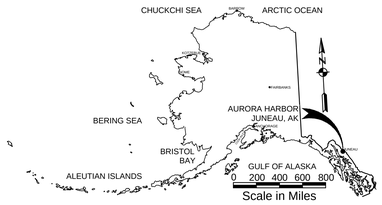
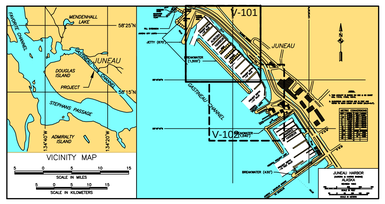


LOCATION/VICINITY MAP(S)



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4. VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON PUBLISHED NAVD88 ELEVATIONS HOLDING THE OPUS DB PUBLISHED VALUES OF "JNU TIDAL GPS 1999" (PID AI4908, VM#16187) AS 20.30'.
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SURVEY CONTROL DATA

STATION	NORTHING	EASTING	ELEV	DESCRIPTION
AH-2 2005	2,365,309.64	2,537,131.21	26.00	SET 2.5 INCH ALUM CAP ON ALUM ROD
AH-3 2013	2,364,255.00	2,538,981.63	25.89	3 1/4 INCH DOMED BC
AH-C 1999	2,365,272.83	2,538,273.21	0.00	NOT LOCATED
AH-D 1999	2,365,793.41	2,537,503.02	23.51	3 1/4 INCH DOMED BC IN CONC.
AH-E 1999	2,365,616.69	2,537,228.50	26.80	3 1/4 INCH DOMED BC
JA-1 RESET 1989	2,363,832.49	2,538,655.23	24.22	USACE SBC
JUNEAU TIDAL GPS	2,362,230.50	2,541,118.12	29.16	3 1/4 INCH NOS DOMED BC
LENA PT	2,365,509.00	2,537,211.03	26.89	4 INCH DOMED BC

NAVIGATION AIDS

USCG NO.	NORTHING	EASTING	DESCRIPTION
23710	2,364,231.80	2,538,486.60	AURORA BASIN LIGHT 1A
23720	2,365,295.80	2,537,126.60	AURORA BASIN LIGHT 1B

PROJECT LIMITS

CORNER#	NORTHING	EASTING
1	2,365,201.80	2,537,241.60
2	2,365,473.80	2,537,350.60
3	2,365,730.80	2,537,640.60
4	2,364,912.80	2,538,455.60
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PROJECT LIMITS

CORNER#	NORTHING	EASTING
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13	2,364,639.80	2,538,181.60
14	2,365,396.80	2,537,427.60
15	2,365,164.80	2,537,334.60

VOLUME COMPUTATIONS

PROJECT DEPTH - 12.0'	CY
AVAILABLE TO PROJECT DEPTH (-12.0')	5,199
AVAILABLE BETWEEN PROJECT DEPTH (-12.0') AND MAX PAY DEPTH (-13.0')	3,961
AVAILABLE TO PROJECT DEPTH (-14.0')	2,073
AVAILABLE BETWEEN PROJECT DEPTH (-14.0') AND MAX PAY DEPTH (-15.0')	1,883
AVAILABLE WITHIN SIDE SLOPES (3:1)	13,018
TOTAL MATERIAL AVAILABLE	26,134

US Army Corps of Engineers
ALASKA DISTRICT

CONTRACT NO. W911KB-10-D-0011
CONTRACTOR HUGHES & ASSOCIATES
CITY WASILLA STATE ALASKA
Recommended: "HEAD CONTRACTOR" Date:
Approved: "CHIEF SURVEY SECTION"

REVISION	DATE	DESCRIPTION	BY	APPROV.	REVISION	DATE	DESCRIPTION	BY	APPROV.

