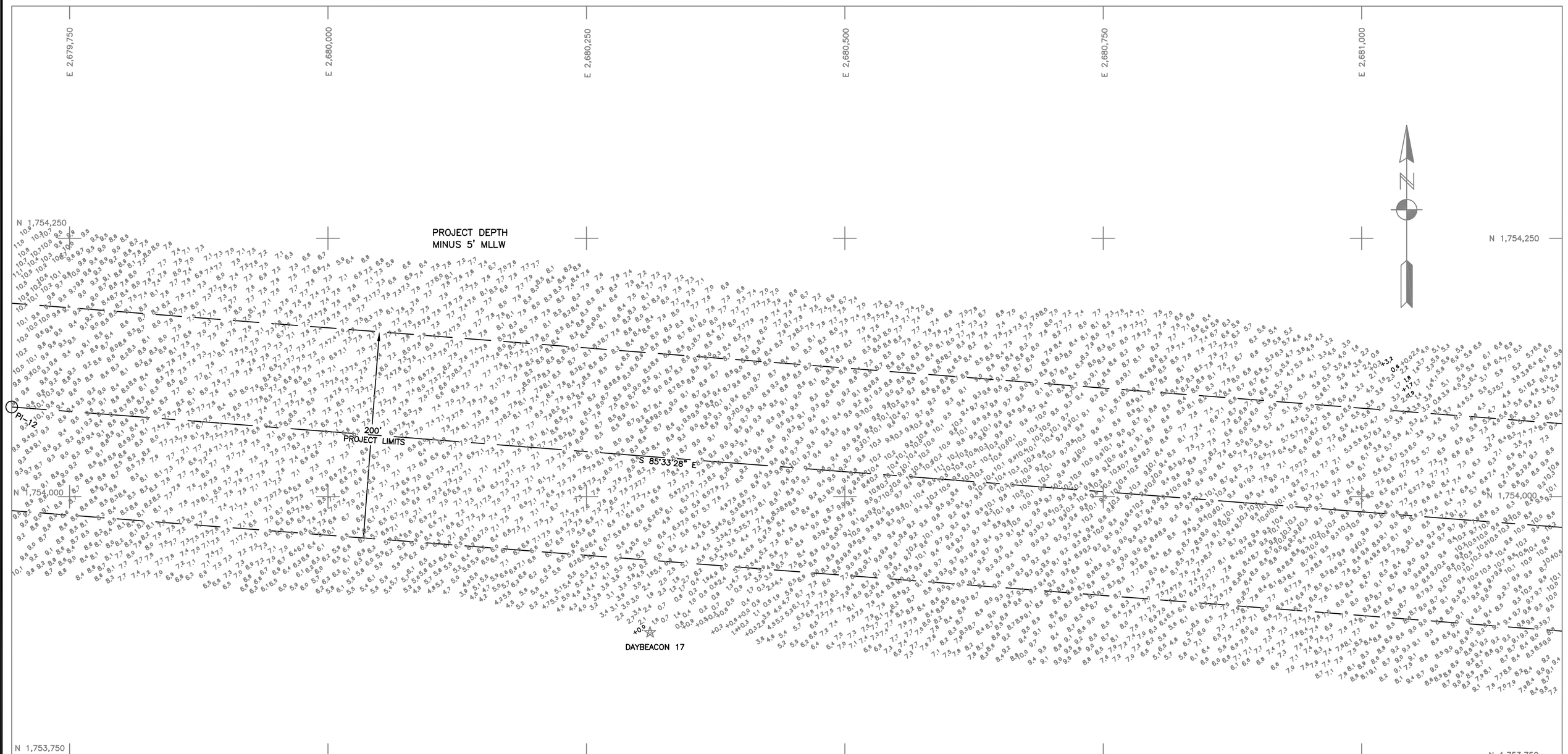
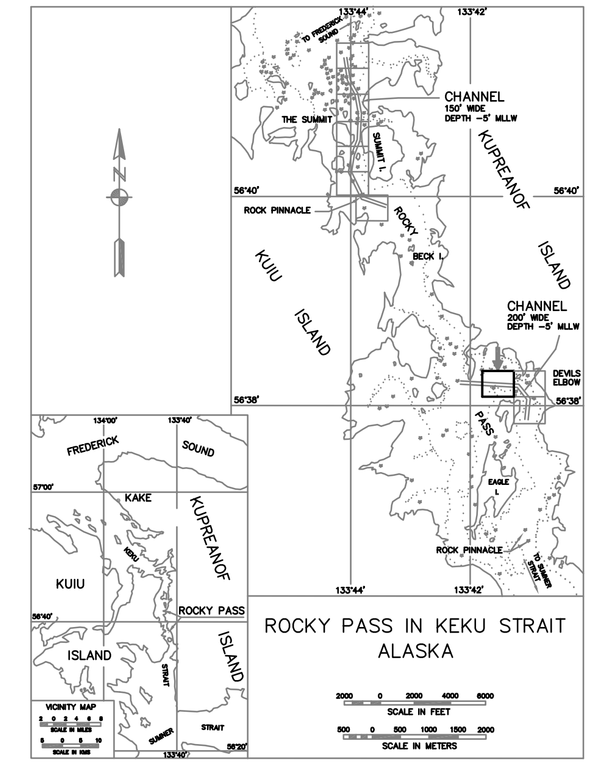


