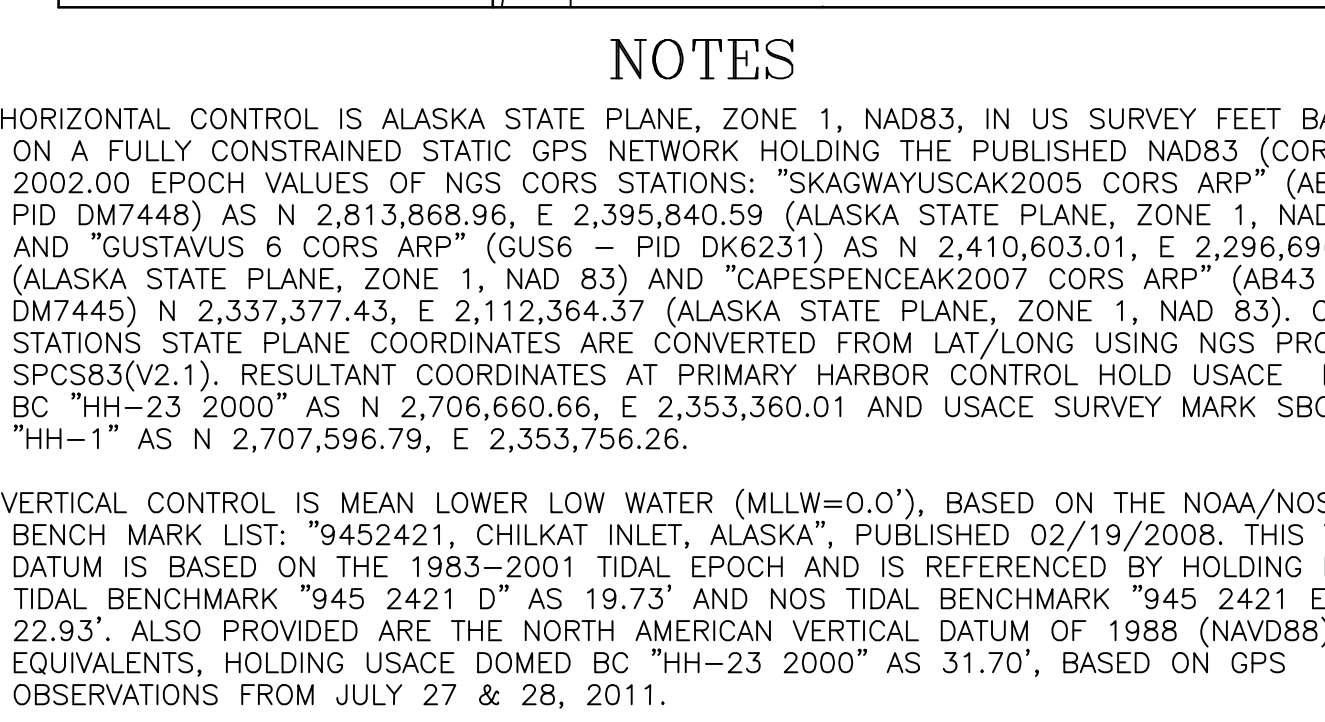
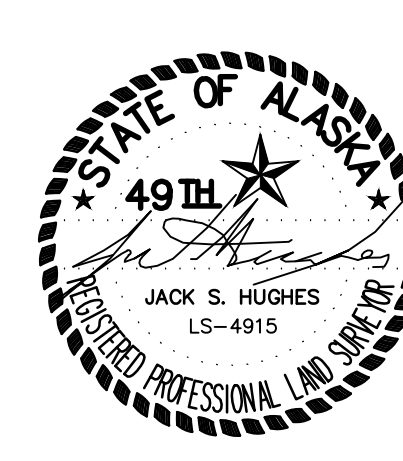