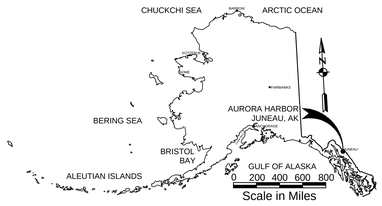
SURVEYED BY: BTH, JMJ
DRAWN BY: JMJ
CHECKED BY: CSK
APPROVED BY: CSK
SCALE: 1" = 50'
SIZE: 24X36
DATE: 13 November 2013
JOB NO.: 314-013
CONTRACT NO.: W911KB-10-D-0011
PLOT DATE: 11/13/2013
FILE NAME: Submission 2013 PCS - FINAL.DWG
CWIS # UPC_# FPO_# %: 20995 & 72797

U.S. ARMY CORPS OF ENGINEERS
ALASKA DISTRICT
P.O. BOX 6898
JBER, ALASKA 99506-0898

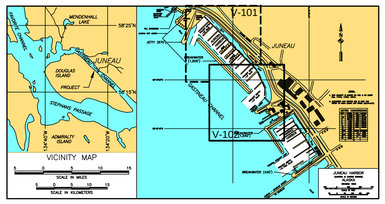
HUGHES & ASSOCIATES
2970 COTTLE LOOP
WASILLA, AK 99654

JUNEAU, ALASKA
AURORA HARBOR
PROJECT CONDITION SURVEY
MAY 7-8, 2013

SHEET IDENTIFICATION
V-101
Sheet 1 of 4



LOCATION/VICINITY MAP(S)



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USCG NO.	NORTHING	EASTING	DESCRIPTION
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CORNER#	NORTHING	EASTING
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US Army Corps of Engineers
ALASKA DISTRICT

CONTRACT NO. W911KB-10-D-0011
CONTRACTOR HUGHES & ASSOCIATES
CITY WASILLA STATE ALASKA
Recommended: "HEAD CONTRACTOR" "CHIEF SURVEYS SECTION"
Approved: "CHIEF SURVEYS SECTION" Date:

REVISION	DATE	DESCRIPTION	BY	APPROV	REVISION	DATE	DESCRIPTION	BY	APPROV

DATE: 13 November 2013
SURVEY NO.: SL24-13
CONTRACT NO.: W911KB-10-D-0011
SURVEYED BY: 8TH, JMJ
DRAWN BY: CDR
CHECKED BY: CDR
APPROVED BY: CDR
PLOT DATE: 11/13/2013
CWBS or UPC: # (FO) # %: 20966 & 72797
SCALE: 1" = 60'
SIZE: 24x36
FILE NAME: JUNEAU_HARBOR_2013 PCS - FINAL.DWG

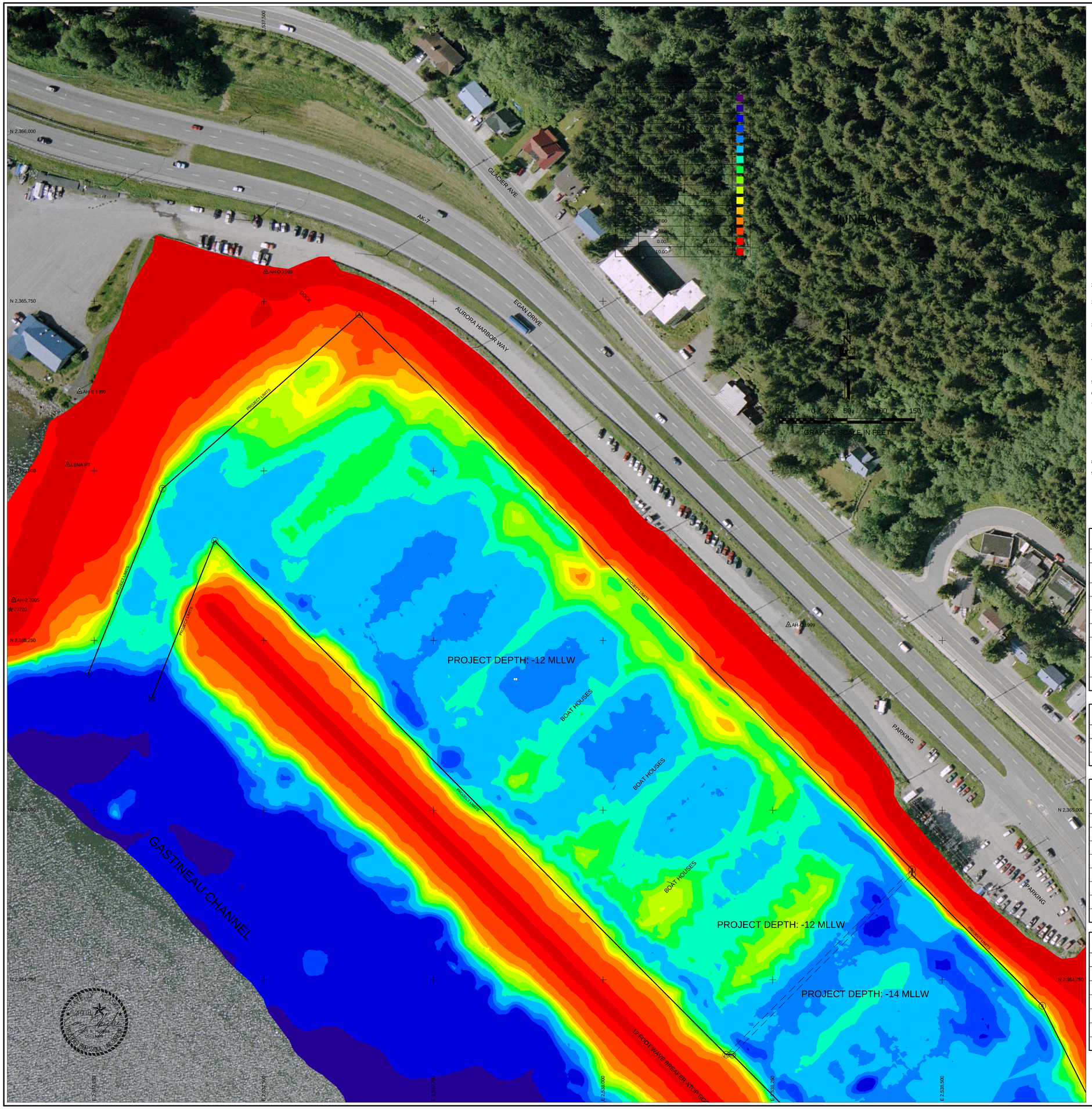
U.S. ARMY CORPS OF ENGINEERS
ALASKA DISTRICT
P.O. BOX 6898
JBER, ALASKA 99506-0898

