





NOTES

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   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
2. VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW=0.0'), BASED ON THE NOAA/NOS TIDAL BENCH MARK LIST: "945 2210 JUNEAU, GASTINEAU 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" (VM# 1196) AS 29.96'.
3. VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON NAVD88 (GEOID 12B) ELEVATIONS HOLDING NGS BENCHMARK "DH-C 2000" AS 20.53'.
4. SOUNDINGS ARE IN U.S. FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
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7. MAP SOUNDINGS ARE BINNED AT 24 FEET AND ARE MEAN. 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	2,353,443.04	2,547,023.77
3	2,353,381.92	2,547,121.19
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	30
AVAILABLE TO REQUIRED DEPTH (RD)	-14.0	105
AVAILABLE TO MAX PAY DEPTH (MP)	-15.0	1458
AVAILABLE SIDE SLOPES (SS) AT 2:1 (H:V)	VARIES	399
TOTAL MAXIMUM VOLUME AVAILABLE (MP + SS)		1857

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

STATE OF ALASKA 49TH
GREGORY W. GIBSON
No. LS14824
REGISTERED PROFESSIONAL LAND SURVEYOR

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. W911KB-15-C-0017
CONTRACTOR Western Marine Constructors
CITY Seattle STATE Washington
Recommended Approved Date:
CHIEF, CONSTRUCTION BRANCH CHIEF, ENGINEERING SECTION

REVISION	DATE	DESCRIPTION	BY	APPVD

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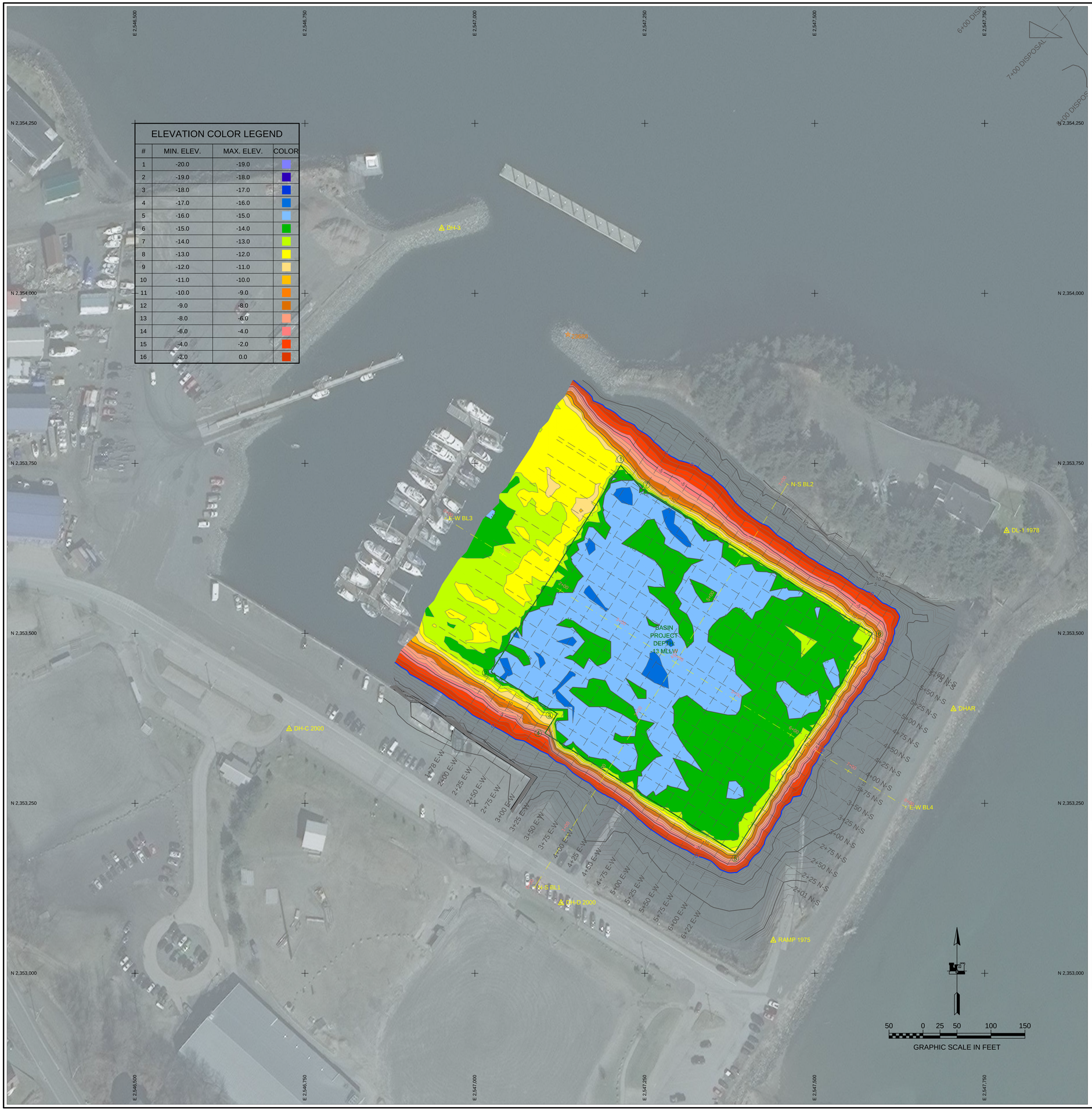
DATE: 31 December 2015
UPC: USACE/10
CONTRACT NO.: W911KB-15-C-0017
PROJECT NO.: 3207-15
FILE NAME: 20151214-17.DWG
SURVEYED BY: Gregory W. Gibson
DRAWN BY: Jeff Gibson
CHECKED BY: Jeff
APPROVED BY: Thomas A. Sloan, Chief Geomatics Section
SCALE: 1" = 50'
SIZE: ANSI E
PLOT DATE: 12/21/2015
PLOT SCRIPT: GEOBASE_20151214-17.DWG

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

eTrac Inc.
637 Linden St. Ste 100
San Rafael, CA 94901

DOUGLAS, ALASKA
DOUGLAS HARBOR
HYDROGRAPHIC SURVEY
December 14 - December 17 2015

SHEET IDENTIFICATION
V-101



ELEVATION COLOR LEGEND

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





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STATE OF ALASKA 49TH GREGORY W. GIBSON No. LS14824 REGISTERED PROFESSIONAL LAND SURVEYOR

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David R. Neff C.H. (275)

US Army Corps of Engineers
ALASKA DISTRICT

CONTRACT NO. W91K8-15-C-0017
CONTRACTOR Western Marine Construction
CITY Seattle
STATE Washington
Recommended
Approved
Date:
construction manager
contracting officer

NO.	DESCRIPTION	DATE	BY	APPVD

NO.	DESCRIPTION	DATE	BY	APPVD

DATE: 1 January 2016
SURVEY NO.: UPC 15-0510
CONTRACT NO.: W91K8-15-C-0017
DRAWING NO.: 2307-15
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SHEET SIZE: ANSI D

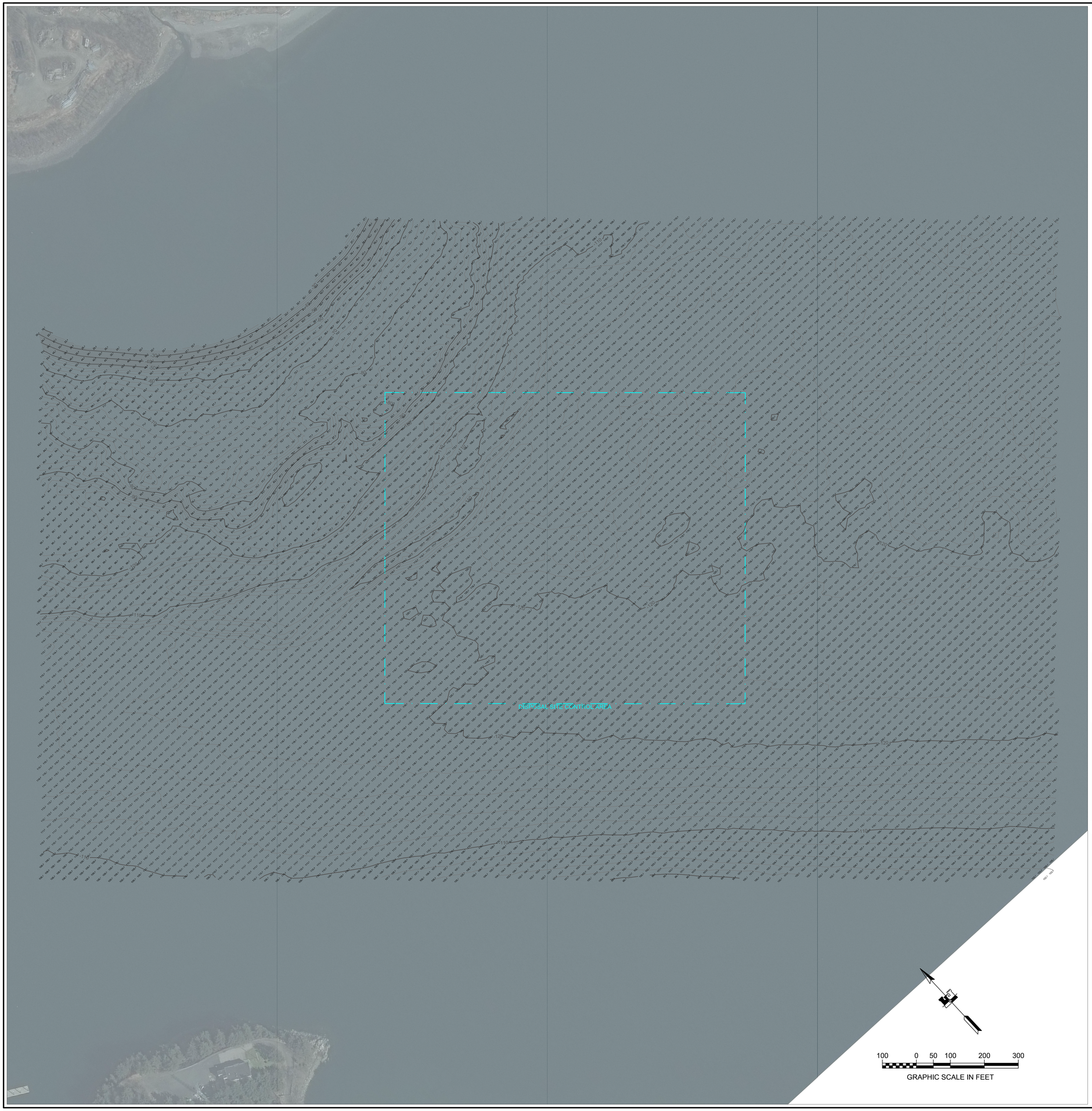
SURVEYED BY: Gregory W. Gibson
DRAWN BY: DR
APPROVED BY: Thomas A. Bilon, Chief Geomatics Section
CHECKED BY: DRN

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

eTrac Inc.
637 Lindaro St, Ste 100
San Rafael, CA 94901

DOUGLAS, ALASKA
DOUGLAS HARBOR
HYDROGRAPHIC SURVEY
December 14 - December 17 2015

SHEET IDENTIFICATION
V-102







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US Army Corps of Engineers
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CONTRACT NO. W91X8-15-C-0017
CONTRACTOR Western Marine Construction
CITY Seattle STATE Washington
Recommended: ____ Approved: ____ Date: ____
CHIEF, CONSTRUCTION BRANCH / CHIEF, CONTRACTING DIVISION

REVISION	DATE	DESCRIPTION	BY	APPVD

REVISION	DATE	DESCRIPTION	BY	APPVD

SURVEYED BY: Gregory W. Gibson
DRAWN BY: Author
APPROVED BY: Thomas A. Sloat, Chief Hydrometics Section
SCALE: 1" = 100'
SIZE: ANSI E
DATE: 1 January 2016
UPC: USACE-01
CHECKED BY: Author
DATE: 12/2016
FILE NAME: P:\Survey\Projects\Douglas_Harbor_2015\Drawings\Douglas_Harbor_2015_Survey_Sheets.dgn
CONTRACT NO.: W91X8-15-C-0017
TASK NO.: 0007-15
SHEET: 1323-17.DWG

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

eTrac Inc.
637 Lindaro St, Ste 100
San Rafael, CA 94901

DOUGLAS, ALASKA
DOUGLAS HARBOR
HYDROGRAPHIC SURVEY
December 14 - December 17 2015