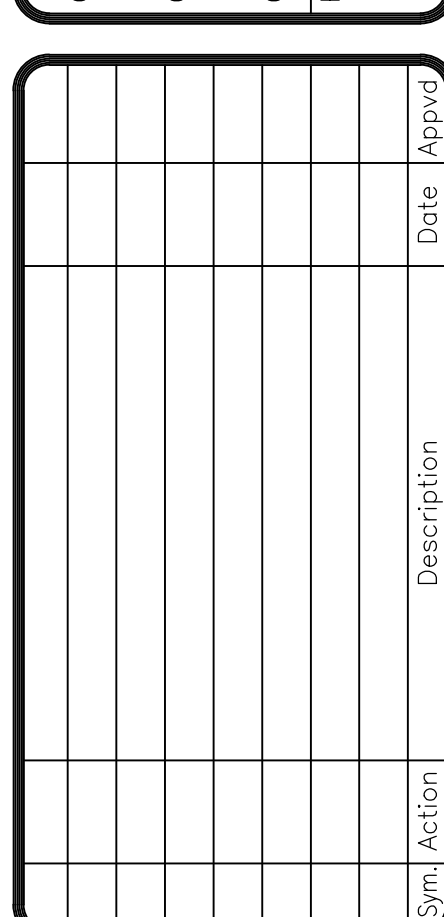


- | CONTROL DATA | | | | | |
|--------------------------------------|--------------|--------------|-------------|---------------|-----------------------------|
| STATION | NORTHING | EASTING | ELEV (MLLW) | ELEV (NAVD83) | DESCRIPTION |
| HH-1 | 2,707,596.79 | 2,353,756.26 | 25.64 | 21.80 | USACE SURVEY MARK SBC |
| HH-5 | 2,706,584.96 | 2,353,459.66 | 24.60 | 18.32 | DESTROYED |
| HH-6 | 2,706,922.52 | 2,354,071.75 | 25.74 | 21.90 | USACE SURVEY MARK SBC |
| HH-7 | 2,707,206.44 | 2,354,151.36 | 26.12 | 22.28 | USACE SURVEY MARK SBC |
| HH-8 | 2,707,421.25 | 2,354,139.73 | 24.73 | 20.89 | USACE SURVEY MARK SBC |
| HH-9 | 2,707,492.29 | 2,354,105.40 | 25.52 | 21.68 | USACE SURVEY MARK SBC |
| HNS-7 GPS 1995 | 2,706,656.27 | 2,353,376.15 | 35.62 | 31.78 | AKDOT 3.25" DOMED BRASS CAP |
| HH-20 1997 | 2,707,554.58 | 2,353,405.42 | 32.22 | 28.38 | USACE 3.25" DOMED BRASS CAP |
| HH-21 1997 | 2,707,160.36 | 2,353,378.82 | 33.55 | 29.71 | USACE 3.25" DOMED BRASS CAP |
| HH-22 2000 | 2,707,107.68 | 2,353,549.09 | 26.66 | 22.82 | USACE 3.25" DOMED BRASS CAP |
| HH-23 2000 | 2,706,660.66 | 2,353,360.01 | 35.54 | 31.70 | USACE 3.25" DOMED BRASS CAP |
| SEE NOTE 2 FOR CONTROL DATA DETAILS. | | | | | |

PROJECT LIMITS									
CORNER	NORTHING		EASTING		CORNER	NORTHING		EASTING	
1	2,706,923.77	2,353,871.15	12	2,707,441.74	2,354,057.16				
2	2,707,060.76	2,353,830.15	13	2,707,420.74	2,354,070.16				
3	2,707,104.76	2,353,745.15	14	2,707,224.75	2,354,080.15				
4	2,707,184.76	2,353,529.15	15	2,707,209.75	2,354,078.15				
5	2,707,493.75	2,353,509.16	16	2,707,230.75	2,354,004.15				
6	2,707,495.75	2,353,549.16	17	2,707,057.76	2,354,034.15				
7	2,707,503.75	2,353,699.16	18	2,707,042.76	2,354,031.15				
8	2,707,478.75	2,353,700.16	19	2,706,915.76	2,353,978.15				
9	2,707,463.74	2,353,839.16	20	2,706,718.77	2,354,050.15				
10	2,707,489.74	2,353,839.16	21	2,706,670.78	2,353,948.14				
11	2,707,426.74	2,353,969.16							

