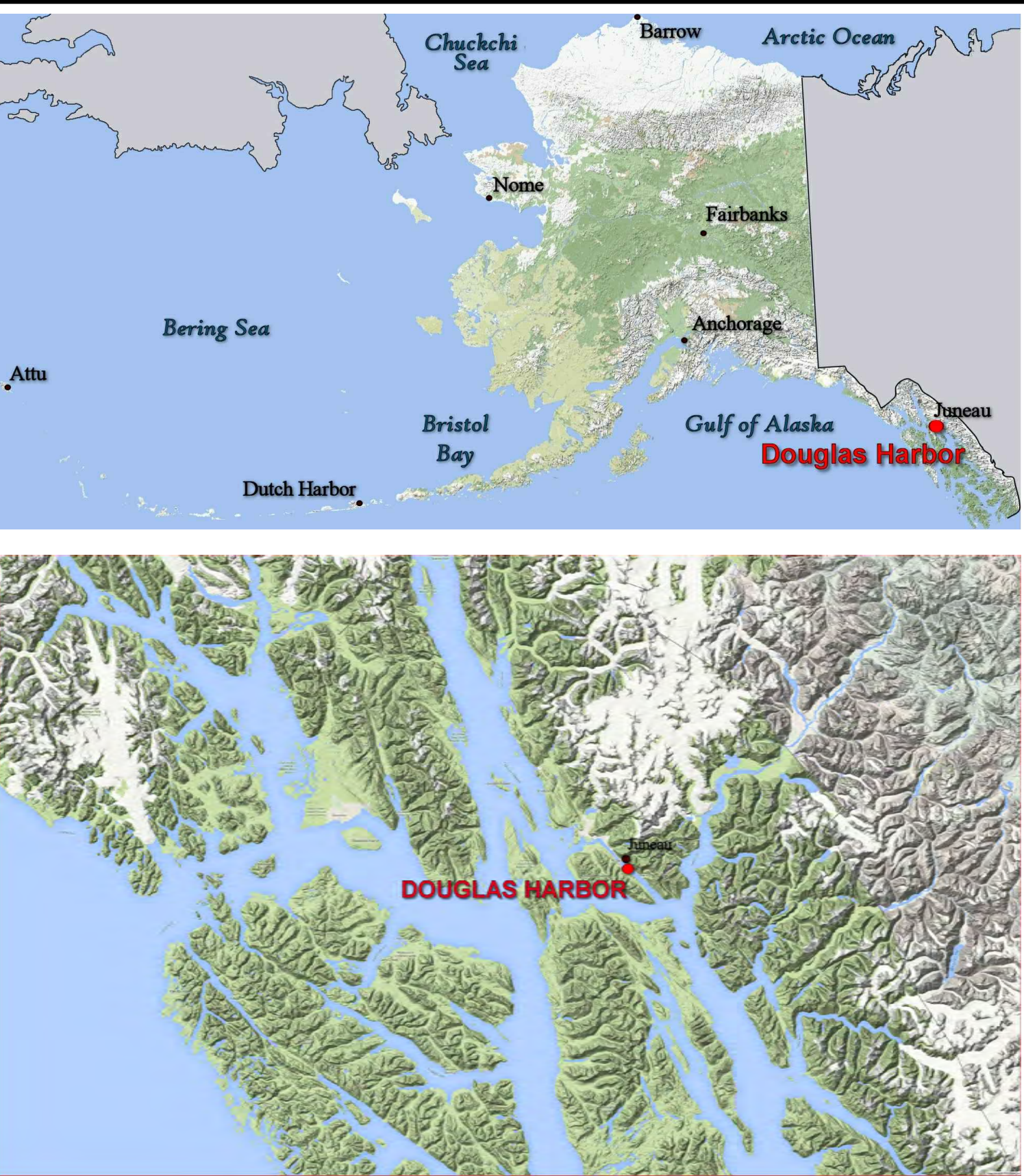


ELEVATION COLOR LEGEND			
#	MIN. ELEV.	MAX. ELEV.	COLOR
1	-20.0	-19.0	Blue
2	-19.0	-18.0	Dark Blue
3	-18.0	-17.0	Light Blue
4	-17.0	-16.0	Light Green
5	-16.0	-15.0	Green
6	-15.0	-14.0	Yellow-Green
7	-14.0	-13.0	Yellow
8	-13.0	-12.0	Orange
9	-12.0	-11.0	Light Orange
10	-11.0	-10.0	Light Yellow
11	-10.0	-9.0	Yellow
12	-9.0	-8.0	Orange
13	-8.0	-6.0	Light Orange
14	-6.0	-4.0	Light Yellow
15	-4.0	-2.0	Yellow
16	-2.0	0.0	Orange



