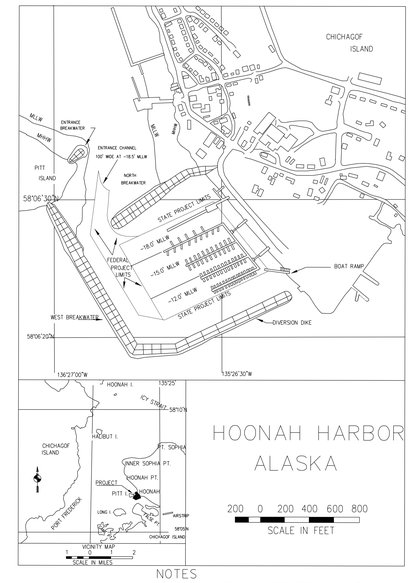
CORPS OF ENGINEERS



NOTES

1. HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83 (5001). IN US SURVEY FEET, BASED ON A FULLY CONSTRAINED STATIC GPS NETWORK HOLDING THE 2003 EPOCH VALUES PUBLISHED NAD83 (COR) OF NGS CORS STATIONS: "GUSTAVUS 6 CORS ARP" (PID DL6231); "JUNEAU WAAS I CORS ARP" (PID DF4367); "ANNETTE ISLAND COR ARP" (PID DK6482).
2. VERTICAL CONTROL IS IN U.S. SURVEY FEET AND REFERS TO MEAN-LOWER-LOW-WATER (MLLW+0.0'). THE MLLW VALUES SHOWN ON THIS PLAT ARE BASED ON THE NOAA/NOS TIDAL STATION 9452438, HOONAH, ALASKA, HOLDING THE NOAA STANDARD BENCH MARK BRASS CAP, "NOS 2438A 2009" VM#19565 AS ELEVATION 7.318 METERS. THIS VALUE IS BASED ON THE TIDAL EPOCH 1983 – 2001 PUBLISHED 6 NOV 2007 FOR THIS STATION.
3. VERTICL CONTROL WAS ALSO TIED INTO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) HOLDING THE OPUS DB PUBLISHED VALUES NOAA BENCH MARK "NOS NOAA 2438 C 2009" VM#19567" AS 7.126 METERS APPLYING THE AVERAGE DELTA TO THE REMAINING PRIMARY CONTROL.
4. VERTICAL AND HORIZONTAL CONTROL SURVEY WAS CONDUCTED 11/12/13 AUGUST 2010 USING RTK AND DIFFERENTIAL LEVELING TECHNIQUES ALONG WITH LONG PERIOD STATIC GPS OBSERVATIONS USING A TRIMBLE 5700 AND/OR A JAVAD SIGMA WHICH WAS THEN PROCESSED THROUGH THE NATIONAL GEODETIC SURVEY ONLINE POSITIONING USER SERVICE (OPUS). THE DIFFERENTIAL LEVELING EQUIPMENT WAS A LECIA NI-2 SELF LEVELING LEVEL AND A LEVEL ROD. ALL PRIMARY CONTROL WAS DOUBLE-TIED USING REAL-TIME-KINEMTIC CONTROL METHODS AND INDEPENDENT BASELINES SOLUTIONS. MONUMENTS WERE CHECKED AGAINST THEIR PUBLISHED VALUES AS A QUALITY CONTROL PROCEDURE USING A TRIMBLE ROVER AND BASE STATION.
5. HYDROGRAPHIC SOUNDING DATA ACQUISITION WAS CONDUCTED 11/12/13 AUGUST 2010 USING AN ODOM ES-3 MULTIBEAM ECHO SONAR, (200 KHz, 90 DEGREE SWATH-WIDTH WITH 1.5° BEAMS). POSITIONING AND VESSEL ALTITUDE WERE MEASURED USING A CODA F185+ INTERAL NAVIGATION SENSOR OPERATING ON RTK CORRECTORS BROADCAST FROM A JAVAD SIGMA BASE STATION LOCATED AT NOS BENCHMARK "2438C 2009". GEOID 09 MODEL WITH A SEPARATION VALUE OF 03.7 FEET WAS USED. SOUND VELOCITY WAS MEASURED AT NUMEROUS LOCATIONS AND TIDE PHASES USING AN ODOM DIGI-BAR PRO SOUND VELOCITY PROFILER. DATA COLLECTION, NAVIGATION AND POST-PROCESSING WERE PERFORMED USING HYPACK HYSWEEP (2010) SOFTWARE.
6. SOUNDINGS ARE IN US SURVEY FEET AND ARE MINUS UNLESS OTHERWISE NOTED.
7. THIS DRAWING IS INDICATIVE OF CONDITIONS ON THE DATES OF SURVEY.
8. THIS SURVEY WAS PERFORMED BY: SEATTLE DISTRICT, US ARMY CORPS OF ENGINEERS, PUGET SOUND SURVEY CREW.