★ NAVIGATION AIDS ★			
DESCRIPTION	USCG No.	NORTHING	EASTING
HAINES SMALL BOAT HARBOR LIGHT 2	23910	2,706,927.5	2,354,070.8

VOLUME COMPUTATIONS	
PROJECT DEPTH -11.0'	
AVAILABLE TO PROJECT DEPTH (-11.0')	174 cy
AVAILABLE BETWEEN PROJECT DEPTH (-11.0') AND MAX PAY DEPTH (-12.0')	118 cy
AVAILABLE ALONG SIDE SLOPES	1074 cy
TOTAL MATERIAL AVAILABLE	1366 cy
PROJECT DEPTH -12.0'	
AVAILABLE TO PROJECT DEPTH (-12.0')	791 cy
AVAILABLE BETWEEN PROJECT DEPTH (-12.0') AND MAX PAY DEPTH (-13.0')	1482 cy
AVAILABLE ALONG SIDE SLOPES	1108 cy
TOTAL MATERIAL AVAILABLE	3291 cy
PROJECT DEPTH -14.0'	
AVAILABLE TO PROJECT DEPTH (-14.0')	819 cy
AVAILABLE BETWEEN PROJECT DEPTH (-14.0') AND MAX PAY DEPTH (-15.0')	1557 cy
AVAILABLE ALONG SIDE SLOPES	576 cy
TOTAL MATERIAL AVAILABLE	2592 cy
PROJECT DEPTH -15.0'	
AVAILABLE TO PROJECT DEPTH (-15.0')	347 cy
AVAILABLE BETWEEN PROJECT DEPTH (-15.0') AND MAX PAY DEPTH (-16.0')	150 cy
AVAILABLE ALONG SIDE SLOPES	890 cy
TOTAL MATERIAL AVAILABLE	1387 cy

