

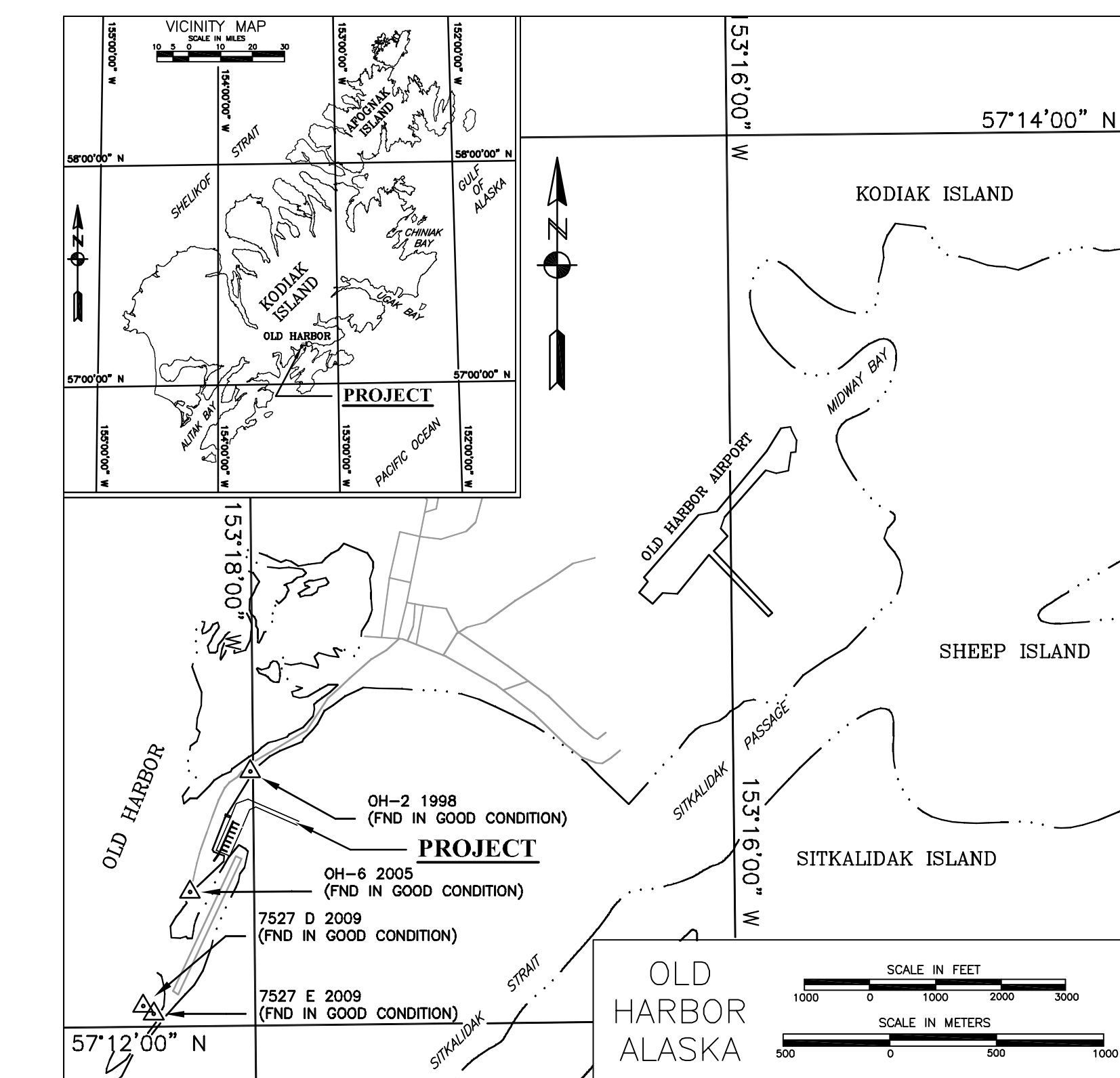
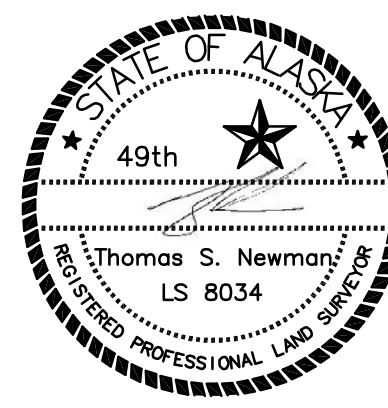
SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT I AM PROPERLY REGISTERED AND LICENSED TO PRACTICE LAND SURVEYING IN THE STATE OF ALASKA AND I AM AN ACSM, CERTIFIED INSHORE HYDROGRAPHER. THIS PLAT REPRESENTS A HYDROGRAPHIC SURVEY MADE BY ME OR UNDER MY DIRECT SUPERVISION. THE ELEVATIONS SHOWN HEREON ACCURATELY DEPICT THE DEPTHS AS SURVEYED AUGUST 19-23, 2009.