ROCKY PASS

50 0 50 100 150 200
SCALE IN FEET



NOTES

1. HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83, IN U.S. SURVEY FEET, HOLDING USACE SBC "D-2 1977" AS N= 1,752,369.13, E= 2,683,164.42 AND USACE SBC "D-4 1977/2001" AS N= 1,754,282.00, E= 2,681,668.35.
2. VERTICAL CONTROL IS IN FEET, BASED ON MEAN LOWER LOW WATER DATUM (MLLW = 0.0'), HOLDING USC&GS "BENCH MARK 1 (1929)" AS 17.57' MLLW. TIDAL DATUM REFERENCE IS: "USC&GS TIDAL BENCH MARKS - SOUTHEAST ALASKA - 120, THE SUMMIT, KEKU STRAIT, PUBLICATION DATED 3/13/51".
3. HORIZONTAL AND VERTICAL CONTROL WERE SURVEYED APRIL 20-23,2001 UTILIZING OPTICAL INSTRUMENTS AND CONVENTIONAL TRAVERSE / DIFFERENTIAL LEVELING TECHNIQUES.
4. THE EXISTING PROJECT, ADOPTED 3 SEPTEMBER, 1954, PROVIDES FOR A CHANNEL 5 FEET DEEP AT MLLW BY REMOVAL OF OBSTRUCTIONS AT 17 SEPERATE LOCATIONS WITH A WIDTH OF 150 FEET AT "THE SUMMIT" AND 200 FEET AT "DEVIL'S ELBOW".
5. SOUNDINGS ARE IN FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
6. BATHYMETRY WAS COLLECTED APRIL 24-25, 2001. SOUNDINGS WERE COLLECTED USING A "RESON 8124 SEABAT" MULTIBEAM SOUNDER (120° SWATH, 80 BEAM FLAT ARRAY TRANSDUCER), SOUND VELOCITY WAS PROFILED AND COLLECTED USING AN "APPLIED MICROSYSTEMS - SV PLUS" PROFILER. POSITIONING AND VESSEL ATTITUDE WERE MEASURED USING A "SEATEX - SEAPATH 200 RTK" SYSTEM COUPLED WITH A "SEATEX - MRU-5" MOTION REFERENCE UNIT. RTK CORRECTIONS WERE BROADCAST FROM A LOCAL BASE STATION SET AT "DE-1 2001". DATA WAS COLLECTED AND FIELD PROCESSED USING "RESON 6042" INTEGRATED SOFTWARE. WATER LEVEL WAS MEASURED USING A "VYNER LP1 TELEMETRY TIDE GAUGE" COUPLED WITH AN "ENDECO TYPE 1029" WATER LEVEL RECORDER. FINAL DATA PROCESSING WAS PERFORMED USING "CARIS HIPS" HDCS SOFTWARE AND TERRA SURVEYS, LLC PROPRIETARY SOFTWARE.
7. THIS SURVEY INDICATES GENERAL CONDITIONS AT THE TIME OF SURVEY.
8. PRIOR TO COMMENCEMENT OF THIS SURVEY, RECORD CONTROL, PROJECT LIMITS AND AIDS TO NAVIGATION COORDINATES WERE CONVERTED FROM NAD27, IN U.S. FEET, TO NAD83, IN U.S. FEET, USING "CORPSCON V5.11.08".