NOTES

1. PRIMARY PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83 (2011), IN US SURVEY FEET BASED ON A FULLY CONSTRAINED STATIC GPS NETWORK HOLDING THE PUBLISHED NAD83 (2011)2010.00 EPOCH VALUES OF NGS CORS STATIONS: "JUNEAU WAAS 1 CORS ARP" (JNU1 - PID DF4367); "KLAUWOCKAIRAK 2006 CORS ARP" (AB49 - PID DM7451) AND "LEVEL ISLAND 6 CORS ARP" (LEV6 - PID DJ3035).
2. LOCAL PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83, IN US SURVEY FEET HOLDING "SBC 'DH-C 2000' AS N 2,353,359.31, E 2,546,726.69 AND USACE SBC 'RAMP 1975' AS N 2,353,048.30, E 2,547,438.98.
3. VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW=0.0'), BASED ON THE NOAA/NOS TIDAL BENCH MARK LIST: "945 2210 JUNEAU, CASTLEMAN CHANNEL, STEPHENS PASS, ALASKA" PUBLISHED 05/02/2014. THIS TIDAL DATUM IS BASED ON THE 2007-2011 TIDAL EPOCH AND IS REFERENCED BY HOLDING NOAA/NOS TIDAL BENCH MARK "2210 C 1982" (VMM 1196) AS 29.96'.
4. VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON NAVD88 (GEOID 12B) ELEVATIONS HOLDING NGS BENCHMARK "DH-C 2000" AS 20.53'.
5. SOUNDINGS ARE IN U.S. FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
6. BATHYMETRY WAS COLLECTED OCTOBER 12-15, 2015. SOUNDINGS WERE COLLECTED USING AN R2SONIC 2022 MULTIBEAM ECHOSOUNDER OPERATING AT 200 KHZ. SOUND VELOCITY THROUGH THE WATER COLUMN WAS DETERMINED WITH AN AML BASE X SOUND VELOCITY PROBE. POSITION AND VESSEL ORIENTATION WERE MEASURED USING AN APOLARIS POSIMV OCEANMASTER V5 SYSTEM. DATA WAS COLLECTED AND PROCESSED USING QINSY 8.1 SOFTWARE. HORIZONTAL CONTROL WAS SURVEYED USING RTK GNSS EQUIPMENT AND TECHNIQUES. VERTICAL CONTROL WAS SURVEYED USING DIFFERENTIAL LEVELING TECHNIQUES.
7. THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.
8. MAP SOUNDINGS ARE BINNED AT 24 FEET AND ARE SHOAL. VOLUME SOUNDINGS ARE BINNED AT 3 FEET AND ARE MEAN.

SURVEY CONTROL DATA

STATION	NORTHING	EASTING	MLLW	DESCRIPTION
DH-3	2,354,095.52	2,546,951.23	26.26	3.25" DSBC
DH-C 2000	2,353,359.31	2,546,726.69	25.97	3.25" DSBC
DH-D 2000	2,353,103.36	2,547,126.72	25.67	3.25" DSBC
DHAR	2,353,388.57	2,547,704.09	24.02	3.5" USACE BRASS CAP
DL-1 1978	2,353,650.68	2,547,782.25	64.40	3.5"USACE BRASS CAP
RAMP 1975	2,353,048.30	2,547,438.98	23.30	3.5" USACE BRASS CAP

NAVIGATION AIDS

USCG NO.	NORTHING	EASTING	DESCRIPTION
23680	2,353,940	2,547,137	DOUGLAS BOAT HARBOR LIGHT ID

FEDERAL DREDGE BASIN

CORNER#	NORTHING	EASTING
1	2,353,746.99	2,547,214.45
2	2,353,463.37	2,547,036.52
3	2,353,402.25	2,547,133.94
4	2,353,353.12	2,547,103.12

FEDERAL DREDGE BASIN

CORNER#	NORTHING	EASTING
5	2,353,177.75	2,547,382.66
6	2,353,499.66	2,547,584.60
7	2,353,712.22	2,547,245.76

VOLUME COMPUTATIONS

	MLLW	CU. YD.
AVAILABLE TO PROJECT DEPTH (PD)	-13.0	13,621
AVAILABLE TO REQUIRED DEPTH (RD)	-14.0	19,313
AVAILABLE TO MAX PAY DEPTH (MP)	-15.0	25,337
AVAILABLE SIDE SLOPES (SS) AT 2:1 (H:V)	VARIES	2,737
TOTAL MAXIMUM VOLUME AVAILABLE (MP + SS)		28,074