THOMAS S. NEWMAN, P.L.S.
REGISTRATION NO. LS 8034
ACSM CERTIFICATION NO. 173

DATE

SEPTEMBER 8, 2010



NOTES

- HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 5, NAD83 (CORS98) IN U.S. SURVEY FEET BASED ON A FULLY CONSTRAINED STATIC GPS NETWORK HOLDING THE 2003 EPOCH VALUES OF OPUS DB DERIVED STATIONS: "OH-1 1998" (PID BBBL02) AS N 1,172,541.61', E 1,778,666.59', "7527 E 2009" (PID BBBL05) AS N 1,169,770.12', E 1,777,807.88'.
- VERTICAL CONTROL IS IN U.S. SURVEY FEET AND REFERS TO MEAN-LOWER-LOW-WATER DATUM (MLLW=0.0'). THE MLLW VALUES SHOWN ON THIS PLAT ARE BASED ON NOAA/NOS TIDAL STATION 9457527, OLD HARBOR, KODIAK ISLAND, ALASKA, HOLDING USCGCS BENCH MARK SBC 7527 D 2009 AS 19.87 FEET. THIS VALUE IS FROM TIDAL EPOCH 1983-2001, PUBLISHED 6/03/2010 FOR THIS STATION.
- VERTICAL CONTROL WAS ALSO TIED INTO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) HOLDING THE OPUS DB PUBLISHED VALUES OF "OH-3 2002" (PID BBBL04) AS 14.70 FEET APPLYING A DELTA OF -3.50' TO THE REMAINING PRIMARY CONTROL.
- THE HORIZONTAL CONTROL SURVEY WAS CONDUCTED AUGUST 19 THROUGH 23, 2009 BY TERRASOND LTD USING THREE (3) TRIMBLE R8 GPS RECEIVERS AND A COMBINATION OF STATIC GPS AND RTK SURVEY TECHNIQUES. GPS DATA POST-PROCESSING WAS ACCOMPLISHED USING TRIMBLE GEOMATICS OFFICE V1.6. ALL PRIMARY CONTROL WAS DOUBLE-TIED USING REAL-TIME-KINEMATIC CONTROL METHODS AND INDEPENDENT BASELINES SOLUTIONS.
- THE TOPOGRAPHIC AND PLANIMETRIC SURVEYS WERE CONDUCTED AUGUST 19 THROUGH 23, 2009 BY TERRASOND LTD USING TRIMBLE R8 GPS RECEIVERS, REAL-TIME-KINEMATIC PROCEDURES, AND CONVENTIONAL METHODS. FIXED AIDS-TO-NAVIGATION WERE SURVEYED AT THE LIGHT GLOBE.
- HYDROGRAPHIC DATA ACQUISITION WAS CONDUCTED AUGUST 19 THROUGH 23, 2009 BY TERRASOND LTD USING A RESON SEABAT 7125 MULTIBeam ECHOSOUNDER (200KHZ WITH 511 BEAMS AT 128 DEGREES SWATH WIDTH), VESSEL POSITIONING, HEADING AND ATTITUDE WERE MEASURED USING A CODA-OCTOPUS F185 INERTIAL MOTION UNIT OPERATING WITH RTK CORRECTORS FROM THE BASE STATION SET AT "OH-1 1998". SOUND VELOCITY CASTS WERE MEASURED AND COLLECTED USING AN ODOM DIGIBAT PRO SOUND VELOCITY PROFILER. SURFACE SOUND VELOCITY WAS MEASURED USING AN APPLIED MICRO-SYSTEMS SMART PROBE. VESSEL NAVIGATION AND DATA COLLECTION WAS PERFORMED USING GPS QINSY INTEGRATED SOFTWARE (QINSY v8). DATA PROCESSING AND FINAL DATA ANALYSIS WERE PERFORMED USING CARIS HIPS SOFTWARE (V6.1).
- SOUNDINGS ARE SHOWN IN U.S. SURVEY FEET AND ARE MINUS UNLESS NOTED OTHERWISE.
- ONE MONUMENT WAS SET THIS SURVEY, SEE CONTROL DATA TABLE.
- THIS SURVEY IS INDICATIVE OF CONDITIONS ON THE DATES OF SURVEY.

