

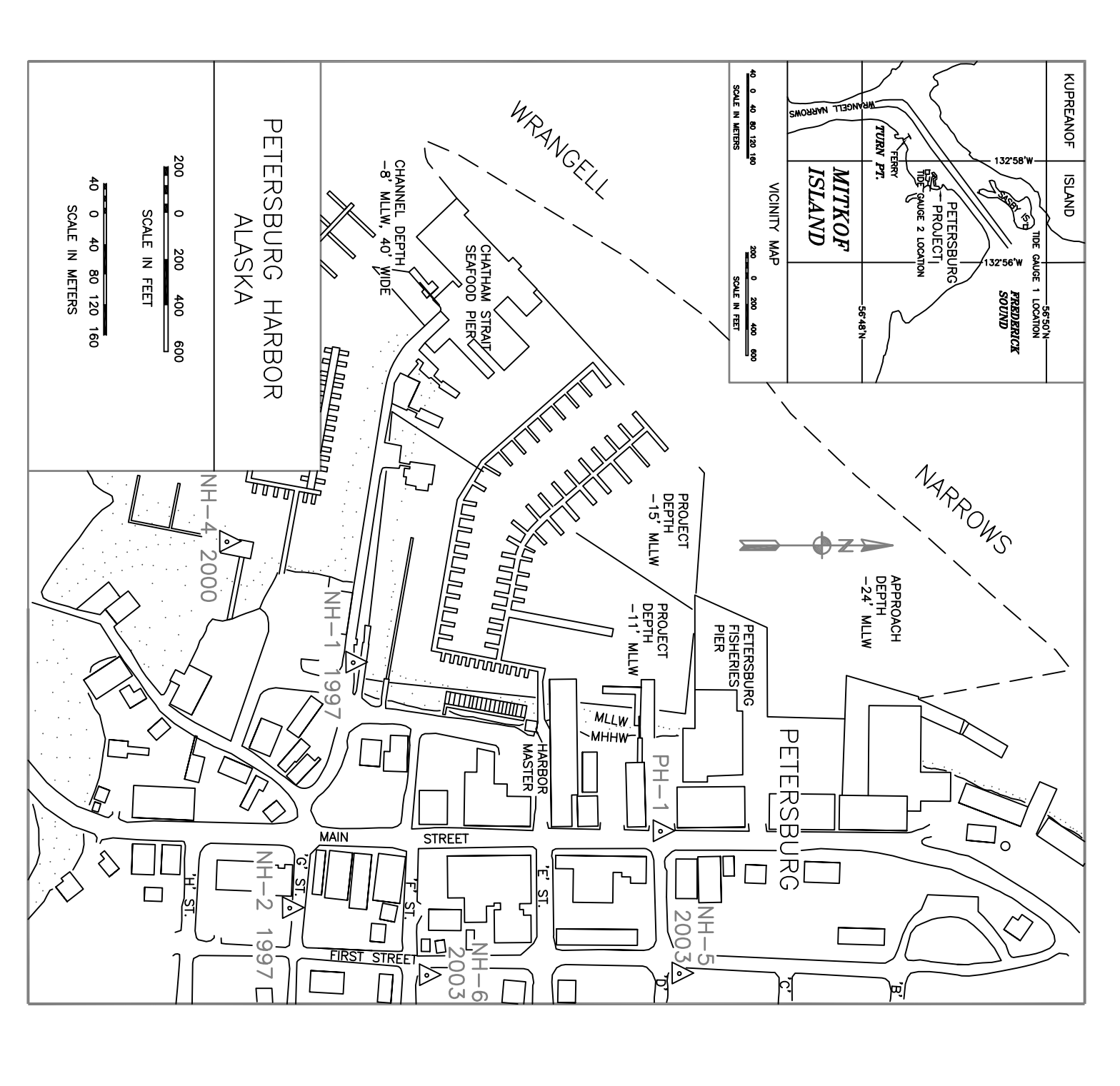
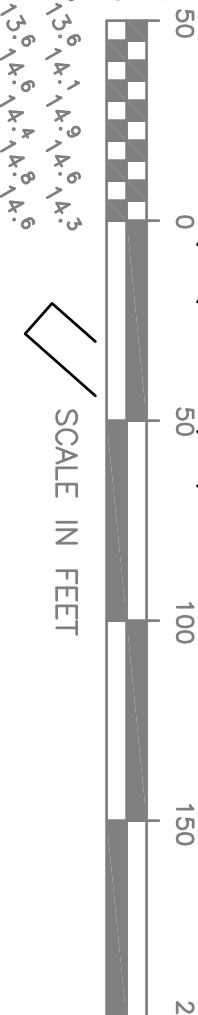