SHEET IDENTIFICATION
V-103

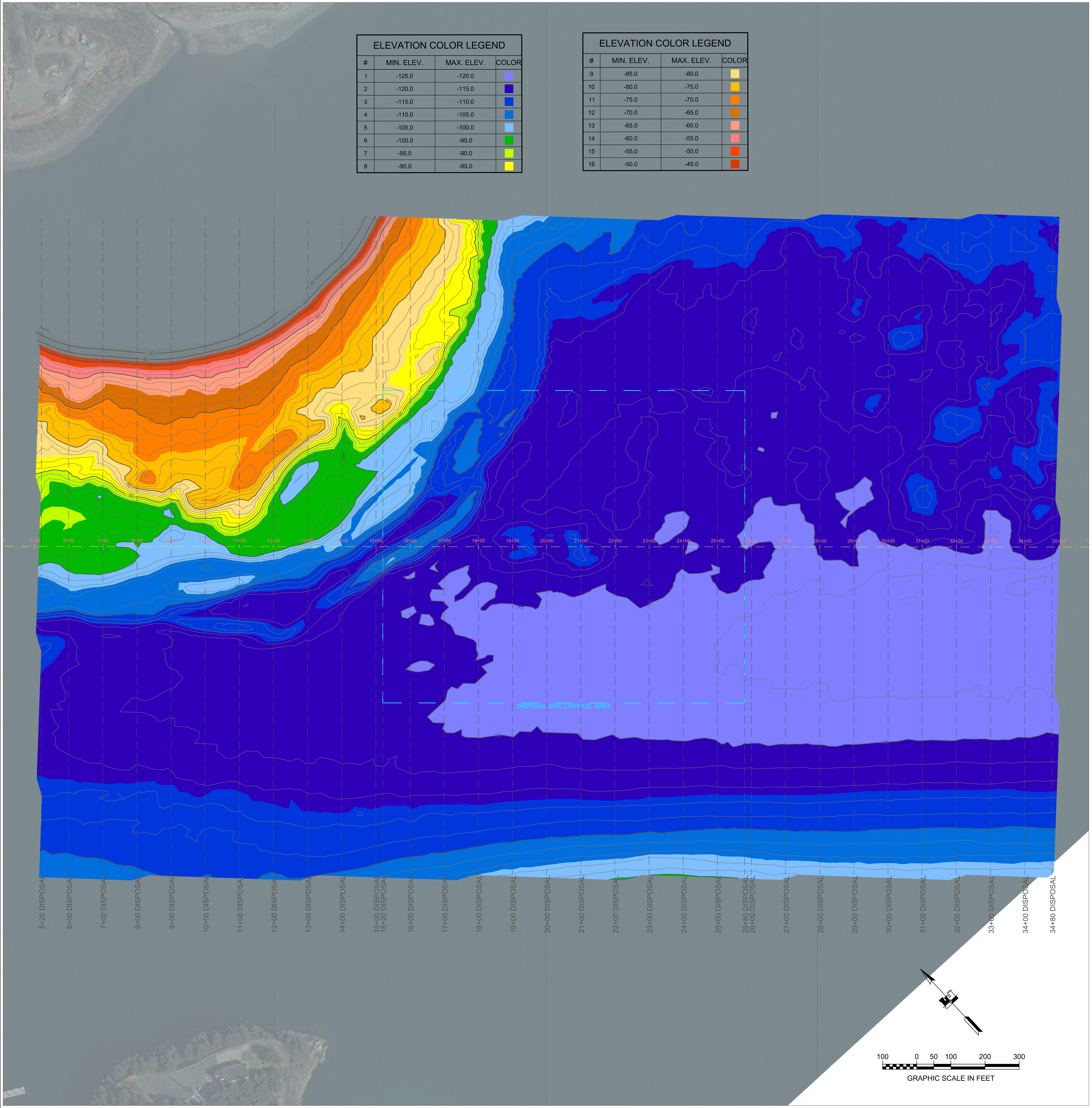
Sheet 3 of 17

ELEVATION COLOR LEGEND

#	MIN. ELEV.	MAX. ELEV.	COLOR
1	-125.0	-120.0	
2	-120.0	-115.0	
3	-115.0	-110.0	
4	-110.0	-105.0	
5	-105.0	-100.0	
6	-100.0	-95.0	
7	-95.0	-90.0	
8	-90.0	-85.0	

ELEVATION COLOR LEGEND

#	MIN. ELEV.	MAX. ELEV.	COLOR
9	-85.0	-80.0	
10	-80.0	-75.0	
11	-75.0	-70.0	
12	-70.0	-65.0	
13	-65.0	-60.0	
14	-60.0	-55.0	
15	-55.0	-50.0	
16	-50.0	-45.0	







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TOTAL MAXIMUM VOLUME AVAILABLE (MP + SS)		1857

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

STATE OF ALASKA 49TH GREGORY W. GIBSON No. LS14824 REGISTERED PROFESSIONAL LAND SURVEYOR

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. W911KB-15-C-0017
CONTRACTOR Western Marine Construction
CITY Seattle STATE Washington
Recommended: PRIME CONTRACTOR
Approved: CHIEF GEOMATICS SECTION
Date:

REVISION	DATE	DESCRIPTION	BY	APPVD

REVISION	DATE	DESCRIPTION	BY	APPVD

SURVEYED BY: Gregory W. Gibson
DRAWN BY: RJG
CHECKED BY: GWG
APPROVED BY: Thomas A. Sloan, Chief Geomatics Section
SCALE: 1" = 100'
PLOT DATE: 1/1/2016
SIZE: ANSI E
FILE NAME: PRE_CAP_POST_DRED_20151214-17.DWG
DATE: 1 January 2016
UPC: DCH010
CONTRACT NO.: W911KB-15-C-0017
JOB NO.: 3327-15

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

eTrac Inc.
637 Lindaro St. Ste 100
San Rafael, CA 94901

DOUGLAS, ALASKA
DOUGLAS HARBOR
HYDROGRAPHIC SURVEY
December 14 - December 17 2015

SHEET IDENTIFICATION

V-104

Survey PRE_20151014 to Survey PRE-CAP_POST-DREDGE_20151214-17 DIFFERENCE





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); "KLAWOCKAIRAK 2006 CORS ARP" (AB49 - PID DM7451) AND "LEVEL ISLAND 6 CORS ARP" (LEV6 - PID DJ3035).

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2. VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW=0.0'), BASED ON THE NOAA/NOS TIDAL BENCH MARK LIST: "945 2210 JUNEAU, GASTINEAU 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" (VM# 1196) AS 29.96'.

3. VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON NAVD88 (GEOID 12B) ELEVATIONS HOLDING NGS BENCHMARK "DH-C 2000" AS 20.53'.

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

5. BATHYMETRY WAS COLLECTED DECEMBER 14-17, 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 APPLANIX POSMV 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.

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

7. MAP SOUNDINGS ARE BINNED AT 24 FEET AND ARE MEAN. VOLUME SOUNDINGS ARE BINNED AT 3 FEET AND ARE MEAN.

SURVEY CONTROL DATA

STATION	NORTHING	EASTING	MLLW	DESCRIPTION
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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	2,353,443.04	2,547,023.77
3	2,353,381.92	2,547,121.19
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	30
AVAILABLE TO REQUIRED DEPTH (RD)	-14.0	105
AVAILABLE TO MAX PAY DEPTH (MP)	-15.0	1458
AVAILABLE SIDE SLOPES (SS) AT 2:1 (H:V)	VARIES	399
TOTAL MAXIMUM VOLUME AVAILABLE (MP + SS)		1857

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

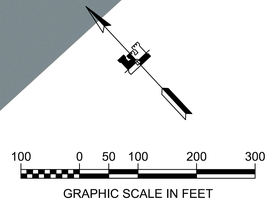
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E-W BL4	2,353,244.38	2,547,634.00



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David R. Neff C.H. (275)



US Army Corps of Engineers
ALASKA DISTRICT

CONTRACT NO. W91K8-15-C-0017
CONTRACTOR Western Marine Construction
CITY Seattle STATE Washington
Recommended Approved Date:
CHIEF, CONSTRUCTION BRANCH CHIEF, GEOMATICS SECTION

BY	APP'D
DESCRIPTION	
DATE	
BY	APP'D
DESCRIPTION	
DATE	

SURVEYED BY: Gregory W. Gibson
DRAWN BY: Gibson
CHECKED BY: Gibson
APPROVED BY: Thomas A. Sloat, Chief Geomatics Section
SCALE: 1" = 100'
DATE: 1/1/2016
FILE NAME: PRE_CAP_POST_DRED_20151214-17.DWG
SIZE: 30X42

DATE: 1 January 2016
UPC: 1000010
CONTRACT NO.: W91K8-15-C-0017
TASK NO.: 3327-15
FILE NAME: PRE_CAP_POST_DRED_20151214-17.DWG

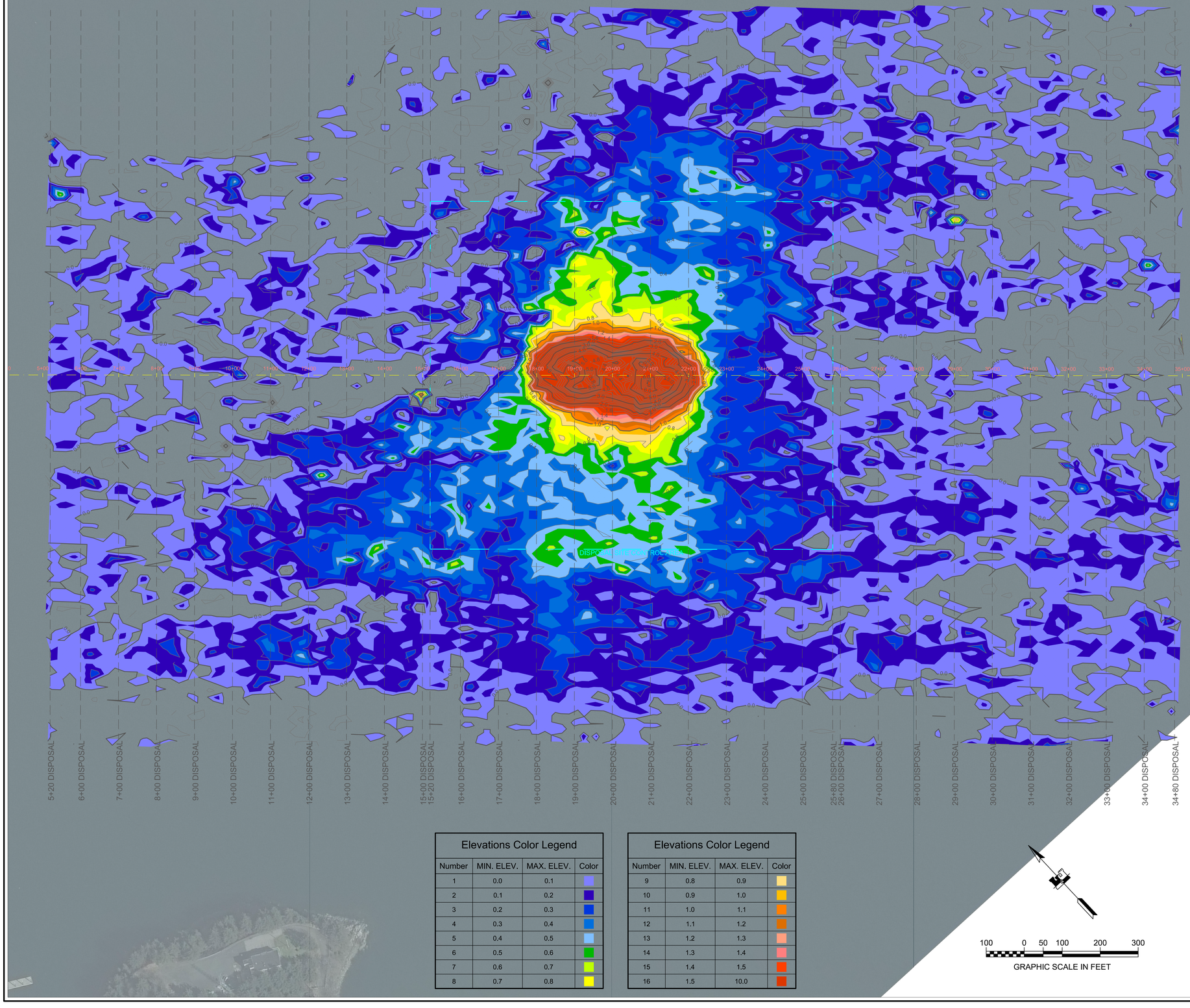
U.S. ARMY CORPS OF ENGINEERS
ALASKA DISTRICT
P.O. BOX 6898
JBER, ALASKA 99506-6898

eTrac Inc.
637 Linda St, Ste 100
San Rafael, CA 94901

DOUGLAS, ALASKA
DOUGLAS HARBOR
HYDROGRAPHIC SURVEY
December 14 - December 17 2015

SHEET IDENTIFICATION
V-105

Survey PRE_20151014 to Survey PRE-CAP_POST-DREDGE_20151214-17 DIFFERENCE



Elevations Color Legend			
Number	MIN. ELEV.	MAX. ELEV.	Color
1	0.0	0.1	
2	0.1	0.2	
3	0.2	0.3	
4	0.3	0.4	
5	0.4	0.5	
6	0.5	0.6	
7	0.6	0.7	
8	0.7	0.8	

Elevations Color Legend			
Number	MIN. ELEV.	MAX. ELEV.	Color
9	0.8	0.9	
10	0.9	1.0	
11	1.0	1.1	
12	1.1	1.2	
13	1.2	1.3	
14	1.3	1.4	
15	1.4	1.5	
16	1.5	10.0	





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CORNER#	NORTHING	EASTING
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David R. Neff C.H. (275)

100 0 50 100 200 300

GRAPHIC SCALE IN FEET

US Army Corps of Engineers
ALASKA DISTRICT

CONTRACT NO. W91X8B-15-C-0017
CONTRACTOR Western Marine Construction
CITY Seattle STATE Washington
Recommended: Date:
Approved: CHIEF, GEOMATICS SECTION

