US ARMY CORPS
OF ENGINEERS
ALASKA DISTRICT

CONTRACT NO. W911KB-10-D-0005

CONTRACTOR HUGHES AND ASSOCIATES

CITY WASILLA STATE AK

Recommended: Approved: Date:

PRIME CONTRACTOR RESIDENT ENGINEER

Date	Approval	Date	Approval
09/03/10	REH	09/03/10	REH
09/03/10	REH	09/03/10	REH
09/03/10	REH	09/03/10	REH
09/03/10	REH	09/03/10	REH
09/03/10	REH	09/03/10	REH
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09/03/10	REH	09/03/10	REH
09/03/10	REH	09/03/10	REH
09/03/10	REH	09/03/10	REH

Date: 09/03/10

Dwg. Scale: 1"=50'

Plot Scale: 1"=50'

Drawing #:

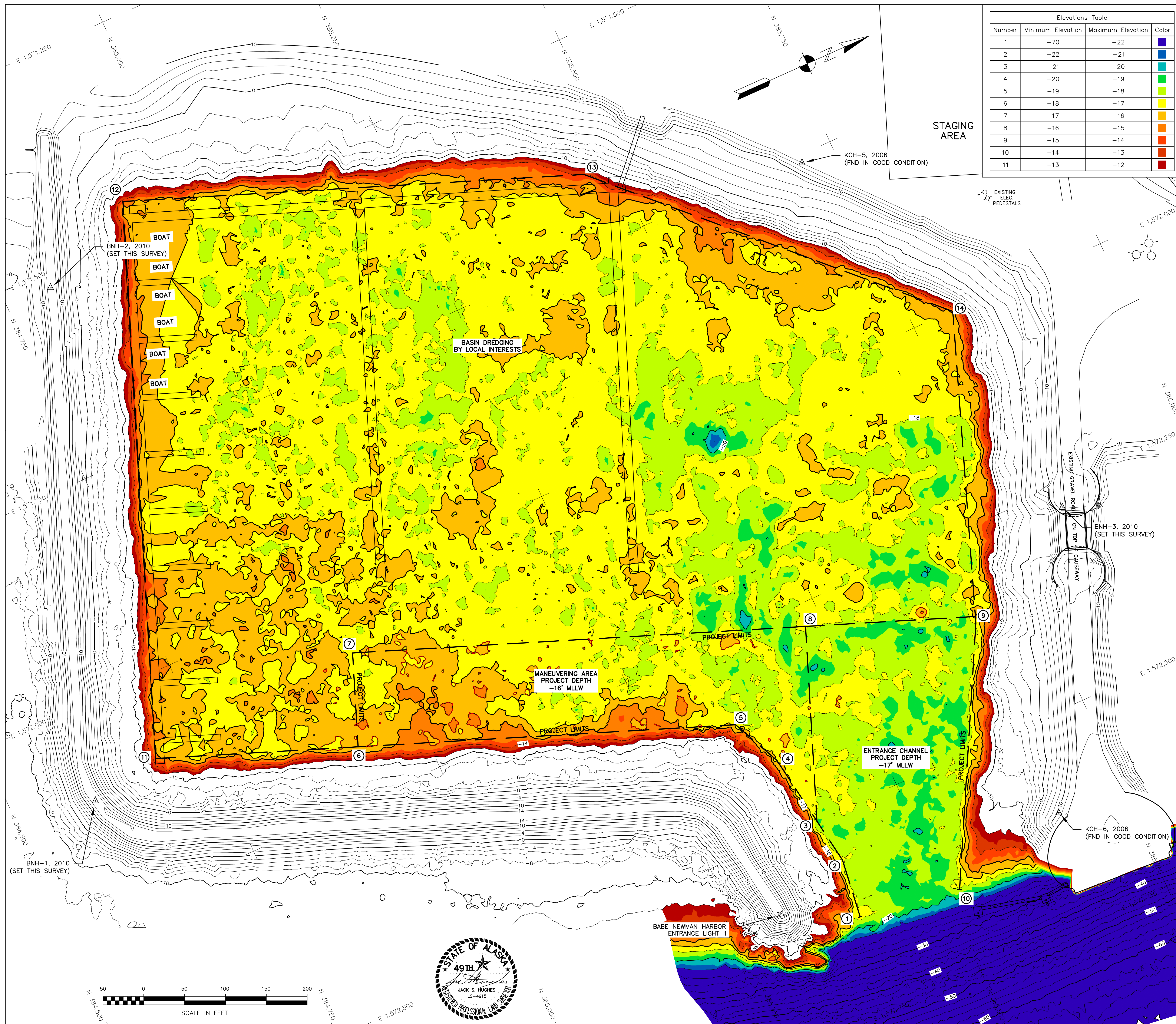
Design:	Drawn:	Reviewed:	Submitted:	Check:
REH	REH	CSH	CSH	CSH
U.S. ARMY ENGINEER DISTRICT	U.S. ARMY ENGINEER DISTRICT	U.S. ARMY ENGINEER DISTRICT	U.S. ARMY ENGINEER DISTRICT	U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS	CORPS OF ENGINEERS	CORPS OF ENGINEERS	CORPS OF ENGINEERS	CORPS OF ENGINEERS
ANCHORAGE, ALASKA	ANCHORAGE, ALASKA	ANCHORAGE, ALASKA	ANCHORAGE, ALASKA	ANCHORAGE, ALASKA