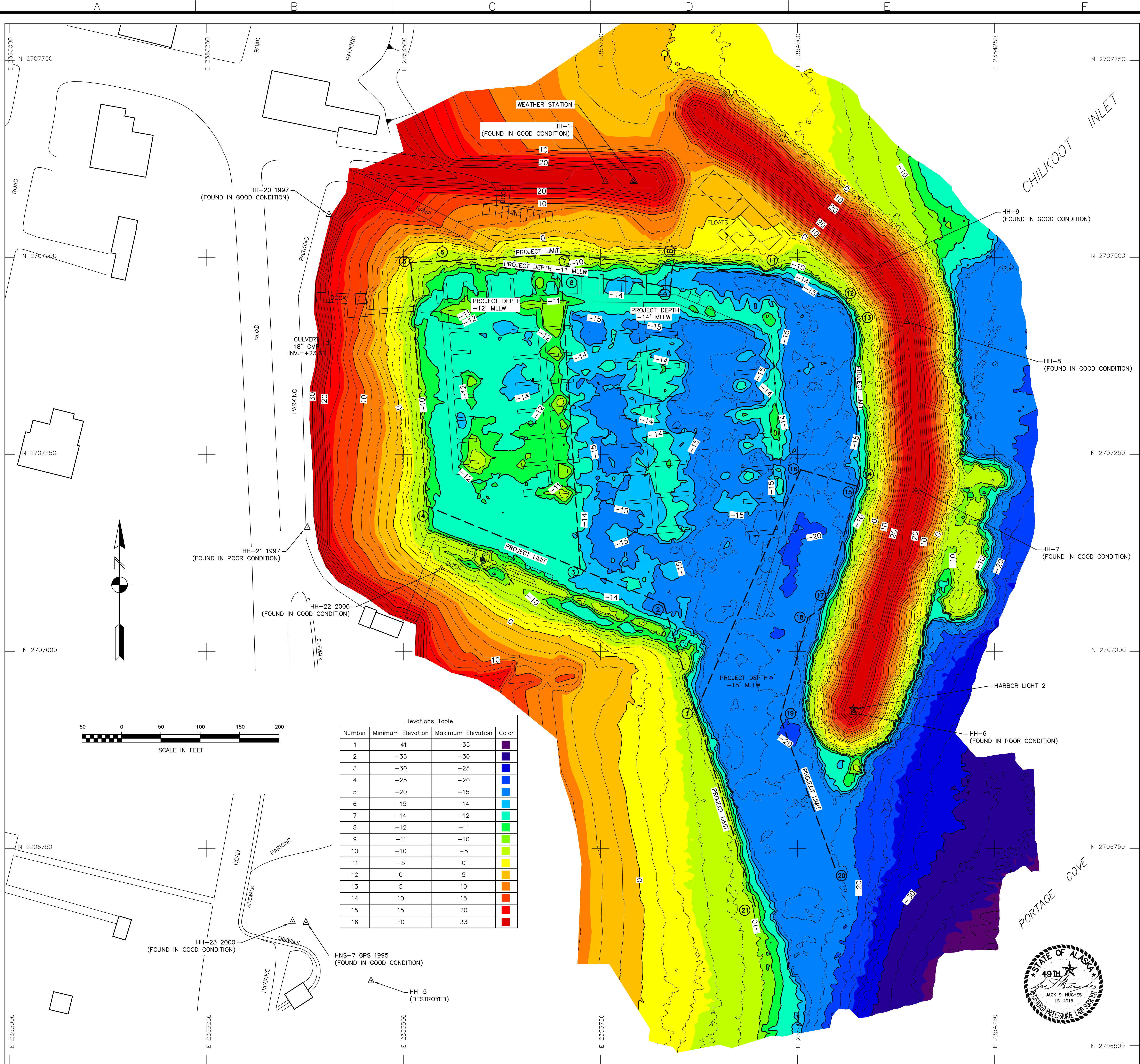


 U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ANCHORAGE, ALASKA	Designated: _____ Drawn: TNL Reviewed: CSH Chief: _____ Submitted: _____ Chief: _____	Date: DATE: 11/17/11 Dig. Scale: 1" = 50' Plot. Scale: _____ File: _____ Drawing #: _____
	2956-11	