DISPOSAL BASE LINE

BASE LINE	NORTHING	EASTING
DISP BL-5	2,355,554.60	2,547,981.16
DISP BL-6	2,352,824.80	2,550,904.88

HARBOR BASE LINE

BASE LINE	NORTHING	EASTING
N-S BL1	2,353,126.57	2,547,087.90
N-S BL2	2,353,719.55	2,547,459.89
E-W BL3	2,353,669.51	2,546,956.31
E-W BL4	2,353,244.38	2,547,634.00



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

David R. Neff C.H. (275)

US Army Corps of Engineers
ALASKA DISTRICT

CONTRACT NO. W01H015-C-0017
CONTRACTOR: Western Marine Commission
CITY: Seattle
STATE: Washington
APPROVED: [Signature]
DATE: [Date]

CONTRACT NO. W01H015-C-0017
CONTRACTOR: Western Marine Commission
CITY: Seattle
STATE: Washington
APPROVED: [Signature]
DATE: [Date]

DOUGLAS HARBOR
HYDROGRAPHIC SURVEY
October 12 - October 15 2015

SHEET IDENTIFICATION
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1. PRIMARY PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83 (2011), IN US SURVEY FEET BASED ON A FULLY CONSTRAINED STATIC GPS NETWORK HOLDING THE PUBLISHED NAD83 (2011) DATUM. THE LOCAL PROJECT HORIZONTAL CONTROL IS THE ALASKA STATE PLANE, ZONE 1, NAD83, IN US SURVEY FEET. THE LOCAL PROJECT VERTICAL CONTROL IS AN S 2353.359.31, Z 2,546,726.69 AND USACE SBC "RAMP 1975" ARE S 2,353,048.20, Z 2,547,438.98

2. VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW=0) FT. BASED ON THE NOAA'S TIDAL BENCH MARK 1000, JUNEAU, JUNEAU, GASTINEAU CHANNEL, STEPHENS PASS, ALASKA PUBLISHED 05/02/2014. THIS DATUM IS BASED ON THE 2007-2011 TIDAL EPOCH AND IS REFERENCED BY HOLDING NOAA'S TIDAL BENCH MARK "221C 1982" (VNM 1196) AS 29.96'

3. VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON NAVD83 (GEOID 12B) ELEVATIONS HOLDING NSB BENCHMARK "DH-C 2000" AS 20.53'

4. SOUNDINGS ARE IN U.S. FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.

5. BATHYMETRY WAS COLLECTED OCTOBER 12-15, 2015. SOUNDINGS WERE COLLECTED USING AN RS203C 2022 MULTIBeam ECHOSOUNDER OPERATING AT 200 KHZ, SOUND VELOCITY THROUGH THE WATER COLUMN WAS 1484 M/S. THE DATA WAS COLLECTED USING THE HYDROGRAPHIC POSITION AND VESSEL ORIENTATION WERE MEASURED USING AN APPLIXX POSMV OCEANMASTER V5 SYSTEM. DATA WAS COLLECTED AND PROCESSED USING QINSY 8.1 SOFTWARE. HORIZONTAL CONTROL WAS SURVEYED USING RTK GNSS ECHOSOUNDER TECHNIQUES. VERTICAL CONTROL WAS SURVEYED USING DIFFERENTIAL LEVELING TECHNIQUES.

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UNDER THE OVERSIGHT OF AN ACSM/THSOA
CERTIFIED HYDROGRAPHER



David R. Neff C.H. (275)



US Army Corps
of Engineers®
ALASKA DISTRICT

CONTRACT NO. W911KB-15-C-0017	
CONTRACTOR Western Marine Construction	
CITY Seattle	STATE Washington
Recommended:	Approved:
PRIME CONTRACTOR	CHIEF GEOMATICS SECTION
Date:	

[illegible]

	U.S. ARMY CORPS OF ENGINEERS ALASKA DISTRICT P.O. BOX 6899 JBER, ALASKA 99506-0898		DRAWN BY: SUG		DATE: 3 November 2015
	CHECKED BY: Gregory M. Gibson		APPROVED BY: Thomas A. Stone, Chief, Logistics Section		CONTRACT NO.: WTHNS-15-0017
TITLE: Scale of 1:50,000		PLOT DATE: 10/29/15		CONTRACT NO.: WTHNS-15-0017	
SHEET ANSE		FILE NAME PRE_201504_FINAL.DWG			

DOUGLAS, ALASKA
DOUGLAS HARBOR
HYDROGRAPHIC SURVEY
October 12 - October 15 2015

SHEET
IDENTIFICATION

V-104

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