VOLUME COMPUTATIONS

Project Depth -5 MLLW			
MINIMUM PAY LINE	(-5' MLLW)	106	(cubic yards)
Between MINIMUM PAY LINE and MAXIMUM PAY LINE	(-6' MLLW)	704	(cubic yards)
TOTAL		810	(cubic yards)

* Volumes are within Project Limits and do not include SIDE SLOPES. (SS = 19 cu yds)

CONTROL DATA

STATION	NORTHING	EASTING	DESCRIPTION
D-1 1977	1,753,040.95	2,681,891.08	FOUND USACE SBC
D-2 1977	1,752,369.13	2,683,164.42	FOUND USACE SBC
D-3 1977	1,754,223.25	2,682,767.73	FOUND USACE SBC
D-4 1977/2001	1,754,281.86	2,681,668.46	FOUND USACE SBC
DE-1 2001	1,754,925.54	2,681,008.21	SET 3.25" DOMED BC
DE-2 2001	1,753,070.94	2,681,053.06	SET 3.25" DOMED BC
NICK 1958	1,753,453.24	2,681,633.52	SEARCHED FOR NOT FOUND

PROJECT LIMITS

CORNER	NORTHING	EASTING	CORNER	NORTHING	EASTING
PI-12	1,754,086.8	2,679,694.0	PI-15	1,752,239.3	2,682,308.6
PI-13	1,753,921.0	2,681,828.3	PI-16	1,751,974.7	2,682,362.8
PI-14	1,753,231.8	2,682,368.8			

AIDS TO NAVIGATION

USCG No.	NORTHING	EASTING	DESCRIPTION
23305.9	1,753,260.9	2,682,185.1	DAYBEACON 13, SG ON PILE, IN GOOD COND'N
23306	1,753,732.5	2,681,814.3	DAYBEACON 15, SG ON PILE, IN GOOD COND'N
23306.1	1,753,868.7	2,680,311.6	DAYBEACON 17, SG ON PILE, IN GOOD COND'N

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT I AM PROPERLY REGISTERED AND LICENSED TO PRACTICE LAND SURVEYING IN THE STATE OF ALASKA AND I AM AN ACSM, CERTIFIED INSHORE HYDROGRAPHER. THIS PLAT REPRESENTS A HYDROGRAPHIC SURVEY MADE BY ME OR UNDER MY DIRECT SUPERVISION. THE ELEVATIONS SHOWN HEREON ACCURATELY DEPICT THE DEPTHS AS SURVEYED APRIL 20-25, 2001

THOMAS S. NEWMAN, P.L.S. DATE
REGISTRATION NO. LS 8034
ACSM CERTIFICATION NO. 173

STATE OF ALASKA 49th Thomas S. Newman LS 8034 REGISTERED PROFESSIONAL LAND SURVEYOR

CONTRACTOR TERRA SURVEYS, LLC CONTRACT NO. DACW895-98-D-0004
CITY PALMER STATE ALASKA

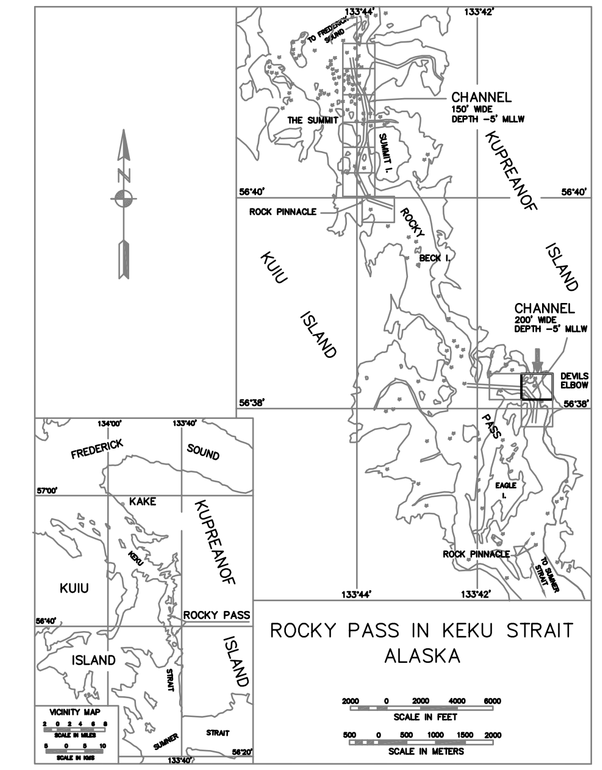
ALASKA DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