VOLUME COMPUTATIONS

Project Depth	MINIMUM PAY LINE (-11' MLW)	EXISTING CUBIC YARDS
		6,819
	MINIMUM PAY LINE and MAXIMUM PAY LINE (-12' MLW)	4,333
		2,827,556.2
	VOLUME AVAILABLE ALONG SIDESLOPES (3:1, HV)	969
	MINIMUM PAY LINE	748
	Between MINIMUM PAY LINE and MAXIMUM PAY LINE (-16' MLW)	18,497
	VOLUME AVAILABLE ALONG SIDESLOPES (3:1, HV)	
	TOTAL	18,497

NAVIGATION AIDS

USCG No.	DESCRIPTION	NORTHING	EXISTING
23190	PETERSBURG FISHERIES INC DOCK LIGHTS (N)	1,819,769.9	2,827,556.2
23190	PETERSBURG FISHERIES INC DOCK LIGHTS (S)	1,819,923.3	2,827,427.2
23190	CHATHAM STREET SEAFOOD PIER LIGHTS (S)	1,819,957.6	2,828,637.3



NOTES

- HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83(CORS) IN US SURVEY FEET BASED ON A FULLY CONSTRAINED STATIC GPS NETWORK HOLDING THE EPOCH 2003 VALUES OF EPOCH 2003. THE NETWORK WAS ESTABLISHED BY THE ALASKA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION. THE NETWORK IS CURRENTLY BEING PERFORMED BY THE ALASKA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION. THE NETWORK IS CURRENTLY BEING PERFORMED BY THE ALASKA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION.
- VERTICAL CONTROL IS IN US SURVEY FEET AND REFERS TO MEAN-LOWER-LOW-WATER DATUM (MLW=0.0'). THE MLW VALUES SHOWN ON THIS PLAN ARE BASED ON THE 1983-2001 TIDAL EPOCH AS REFERENCED BY NOAA'S TIDE STATION 9451434, TURN POINT, ALASKA, OBTAINED A 2006 AS 272.4' MLW (OFFICIAL PUBLICATION OF THIS TIDAL DATUM IS CURRENTLY PENDING FINAL REVIEW).
- HORIZONTAL CONTROL WAS SURVEYED APRIL 28 - MAY 7, 2008 USING THREE (3) TRIMBLE R8 GPS RECEIVERS AND LONG-BASELINE (4-6 HR) STATIC OBSERVATION TECHNIQUES. DATA PROCESSING WAS ACCOMPLISHED USING TRIMBLE GEOMAX OFFICE (V1.63).
- VERTICAL CONTROL WAS SURVEYED APRIL 28 - MAY 7, 2008 USING CONVENTIONAL EQUIPMENT AND DIFFERENTIAL LEVELING TECHNIQUES.
- SOUNDINGS WERE COLLECTED MAY 3-5, 2008 USING A REGO SEABAT 8101 MULTIBeam ECHOSOUNDER (400KHZ WITH 101 BEAMS AT 1.5 DEGREES FROM VESSEL POSITIONING HEAD) AND ATTITUDE WERE MEASURED USING A SEATEX SEAPATH 200 INERTIAL MOTION UNIT (EQUIPPED WITH A SEVEX MRU-5 AND A CSI MRU-3 BEYOND RECEIVER) OPERATING ON DGPS MEASURED AND COLLECTED USING AN OCEAN LOGGING PRO SOUNDING TELECONTROLLER. WASSER NAVIGATION AND DATA COLLECTION WAS PERFORMED USING CHRY OPS INTEGRATED SOFTWARE (08.0). SOUNDINGS WERE CORRECTED FOR TIDE USING SIMULATED TIDE STAGE DATA LOGGED (SEE NOTE 6 BELOW). DATA PROCESSING FOR THE ZONING AND FINAL DATA ANALYSIS WERE PERFORMED USING CHRY OPS SOFTWARE (V6.1).
- THE ZONING FOR SOUNDING REDUCTION WAS ACCOMPLISHED USING TID 02). THE GAUGE LOCATIONS AT APPROXIMATE ONE-MILE INTERVALS ALONG THE FEDERAL MAINTENANCE CHANNEL LIMITS OF WRANGELL NARROWS, MILE 0.5 - MILE 1.5. THE GAUGE LOCATIONS ARE SHOWN ON THE DRAWING. VERTICAL CONTROL ON THE SOUNDINGS WAS PERFORMED USING TEMPORARY BENCH MARKS SET BY THE SURVEY TEAM.
- GAUGES TO NAVIGATION WERE SURVEYED MAY 6-8, 2008 USING TRIMBLE R8 GPS RECEIVERS AND LONG-BASELINE (4-6 HR) STATIC OBSERVATION TECHNIQUES. DATA PROCESSING WAS ACCOMPLISHED USING TRIMBLE GEOMAX OFFICE (V1.63).
- SOUNDINGS ARE SHOWN IN US SURVEY FEET AND ARE MINUS UNLESS NOTED OTHERWISE.
- THIS SURVEY REFLECTS CONDITIONS ON THE DATES OF SURVEY.