KING COVE, ALASKA

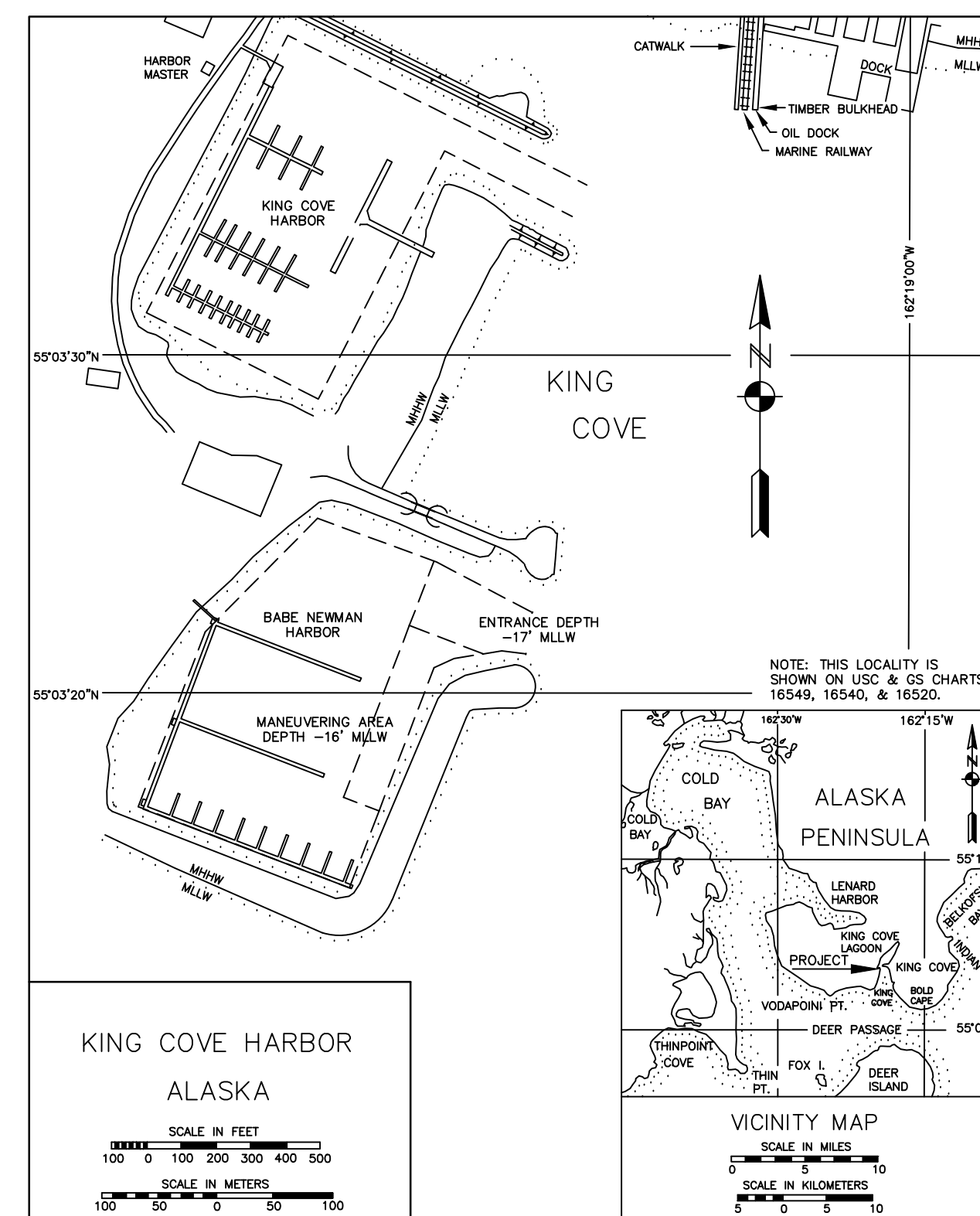
BABE NEWMAN HARBOR

CONDITION SURVEY

AUGUST 4-8, 2010

Reference
number:
V-701
Sheet 2 of 2

Elevations Table			
Number	Minimum Elevation	Maximum Elevation	Color
1	-70	-22	Blue
2	-22	-21	Blue
3	-21	-20	Blue
4	-20	-19	Blue
5	-19	-18	Blue
6	-18	-17	Blue
7	-17	-16	Blue
8	-16	-15	Blue
9	-15	-14	Blue
10	-14	-13	Blue
11	-13	-12	Blue



NOTES

- HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 7, NAD83, IN US SURVEY FEET, HOLDING DOMED BC "KCH-4, 2002" AS N 386,303.11, E 1,571,560.49 AND ALUM. CAP "FIRE, 1995" AS N 386,561.62, E 1,571,377.40.
- VERTICAL CONTROL IS IN FEET, REFERRING TO MEAN LOWER LOW WATER (MLLW=0.0'). HOLDING USACE TIDAL BENCH MARK "KCH-1 1998" AS 9.62' AND USACE TIDAL BENCH MARK "KCH-2 1998" AS 12.71'. TIDAL DATUM IS BASED ON THE 1983-2001 TIDAL EPOCH FROM NOAA/NOS TIDAL BENCH MARK LIST: "9459881 KING COVE, DEER PASSAGE, PACIFIC OCEAN, ALASKA", PUBLISHED 03/19/2010.
- SOUNDINGS ARE IN FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
- THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF SURVEY.
