

















#	MIN. ELEV.	MAX. ELEV.	COLOR
1	-60.0	-50.0	
2	-50.0	-40.0	
3	-40.0	-30.0	
4	-30.0	-20.0	
5	-20.0	-19.0	
6	-19.0	-18.0	
7	-18.0	-17.0	
8	-17.0	-16.0	
9	-16.0	-15.0	
10	-15.0	-14.0	
11	-14.0	-13.0	
12	-13.0	-10.0	
13	-10.0	-5.0	
14	-5.0	0.0	
15	0.0	5.0	
16	5.0	10.0	

PROJECT LIMITS		
CORNER#	NORTHING	EASTING
1	1,297,146.13	5,456,612.84
2	1,297,154.88	5,456,594.07
3	1,297,316.98	5,456,376.28
4	1,297,374.28	5,456,107.64
5	1,297,351.25	5,456,010.49
6	1,297,274.98	5,455,685.57
7	1,296,793.48	5,455,388.65
8	1,296,772.59	5,455,393.61
9	1,296,765.37	5,455,389.15
10	1,296,665.61	5,455,412.81
11	1,296,516.42	5,455,482.51
12	1,296,509.67	5,455,480.08

PROJECT LIMITS		
CORNER#	NORTHING	EASTING
13	1,296,357.29	5,455,898.10
14	1,296,358.40	5,455,902.92
15	1,296,683.42	5,456,212.81
16	1,296,688.36	5,456,207.81
17	1,296,852.96	5,456,202.90
18	1,296,952.73	5,456,179.24
19	1,296,957.18	5,456,172.02
20	1,296,976.98	5,456,167.81
21	1,297,026.82	5,456,155.80
22	1,297,181.16	5,456,391.28
23	1,297,037.71	5,456,584.01
24	1,297,028.44	5,456,596.47



## NOTES

1. PRIMARY PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 10, NAD83 (CORS96). IN US SURVEY FEET BASED ON A STATIC GPS NETWORK HOLDING NOS EPOCH 2003.00. THE BASIS OF CORRECTION IS 12 INCHES PER FOOT. THE PROJECT HORIZONTAL DATUM IS "STAMPED 2694 A 2009" (PID BBH20H/VMM19205) HAVING A VALUE OF N 1,299,455.52' AND E 5,466,077.07'.
2. VERTICAL CONTROL/HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 10, NAD83 (CORS96). IN US SURVEY FEET HOLDING 3 1/2 INCHES PER FOOT. STAMPED "2694 A 2009" (PID BBH20H/VMM19205) HAVING A VALUE OF N 1,299,455.52' AND E 5,466,077.07'.
3. VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW = 0.0). BASED ON THE ANOANOS TIDAL BENCHMARK LIST "946 2894, AKUTAN, ALASKA" PUBLISHED 09/19/2009. THIS TIDAL DATUM IS BASED ON THE 1800 AD TIDE GAUGE RECORD REFERENCED BY HOLDING NOS/USCGS TIDAL BENCHMARK "2694 A 2009" (PID BBH20H/VMM19205) AS 11.01."
4. VERTICAL, TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON PUBLISHED NAVD83 (GEOID12B) ELEVATIONS HOLDING NOS/USCGS TIDAL BENCHMARK "2694 A 2009" (PID BBH20H/VMM19205) AS 11.16."
5. SOUNDINGS ARE IN US SURVEY FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
6. BATHYMETRY WAS COLLECTED JULY 20, 2018. SOUNDINGS WERE COLLECTED USING AN RS20NC 2022, MULTIBeam ECHOSOUNDER OPERATING AT 200 KHZ. SOUND VELOCITY THROUGH THE WATER COLUMN WAS DETERMINED WITH AN HML BASE X SOUND VELOCITY PROBE. POSITION AND VESSEL ORIENTATION WERE MEASURED USING AN APPLIXIM POSMV WAVEMASTER V5 SYSTEM RECEIVING RTK CORRECTIONS FROM A TRIPOLI SP805 GPS RECEIVER SET AT CONTROL. STATION "ANGLU4" DATA WAS COLLECTED AND PROCESSED USING QINSY 8.1 AND QIMERA 1.6 SOFTWARE. HORIZONTAL CONTROL WAS SURVEYED USING STATIC GNSS EQUIPMENT AND TECHNIQUES. VERTICAL CONTROL WAS SURVEYED USING STATIC GNSS AND DIFFERENTIAL LEVELING EQUIPMENT AND TECHNIQUES.
7. TERRESTRIAL LASER SCANNING DATA COLLECTED JULY 20, 2018. DATA WAS COLLECTED USING A RIEGL VZ400 (LIDAR) SCANNER. DATA WAS PROCESSED USING RIEGL SWATCH SOFTWARE AND RIEGL SCANPRO SOFTWARE. POSITION AND VESSEL ORIENTATION WERE MEASURED USING AN APPLIXIM POSMV WAVEMASTER V5 SYSTEM.
7. THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.
8. 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.