REVISION	DATE	DESCRIPTION	BY	APP'D

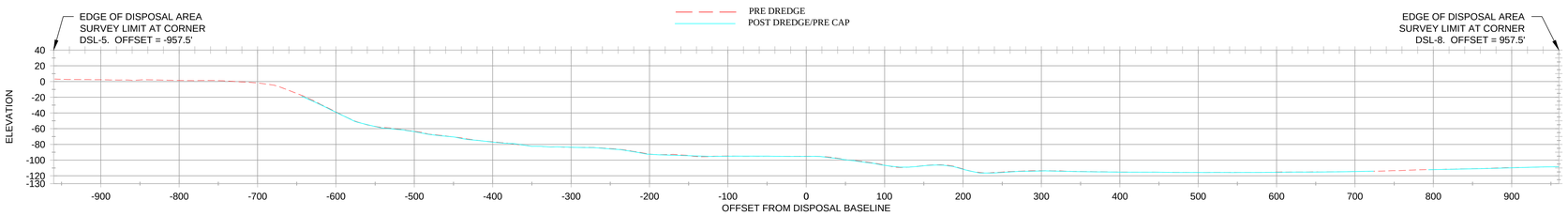
DATE: 1 January 2016
SURVEYED BY: Gregory W. Gibson
DRAWN BY: Jeff Lee
CHECKED BY: Jeff Lee
APPROVED BY: Thomas A. Skala, Chief Geomatics Section
SCALE: 1" = 100'
SIZE: ANSI D
FILE NAME: PRE-CAP_POST_DRED_20153214-17.DWG
CONTRACT NO.: W91X8B-15-C-0017
PROJECT NO.: 33215
DATE: 12/20/16

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

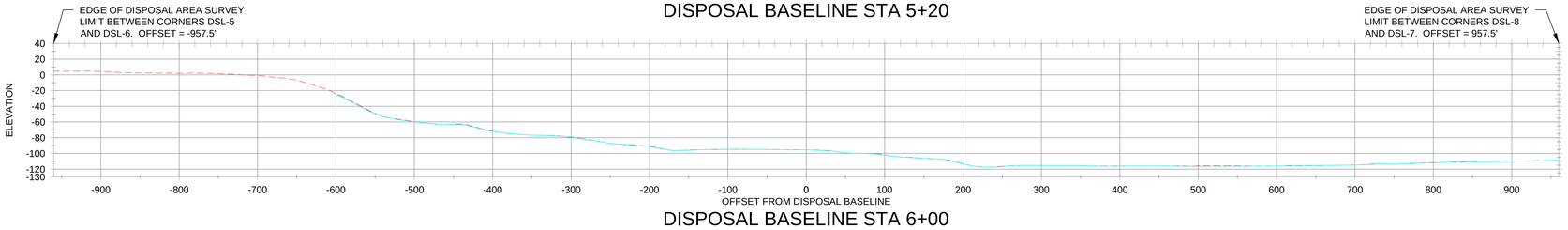
eTrac Inc.
637 Lindaro St, Ste 100
San Rafael, CA 94901

DOUGLAS, ALASKA
DOUGLAS HARBOR
HYDROGRAPHIC SURVEY
December 14 - December 17 2015

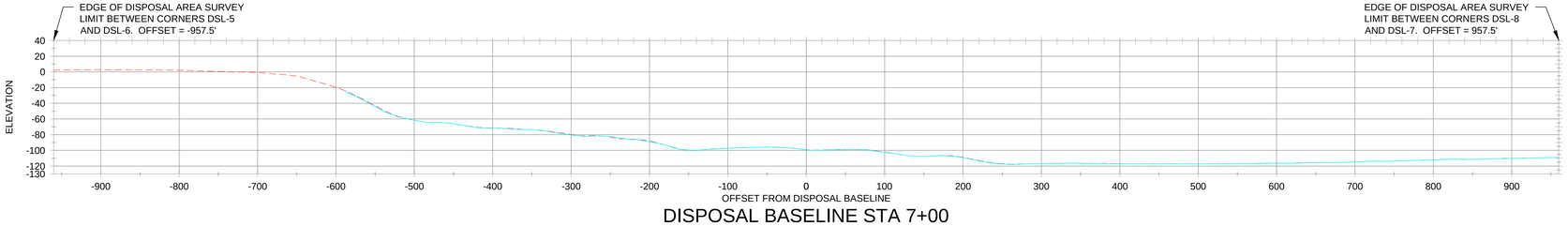
SHEET IDENTIFICATION
V-106



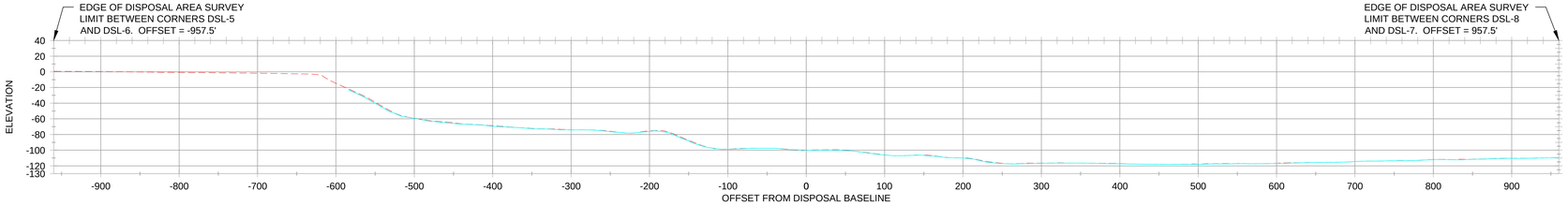
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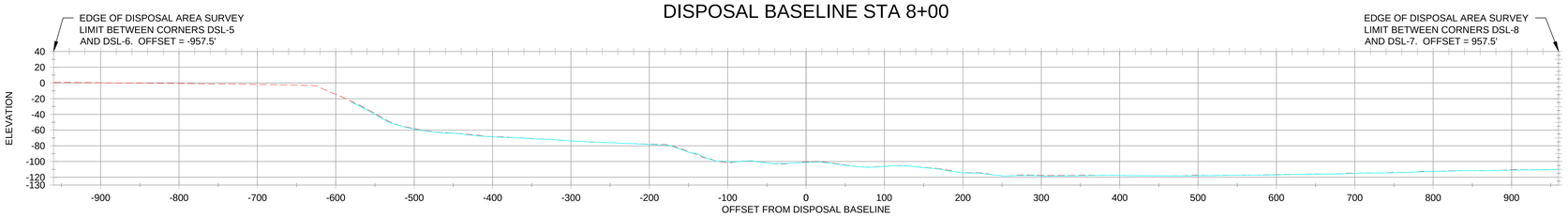
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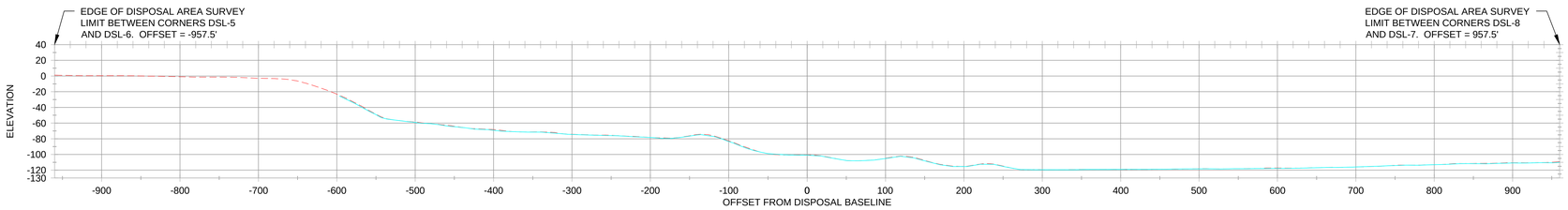
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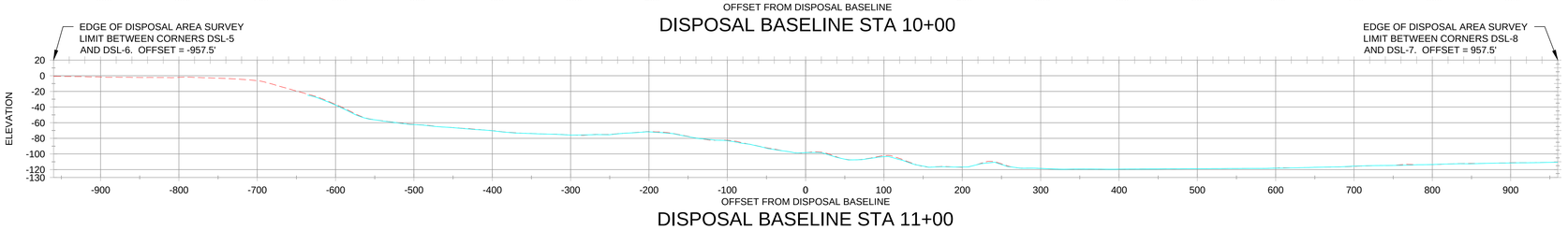
DISPOSAL BASELINE STA 8+00



DISPOSAL BASELINE STA 9+00



DISPOSAL BASELINE STA 10+00



DISPOSAL BASELINE STA 11+00





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STATE OF ALASKA 49TH
GREGORY W. GIBSON
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David R. Neff C.H. (275)

US Army Corps of Engineers
ALASKA DISTRICT

CONTRACT NO. W91K8-15-C-0017
CONTRACTOR Western Marine Construction
CITY Seattle STATE Washington
Recommended Approved Date:
CHIEF, CONSTRUCTION BRANCH CHIEF, CONTRACTING SECTION

BY	APPVD

DESCRIPTION DATE

BY	APPVD

DESCRIPTION DATE

SURVEYED BY: Gregory W. Gibson
DRAWN BY: Thomas A. Stolk
CHECKED BY: [illegible]
APPROVED BY: Thomas A. Stolk, Chief Geomatics Section
DATE: 31 December 2015
SCALE: 1"=70'
PROJECT: 1/20/2015
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HDC: 2307.15
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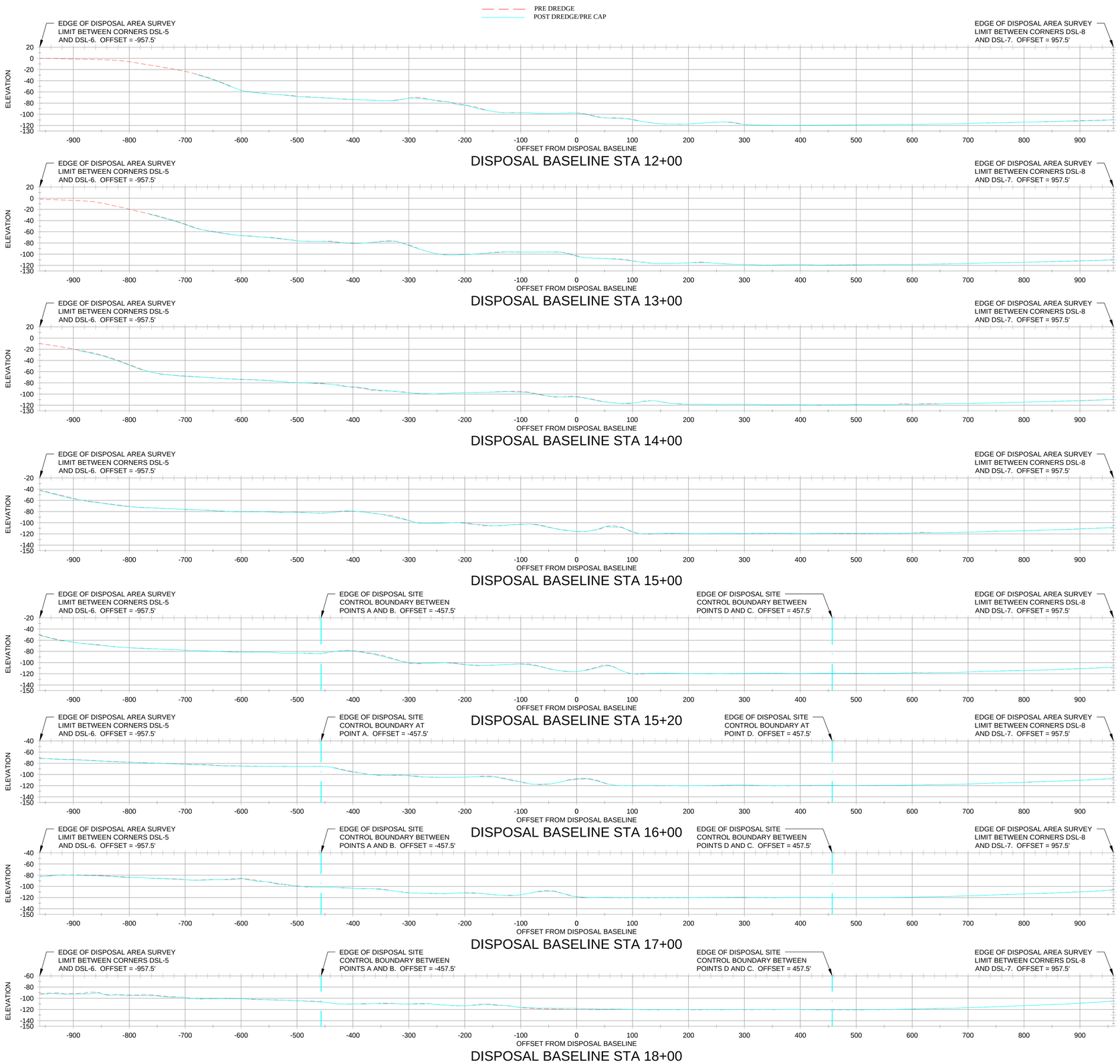
U.S. ARMY CORPS OF ENGINEERS ALASKA DISTRICT P.O. BOX 6898 JBER, ALASKA 99506-0898

aTrac Inc 637 Lindaro St, Ste 100 San Rafael, CA 94901

DOUGLAS, ALASKA
DOUGLAS HARBOR
HYDROGRAPHIC SURVEY
December 14 - December 17 2015

SHEET IDENTIFICATION
V-107

Sheet 7 of 17







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); "KLAWOCKAIRAK 2006 CORS ARP" (AB49 - PID DM7451) AND "LEVEL ISLAND 6 CORS ARP" (LEV6 - PID DJ3035).