SURVEYED: KDW
DRAWN: LES/DJB
CHECKED: TSN
SUBMITTED:

ROCKY PASS, KEKU STRAIT, ALASKA
DEVIL'S ELBOW
APRIL 20-25, 2001

RECOMMENDED: APPROVED: DATE:
PROJECT MANAGER CHIEF OPERATIONS-READINESS BRANCH

SURVEY NO.
SCALE: 1"= 50'
SHEET 1 OF 3



VOLUME COMPUTATIONS		
Project Depth -5 MLLW		
MINIMUM PAY LINE (-5' MLLW)	106	(cubic yards)
Between MINIMUM PAY LINE and MAXIMUM PAY LINE (-6' MLLW)	704	(cubic yards)
TOTAL	810	(cubic yards)

* Volumes are within Project Limits and do not include SIDE SLOPES. (SS = 19 cu yds)

NOTES

1. HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83, IN U.S. SURVEY FEET, HOLDING USACE SBC "D-2 1977" AS N= 1,752,369.13, E= 2,683,164.42 AND USACE SBC "D-4 1977/2001" AS N= 1,754,282.86, E= 2,681,668.55.
2. VERTICAL CONTROL IS IN FEET, BASED ON MEAN LOWER LOW WATER DATUM (MLLW = 0.0'), HOLDING USC&GS "BENCH MARK 1 (1929)" AS 17.57' MLLW. TIDAL DATUM REFERENCE IS: "USC&GS TIDAL BENCH MARKS - SOUTHEAST ALASKA - 120, THE SUMMIT, KEKU STRAIT, PUBLICATION DATED 3/13/51".
3. HORIZONTAL AND VERTICAL CONTROL WERE SURVEYED APRIL 20-23,2001 UTILIZING OPTICAL INSTRUMENTS AND CONVENTIONAL TRAVERSE / DIFFERENTIAL LEVELING TECHNIQUES.
4. THE EXISTING PROJECT, ADOPTED 3 SEPTEMBER, 1954, PROVIDES FOR A CHANNEL 5 FEET DEEP AT MLLW BY REMOVAL OF OBSTRUCTIONS AT 17 SEPERATE LOCATIONS WITH A WIDTH OF 150 FEET AT "THE SUMMIT" AND 200 FEET AT "DEVIL'S ELBOW".
5. SOUNDINGS ARE IN FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
6. BATHYMETRY WAS COLLECTED APRIL 24-25, 2001. SOUNDINGS WERE COLLECTED USING A "RESON 8124 SEABAT" MULTIBEAM SOUNDER (120° SWATH, 80 BEAM FLAT ARRAY TRANSDUCER). SOUND VELOCITY WAS PROFILED AND COLLECTED USING AN "APPLIED MICROSYSTEMS - SV PLUS" PROFILER. POSITIONING AND VESSEL ATTITUDE WERE MEASURED USING A "SEATEX - SEAPATH 200 RTK" SYSTEM COUPLED WITH A "SEATEX - MRU-5" MOTION REFERENCE UNIT. RTK CORRECTIONS WERE BROADCAST FROM A LOCAL BASE STATION SET AT "DE-1 2001". DATA WAS COLLECTED AND FIELD PROCESSED USING "RESON 6042" INTEGRATED SOFTWARE. WATER LEVEL WAS MEASURED USING A "VYNER LP1 TELEMETRY TIDE GAUGE" COUPLED WITH AN "ENDECO TYPE 1029" WATER LEVEL RECORDER. FINAL DATA PROCESSING WAS PERFORMED USING "CARIS HIPS" HDCS SOFTWARE AND TERRA SURVEYS, LLC PROPRIETARY SOFTWARE.
7. THIS SURVEY INDICATES GENERAL CONDITIONS AT THE TIME OF SURVEY.
8. PRIOR TO COMMENCEMENT OF THIS SURVEY, RECORD CONTROL, PROJECT LIMITS AND AIDS TO NAVIGATION COORDINATES WERE CONVERTED FROM NAD27, IN U.S. FEET, TO NAD83, IN U.S. FEET, USING "CORPSCON V5.11.08".