STATION		NORTHING		EASTING		ELEV. (MLLW)		ELEV. (NAVD88)		DESCRIPTION	
1444-2	1987	1,171,640.28	1,171,640.28	1,778,958.50	1,778,958.50	17.85	14.35	3.25"	USACE SAC		
1444-3	1987	1,171,615.2	1,171,615.2	1,779,016.0	1,779,016.0	--	--	USACE SAC (BENT PIPE NO CAP)			
1444-4	1987	1,172,416.0	1,172,416.0	1,779,173.1	1,779,173.1	--	--	3.25" USACE SAC (BENT)			
1444-5	1987	1,172,311.20	1,172,311.20	1,779,239.32	1,779,239.32	18.30	14.80	3.25"	USACE SAC		
1444-6	1987	1,171,856.89	1,171,856.89	1,779,055.10	1,779,055.10	18.36	14.86	3.25"	USACE SAC		
1444-7	1987	1,171,844.44	1,171,844.44	1,779,083.13	1,779,083.13	16.42	12.92	USACE SAC			
OH-1	1998	1,172,541.61	1,172,541.61	1,778,666.59	1,778,666.59	17.91	14.41	3.25"	DOMED BC		
OH-2	1998	1,173,107.61	1,173,107.61	1,779,136.41	1,779,136.41	16.16	12.66	3.25"	DOMED ALUM CAP (SEE VICINITY MAP)		
OH-3	2002	1,172,174.03	1,172,174.03	1,779,047.75	1,779,047.75	18.20	14.70	3.25"	USACE DBC		
OH-4	2002	1,172,055.6	1,172,055.6	1,778,524.0	1,778,524.0	--	--	3.25"	DOMED BC -- DESTROYED		
NORTH		1,167,863	1,167,863	1,775,573	1,775,573	--	--	USCGS SBC			
OLD HARBOR		1,172,055	1,172,055	1,778,524	1,778,524	--	--	USCGS SBC			
OH-5	2005	1,171,836.07	1,171,836.07	1,778,609.95	1,778,609.95	14.24	10.74	3"	DOMED BC		
OH-6	2005	1,171,449.03	1,171,449.03	1,778,307.56	1,778,307.56	16.91	13.41	3"	DOMED BC (SEE VICINITY MAP)		
OH-7	2009	1,172,350.46	1,172,350.46	1,779,163.60	1,779,163.60	20.06	16.56	SET 3.25" DOMED AL CAP ON REBAR			
7527 E	2009	1,169,770.12	1,169,770.12	1,777,807.88	1,777,807.88	19.25	15.75	NOS SBC IN CONCRETE (SEE VICINITY MAP)			
7527 D	2009	1,169,879.45	1,169,879.45	1,777,662.51	1,777,662.51	19.87	16.37	NOS SBC IN CONCRETE (SEE VICINITY MAP)			

VOLUME COMPUTATIONS

Project Depth -8' MLLW		CUBIC YARDS	
MINIMUM PAY LINE (-8' MLLW)			21,979
BETWEEN MINIMUM PAY LINE AND MAXIMUM PAY LINE (-9' MLLW)*			7,397
VOLUME AVAILABLE ALONG SIDESLOPES (3:1, H:V)			12,651
TOTAL			42,026

* Volumes are within Project Limits and do not include SIDE SLOPES.