   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

2. VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW=0.0'), BASED ON THE NOAA/NOS TIDAL BENCH MARK LIST: "945 2210 JUNEAU, GASTINEAU 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" (VM# 1196) AS 29.96'.

3. VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON NAVD88 (GEOID 12B) ELEVATIONS HOLDING NGS BENCHMARK "DH-C 2000" AS 20.53'.

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

5. BATHYMETRY WAS COLLECTED DECEMBER 14-17, 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 APPLANIX POSMV 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.

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

7. MAP SOUNDINGS ARE BINNED AT 24 FEET AND ARE MEAN. 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	2,353,443.04	2,547,023.77
3	2,353,381.92	2,547,121.19
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	30
AVAILABLE TO REQUIRED DEPTH (RD)	-14.0	105
AVAILABLE TO MAX PAY DEPTH (MP)	-15.0	1458
AVAILABLE SIDE SLOPES (SS) AT 2:1 (H:V)	VARIES	399
TOTAL MAXIMUM VOLUME AVAILABLE (MP + SS)		1857

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

STATE OF ALASKA 49TH GREGORY W. GIBSON No. LS14824 REGISTERED PROFESSIONAL LAND SURVEYOR

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. W91X8-15-C-0017
CONTRACTOR Western Marine Construction
CITY Seattle STATE Washington
Recommended Approved Date:
AREA ENGINEER, DCSOPS CHIEF, HYDRO, CONTRACTOR

SURVEYED BY: Gregory W. Gibson
DRAWN BY: Eric Bilotta
CHECKED BY: Gregory W. Gibson
APPROVED BY: Thomas K. Slade, Chief Geomatics Section
DATE: 12/21/2015
SCALE: 1"=70'
FILE NAME: DSC_DP_SHT_DWG_20151214.17DWG
SIZE: ANSI D

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

eTec Inc. 637 Lindaro St. Ste 100 San Rafael, CA 94901

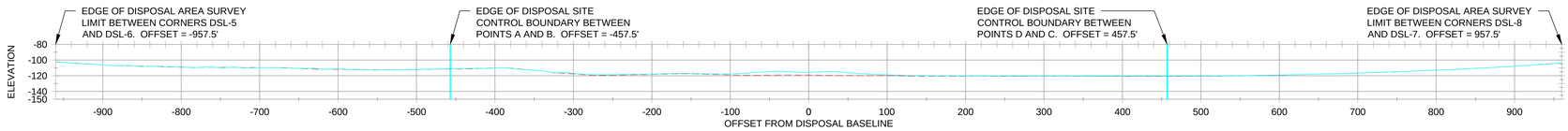
DATE: 31 December 2015
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CONTRACT NO.: W91149-15-C-0017
TASK NO.: 0007-15
JOB NO.: 0007-15

REVISION	DATE	DESCRIPTION	BY	APPD

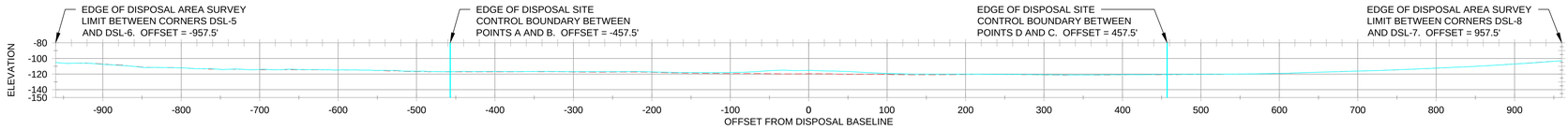
DOUGLAS, ALASKA
DOUGLAS HARBOR
HYDROGRAPHIC SURVEY
December 14 - December 17 2015

SHEET IDENTIFICATION
V-108

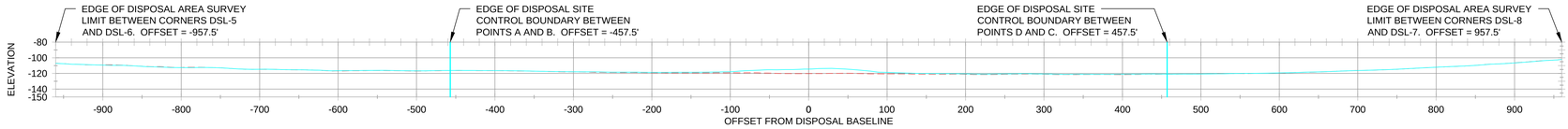
PRE DREDGE
POST DREDGE/PRE CAP



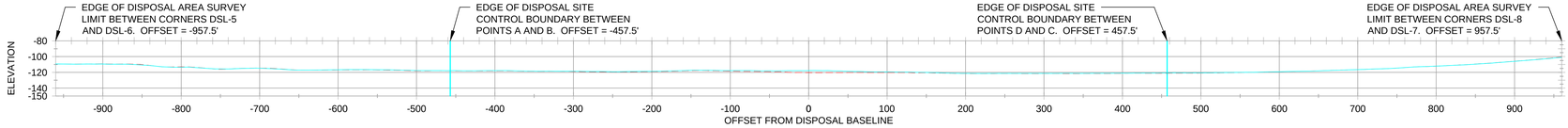
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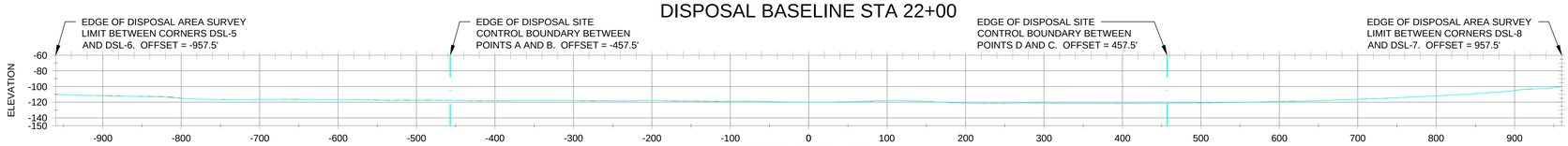
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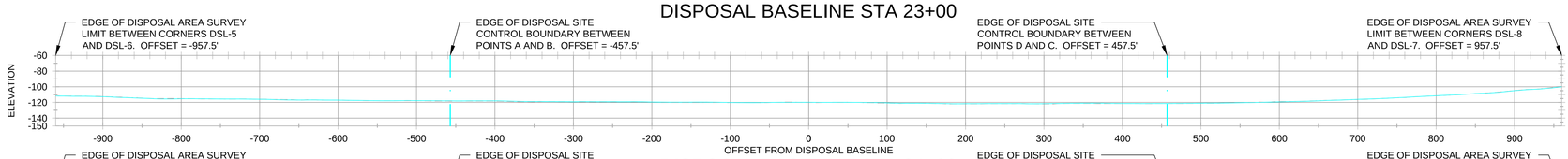
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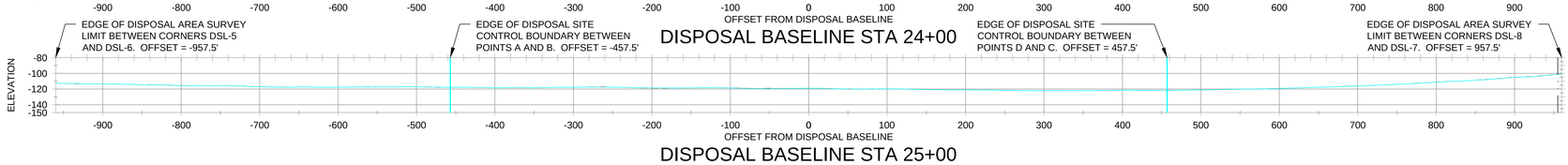
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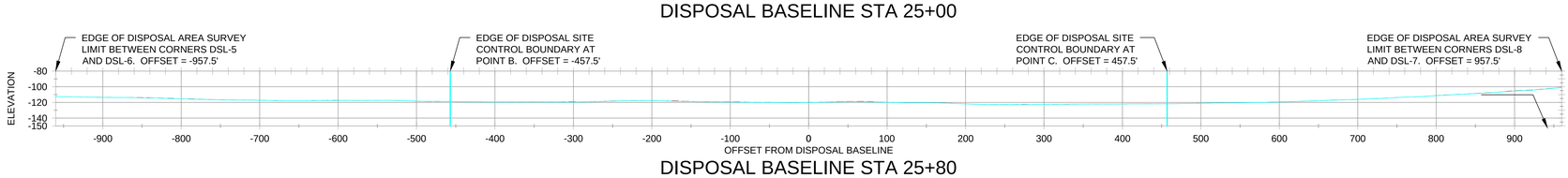
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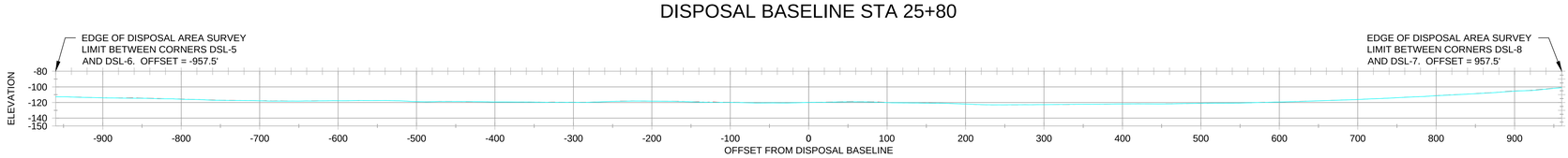
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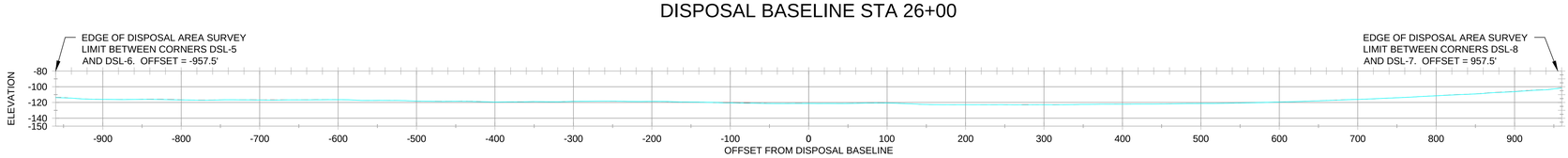
DISPOSAL BASELINE STA 25+00



DISPOSAL BASELINE STA 25+80



DISPOSAL BASELINE STA 26+00



DISPOSAL BASELINE STA 27+00





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STATE OF ALASKA 49TH
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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. W91X8-15-C-0017
CONTRACTOR Western Marine Construction
CITY Seattle STATE Washington
Recommended Approved Date:
CHIEF, CONSTRUCTION BRANCH CHIEF, CONTRACTING DIVISION

NO.	DESCRIPTION	DATE	BY	APP'D

NO.	DESCRIPTION	DATE	BY	APP'D

SURVEYED BY: Gregory W. Gibson
DRAWN BY: Thomas A. Sloan
CHECKED BY: Engineering Staff
APPROVED BY: Thomas A. Sloan, Chief Geomatics Section
DATE: 31 December 2015
USPC: DSBS10
CONTRACT NO.: W91X8-15-C-0017
DATE PLOTTED: 12/31/2015
SCALE: 1"=70'
FILE NAME: ENG GRAPHICS\SHEET_DWRD_20151231-V-17.DWG
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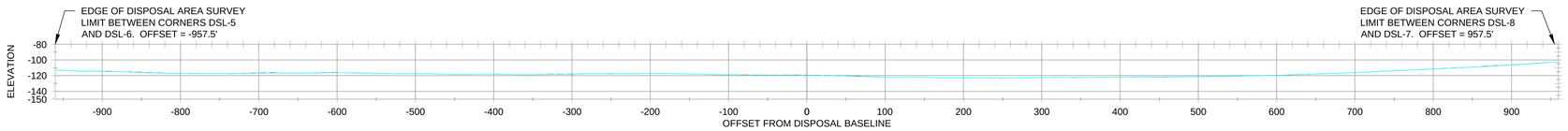
U.S. ARMY CORPS OF ENGINEERS
ALASKA DISTRICT
P.O. BOX 6898
JBER, ALASKA 99506-0898

aTrac Inc
638 Lindaro St, Ste 100
San Rafael, CA 94901

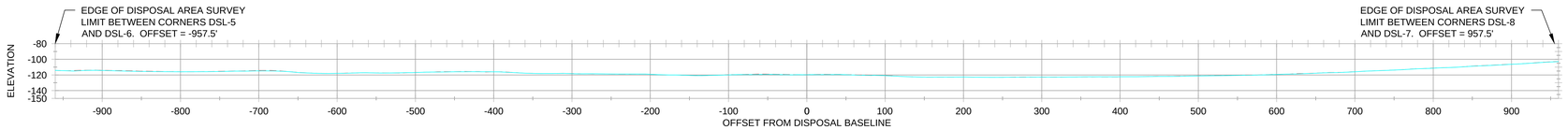
DOUGLAS, ALASKA
DOUGLAS HARBOR
HYDROGRAPHIC SURVEY
December 14 - December 17 2015