CONTROL DATA

STATION	NORTHING	EASTING	DESCRIPTION
D-1 1977	1,753,040.95	2,681,891.08	FOUND USACE SBC
D-2 1977	1,752,369.13	2,683,164.42	FOUND USACE SBC
D-3 1977	1,754,223.25	2,682,767.73	FOUND USACE SBC
D-4 1977/2001	1,754,281.86	2,681,668.46	FOUND USACE SBC
DE-1 2001	1,754,925.54	2,681,008.21	SET 3.25" DOMED BC
DE-2 2001	1,753,070.94	2,681,053.06	SET 3.25" DOMED BC
NICK 1958	1,753,453.24	2,681,633.52	SEARCHED FOR NOT FOUND

PROJECT LIMITS

CORNER	NORTHING	EASTING	CORNER	NORTHING	EASTING
PI-12	1,754,086.8	2,679,694.0	PI-15	1,752,239.3	2,682,308.6
PI-13	1,753,921.0	2,681,828.3	PI-16	1,751,974.7	2,682,362.8
PI-14	1,753,231.8	2,682,368.8			

AIDS TO NAVIGATION

USCG No.	NORTHING	EASTING	DESCRIPTION
23305.9	1,753,260.9	2,682,185.1	DAYBEACON 13, SG ON PILE, IN GOOD COND'N
23306	1,753,732.5	2,681,814.3	DAYBEACON 15, SG ON PILE, IN GOOD COND'N
23306.1	1,753,868.7	2,680,311.6	DAYBEACON 17, SG ON PILE, IN GOOD COND'N

CONTRACTOR TERRA SURVEYS, LLC CONTRACT NO. DACW895-98-D-0004
CITY PALMER STATE ALASKA

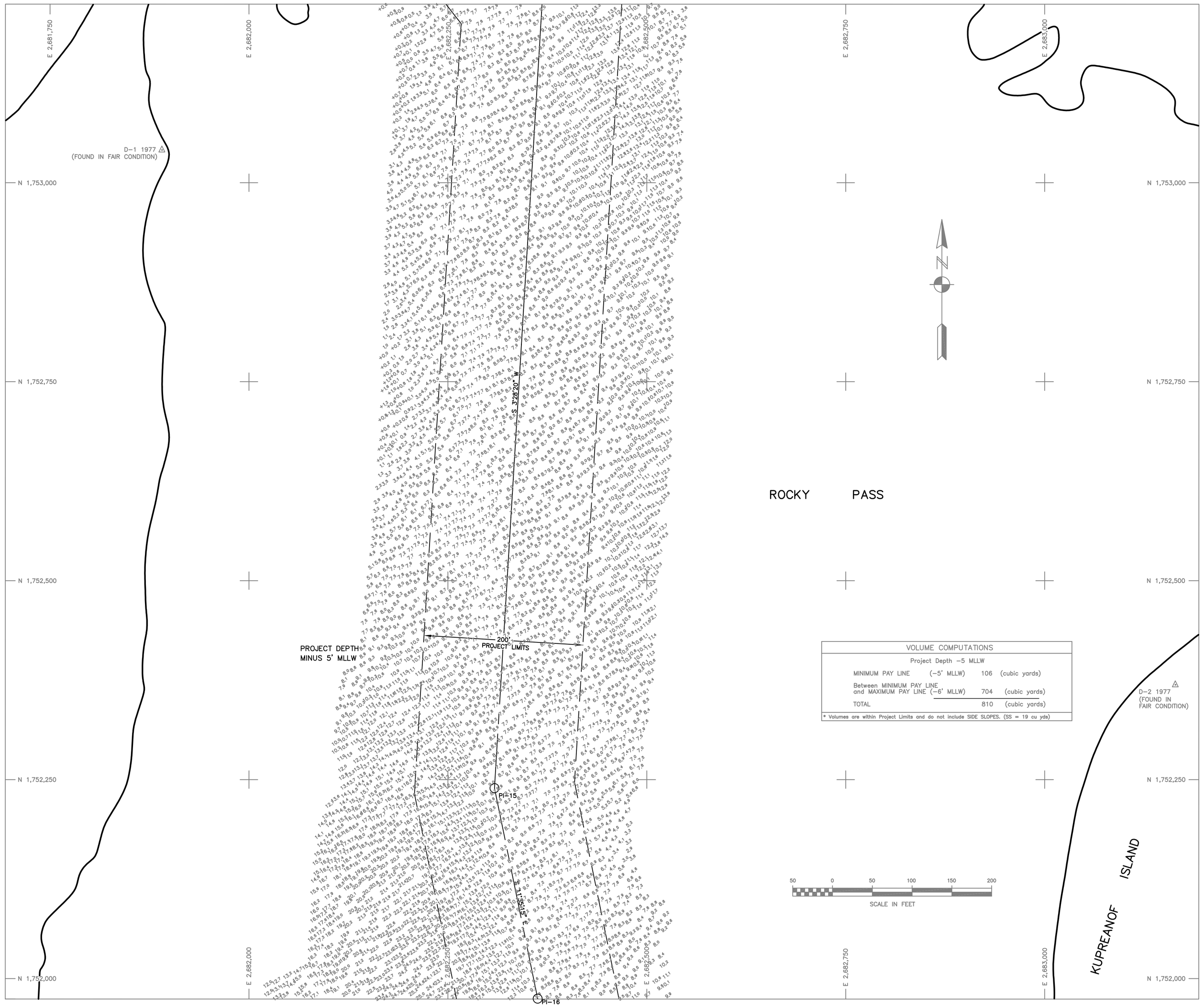
ALASKA DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

