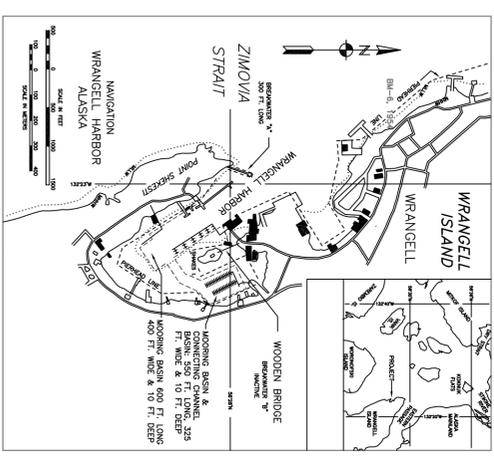


VOLUME COMPUTATIONS

Project Depth -10' MILLW	3456 (cubic yards)
Project Depth -10' MALT	6361 (cubic yards)
Project Depth -11' MALT	4419 (cubic yards)
SLOPES (3:1)	14,238 (cubic yards)
TOTAL	



NOTES

- HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83, IN US SURVEY FEET. HOLDING USACE DOME BRASS CAP WH-1, 1998 AS N 1,694,255.97 E 2,345,923.40 AND USACE DOME BRASS CAP WH-2, 2001 AS N 1,694,351.86 E 2,346,343.53.
- VERTICAL CONTROL IS MEAN LOWER LOW WATER DATUM, IN US SURVEY FEET (MLLW = TOLL BENCH MARK #1204 B 2000 AS 25.18'. TOLL DATUM IS BASED ON THE ISLAND, ALASKA, PUBLISHED 7/15/04.
- SOUNDINGS ARE IN US SURVEY FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
- THIS SURVEY INDICATES GENERAL CONDITIONS AT THE TIME OF SURVEY.
- SOUNDING OPERATIONS WERE CONDUCTED ON MAY 21-22, 2007 USING AN INTERSPACE TRANSDUCER. SOUND VELOCITY THROUGH THE WATER COLUMN WAS DETERMINED WITH AN ODOM DIBAR PRO SOUND VELOCITY PROBE, AND VERIFIED WITH A BAR CHECK AT 10' RECEIVER OPERATING ON RIK CORRECTIONS BROADCAST FROM A TRINITEL 5700 BASE STATION SET AT USACE DOME BRASS CAP MONUMENT "WH-1, 1998" NAVIGATION. DATA INTEGRATED SOFTWARE TIDE CORRECTIONS WERE PROVIDED BY TRINITEL 5700 RIK GPS RECEIVER AND CHECKED THROUGH CONVENTIONAL METHODS.
- HORIZONTAL CONTROL WAS SURVEYED MAY 18-21, 2007 USING BOTH STATIC AND REAL-TIME KINEMATIC GPS EQUIPMENT AND TECHNIQUES. ALL BREAKWATERS, BASINS, HARBOR LEADING SOUNDINGS AND SURROUNDING AREAS WERE SURVEYED USING A TRINITEL 5700 RIK SURVEY ROBOT.

STATION	NORTHING	EASTING	CONTROL DATA	DESCRIPTION
CC-2 1959	1,693,452.67	2,946,498.84	13.30	U.S. COAST GUARD BENCH
BL-4 1994	1,698,387.07	2,942,513.29	39.32	USACE BENCH
BL-5 1994	1,698,387.07	2,942,513.29	39.32	USACE BENCH
JD-1 1977	1,693,637.76	2,945,226.43	15.66	USACE BENCH
JD-2 1977	1,693,779.79	2,944,876.13	21.24	USACE BENCH
NI-1 1977	1,694,521.18	2,944,940.56	14.05	USACE BENCH
NI-2 1977	1,694,429.21	2,945,781.19	13.74	USACE BENCH
NI-3 1977	1,693,976.56	2,945,964.91	13.46	USACE BENCH
NI-4 1977	1,693,630.18	2,946,552.85	13.48	USACE BENCH
NI-5 1977	1,692,817.92	2,946,314.45	10.99	USACE BENCH
NI-6 1977	1,693,054.19	2,945,648.88	17.55	USACE BENCH
NI-7 1977	1,693,348.73	2,945,442.52	10.56	USACE BENCH
NI-8 1977	1,693,595.26	2,945,207.92	13.10	USACE BENCH
NI-9 1977	1,693,650.91	2,945,207.92	13.10	USACE BENCH
NI-10 1977	1,694,239.31	2,944,635.79	19.14	USACE BENCH
NI-11 1977	1,694,650.91	2,945,207.92	13.10	USACE BENCH
1304-1 1985	1,692,338.46	2,946,046.62	19.75	USACE BENCH
1304-2 1985	1,692,338.46	2,946,153.30	25.01	USACE BENCH
1304-3 1985	1,694,140.33	2,944,812.91	28.23	USACE BENCH BC
WH-1 1998	1,694,140.33	2,944,812.91	28.23	USACE BENCH BC
WH-2 2001	1,694,551.86	2,946,343.53	21.50	USACE BENCH BC