SHEET IDENTIFICATION
V-109

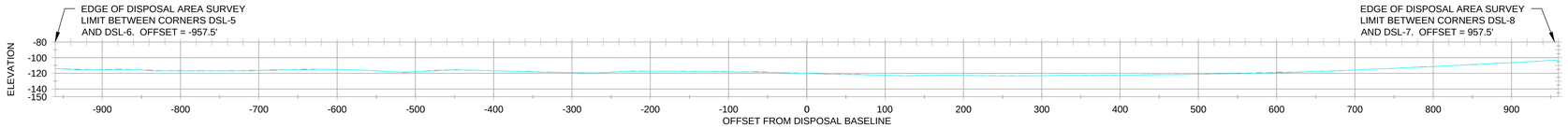
PRE DREDGE
POST DREDGE/PRE CAP



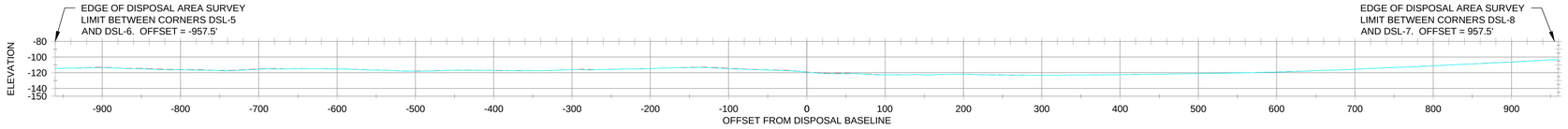
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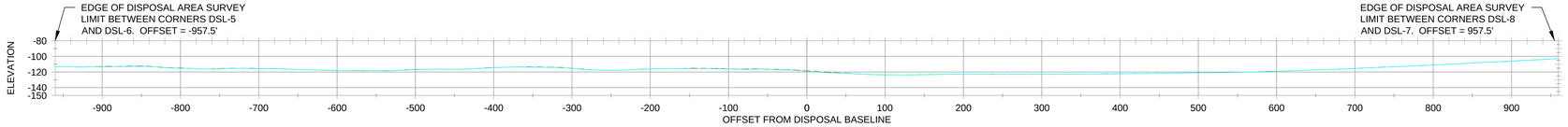
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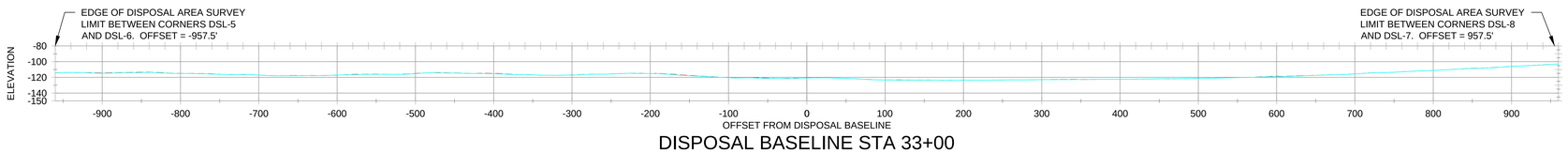
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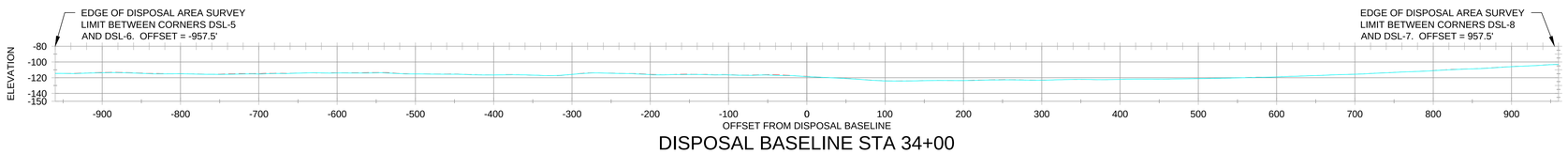
DISPOSAL BASELINE STA 31+00



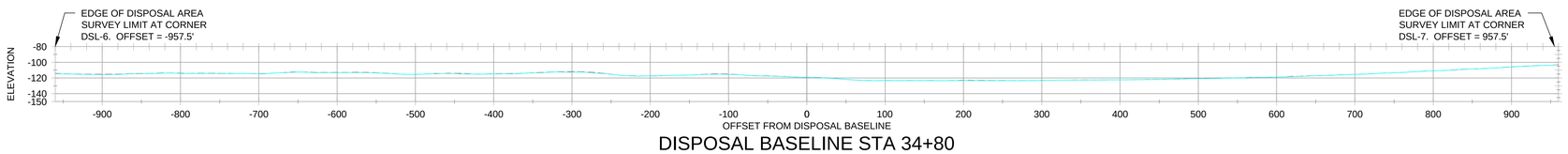
DISPOSAL BASELINE STA 32+00



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DISPOSAL BASELINE STA 34+00



DISPOSAL BASELINE STA 34+80





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CONTRACTOR Western Marine Construction
CITY Seattle STATE Washington
Recommended Approved Date:
CHIEF, CONSTRUCTION

NO.	DESCRIPTION	DATE	BY	APPVD

NO.	DESCRIPTION	DATE	BY	APPVD

DATE: 31 December 2015
DATUM: NAD83(2011) USFC
CONTRACT NO.: W911KB-15-C-0017
JOB NO.: 2307-15
SURVEYED BY: Gregory W. Gibson
CHECKED BY: Brian Lee
DRAWN BY: Brian Lee
APPROVED BY: Thomas A. Sloan, Chief Geomatics Section
SCALE: 1"=70'
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SIZE: ANSI D

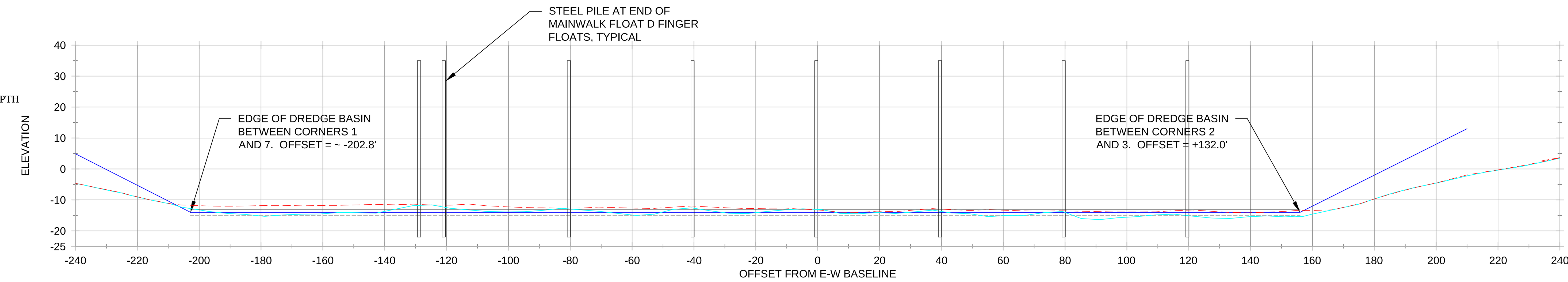
U.S. ARMY CORPS OF ENGINEERS
ALASKA DISTRICT
P.O. BOX 6898
JBER, ALASKA 99506-0898

aTac Inc
637 Lindaro St, Ste 100
San Rafeal, CA 94901

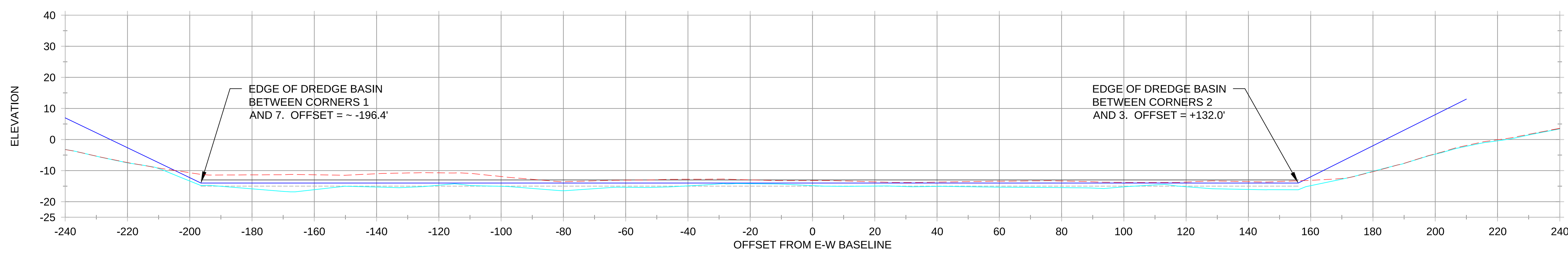
DOUGLAS, ALASKA
DOUGLAS HARBOR
HYDROGRAPHIC SURVEY
December 14 - December 17 2015

SHEET IDENTIFICATION
V-110

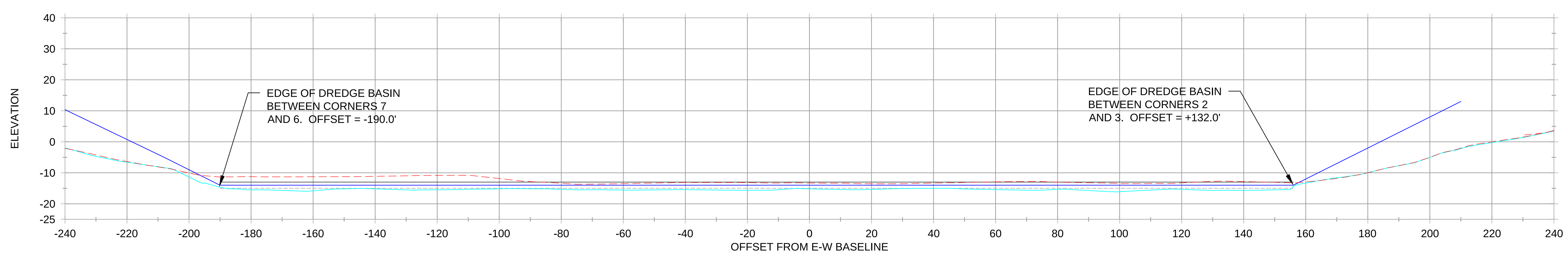
PRE DREDGE
POST DREDGE PRE CAP
SIDE SLOPE AND REQUIRED DEPTH
PROJECT DEPTH
MAX PAY



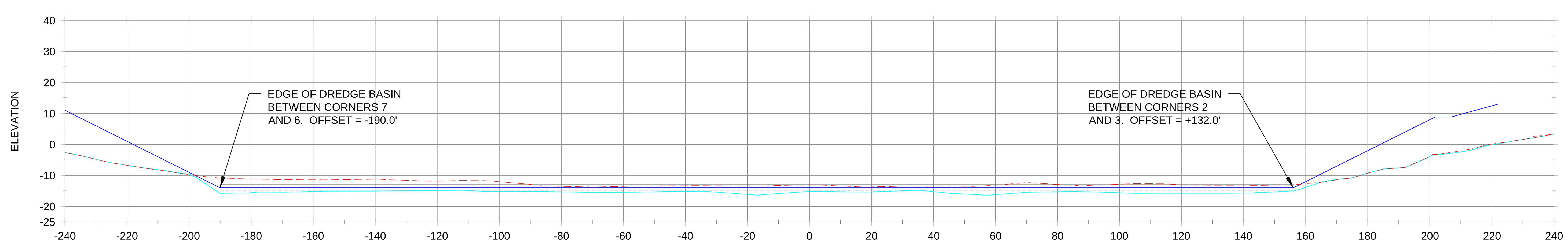
E-W BASELINE STA 1+77.50



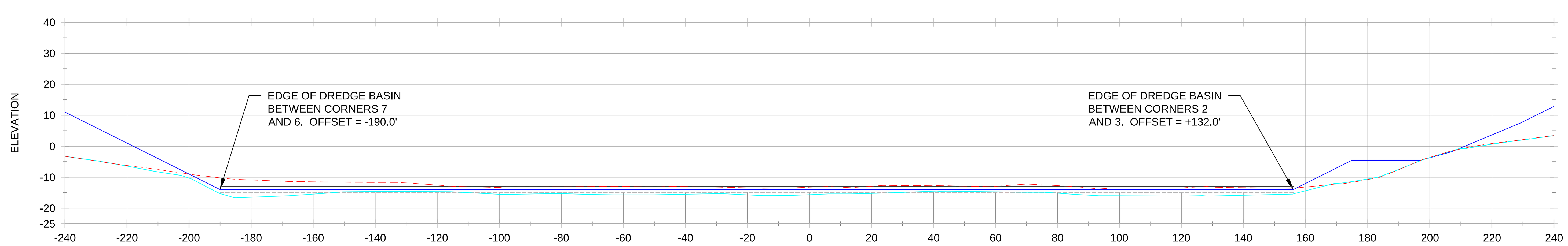
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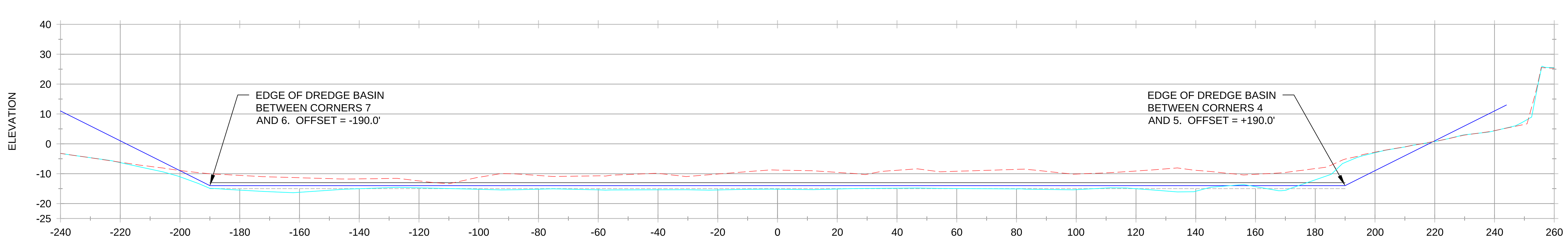
E-W BASELINE STA 2+25



E-W BASELINE STA 2+50



E-W BASELINE STA 2+75



E-W BASELINE STA 3+00





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); "KLAWOCKAIRAK 2006 CORS ARP" (AB49 - PID DM7451) AND "LEVEL ISLAND 6 CORS ARP" (LEV6 - PID DJ3035).