SURVEYED: KDW
DRAWN: LES/DJB
CHECKED: TSN
SUBMITTED:

ROCKY PASS, KEKU STRAIT, ALASKA
DEVIL'S ELBOW
APRIL 20-25, 2001

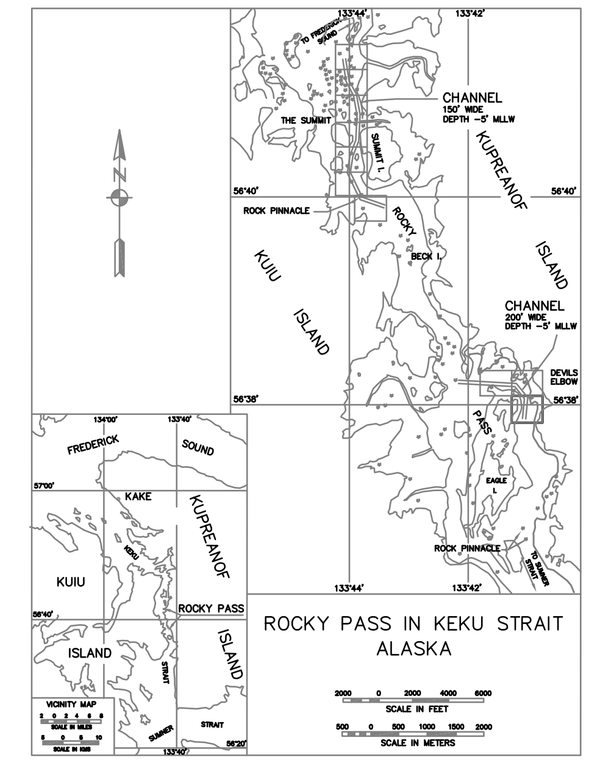
RECOMMENDED: PROJECT MANAGER
APPROVED: CHIEF OPERATIONS-READINESS BRANCH
DATE:

SURVEY NO.
SCALE: 1"= 50'
SHEET 2 OF 3



VOLUME COMPUTATIONS		
Project Depth -5 MLLW		
MINIMUM PAY LINE (-5' MLLW)	106	(cubic yards)
Between MINIMUM PAY LINE and MAXIMUM PAY LINE (-6' MLLW)	704	(cubic yards)
TOTAL	810	(cubic yards)

* Volumes are within Project Limits and do not include SIDE SLOPES. (SS = 19 cu yds)