CONTROL DATA

STATION	NORTHING	EXISTING	ELEV.	DESCRIPTION
1444	2006	1,819,918.4	2,827,426.95	NAVIGATION BENCHMARK SPC
SIGNAL 4	1,822,039.29	2,828,110.85	19.84	US ENGINEERS SURVEY MARK SPC
NH-1	1,818,970.65	2,827,683.27	23.98	USACE 3-1/4" DOMED BRASS CAP
NH-2	1,818,975.15	2,828,119.63	33.13	USACE 3-1/4" DOMED BRASS CAP
NH-3	1,819,014.58	2,827,752.09	25.58	USACE 3-1/4" DOMED BRASS CAP
NH-4	1,819,018.28	2,828,298.02	52.42	USACE 3-1/4" DOMED BRASS CAP
NH-5	1,819,018.28	2,828,298.02	52.42	USACE 3-1/4" DOMED BRASS CAP
NH-6	1,819,018.28	2,828,298.02	52.42	USACE 3-1/4" DOMED BRASS CAP
PH-1	1,819,956.09	2,827,988.98	24.38	2-1/2" FLAT BRASS CAP
NH-1A	1,821,993.61	2,830,057.14	24.19	USACE 3-1/4" DOMED BRASS CAP
NH-1B	1,821,972.48	2,829,142.76	24.47	DOMED BRASS CAP
NH-2A	1,817,518.48	2,820,532.42	23.15	USACE 3-1/4" DOMED BRASS CAP
NH-2B	1,817,508.98	2,820,222.90	23.17	USACE 3-1/4" DOMED BRASS CAP

PROJECT LIMITS

CORNER	NORTHING	EXISTING	NORTHING	EXISTING
1	1,819,002.75	2,827,079.82	1,819,415.80	2,827,093.80
2	1,819,116.25	2,826,559.81	1,819,617.68	2,827,536.81
3	1,819,177.26	2,827,016.81	1,819,590.85	2,827,760.82
4	1,819,310.76	2,826,674.80	1,818,931.79	2,827,881.85

CONTRACTOR: PALMER
 CITY: TERRASOND, ID
 STATE: ALASKA
 CONTRACT NO.: W911K8-08-D-0002-0004

SUPERSEDED: MAE/CJP
 DRAWN: S. LEITHAM
 CHECKED: KDW
 SUBMITTED: APRIL 26 - MAY 08, 2008
 PROJECT: PETERSBURG NORTH HARBOR PROJECT CONDITION SURVEY

RECOMMENDED: DATE:
 TESTED: SCALE: 1" = 50'
 SURVEY NO.: 2508-08
 SHEET 1 OF 1