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2. VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW=0.0'), BASED ON THE NOAA/NOS TIDAL BENCH MARK LIST: "945 2210 JUNEAU, GASTINEAU 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" (VM# 1196) AS 29.96'.

3. VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON NAVD88 (GEOID 12B) ELEVATIONS HOLDING NGS BENCHMARK "DH-C 2000" AS 20.53'.

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

5. BATHYMETRY WAS COLLECTED DECEMBER 14-17, 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 APPLANIX POSMV 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.

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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	2,353,443.04	2,547,023.77
3	2,353,381.92	2,547,121.19
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

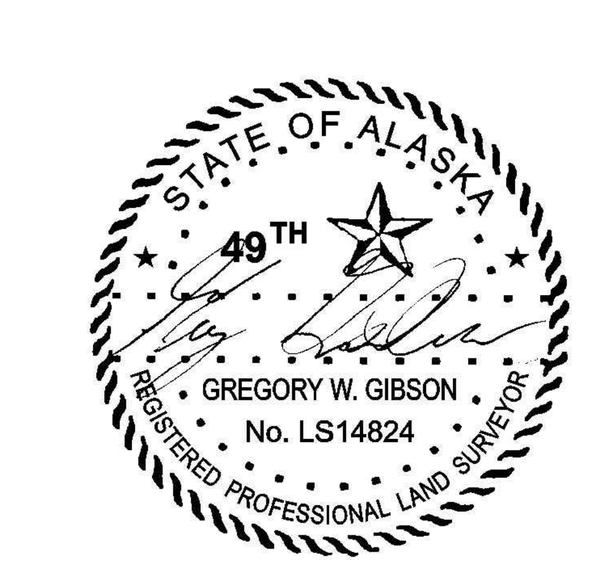
	MLLW	CU. YD.
AVAILABLE TO PROJECT DEPTH (PD)	-13.0	30
AVAILABLE TO REQUIRED DEPTH (RD)	-14.0	105
AVAILABLE TO MAX PAY DEPTH (MP)	-15.0	1458
AVAILABLE SIDE SLOPES (SS) AT 2:1 (H:V)	VARIES	399
TOTAL MAXIMUM VOLUME AVAILABLE (MP + SS)		1857

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
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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. W911KB-15-C-0017
CONTRACTOR Western Marine Construction
CITY Seattle STATE Washington
Recommended: PRIME CONTRACTOR
Approved: CHIEF GEOMATICS SECTION
Date:

REVISION | DATE | DESCRIPTION | BY | APPVD

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DATE: 31 December 2015
UPC: DGH010
CONTRACT NO.: W911KB-15-C-0017
JOB NO.: 3327-15
SURVEYED BY: Gregory W. Gibson
DRAWN BY: RJG
CHECKED BY: GWG
APPROVED BY: Thomas A. Sloan, Chief Geomatics Section
SCALE: 1"=20'
PLOT DATE: 12/31/2015
SIZE: ANSI E
FILE NAME: PRE_CAP_POST_DRED_20151214-17.DWG

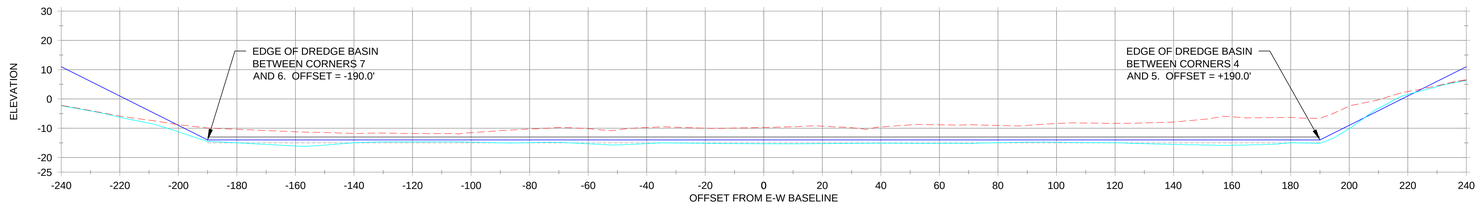
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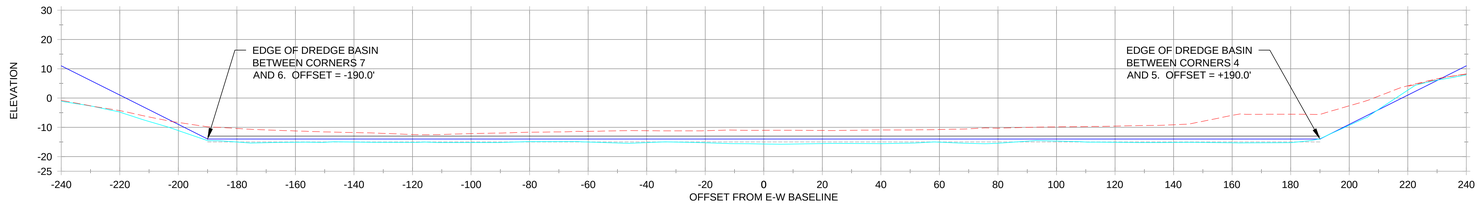
DOUGLAS, ALASKA
DOUGLAS HARBOR
HYDROGRAPHIC SURVEY
December 14 - December 17 2015

SHEET IDENTIFICATION
V-11
Sheet 11 of 17

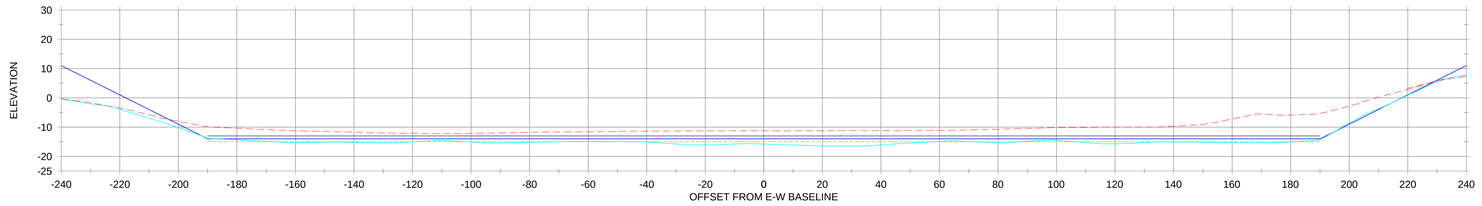
PRE DREDGE
POST DREDGE/PRE CAP
SIDE SLOPE AND REQUIRED DEPTH
PROJECT DEPTH
MAX PAY



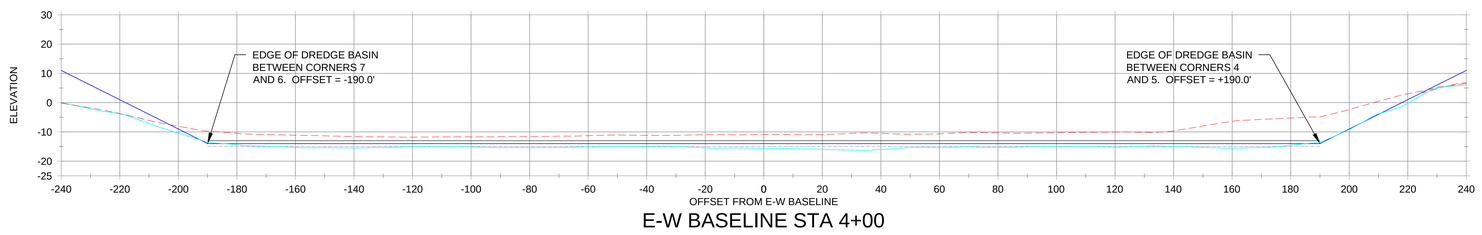
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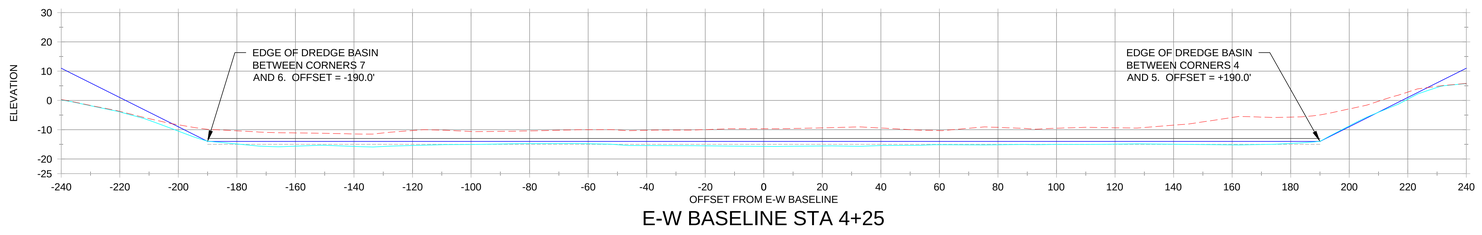
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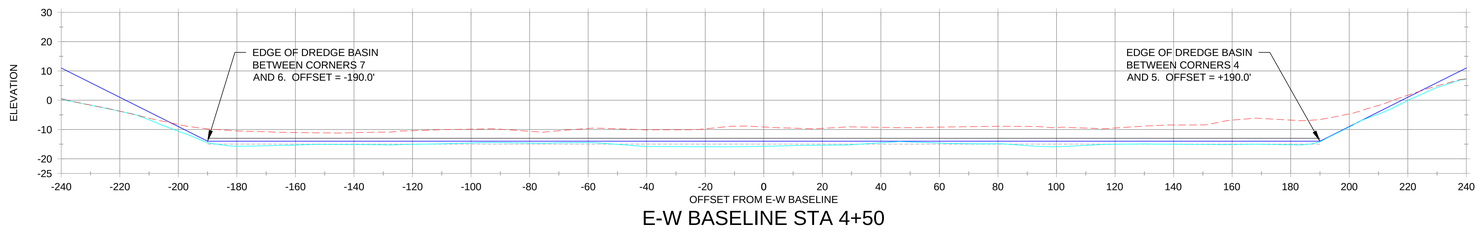
E-W BASELINE STA 3+75



E-W BASELINE STA 4+00



E-W BASELINE STA 4+25



E-W BASELINE STA 4+50





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STATE OF ALASKA 49TH GREGORY W. GIBSON No. LS14824 REGISTERED PROFESSIONAL LAND SURVEYOR

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. W91X8-15-C-0017
CONTRACTOR Western Marine Construction
CITY
STATE
Date:
Recommended
Approved
CHIEF,ENGINEERING DIVISION
CHIEF,CONSTRUCTION DIVISION

BY	APPVD	DESCRIPTION	DATE

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DATE: 31 December 2015
UPC: USACE10
CONTRACT NO.: W91X8-15-C-0017
JOB NO.: 2327.15
SURVEYED BY: Gregory W. Gibson
CHECKED BY: Brian Lee
DRAWN BY: Brian Lee
APPROVED BY: Thomas A. Sikon, Chief Geomatics Section
SCALE: 1"=50'
FILE NAME: PROJECT_DWG 20151214-17.DWG
SIZE: ANSI D

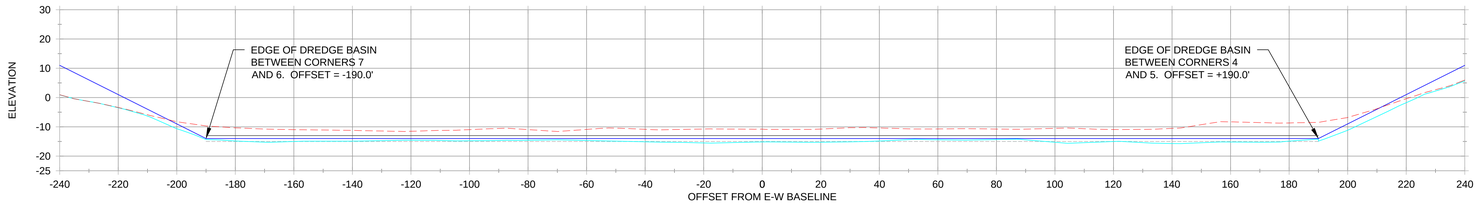
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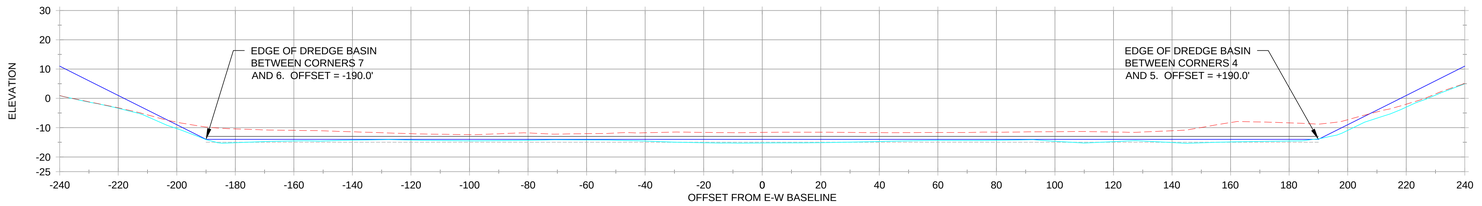
DOUGLAS, ALASKA
DOUGLAS HARBOR
HYDROGRAPHIC SURVEY
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SHEET IDENTIFICATION
V-112