## SURVEY CONTROL DATA

STATION	NORTHING	EASTING	MLLW	DESCRIPTION
2694 A 2009	1,299,455.52	5,466,077.56	11.01	NOS SBC
AKU-2	1,296,614.81	5,456,421.26	8.98	USACE SBC
AKU-3	1,295,647.95	5,456,719.70	39.82	USACE SBC
AKU-4	1,297,046.89	5,454,729.00	61.82	USACE SBC
AKU-5	1,296,042.56	5,455,134.57	43.33	USACE SBC
AKU-6	1,297,400.93	5,455,857.90	9.73	USACE SBC
USLM 766	1,298,383.86	5,456,549.23	14.83	3.25 INCH DOMED BC

## NAVIGATION AIDS

USCG NO.	NORTHING	EASTING	DESCRIPTION
27427	1,296,984	5,456,558	HARBOR LIGHT 1 FL G
27428	1,297,206	5,456,624	HARBOR LIGHT 2 FL R

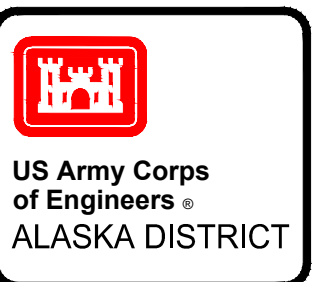
## VOLUME COMPUTATIONS

AREA A: BASIN	MLLW=0	C.U. YD.
AVAILABLE TO PROJECT DEPTH (PD)	-18.0	58
AVAILABLE TO MAX PAY DEPTH (MP)	-19.0	738
AVAILABLE SIDE SLOPES (SS) AT 3:1 (H:V) & 25' WIDE	VARIES	1,965
AREA B: BASIN		
AVAILABLE TO PD	-16.0	10
AVAILABLE TO MP	-17.0	212
AVAILABLE SS AT 3:1 (H:V) & 25' WIDE	VARIES	10
AREA C: BASIN		
AVAILABLE TO PD	-14.0	5
AVAILABLE TO MP	-15.0	3,714
AVAILABLE SS AT 3:1 (H:V) & 25' WIDE	VARIES	761
TOTAL MAXIMUM VOLUME AVAILABLE (MP + SS)		7,400




THIS HYDROGRAPHIC SURVEY WAS COMPLETED  
UNDER THE OVERSIGHT OF AN NSPS/THSOA  
CERTIFIED HYDROGRAPHER

Gregory W. Gibson (317)



CONTRACT NO. W01H8-18-D-001418F0056	
CONTRACTOR ETAC INC.	
CITY WASILLA	STATE ALASKA
Recommended: MICHAEL E. MUELLER	Approved: THOMAS A. SLOAN
PRIME CONTRACTOR	CHIEF GEOMATICS SECTION
Date:	09/10/2018

[illegible]

	<b>U.S. ARMY CORPS OF ENGINEERS</b> <b>ALASKA DISTRICT</b> <b>P O BOX 6888</b> <b>JEK, ALASKA 99506-0888</b>		<b>DATE:</b> 15 September 2018
	<b>SUBMITTED BY:</b> 155TH AVN BN	<b>CHECKED BY:</b> 155BEGVNS	<b>UPC:</b> 010542
<b>DRAWN BY:</b> 155BEGVNS	<b>APPROVED BY:</b> 155BEGVNS	<b>CONTRACT NO.:</b> WFFHWS-15-01-0149566	<b>FILE NO.:</b> 0118
<b>REMARKS:</b> 1. 300, 350, Civil Engineers Section	<b>DATE:</b> 09/20/2018	<b>FILE NAME:</b> 155BEGVNS	<b>SIZE:</b> 109564.WMG.DWG

AKUTAN, ALASKA  
010542 - AKUTAN HARBOR  
PROJECT CONDITION SURVEY  
JULY 18 - JULY 22, 2018

SHEET  
IDENTIFICATION

5-AKU-92-07-02