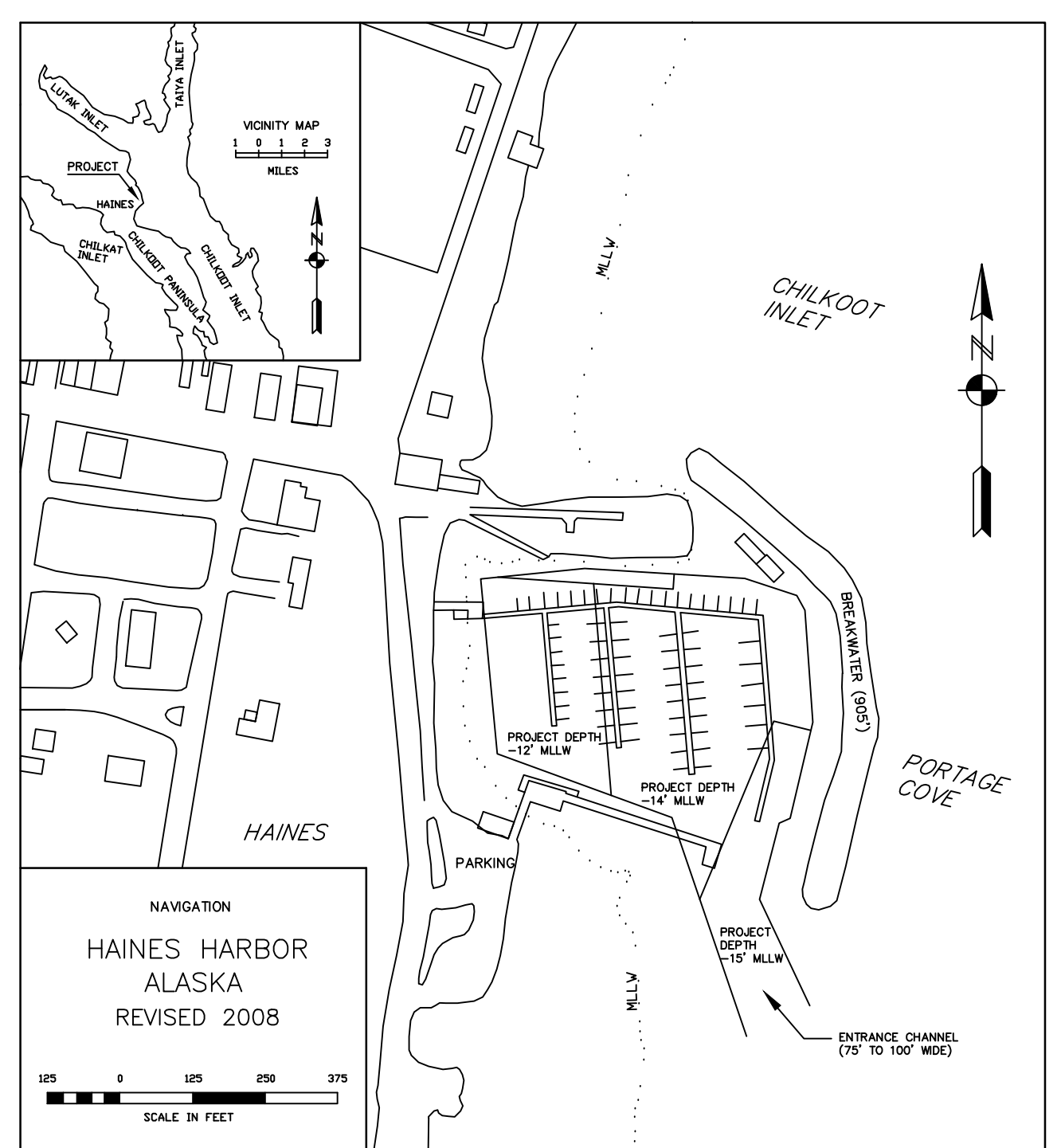
HAINES, ALASKA
HAINES HARBOR
CONDITION SURVEY
JULY 22-28, 2011

Reference
number:
V-101
Sheet 1 of 2

SURVEY



Elevations Table			
Number	Minimum Elevation	Maximum Elevation	Color
1	-41	-35	
2	-35	-30	
3	-30	-25	
4	-25	-20	
5	-20	-15	
6	-15	-14	
7	-14	-12	
8	-12	-11	
9	-11	-10	
10	-10	-5	
11	-5	0	
12	0	5	
13	5	10	
14	10	15	
15	15	20	
16	20	33	