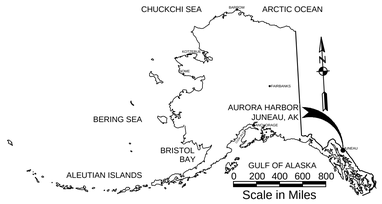
HUGHES & ASSOCIATES
2970 COTTLE LOOP
WASILLA, AK 99654

JUNEAU, ALASKA
AURORA HARBOR
PROJECT CONDITION SURVEY
MAY 7-8, 2013

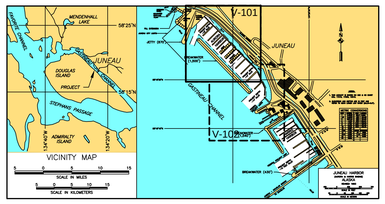
SHEET IDENTIFICATION
V-102

Sheet 2 of 4





LOCATION/VICINITY MAP(S)



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USCG NO.	NORTHING	EASTING	DESCRIPTION
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TOTAL MATERIAL AVAILABLE	26,134

US Army Corps of Engineers
ALASKA DISTRICT

CONTRACT NO. W911KB-10-D-2011
CONTRACTOR HUGHES & ASSOCIATES
CITY WASILLA STATE ALASKA
Recommended: "HEAD CONTRACTOR" Date:
Approved: "CHIEF SURVEY SECTION" Date:

REVISION	DATE	DESCRIPTION	BY	APPROVED	REVISION	DATE	DESCRIPTION	BY	APPROVED

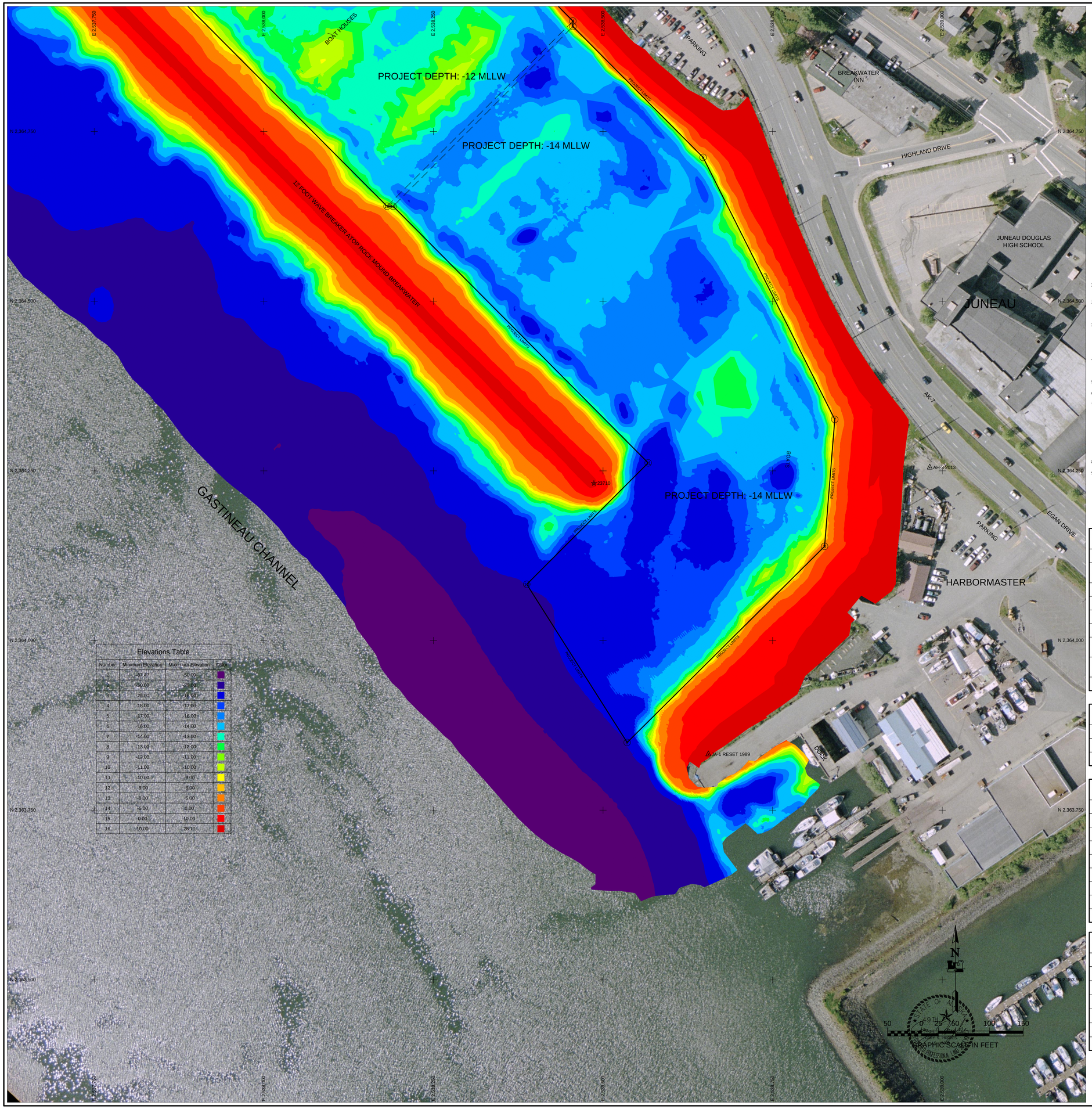
SURVEYED BY: BTR, JMJ
DRAWN BY: JMJ
APPROVED BY: JJ
CHECKED BY: CSH
DATE: 13 November 2013
SLACS NO.: SLACS 1
CONTRACT NO.: W911KB-10-D-2011
DWG or URC # (FD's 20960 & 22797)
SCALE: 1" = 60'
SIZE: 36"x48"
PLOT DATE: 11/13/2013
FILE NAME: AURORA HARBOR 2013 PCS - FINAL DWG

U.S. ARMY CORPS OF ENGINEERS
ALASKA DISTRICT
P.O. BOX 6898
JBER, ALASKA 99506-0898

HUGHES & ASSOCIATES
2970 COTTLE LOOP
WASILLA, AK 99654

JUNEAU, ALASKA
AURORA HARBOR
PROJECT CONDITION SURVEY
MAY 7-8, 2013

SHEET IDENTIFICATION
V-103
Sheet 3 of 4



Elevations Table

Number	Minimum Elevation	Maximum Elevation	Color
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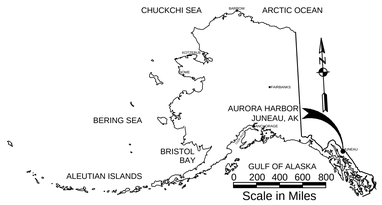
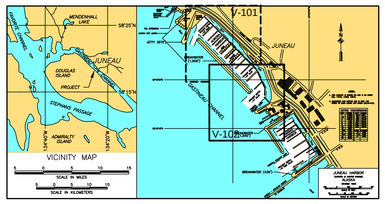
2	-50.00	-23.00	
3	-25.00	-18.00	
4	-18.00	-17.00	
5	-17.00	-16.00	
6	-16.00	-14.00	
7	-14.00	-13.00	
8	-13.00	-12.00	
9	-12.00	-11.00	
10	-11.00	-10.00	
11	-10.00	-9.00	
12	-9.00	-8.00	
13	-8.00	-5.00	
14	-5.00	0.00	
15	0.00	10.00	
16	10.00	28.10	



