

1. PRIMARY PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 7, NAD83 (CORS), IN SURVEY FEET BASED ON A STATIC GPS NETWORK HOLDING NOS EPOCH 2006.0 CORKS 1 LINE CENTER VALUES FROM 1982 TO 1989 AND 1995 TO 1999. THIS DATA SET WAS USED FOR THE LOCAL POINT HOLDERS "4501 R" AND "PILOT POINT AK 2007 CORS ARP (NGS PID DL7671).
- LOCAL PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 7, NAD83, IN NOS FEET PID HOLDING USACE SBCNOJANA TIDAL BENCH MARK ("1293-1984" AS 4.98,768.32 IN, 1.952,169.16).
2. VERTICAL CONTROL IS MEAN LOWER LOW WATER ("MLLW-0") ON BASED FROM THE NOAA/NOS TIDAL BENCH MARK LIST "945 9450, SAND POINT, POPOF ISLAND, ALASKA" PUBLISHED 10/06/2011. THIS TIDAL DATUM IS BASED FROM 1982 TO 1989 AND 1995 TO 1999. THIS DATA SET WAS USED FOR THE LOCAL POINT BENCHMARK "9450 R19" AS 15.07 AND NOAA/NOS TIDAL BENCH MARK "9450 S 1991" AS 15.06".
3. VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON PUBLISHED NAVD83 (GEOID 12A) ELEVATIONS HOLDING NOAA/USACE TIDAL BENCHMARK "1293-1984" (PID BBBB850BV13748) AS 10.77.
4. SOUNDINGS ARE IN FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
5. BATHYMETRY WAS COLLECTED JULY 23-25, 2014. SOUNDINGS WERE COLLECTED USING AN RS20NC 2022 MULTIBEAM ECHOSOUNDER OPERATING AT 200 KHZ. SOUND VELOCITY THROUGH THE WATER COLUMN WAS DETERMINED WITH A MINOS BEA X SOUND VELOCITY PROBE. POSITION AND VESSEL ORIENTATION WERE DETERMINED USING AN AGENTRA POSNAV PLUS REAL TIME VELOCITY SYSTEM. DATA WAS COLLECTED AND PROCESSED USING QINSY 8.1 SOFTWARE. HORIZONTAL CONTROL WAS SURVEYED USING STATIC GNSS EQUIPMENT AND TECHNIQUES. VERTICAL CONTROL WAS SURVEYED USING DIFFERENTIAL LEVELING TECHNIQUES.
6. THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.
7. MAP SOUNDINGS ARE BINNED AT 24 FEET AND ARE SHOAL-BASED. CONTOURS ARE BASED ON 12 FEET BINNED SHOAL-BASED SOUNDINGS. VOLUME SOUNDINGS ARE BINNED AT 3 FEET AND ARE MEAN VALUE SOUNDINGS.

STATION	NORTHING	EASTING	MLLW	DESCRIPTION
1293-1 1984	489,768.32	1,952,169.16	11.69	3.5 INCH USACE SBC/NOAA TIDAL BM
1293-4 1984	490,766.47	1,952,699.10	13.44	3.5 INCH USACE DOMED BC
1293-5 1984	490,597.90	1,952,475.17	13.67	3.5 INCH USACE DOMED BC
1293-6 1984	489,883.97	1,952,475.01	13.50	3.5 INCH USACE DOMED BC
HH-1 1998	490,239.72	1,953,593.75	12.37	3.25 INCH USACE DOMED SBC
HH-3 2002	491,398.99	1,953,218.02	22.71	3.5 INCH USACE DOMED SAC
SP-1 2010	489,659.03	1,951,793.61	15.53	3 INCH USACE DOMED SBC
SP-2 2010	488,718.34	1,951,677.49	15.29	3 INCH USACE DOMED SBC