- NOTES**
- HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83, IN US SURVEY FEET BASED ON A FULLY CONSTRAINED STATIC GPS NETWORK HOLDING THE PUBLISHED NAD83 (CORS) 2002.00 EPOCH VALUES OF NGS CORS STATIONS: "SKAGWAYUSCAK2005 CORS ARP" (AB44 - PID DM7448) AS N 2,813,868.96, E 2,395,840.59 (ALASKA STATE PLANE, ZONE 1, NAD 83) AND "GUSTAVUS 6 CORS ARP" (GU56 - PID DK621) AS N 2,410,603.01, E 2,296,606.71 (ALASKA STATE PLANE, ZONE 1, NAD 83) AND "CAPE SPENCE AK2007 CORS ARP" (AB43 - PID DM7445) N 2,337,377.43, E 2,112,364.37 (ALASKA STATE PLANE, ZONE 1, NAD 83). CORS STATIONS, STATE PLANE COORDINATES ARE CONVERTED FROM LAT/LONG USING NGS PROGRAM SPSCS3(V2.1). RESULTANT COORDINATE AT PRIMARY HARBOR CONTROL HOLD USACE, DOMED BC "HH-23 2000" AS N 2,706,660.66, E 2,353,360.01 AND USACE SURVEY MARK SBC "HH-1" AS N 2,707,596.79, E 2,353,756.26.
 - VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW=0.0'), BASED ON THE NOAA/NOS TIDAL BENCH MARK LIST: "9452421, CHILKAT INLET, ALASKA", PUBLISHED 02/19/2008. THIS TIDAL DATUM IS BASED ON THE 1983-2001 TIDAL EPOCH AND IS REFERENCED BY HOLDING NOS TIDAL BENCHMARK "945 2421" 19.73' AND NOS TIDAL BENCHMARK "945 2421" 22.93'. ALSO PROVIDED ARE THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) EQUIVALENTS, HOLDING USACE DOMED BC "HH-23 2000" AS 31.70', BASED ON GPS OBSERVATIONS FROM JULY 27 & 28, 2011.
 - THE SURVEY WAS CONDUCTED ON JULY 22-28, 2011. HYDROGRAPHIC SOUNDING DATA WAS COLLECTED USING AN ODOM ES3 MULTI-BEAM ECHOSOUNDER (200KHZ, 120-DEGREE SWATH-WIDTH WITH 120, 0.75 DEGREE BEAMS). POSITIONING AND VESSEL ATTITUDE WERE PROVIDED IN REAL TIME USING A TRIMBLE 461 RTK GPS RECEIVER OPERATING ON KINEMATIC CORRECTORS BROADCAST FROM A TRIMBLE R8 RTK BASE RECEIVER SET AT CONTROL STATION, "HH-1". SOUND VELOCITY PROFILE WAS PROVIDED USING AN ODOM DIGI-BAR PRO, AND WAS PROVIDED IN REAL TIME AT THE SOUNDING HEAD USING AN ODOM DIGI-BAR V. DATA COLLECTION AND NAVIGATION WERE PERFORMED USING HYPACK HYSWEEP (2010) SOFTWARE. MULTI-BEAM SURVEY DATA WAS POST-PROCESSED USING HYPACK HYSWEEP (2010) SOFTWARE.
 - SOUNDING VALUES SHOWN ARE IN FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
 - THIS DRAWING IS INDICATIVE OF GENERAL SEAFLOOR CONDITIONS ON THE DATES OF SURVEY.
 - THIS SURVEY WAS CONDUCTED BY HUGHES AND ASSOCIATES, WASILLA, AK.

CONTROL DATA					
STATION	NORTHING	EASTING	ELEV (MLLW)	ELEV (NAVD88)	DESCRIPTION
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HH-5	2,706,584.96	2,353,459.66	24.60	18.32	DESTROYED
HH-6	2,706,922.52	2,354,071.75	25.74	21.90	USACE SURVEY MARK SBC
HH-7	2,707,206.44	2,354,151.36	26.12	22.28	USACE SURVEY MARK SBC
HH-8	2,707,421.75	2,354,139.73	24.73	20.89	USACE SURVEY MARK SBC
HH-9	2,707,492.29	2,354,105.04	25.52	21.68	USACE SURVEY MARK SBC
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DESCRIPTION	USCG No.	NORTHING	EASTING
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US ARMY CORPS OF ENGINEERS
ALASKA DISTRICT

CONTRACT NO. W911KB-10-D-0005-0005

CONTRACTOR HUGHES AND ASSOCIATES

CITY WASILLA STATE AK

Recommended: _____ Approved: _____

PRIME CONTRACTOR RESIDENT ENGINEER

DATE: 11/17/11

Drawn: TNL

Reviewed: CSU

Submitted: _____

Check: _____

2956-11

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

HAINES, ALASKA
HAINES HARBOR
CONDITION SURVEY
JULY 22-28, 2011

Reference number:
V-102
Sheet 2 of 2

SURVEY