LOCATION/VICINITY MAP(S)



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2. HORIZONTAL VALUES WERE CHECKED AND FOUND TO CONTAIN VARIED AND SIGNIFICANT ERRORS. HORIZONTAL VALUES WERE NOT UPDATED AND SHOULD NOT BE USED AS ALASKA STATE PLANE, ZONE 1, NAD83(2011) DATUM. HORIZONTAL VALUES SHOULD BE ASSUMED TO BE LOCAL DATUM.
3. VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW=0.0'), BASED ON NOAA/NOS TIDAL BENCH MARK LIST: "945 2210, JUNEAU, GASTINEAU CHANNEL, STEPHENS PASS, ALASKA", PUBLISHED 10/20/2011. THIS TIDAL DATUM IS BASED ON THE 2002-2006 TIDAL EPOCH AND IS REFERENCED BY HOLDING NOAA TIDAL BENCH MARK "JNU TIDAL GPS 1999" (PID AI4908, VM# 16187) AS 29.16' AND NOAA TIDAL BENCH MARK "2210 K 2011" (VM# 20160) AS 26.88'.
4. VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON PUBLISHED NAVD88 ELEVATIONS HOLDING THE OPUS DB PUBLISHED VALUES OF "JNU TIDAL GPS 1999" (PID AI4908, VM#16187) AS 20.30'.
5. SOUNDINGS ARE IN FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
6. THE EXISTING PROJECT CONSISTS OF AURORA HARBOR LOCATED IN JUNEAU, ALASKA.
7. THE SURVEY WAS CONDUCTED ON MAY 7 & 8, 2013. HYDROGRAPHIC SOUNDING DATA WAS COLLECTED USING AN ODOM ES3 MULTI-BEAM ECHOSOUNDER (200KHZ, 120-DEGREE SWATH-WIDTH WITH 120, 0.75 DEGREE BEAMS). POSITIONING AND VESSEL ATTITUDE WERE PROVIDED IN REAL TIME USING A TRIMBLE 461 RTK GPS RECEIVER OPERATING ON KINEMATIC CORRECTORS BROADCAST FROM A TRIMBLE R8 RTK BASE RECEIVER SET AT CONTROL STATION, "JA-1". 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. DATA COLLECTION AND NAVIGATION WERE PERFORMED USING HYPACK HYSWEEP (2013) SOFTWARE. MULTI-BEAM SURVEY DATA WAS POST-PROCESSED USING HYPACK HYSWEEP (2013) SOFTWARE.
8. THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.
9. MAP SOUNDINGS ARE BINNED AT 12 FEET AND ARE NEAREST CELL CENTER VALUE. VOLUME SOUNDINGS ARE BINNED AT 3 FEET AND ARE AVERAGE CELL VALUE.

SURVEY CONTROL DATA

STATION	NORTHING	EASTING	ELEV	DESCRIPTION
AH-2 2005	2,365,309.64	2,537,131.21	26.00	SET 2.5 INCH ALUM CAP ON ALUM ROD
AH-3 2013	2,364,255.00	2,538,981.63	25.89	3 1/4 INCH DOMED BC
AH-C 1999	2,365,272.83	2,538,273.21	0.00	NOT LOCATED
AH-D 1999	2,365,793.41	2,537,503.02	23.51	3 1/4 INCH DOMED BC IN CONC.
AH-E 1999	2,365,616.69	2,537,228.50	26.80	3 1/4 INCH DOMED BC
JA-1 RESET 1989	2,363,832.49	2,538,655.23	24.22	USACE SBC
JUNEAU TIDAL GPS	2,362,230.50	2,541,118.12	29.16	3 1/4 INCH NOS DOMED BC
LENA PT	2,365,509.00	2,537,211.03	26.89	4 INCH DOMED BC