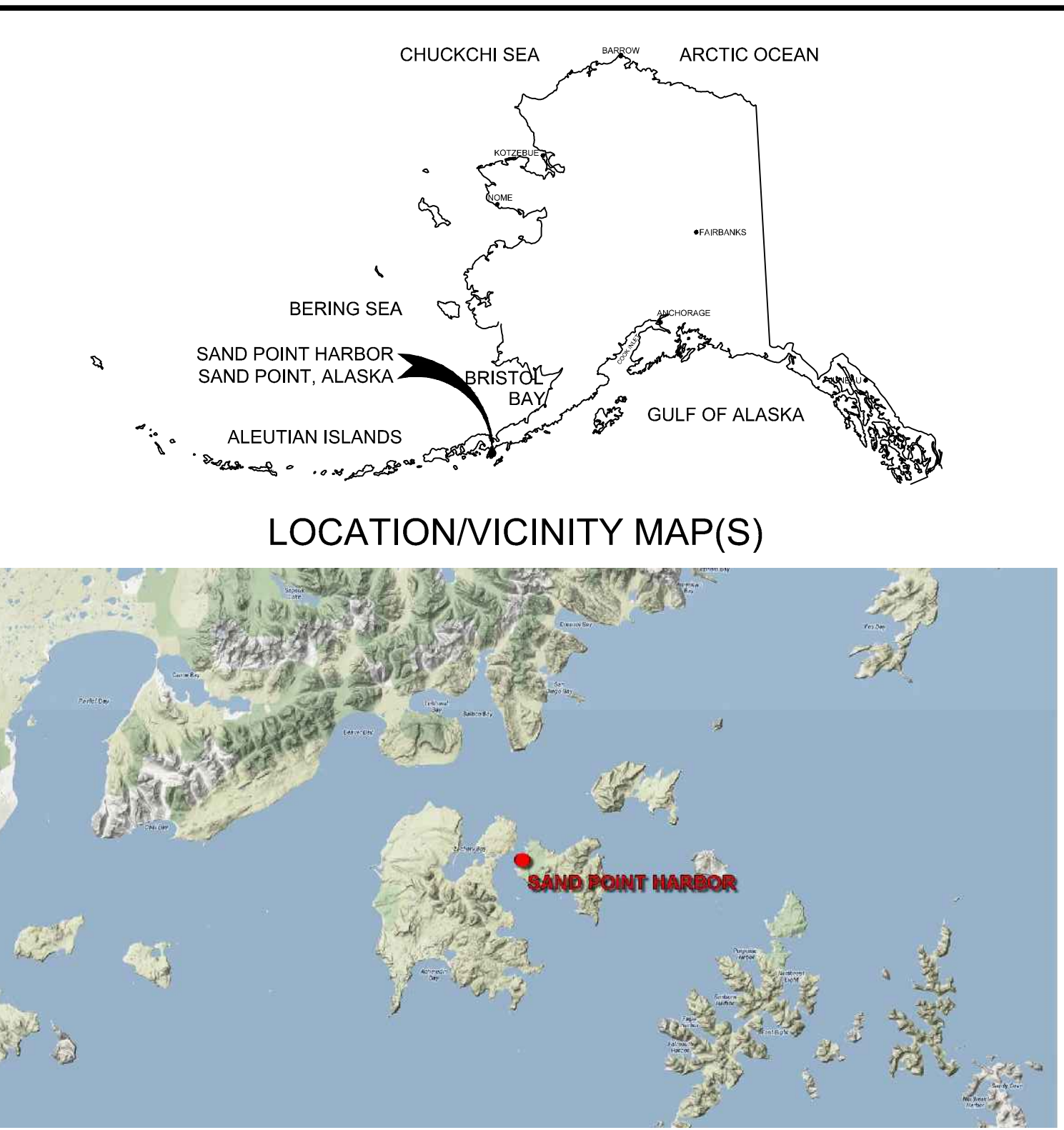
USCG NO.	NORTHING	EASTING	DESCRIPTION
27105	489,849	1,951,999	HUMBOLDT HARBOR BREAKWATER LIGHT 2
27110	489,895	1,952,476	HUMBOLDT HARBOR BREAKWATER LIGHT 3
UNKNOWN	489,711	1,952,228	NEW NAV AID

CORNER#	NORTHING	EASTING	CORNER#	NORTHING	EASTING
PL-1	489,761.55	1,952,295.45	PL-4	489,448.55	1,952,276.11
PL-2	489,664.04	1,952,427.28	PL-5	489,528.10	1,952,180.83
PL-3	489,626.28	1,952,407.13	PL-6	489,699.23	1,952,311.85

AVAILABLE TO PROJECT DEPTH (-18.0)	1 CU. YD.
AVAILABLE TO MAXIMUM PAY (-18.5)	9 CU. YD.
TOTAL AVAILABLE	10 CU. YD.