CORNER	NORTHING	EASTING	CORNER	NORTHING	EASTING
1	1,694,154	2,945,570	10	1,693,412	2,948,070
2	1,693,308	2,948,005	11	1,693,278	2,948,192
3	1,693,657	2,946,123	12	1,693,232	2,945,752
4	1,694,311	2,946,123	13	1,693,205	2,945,705
5	1,694,442	2,946,421	14	1,693,518	2,945,480
6	1,693,984	2,946,622	15	1,693,568	2,945,454
7	1,693,505	2,946,445	16	1,693,582	2,945,288
8	1,693,597	2,946,530	17		

CONTRACTOR: HUGHES & ASSOCIATES

CONTRACT NO. W91V894-D-0007

CITY: WASILLA STATE: ALASKA

DESCRIPTION	USC No.	NORTHING	EASTING
BREAKWATER LIGHT 2	22830	1,694,511	2,944,940
DAMBERKON 4	22840	1,693,410	2,946,153
DAMBERKON 5	22845	1,693,689	2,946,222
DAMBERKON 6	22855	1,693,434	2,946,279
DAMBERKON 7	22860	1,693,803	2,946,484
DAMBERKON 8			

NAVIGATION AIDS

USC No.	NORTHING	EASTING
22830	1,694,511	2,944,940
22840	1,693,410	2,946,153
22845	1,693,689	2,946,222
22855	1,693,434	2,946,279
22860	1,693,803	2,946,484

