will have the option of upland or deep water disposal. The containment structure for an upland or intertidal site is not funded by the Corps.

Continues on page 1-51c

WRANGELL HARBOR, ALASKA (continued)

30 September 2009

D. Environmental Permits and Reports

1. A Chemical Data Report was prepared by the Corps in February 1993, an Environmental Assessment was completed in April 1993, and a Finding of No Significant Impact (FONSI) was signed 13 August 1993.

2. The following permits or authorizations are listed by agency below:

Agency Name	Date of Issue	Date of Expiration
ADEC	4 Aug 93	N/A
ADGC	22 Jul 93	N/A
ADNR	15 Jul 93	N/A
USFWS	6 Jul 93	N/A
NOAA	14 Apr 93	N/A

3. Water Quality: Five physical parameters were measured through the water column at three locations within the federal project; temperature, salinity, pH, oxidation-reduction potential, and conductivity were measured in the field. No chemical analysis was conducted.

Wrangell Harbor

View of the small boat basin near Shakes Island at high tide in 2009.

The Wrangell shipyard at low tide in 2009.

Heritage Harbor

Survey setup for the condition survey conducted in 2009.

View of the small boat harbor in 2009.