- SURVEY WAS CONDUCTED ON AUGUST 4-8, 2010 BY HUGHES AND ASSOCIATES, WASILLA, AK. SOUNDINGS WERE COLLECTED USING AN ODOM E53 MULTI-BEAM DEPTH SOUNDER (200KHZ, 120-DEGREE SWATH-WIDTH WITH 240, 0.75 DEGREE BEAMS). SOUND VELOCITY PROFILE WAS PROVIDED USING AN ODOM DIGI-BAR PRO, AND WAS PROVIDED IN REAL TIME AT THE SOUNDER HEAD USING AN ODOM DIGI-BAR V. POSITIONING AND TIDES WERE PROVIDED IN REAL TIME USING A TRIMBLE 461 RTK GPS RECEIVER OPERATING ON KINEMATIC CORRECTORS BROADCAST FROM A TRIMBLE 5700 RTK BASE RECEIVER SET AT CONTROL STATION, "FIRE, 1995". VESSEL NAVIGATION, DATA COLLECTION AND PROCESSING WERE PERFORMED USING HYPACK 2010 INTEGRATED SOFTWARE. ALL BREAKWATERS, BASINS, AND SURROUNDING AREAS WERE SURVEYED USING TRIMBLE 5700 AND R8 RTK SURVEY ROVERS.
- HORIZONTAL CONTROL WAS UPDATED THROUGH A STATIC GPS NETWORK AND A LEAST SQUARES ADJUSTMENT. ADJUSTMENT WAS COMPLETED HOLDING USACE SBC "KCH-1 1998" AS N 386,998.71, E 1,572,568.92 AND SBC "BNH-1 2010" AS N 384,599.33, E 1,572,114.07.
- VERTICAL CONTROL WAS UPDATED THROUGH DIFFERENTIAL LEVELING USING A DIGITAL LEVEL AND HOLDING NOAA BENCHMARKS "KCH-1 1998" AS 9.62' AND "KCH-2 1998" AS 12.71'.