SURVEY NO. 2447-07

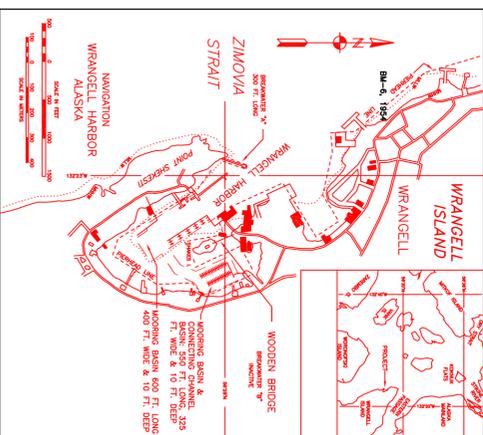
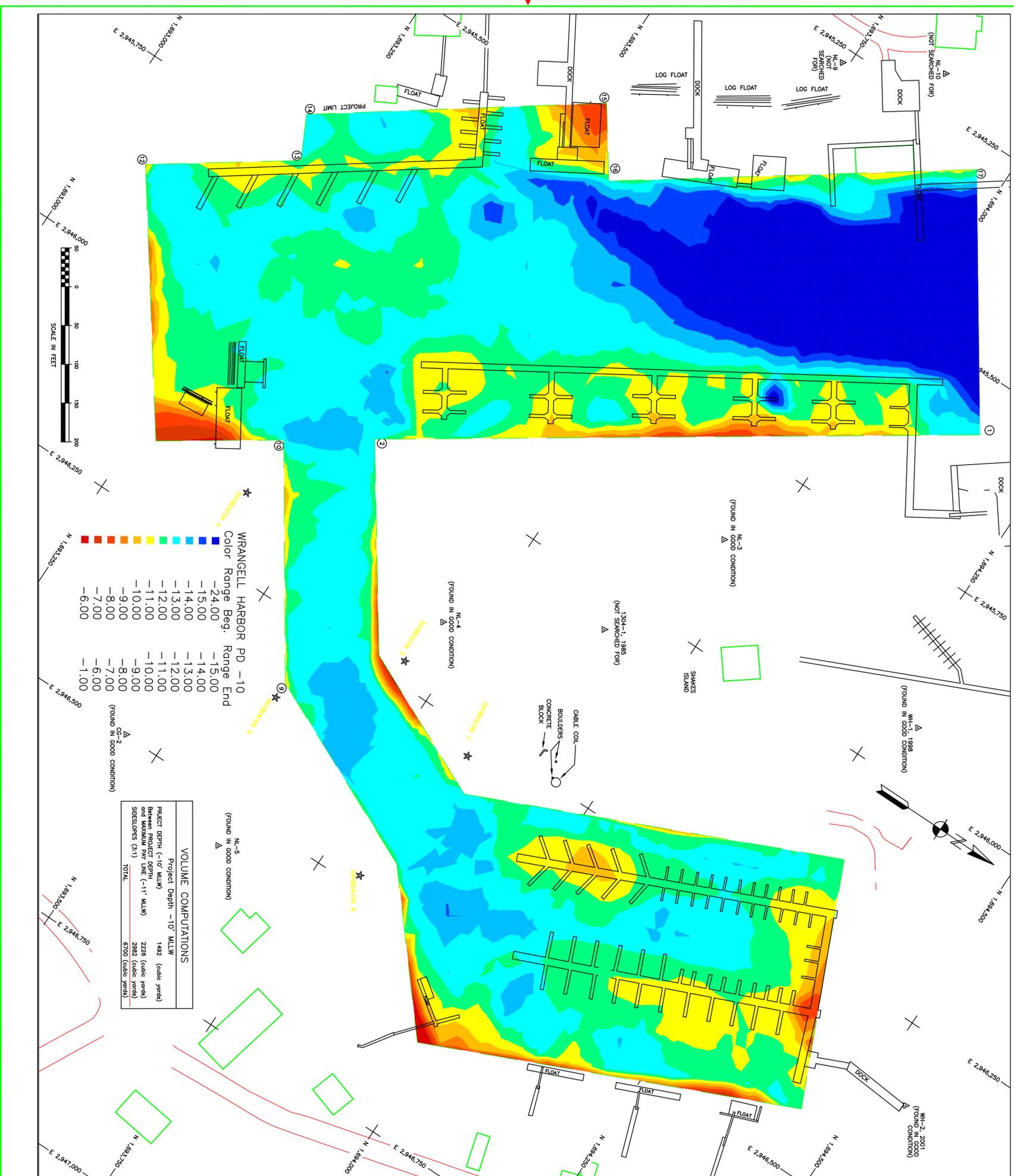
SCALE: 1" = 50'

SHEET 1 OF 1

ALASKA DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

WRANGELL, ALASKA
WRANGELL HARBOR
MAY 18-23, 2007
PROJECT CONDITION SURVEY

APPROVED: _____ DATE: _____



NOTES

- HORIZONTAL CONTROL IS ALASKA STATE PLANE ZONE 1, IN FEET, NORTH AMERICAN DATUM OF 1983 HOLDING USACE "NL-4 1977" AS N 1,694,551.96 E 2,946,343.53.
- VERTICAL CONTROL IS IN FEET BASED ON MEAN LOWER LOW WATER (MLLW = 0.0'). HOLDING BC "WH-2 2001" AS 21.50' ABOVE MLLW.
- SOUNDINGS ARE IN FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
- THE PROJECT PURPOSES FOR A FREQUENTLY MAINTAINED GUARANTEE CHANNEL AND BASIN AREA OF ONE ACRES WITH A PROJECT DEPTH OF 10 FEET NEAR THE NORTHWEST END, PROJECT DEPTHS OF -20' MLLW FOR 200 FT. AT THE NORTHERN END, AND -30' MLLW FOR THE REMAINING 700 FT.
- BATHYMETRY WAS COLLECTED JULY 2-7, 2004. SOUNDINGS WERE COLLECTED USING NAVISTAR GPS, A SHIPBOARD SONAR WITH A 3" SINGLE BEAM TRANSDUCER, SOUNDING VELOCITY PROBE, AND VESSEL ATTITUDE WERE MEASURED USING A TRIMBLE SC700 DEPTH, POSITIONING AND VESSEL ATTITUDE WERE MEASURED USING A TRIMBLE SC700 FROM A LOCAL BASE STATION OCCUPYING "WH-2 2001". DATA WAS COLLECTED AND FIELD PROCESSED USING "HYPACK MAX VERSION 02.124" SOFTWARE. THE ELEVATIONS WERE DIFFERENTIAL LEVELING TECHNIQUES.
- THIS SURVEY INDICATES GENERAL CONDITIONS AT THE TIME OF SURVEY.