David R. Neff C.H. (275)





PRIMARY PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 7, NAD83 (CORS). IN SURVEY FIELD BASED ON A STATIC GPS NETWORK HOLDING NGS EPOCH 2003.03.03 CORN L1 PHASE CENTER VALUES AND A LOCAL POINT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 7, NAD83 HEIDEN AKR CORP (NGS PID D64447) AND "PILOT POINT AKR 2007 CORRS AKR" (NGS PID D67171).

LOCAL PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 7, NAD83. IN SURVEY FIELD HOLDING USACE SBCNOA4A TIDAL BENCH MARK "1293-1 SHALAN" ASR 488.768.32, E 1.952; 169.16.

VERTICAL CONTROL IS MEAN LOW WATER (MLW=0.0) BASED ON THE NOAA/NOS TIDAL BENCH MARK LIST: "945 9450, SAND POINT, POPOF ISLAND, ALASKA" PUBLISHED "10/06/2011". THIS TIDAL DATUM IS BASED ON THE 1983-1984 TIDAL EPOCH AND THE MEAN LOW WATER (MLW) OF THE TIDAL BENCH MARK "9450 R 1991" AS 15.07 AND NOAA/NOS TIDAL BENCH MARK "9450 S 1991" AS 10.06.

VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON PUBLISHED NAVD83 (GEOID 12A) ELEVATIONS HOLDING NOAA/USACE TIDAL BENCH MARK "1293-1 SHALAN" (PID BBBB55+BM13744) AS 10.77.

SOUNDINGS ARE IN FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.

BATHYMETRY WAS COLLECTED JULY 22-23, 2014. SOUNDINGS WERE COLLECTED USING AN RS20NC 2022 MULTIBEAM ECHOSOUNDER OPERATING AT 200 KHZ. SOUND VELOCITY THROUGH THE WATER COLUMN WAS DETERMINED WITH A MINOS BASE K SOUND VELOCITY PROBE. POSITION AND VESSEL ORIENTATION WERE DETERMINED AT AN APR 4000 GPS/INS/IMU NAVIGATION SYSTEM. DATA WAS COLLECTED AND PROCESSED USING GNSS 8.1 SOFTWARE. HORIZONTAL CONTROL WAS SURVEYED USING STATIC GNSS EQUIPMENT AND TECHNIQUES. VERTICAL CONTROL WAS SURVEYED USING DIFFERENTIAL LEVELING TECHNIQUES.

THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.

MAP SOUNDINGS ARE BINNET AT 24 FEET AND ARE SHOAL-BASED. CONTOURS ARE BASED ON 12 FEET BINNET SHOAL-BASED SOUNDINGS. VOLUME SOUNDINGS ARE BINNET AT 3 FEET AND ARE MEAN VALUE SOUNDINGS.

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PL-2	489,664.04	1,952,427.28
PL-3	489,626.28	1,952,407.13

CORNER#	NORTHING	EASTING
PL-4	489,448.55	1,952,276.11
PL-5	489,528.10	1,952,180.83
PL-6	489,699.23	1,952,311.85

AVAILABLE TO PROJECT DEPTH (-18.0)	1 CU. YD.
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TOTAL AVAILABLE	10 CU. YD.



THIS HYDROGRAPHIC SURVEY WAS COMPLETED
UNDER THE OVERSIGHT OF AN ACSM/THOSOA
CERTIFIED HYDROGRAPHER

David R. Neff C.H. (275)