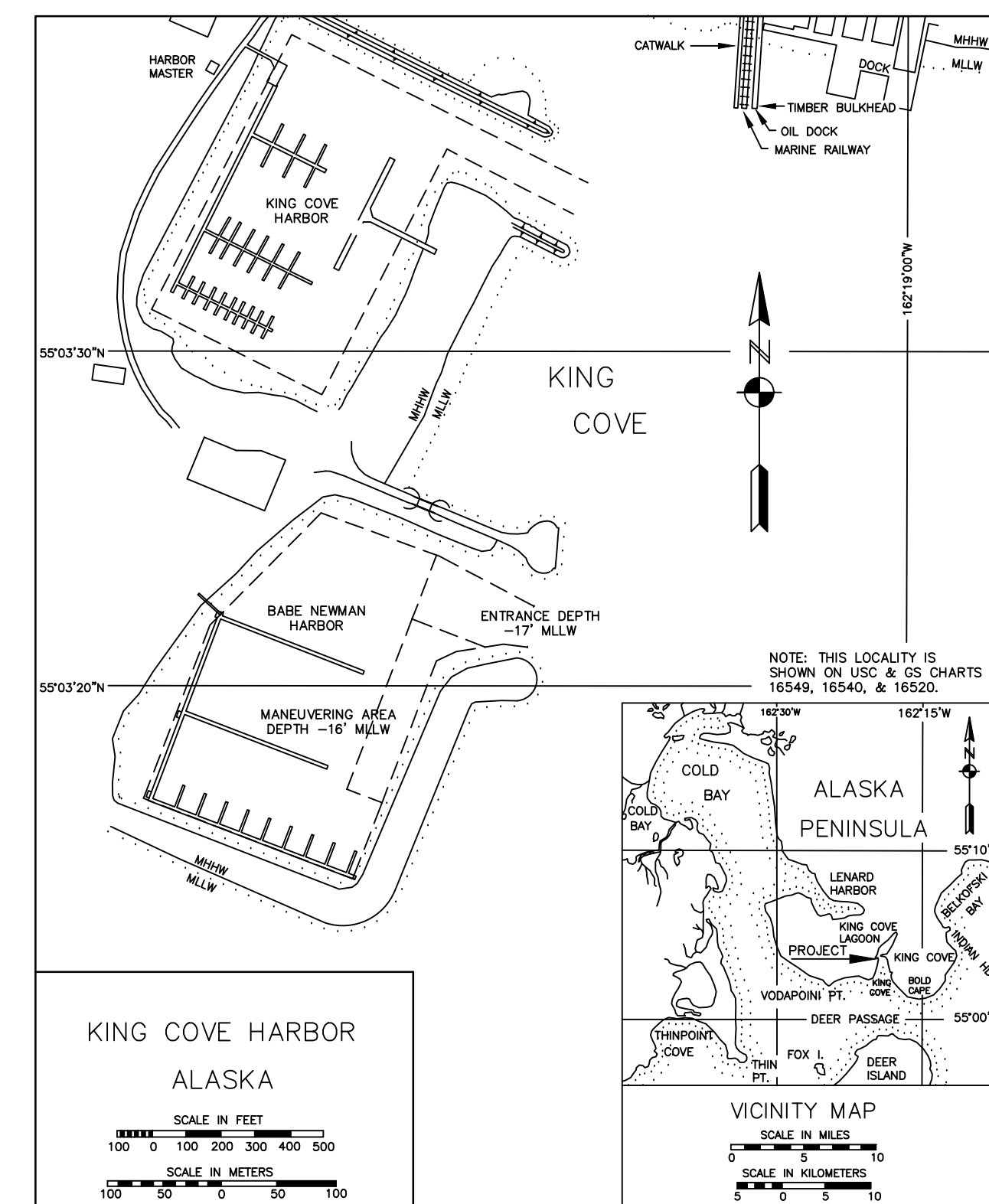
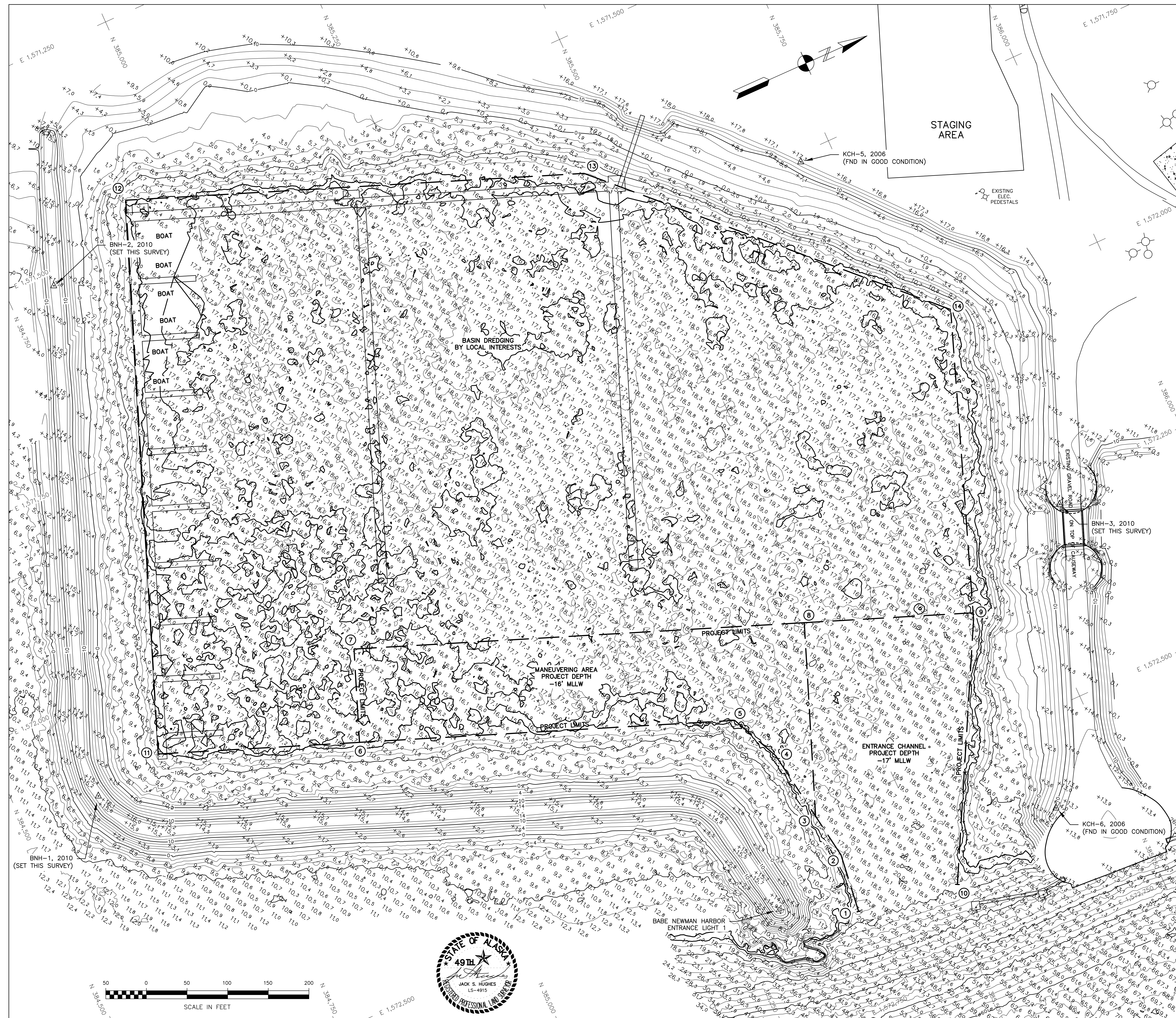
CONTROL DATA			
STATION	NORTHING	EASTING	ELEV.
0+00*	387,372.79	1,571,842.53	10.98
10+02.95	386,087.70	1,571,966.86	—
CW-3*	386,709.42	1,572,288.28	—
CW-4*	386,644.13	1,572,414.60	—
CW-5*	386,912.57	1,572,714.92	6.94
RED, 1995	386,195.55	1,571,997.68	13.01
LIFT, 1995	386,561.62	1,571,377.40	12.48
HILL, 1995	—	—	—
CITY, 1995	386,702.08	1,572,123.29	12.46
KCH-1, 1998	386,998.71	1,572,568.92	9.62
KCH-2, 1998	387,255.25	1,571,705.42	12.71
KCH-3, 2002	386,303.11	1,571,560.49	10.67
KCH-4, 2002	386,303.11	1,571,560.49	10.67
KCH-5, 2006	385,708.58	1,571,759.69	16.28
KCH-6, 2006	385,666.77	1,572,613.48	12.44
BNH-1, 2010	384,599.33	1,572,114.07	15.72
BNH-2, 2010	384,808.29	1,571,519.59	14.92
BNH-3, 2010	385,824.89	1,572,274.91	17.86