NAVIGATION AIDS

USCG NO.	NORTHING	EASTING	DESCRIPTION
23710	2,364,231.80	2,538,486.60	AURORA BASIN LIGHT 1A
23720	2,365,295.80	2,537,126.60	AURORA BASIN LIGHT 1B

PROJECT LIMITS

CORNER#	NORTHING	EASTING
1	2,365,201.80	2,537,241.60
2	2,365,473.80	2,537,350.60
3	2,365,730.80	2,537,640.60
4	2,364,912.80	2,538,455.60
5	2,364,904.80	2,538,455.60
6	2,364,711.80	2,538,647.60
7	2,364,325.80	2,538,841.60
8	2,364,138.80	2,538,826.60

PROJECT LIMITS

CORNER#	NORTHING	EASTING
9	2,363,849.80	2,538,535.60
10	2,364,082.80	2,538,387.60
11	2,364,261.80	2,538,566.60
12	2,364,639.80	2,538,190.60
13	2,364,639.80	2,538,181.60
14	2,365,396.80	2,537,427.60
15	2,365,164.80	2,537,334.60

VOLUME COMPUTATIONS

PROJECT DEPTH - 12.0'	CY
AVAILABLE TO PROJECT DEPTH (-12.0')	5,199
AVAILABLE BETWEEN PROJECT DEPTH (-12.0') AND MAX PAY DEPTH (-13.0')	3,961
AVAILABLE TO PROJECT DEPTH (-14.0')	2,073
AVAILABLE BETWEEN PROJECT DEPTH (-14.0') AND MAX PAY DEPTH (-15.0')	1,883
AVAILABLE WITHIN SIDE SLOPES (3:1)	13,018
TOTAL MATERIAL AVAILABLE	26,134

US Army Corps of Engineers
ALASKA DISTRICT

CONTRACT NO. W911KB-10-D-0011
CONTRACTOR: HUGHES & ASSOCIATES
CITY: WASILLA STATE: ALASKA
Recommended: ** PROJECT CONTRACTOR ** Date:
Approved: ** CHIEF SURVEY SECTION ** Date:

REVISION	DATE	DESCRIPTION	BY	APPVD	REVISION	DATE	DESCRIPTION	BY	APPVD

SURVEYED BY: ETH, JMJ
DRAWN BY: JMJ
CHECKED BY: CSK
APPROVED BY: CSK
DATE: 13 November 2013
SURVEY NO.: 3140-13
CONTRACT NO.: W911KB-10-D-0011
SCALE: 1" = 60'
PLOT DATE: 11/13/2013
CWCS or UPC & GPD ft: 20996 & 72797
SIZE: 22" x 34"
FILE NAME: BoatHarbor 2013 PCS - FINAL.DWG

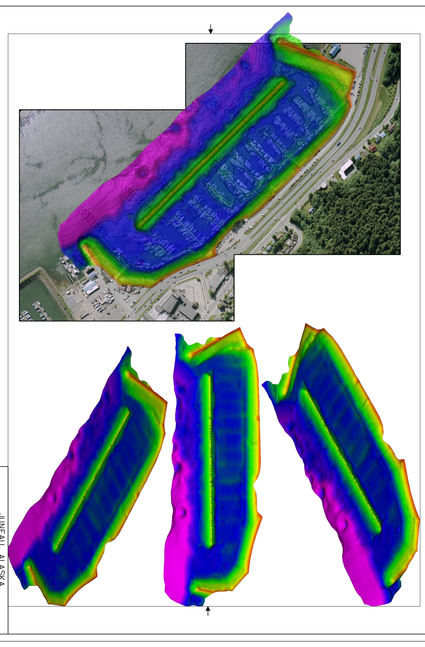
U.S. ARMY CORPS OF ENGINEERS
ALASKA DISTRICT
P.O. BOX 6898
JBER, ALASKA 99506-0898

HUGHES & ASSOCIATES
2970 COTTLE LOOP
WASILLA, AK 99654

JUNEAU, ALASKA
AURORA HARBOR
PROJECT CONDITION SURVEY
MAY 7-8, 2013

SHEET IDENTIFICATION
V-104
Sheet 4 of 4

DEPARTMENT OF ENGINEERS



JUNEAU, ALASKA
AURORA HARBOR
SHALLOW RELIEF
NOT TO SCALE

U.S. NAVY