CONTROL DATA

STATION	NORTHING	EASTING	MLLW ELEV	NAVD88 ELEV	DESCRIPTION
1217-83-1 1983	2,295,902.77	2,340,733.89	23.25	27.95	USACE SBC
1217-83-3 1983	2,294,733.35	2,341,384.27	25.78	30.48	USACE SBC
1217-83-4 1983	2,294,733.03	2,341,734.66	25.10	29.80	USACE SBC
1217-83-FIVE 1983	2,295,101.31	2,342,552.91	24.91	29.61	USACE SBC
1217-83-8 1983	2,295,769.27	2,341,302.65	25.18	29.88	USACE SBC/ON NAVAID BASE
1217-83-9 1983	2,295,695.81	2,342,249.47	22.96	27.66	USACE SBC
2438-A 2009	2,296,080.24	2,341,612.65	24.01	28.71	NOS SBC
2438-B 2009	2,296,245.97	2,341,951.81	26.71	31.41	NOS SBC
2438-C 2009	2,295,950.38	2,342,189.66	23.38	28.08	NOS SBC
2438-D 2009	2,295,741.42	2,342,337.34	22.15	26.85	NOS SBC
2438-E 2009	2,296,295.42	2,342,350.78	33.14	37.84	NOS SBC
HH-A 2002	2,295,854.03	2,342,074.60	22.88	27.58	3 1/4" DOMED BC
HH-B 2002	2,295,351.73	2,342,668.31	20.99	25.69	3 1/4" DOMED BC

PROJECT LIMITS

CORNER	NORTHING	EASTING	CORNER	NORTHING	EASTING
1	2,295,650.29	2,341,069.40	6	2,295,651.98	2,341,468.93
2	2,294,989.36	2,341,426.50	7	2,295,857.80	2,341,203.65
3	2,294,950.84	2,341,617.80	8	2,296,244.39	2,341,271.93
4	2,295,338.42	2,342,472.02	9	2,296,304.39	2,341,177.93
5	2,295,911.83	2,342,041.63			

NAVIGATION AIDS

DESCRIPTION	USGC NO.	NORTHING	EASTING
HOONAH BREAKWATER LIGHT 2	24150	2,296,325.9	2,341,006.9
HOONAH BREAKWATER LIGHT 3	24155	2,295,772.2	2,341,303.5

VOLUME COMPUTATIONS

Project Depth -18.5' MLLW

VOLUME AVAILABLE TO PROJECT DEPTH (-18.5' MLLW)	85,344.1 (cubic yards)
VOLUME AVAILABLE BETWEEN PROJECT DEPTH AND MAXIMUM PAY LINE (-19.5' MLLW)	29,086.4 (cubic yards)
VOLUME AVAILABLE ALONG SIDE SLOPES (3:1, H:V)	19,852.1 (cubic yards)
TOTAL	134,282.6 (cubic yards)

SURVEY

US ARMY CORPS OF ENGINEERS
ALASKA DISTRICT

CONTRACT NO. US ARMY CORPS OF ENGINEERS, SEATTLE DISTRICT
CONTRACTOR ____
CITY ____ STATE ____
Recommended: ____ Approved: ____ Date: ____
PRIME CONTRACTOR ____ RESIDENT ENGINEER ____

Sym	Action	Description	Date	Approv

Date: 23 SEP 2010
Dwg Scale: AS NOTED
Plot Scale: ____
Sheet Title: ____
Drawing #: 2849-10
Surveyed: G. KING
Drawn: L. TOKUNAGA
Reviewed: J. ADAIR
Submitted: A. CHURCHILL
Chief: ____

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

HOONAH, ALASKA
HOONAH SMALL BOAT HARBOR
PROJECT CONDITION SURVEY
AUGUST 11, 12 & 13, 2010

Reference number:
V-001
Sheet 1 of 1