NOTE: MONUMENTS WITH AN ASTERISK (*) HAVE NOT HAD THEIR COORDINATES OR ELEVATIONS UPDATED BECAUSE THEY WERE INACCESSIBLE AT THE TIME OF THE SURVEY.

PROJECT LIMITS					
CORNER	NORTHING	EASTING	CORNER	NORTHING	EASTING
1	385,392.92	1,572,629.07	8	385,478.52	1,572,277.90
2	385,401.85	1,572,556.84	9	385,672.80	1,572,352.48
3	385,392.97	1,572,500.77	10	385,517.34	1,572,648.98
4	385,379.02	1,572,412.72	11	384,688.00	1,572,097.43
5	385,350.96	1,572,352.12	12	384,932.23	1,571,460.07
6	384,919.17	1,572,186.37	13	385,459.58	1,571,662.51
7	384,960.38	1,572,079.01	14	385,801.51	1,572,001.13

NAVIGATION AIDS			
DESCRIPTION	USCG NO.	NORTHING	EASTING
BABE NEWMAN HARBOR ENTRANCE LIGHT 1	27181	385,305	1,572,587

VOLUME COMPUTATIONS	
ENTRANCE CHANNEL	
VOLUME AVAILABLE TO PROJECT DEPTH (-17 FT)	1 cy
VOLUME AVAILABLE BETWEEN PROJECT DEPTH (-17 FT) AND MAX-PAY DEPTH (-17 FT)	107 cy
VOLUME AVAILABLE ALONG SIDE SLOPES	18 cy
TOTAL VOLUME AVAILABLE IN ENTRANCE CHANNEL	126 cy
MANEUVERING AREA	
VOLUME AVAILABLE TO PROJECT DEPTH (-16 FT)	54 cy
VOLUME AVAILABLE BETWEEN PROJECT DEPTH (-16 FT) AND MAX-PAY DEPTH (-17 FT)	531 cy
VOLUME AVAILABLE ALONG SIDE SLOPES	28 cy
TOTAL VOLUME AVAILABLE IN MANEUVERING AREA	613 cy



NOTES

- HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 7, NAD83, IN US SURVEY FEET, HOLDING DOMED BC "KCH-4, 2002" AS N 386,303.11, E 1,571,560.49 AND ALUM. CAP "FIRE, 1995" AS N 386,561.62, E 1,571,377.40.
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CONTROL DATA

STATION	NORTHING	EASTING	ELEV.	DESCRIPTION
0+00*	387,372.79	1,571,842.53	10.98	
10+02.95				DESTROYED
CW-3*	386,087.70	1,571,966.86		COPPERWELD 1 IN. BELOW GRND.
CW-4*	386,709.42	1,572,288.28		COPPERWELD
CW-5*	386,644.13	1,572,414.60		COPPERWELD
RED, 1995	386,912.57	1,572,714.92	6.94	1.5" ALCAP FLUSH
LIFT, 1995	386,195.55	1,571,997.68	13.01	REBAR
FIRE, 1995	386,561.62	1,571,377.40	12.48	1.5" ALCAP FLUSH
HILL, 1995				DESTROYED
CITY, 1995	386,702.08	1,572,123.29	12.46	1.5" ALCAP FLUSH
KCH-1, 1998	386,998.71	1,572,568.92	9.62	3.25" DOMED BC
KCH-2, 1998	387,255.25	1,571,705.42	12.71	3.25" DOMED BC
KCH-3, 2002				DESTROYED
KCH-4, 2002	386,303.11	1,571,560.49	10.67	3.25" DOMED BC
KCH-5, 2006	385,708.58	1,571,759.69	16.28	3.25" FLAT BC
KCH-6, 2006	385,666.77	1,572,613.48	12.44	3.25" FLAT BC
BNH-1, 2010	384,599.33	1,572,114.07	15.72	SET 3.25" DOMED BC IN ROCK
BNH-2, 2010	384,808.29	1,571,519.59	14.92	SET 3.25" DOMED BC IN ROCK
BNH-3, 2010	385,824.89	1,572,274.91	17.86	SET 3.25" DOMED BC IN CONC.

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PROJECT LIMITS

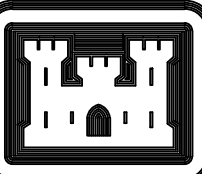
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DESCRIPTION	USCG NO.	NORTHING	EASTING
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VOLUME COMPUTATIONS

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CITY WASILLA STATE AK

Recommended: Approved: Date: PRIME CONTRACTOR RESIDENT ENGINEER

Date: 09/03/10

Drawn: REH

Reviewed: CSH

Submitted: CSH

Chief: CSH

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



KING COVE, ALASKA
BABE NEWMAN HARBOR
CONDITION SURVEY

AUGUST 4-8, 2010

Reference number:

V-101

Sheet 1 of 2