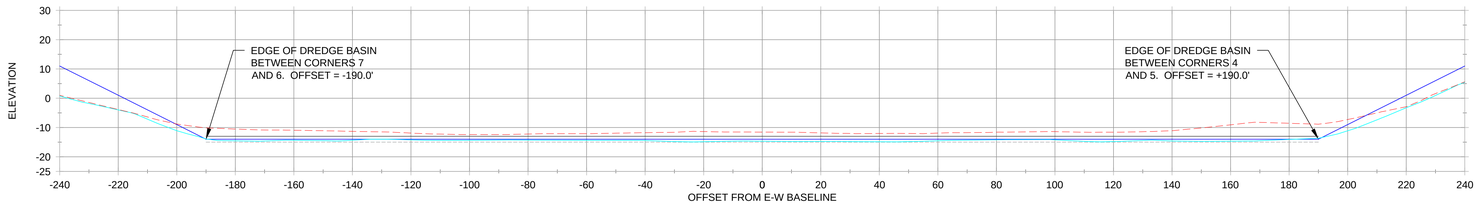
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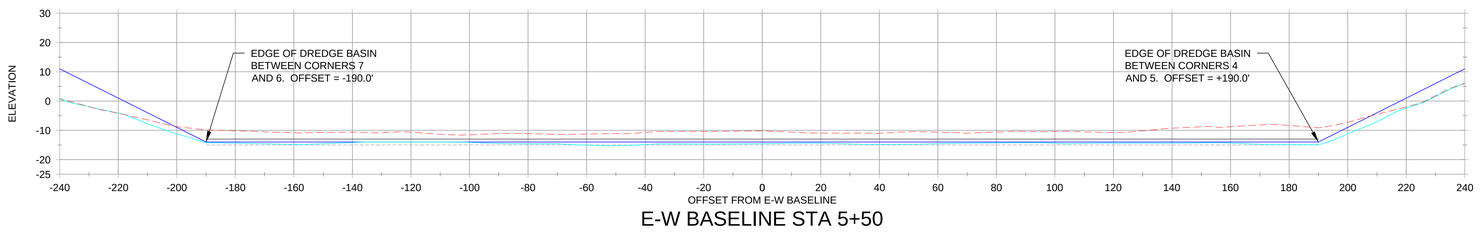
E-W BASELINE STA 4+75



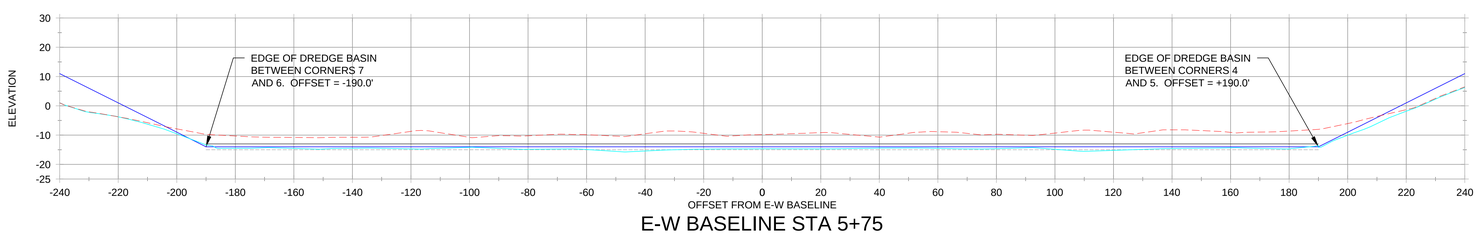
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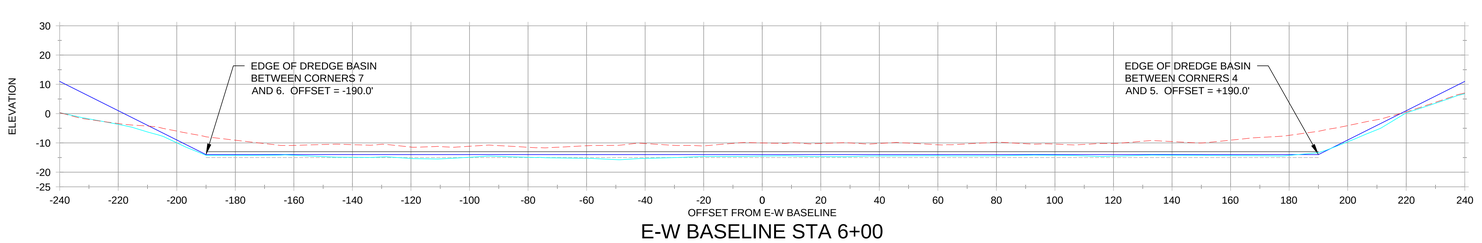
E-W BASELINE STA 5+25



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TOTAL MAXIMUM VOLUME AVAILABLE (MP + SS)		1857

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

STATE OF ALASKA 49TH
GREGORY W. GIBSON
No. LS14824
REGISTERED PROFESSIONAL LAND SURVEYOR

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. W91X8-15-C-0017
CONTRACTOR Western Marine Construction
CITY Seattle STATE Washington
Recommended Approved Date:
AREA DESCRIPTION BY DATE
REVISION DESCRIPTION BY DATE

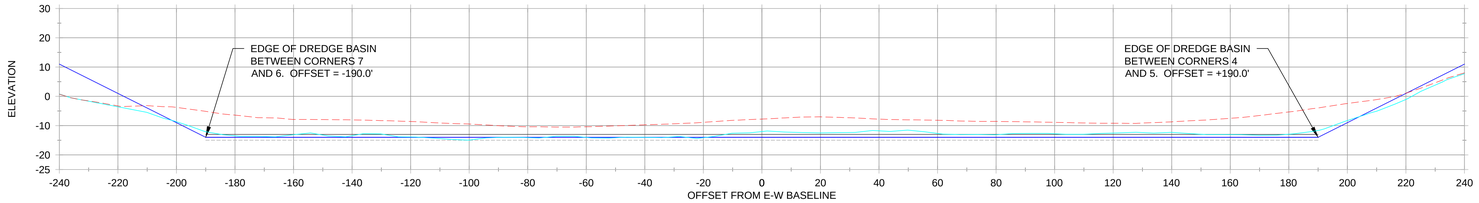
SURVEYED BY: Gregory Gibson
DRAWN BY: Kevin Ott
APPROVED BY: Thomas A. Stolle, Chief Geomatics Section
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SIZE: ANSI D
DATE: 31 December 2015
UNITS: US(ft)
CONTRACT NO.: W91X8-15-C-0017
PROJECT NO.: 2307.15
FILE NAME: 2307_PROJECT_DWRD_20151231A17.DWG

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

aTac Inc
637 Lindaro St, Ste 100
San Rafael, CA 94901

DOUGLAS, ALASKA
DOUGLAS HARBOR
HYDROGRAPHIC SURVEY
December 14 - December 17 2015

SHEET IDENTIFICATION
V-113



E-W BASELINE STA 6+22.50





NOTES

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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	2,353,443.04	2,547,023.77
3	2,353,381.92	2,547,121.19
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.
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AVAILABLE TO REQUIRED DEPTH (RD)	-14.0	105
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David R. Neff C.H. (275)

US Army Corps of Engineers
ALASKA DISTRICT

CONTRACT NO. W91X8-15-C-0017
CONTRACTOR Western Marine Construction
CITY Seattle STATE Washington
Recommended Approved Date:
www.poa.usace.army.mil www.construction

REVISION	DATE	DESCRIPTION	BY	APVD

REVISION	DATE	DESCRIPTION	BY	APVD

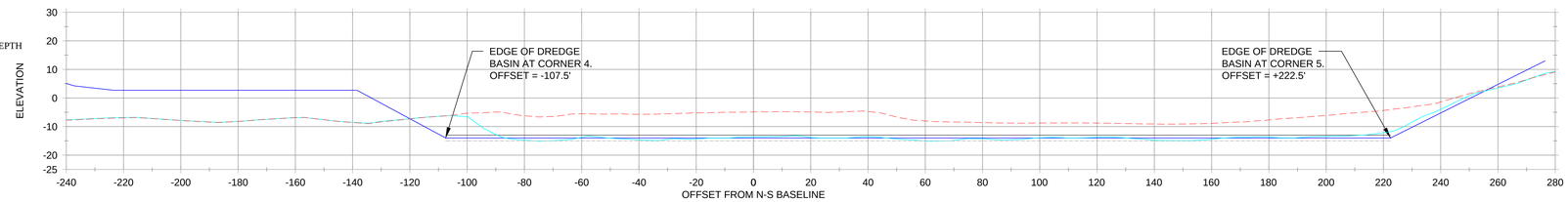
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DRAWN BY: Peter Lee
APPROVED BY: Thomas A. Stolle, Chief Geomatics Section
SCALE: 1"=20'
SIZE: ANSI D
DATE: 31 December 2015
UPC: USACE10
CHECKED BY: David Neff
CONTRACT NO.: W91X8-15-C-0017
FILE NAME: 20151231-DHRD_SHEET_SHEET_20151231-V-114.DWG
TIDE NOTE: 12/31/2015
SOUNDING DATUM: 2307.15

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

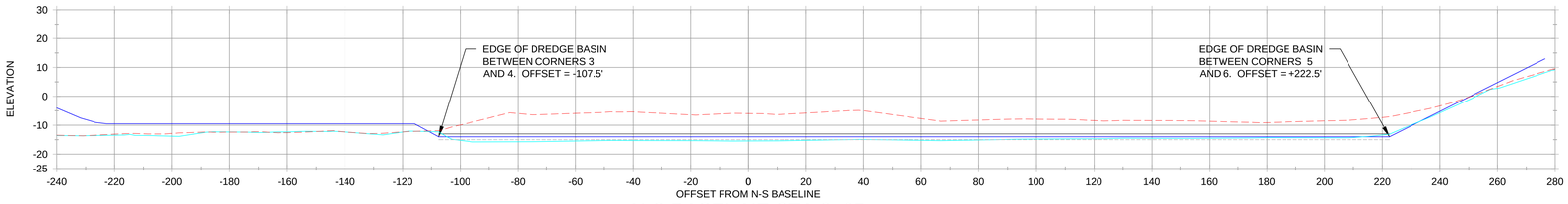
oTac Inc
637 Lindaro St, Ste 100
San Rafael, CA 94901

DOUGLAS, ALASKA
DOUGLAS HARBOR
HYDROGRAPHIC SURVEY
December 14 - December 17 2015

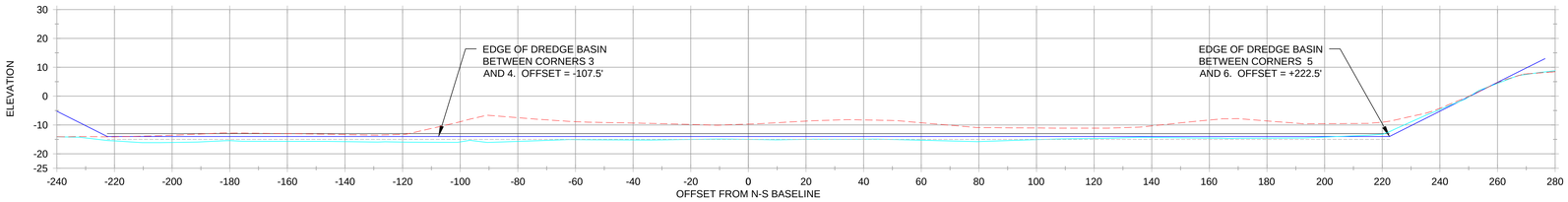
SHEET IDENTIFICATION
V-114



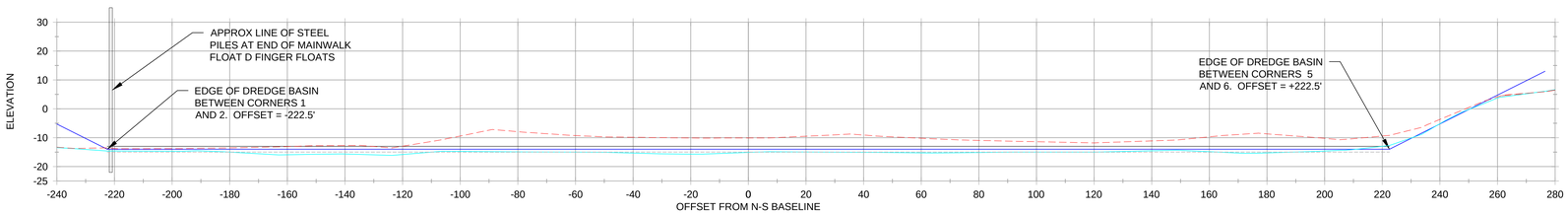
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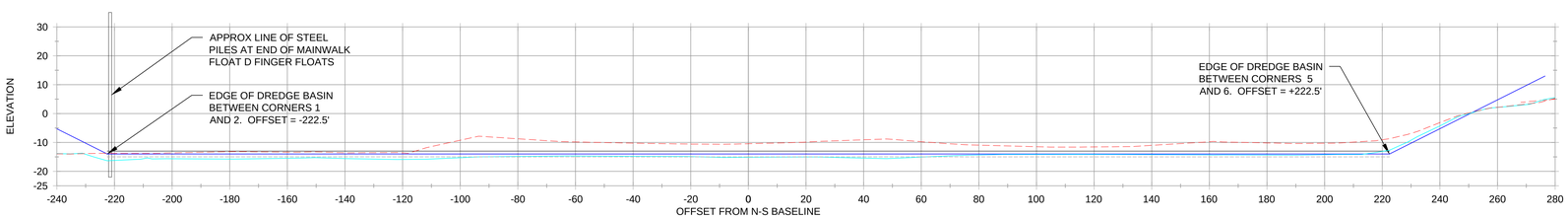
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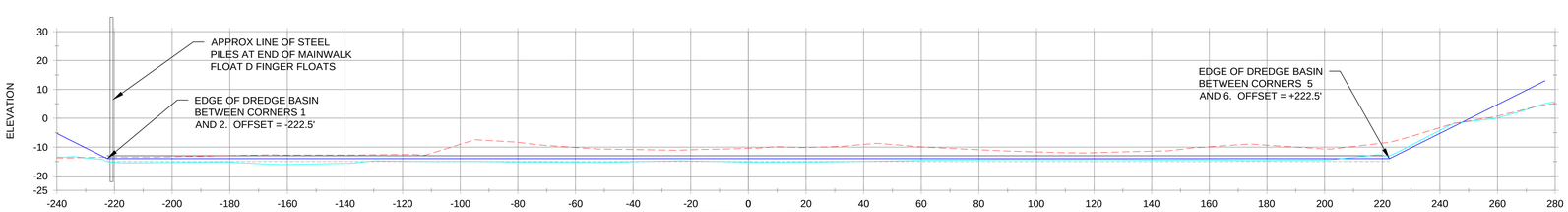
N-S BASELINE STA 2+50