CONTROL DATA

STATION	NORTHING	EASTING	ELEV.	DESCRIPTION
CG-2 1989	1,693,452.67	2,946,488.84	13.30	U.S. COAST GUARD SBC
BM-6 1984	1,693,671.07	2,944,513.29	19.32	USACE SBC
BM-7 1977	1,693,671.07	2,944,513.29	19.32	USACE SBC
UD-1 1977	1,695,637.76	2,946,226.43	15.56	USACE SBC
UD-2 1977	1,695,779.79	2,944,876.13	21.24	USACE SBC
NL-1 1977	1,694,521.18	2,944,940.56	14.05	USACE SBC
NL-2 1977	1,694,429.21	2,945,781.19	13.74	USACE SBC
NL-3 1977	1,693,351.54	2,946,061.48	13.26	USACE SBC
NL-4 1977	1,693,351.54	2,946,061.48	13.26	USACE SBC
NL-5 1977	1,693,630.18	2,946,552.85	13.49	USACE SBC
NL-6 1977	1,692,817.92	2,946,314.45	10.89	USACE SBC
NL-7 1977	1,693,054.19	2,945,648.88	17.55	USACE SBC
NL-8 1977	1,693,054.19	2,945,648.88	17.55	USACE SBC
NL-9 1977	1,693,442.92	2,945,422.92	10.56	USACE SBC
NL-10 1977	1,693,659.91	2,945,207.24	13.10	USACE SBC
NL-11 1977	1,694,239.31	2,944,835.29	19.14	USACE SBC
304-1 1985	1,693,890.03	2,946,048.62	19.75	USACE SBC
304-2 1985	1,692,538.48	2,946,153.30	26.91	USACE SBC
NL-1 1988	1,694,356.37	2,946,832.40	22.84	USACE DORNO BC
NL-2 2001	1,694,451.96	2,946,343.53	21.50	SET 3 1/4" DORNO BC

PROJECT LIMITS

CORNER	NORTHING	EASTING	CORNER	NORTHING	EASTING
1	1,694,154	2,945,570	10	1,693,412	2,948,070
2	1,693,657	2,946,233	11	1,693,412	2,948,070
3	1,693,657	2,946,233	12	1,693,412	2,948,070
4	1,693,657	2,946,233	13	1,693,412	2,948,070
5	1,694,311	2,946,123	14	1,693,205	2,945,705
6	1,694,442	2,946,421	15	1,693,518	2,945,480
7	1,693,984	2,946,022	16	1,693,589	2,945,554
8	1,693,984	2,946,022	17	1,693,589	2,945,554
9	1,693,987	2,946,330	18	1,693,589	2,945,554

NAVIGATION AIDS

DESCRIPTION	USCG No.	NORTHING	EASTING
BREAKWATER LIGHT 2	22830	1,694,511	2,944,440
DIVERGATION 4	22840	1,693,338	2,946,322
DIVERGATION 5	22850	1,693,597	2,946,322
DIVERGATION 6	22860	1,693,834	2,946,322
DIVERGATION 7	22870	1,693,834	2,946,279
DIVERGATION 8	22880	1,693,803	2,946,484

CONTRACTOR: JUDGES AND ASSOCIATES
CITY: WASHILLA STATE: ALASKA
ALASKA DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA
WRANGELL, ALASKA
WRANGELL HARBOR
MAY 18-23, 2007
PROJECT CONDITION SURVEY

APPROVED: _____ DATE: _____
RECOMMENDED: _____ DATE: _____
PROJECT NUMBER: _____
SURVEY NO.: _____
SHEET 1 OF 1