NOTES

1. HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 1, NAD83, IN U.S. SURVEY FEET, HOLDING USACE SBC "D-2 1977" AS N= 1,752,369.13, E= 2,683,164.42 AND USACE SBC "D-4 1977/2001" AS N= 1,754,282.00, E= 2,681,668.35.
2. VERTICAL CONTROL IS IN FEET, BASED ON MEAN LOWER LOW WATER DATUM (MLLW = 0.0'), HOLDING USC&GS "BENCH MARK 1 (1929)" AS 17.57' MLLW. TIDAL DATUM REFERENCE IS: "USC&GS TIDAL BENCH MARKS – SOUTHEAST ALASKA – 120, THE SUMMIT, KEKU STRAIT, PUBLICATION DATED 3/13/51".
3. HORIZONTAL AND VERTICAL CONTROL WERE SURVEYED APRIL 20–23,2001 UTILIZING OPTICAL INSTRUMENTS AND CONVENTIONAL TRAVERSE / DIFFERENTIAL LEVELING TECHNIQUES.
4. THE EXISTING PROJECT, ADOPTED 3 SEPTEMBER, 1954, PROVIDES FOR A CHANNEL 5 FEET DEEP AT MLLW BY REMOVAL OF OBSTRUCTIONS AT 17 SEPERATE LOCATIONS WITH A WIDTH OF 150 FEET AT "THE SUMMIT" AND 200 FEET AT "DEVIL'S ELBOW".
5. SOUNDINGS ARE IN FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
6. BATHYMETRY WAS COLLECTED APRIL 24–25, 2001. SOUNDINGS WERE COLLECTED USING A "RESON 8124 SEABAT" MULTIBEAM SOUNDER (120° SWATH, 80 BEAM FLAT ARRAY TRANSDUCER). SOUND VELOCITY WAS PROFILED AND COLLECTED USING AN "APPLIED MICROSYSTEMS – SV PLUS" PROFILER. POSITIONING AND VESSEL ATTITUDE WERE MEASURED USING A "SEATEX – SEAPATH 200 RTK" SYSTEM COUPLED WITH A "SEATEX – MRU-5" MOTION REFERENCE UNIT. RTK CORRECTIONS WERE BROADCAST FROM A LOCAL BASE STATION SET AT "DE-1 2001". DATA WAS COLLECTED AND FIELD PROCESSED USING "RESON 6042" INTEGRATED SOFTWARE. WATER LEVEL WAS MEASURED USING A "VYNER LP1 TELEMETRY TIDE GAUGE" COUPLED WITH AN "ENDECO TYPE 1029" WATER LEVEL RECORDER. FINAL DATA PROCESSING WAS PERFORMED USING "CARIS HIPS" HDCS SOFTWARE AND TERRA SURVEYS, LLC PROPRIETARY SOFTWARE.
7. THIS SURVEY INDICATES GENERAL CONDITIONS AT THE TIME OF SURVEY.
8. PRIOR TO COMMENCEMENT OF THIS SURVEY, RECORD CONTROL, PROJECT LIMITS AND AIDS TO NAVIGATION COORDINATES WERE CONVERTED FROM NAD27, IN U.S. FEET, TO NAD83, IN U.S. FEET, USING "CORPSCON V5.11.08".

CONTROL DATA

STATION	NORTHING	EASTING	DESCRIPTION
D-1 1977	1,753,040.95	2,681,891.08	FOUND USACE SBC
D-2 1977	1,752,369.13	2,683,164.42	FOUND USACE SBC
D-3 1977	1,754,223.25	2,682,767.73	FOUND USACE SBC
D-4 1977/2001	1,754,281.86	2,681,668.46	FOUND USACE SBC
DE-1 2001	1,754,925.54	2,681,008.21	SET 3.25" DOMED BC
DE-2 2001	1,753,070.94	2,681,053.06	SET 3.25" DOMED BC
NICK 1958	1,753,453.24	2,681,633.52	SEARCHED FOR NOT FOUND

PROJECT LIMITS

CORNER	NORTHING	EASTING	CORNER	NORTHING	EASTING
PI-12	1,754,086.8	2,679,694.0	PI-15	1,752,239.3	2,682,308.6
PI-13	1,753,921.0	2,681,828.3	PI-16	1,751,974.7	2,682,362.8
PI-14	1,753,231.8	2,682,368.8			

AIDS TO NAVIGATION

USCG No.	NORTHING	EASTING	DESCRIPTION
23305.9	1,753,260.9	2,682,185.1	DAYBEACON 13, SG ON PILE, IN GOOD COND'N
23306	1,753,732.5	2,681,814.3	DAYBEACON 15, SG ON PILE, IN GOOD COND'N
23306.1	1,753,868.7	2,680,311.6	DAYBEACON 17, SG ON PILE, IN GOOD COND'N

CONTRACTOR TERRA SURVEYS, LLC CONTRACT NO. DACW895-98-D-0004
CITY PALMER STATE ALASKA

ALASKA DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

SURVEYED: KDW
DRAWN: LES/DJB
CHECKED: TSN
SUBMITTED:

ROCKY PASS, KEKU STRAIT, ALASKA
DEVIL'S ELBOW
APRIL 20–25, 2001

RECOMMENDED: APPROVED: DATE:
PROJECT MANAGER CHIEF OPERATIONS-READINESS BRANCH

SURVEY NO.
SCALE: 1"= 50'
SHEET 3 OF 3