N-S BASELINE STA 2+75



N-S BASELINE STA 3+00



N-S BASELINE STA 3+25





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CORNER#	NORTHING	EASTING
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CORNER#	NORTHING	EASTING
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STATE OF ALASKA 49TH GREGORY W. GIBSON No. LS14824 REGISTERED PROFESSIONAL LAND SURVEYOR

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David R. Neff C.H. (275)

US Army Corps of Engineers
ALASKA DISTRICT

CONTRACT NO. W91K8-15-C-0017
CONTRACTOR Western Marine Construction
CITY Seattle STATE Washington
Recommended Approved Date:
FOR CONSTRUCTION FOR CONSTRUCTION

NO.	DESCRIPTION	DATE	BY	APPVD

NO.	DESCRIPTION	DATE	BY	APPVD

DATE: 31 December 2015
USC: USACE
CONTRACT NO.: W91K8-15-C-0017
TASK ORDER NO.: 2307-15
FILE NAME: PRE-CAP-SHT_DWG_20151231A17.DWG
SCALE: 1"=20'
SIZE: ARCH D

SURVEYED BY: Gregory W. Gibson
DRAWN BY: DRM
APPROVED BY: Thomas A. Stolz, Chief Geomatics Section

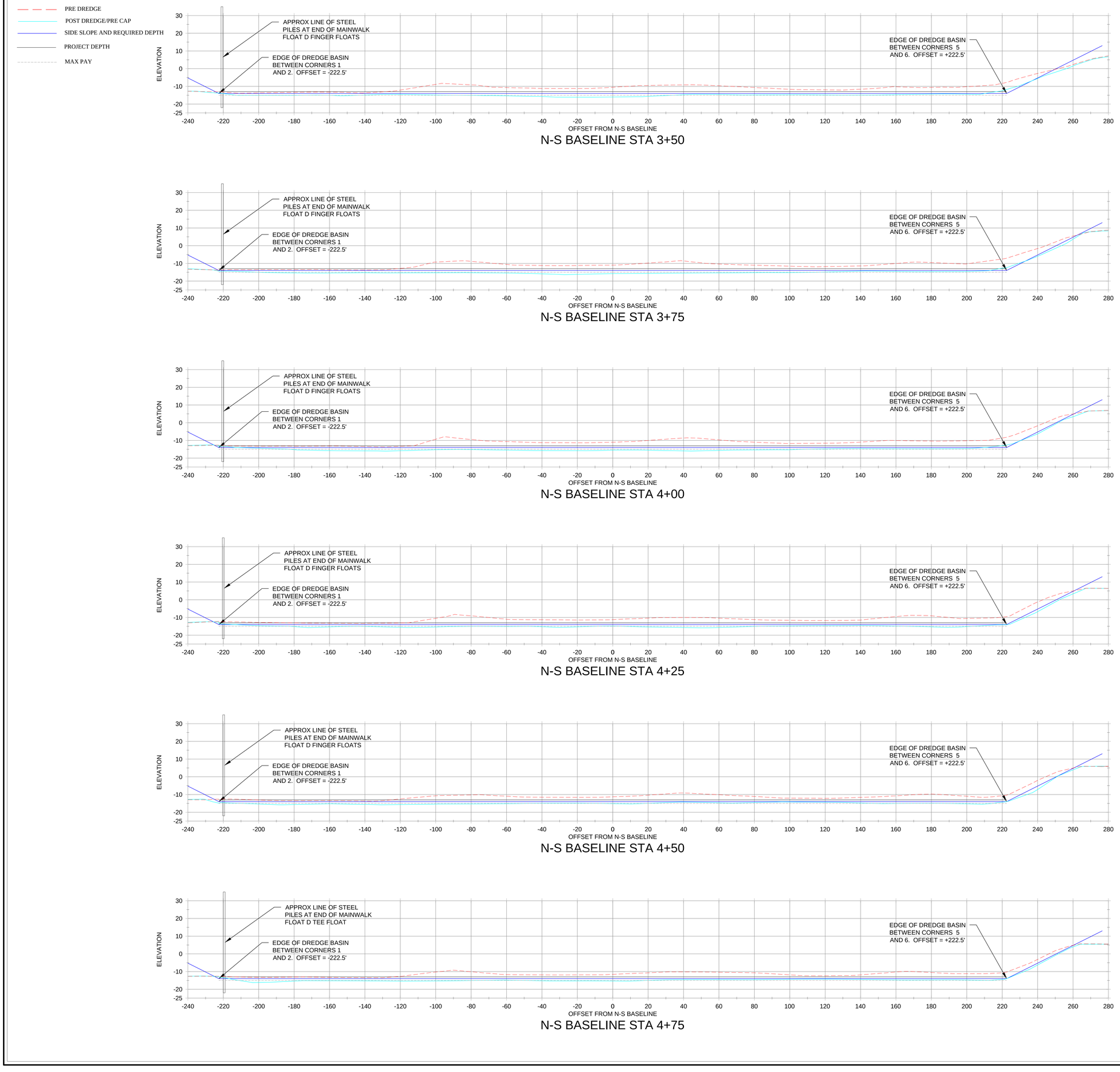
U.S. ARMY CORPS OF ENGINEERS
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eTrac Inc.
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DOUGLAS, ALASKA
DOUGLAS HARBOR
HYDROGRAPHIC SURVEY
December 14 - December 17 2015

SHEET IDENTIFICATION
V-115

Sheet 15 of 17







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); "KLAWOCKAIRAK 2006 CORS ARP" (AB49 - PID DM7451) AND "LEVEL ISLAND 6 CORS ARP" (LEV6 - PID DJ3035).

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US Army Corps of Engineers
ALASKA DISTRICT

CONTRACT NO. W91X8-15-C-0017
CONTRACTOR Western Marine Construction
CITY Seattle STATE Washington
Recommended / Approved / Date:
CHIEF, GEOMATICS SECTION / CHIEF, CONSTRUCTION

NO.	DESCRIPTION	DATE	BY	APVD

NO.	DESCRIPTION	DATE	BY	APVD

SURVEYED BY: Gregory Gibson
DRAWN BY: Kristi Lee
APPROVED BY: Thomas A. Stolz, Chief Geomatics Section
SCALE: 1"=20'
DATE: 31 December 2015
DATUM: NAD83 (2011)
CHECKED BY: David Neff
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PROJECT NO.: 2307.15
FILE NAME: PROJECT DWRD 20151214-17.DWG
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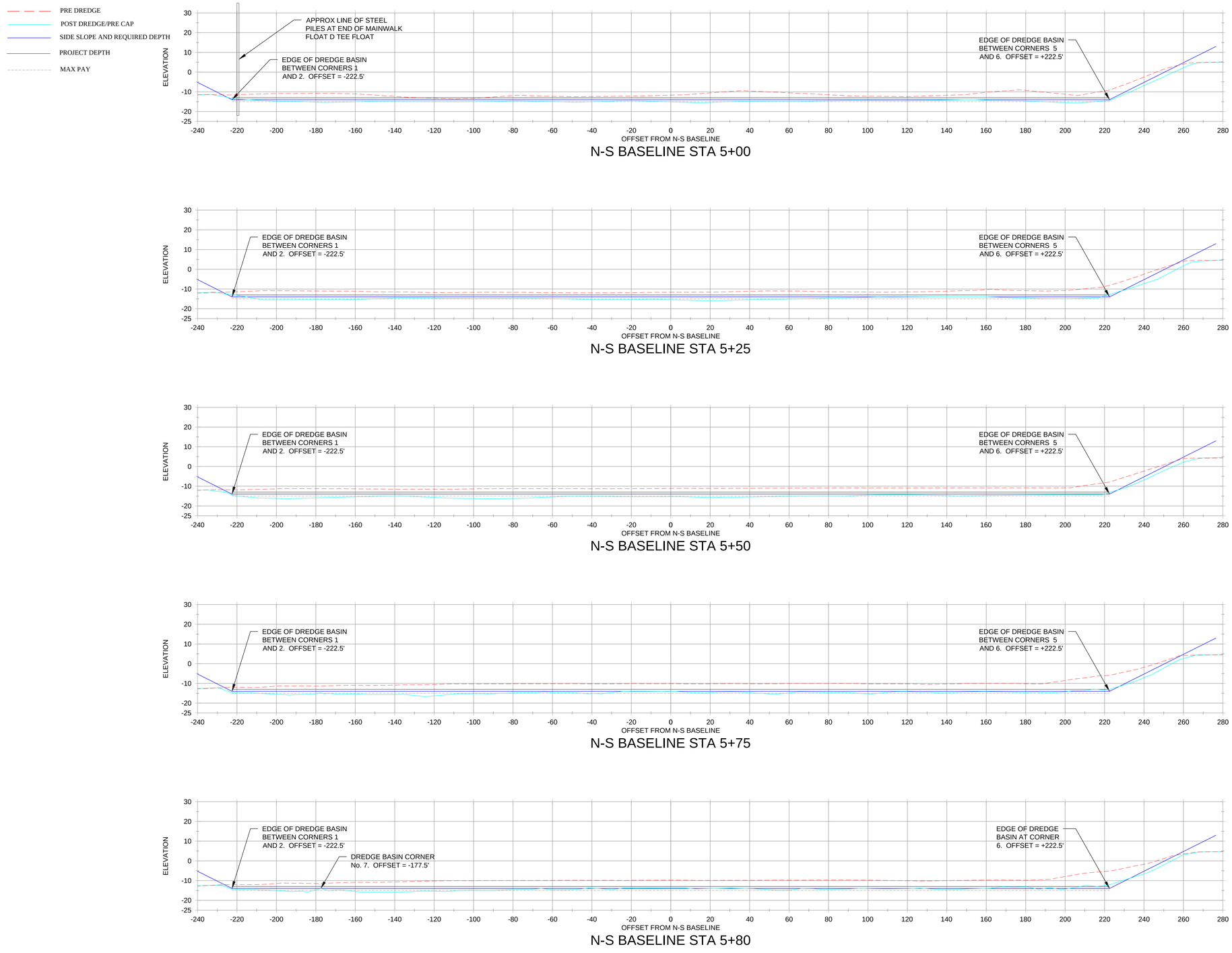
U.S. ARMY CORPS OF ENGINEERS
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aTrac Inc
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DOUGLAS, ALASKA
DOUGLAS HARBOR
HYDROGRAPHIC SURVEY
December 14 - December 17 2015

SHEET IDENTIFICATION
V-116

Sheet 16 of 17







NOTES

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2. VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW=0.0'), BASED ON THE NOAA/NOS TIDAL BENCH MARK LIST: "945 2210 JUNEAU, GASTINEAU 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" (VM# 1196) AS 29.96'.

3. VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON NAVD88 (GEOID 12B) ELEVATIONS HOLDING NGS BENCHMARK "DH-C 2000" AS 20.53'.

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

5. BATHYMETRY WAS COLLECTED DECEMBER 14-17, 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 APPLANIX POSMV 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.

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

7. MAP SOUNDINGS ARE BINNED AT 24 FEET AND ARE MEAN. 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	2,353,443.04	2,547,023.77
3	2,353,381.92	2,547,121.19
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	30
AVAILABLE TO REQUIRED DEPTH (RD)	-14.0	105
AVAILABLE TO MAX PAY DEPTH (MP)	-15.0	1458
AVAILABLE SIDE SLOPES (SS) AT 2:1 (H:V)	VARIES	399
TOTAL MAXIMUM VOLUME AVAILABLE (MP + SS)		1857

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. W91X8-15-C-0017
CONTRACTOR Western Marine Construction
CITY Seattle STATE Washington
Recommended Approved Date:
FIELD SURVEYED BY: Western Marine Construction
DATE: 31 December 2015
USC&GS 1957/10
CHECKED BY: Jeremy Lee
DRAWN BY: Thomas A. Sloan, Chad Geomatics Section
SCALE: 1"=50'
APPROVED BY: Thomas A. Sloan, Chief Geomatics Section
DATE: 12/31/2015
SURVEYED BY: Gregory W. Gibson
CONTRACT NO.: W91X8-15-C-0017
DELIVERY ORDER: 0007
SIZE: ANSI D
FILE NAME: PROJECT_DWG: 20151214-17.DWG

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

aTac Inc
637 Lindaro St, Ste 100
San Rafael, CA 94901

REVISION	DATE	BY	DESCRIPTION	REVISION	DATE	BY	DESCRIPTION

DOUGLAS, ALASKA
DOUGLAS HARBOR
HYDROGRAPHIC SURVEY
December 14 - December 17 2015

SHEET IDENTIFICATION
V-117

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