PROJECT LIMITS

CORNER	NORTHING	EASTING	CORNER	NORTHING	EASTING
1	1,172,420.99	1,779,806.58	6	1,172,021.58	1,778,673.79
2	1,172,366.10	1,779,282.34	7	1,172,663.90	1,778,952.04
3	1,172,616.52	1,779,215.17	B	1,172,228.08	1,779,111.08
4	1,172,584.40	1,779,135.56			
5	1,171,942.08	1,778,857.31			

NAVIGATION AIDS

USCG No.	DESCRIPTION	NORTHING	EASTING
26879	DAY BEACON 1 GREEN SG ON PILE	1,172,339.0	1,779,791.7
26880	DAY BEACON 2 RED TR ON PILE	1,172,429.2	1,779,829.0
26885	DAY BEACON 3 GREEN SG ON PILE	1,172,597.4	1,779,205.1
26890	DAY BEACON 4 RED TR ON PILE	1,172,743.0	1,779,116.1

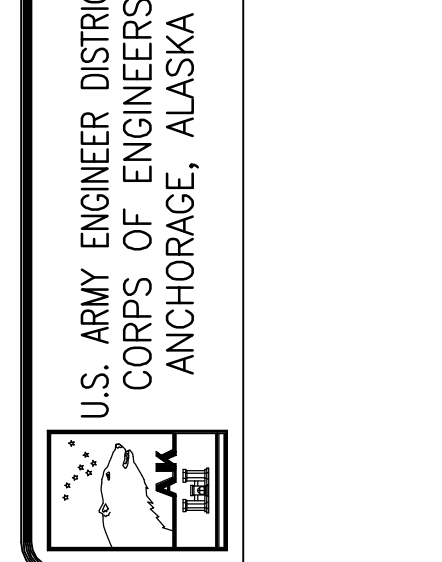
SURVEY



CONTRACT NO. W911KB-08-D-0002-0009
CONTRACTOR TERRASOND LIMITED
CITY PALMER STATE ALASKA
Recommended: Approved: Date:
Resident Engineer: Prime Contractor:

Date	Description	Date	Action

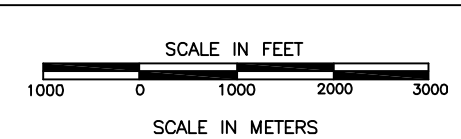
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Drawn: LEF/JWW
Reviewed: KDW
Submitted: [blank]
Checked: [blank]
Date: 8/25/2010
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Section: [blank]
Drawing #: 2782-10



KODIAK, ALASKA
OLD HARBOR
PROJECT CONDITION SURVEY
AUGUST 19-23, 2009

Reference number:

V-101
Sheet 1 of 2



SCALE IN FEET

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SCALE IN METERS

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- SCALE IN FEET
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SCALE IN METERS

SCALE IN FEET


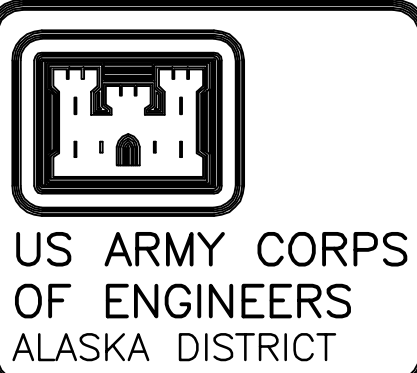
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SCALE IN METERS


SCALE IN FEET

1000 0 1000 2000 3000


SCALE IN METERS




US ARMY CORPS
OF ENGINEERS
ALASKA DISTRICT




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