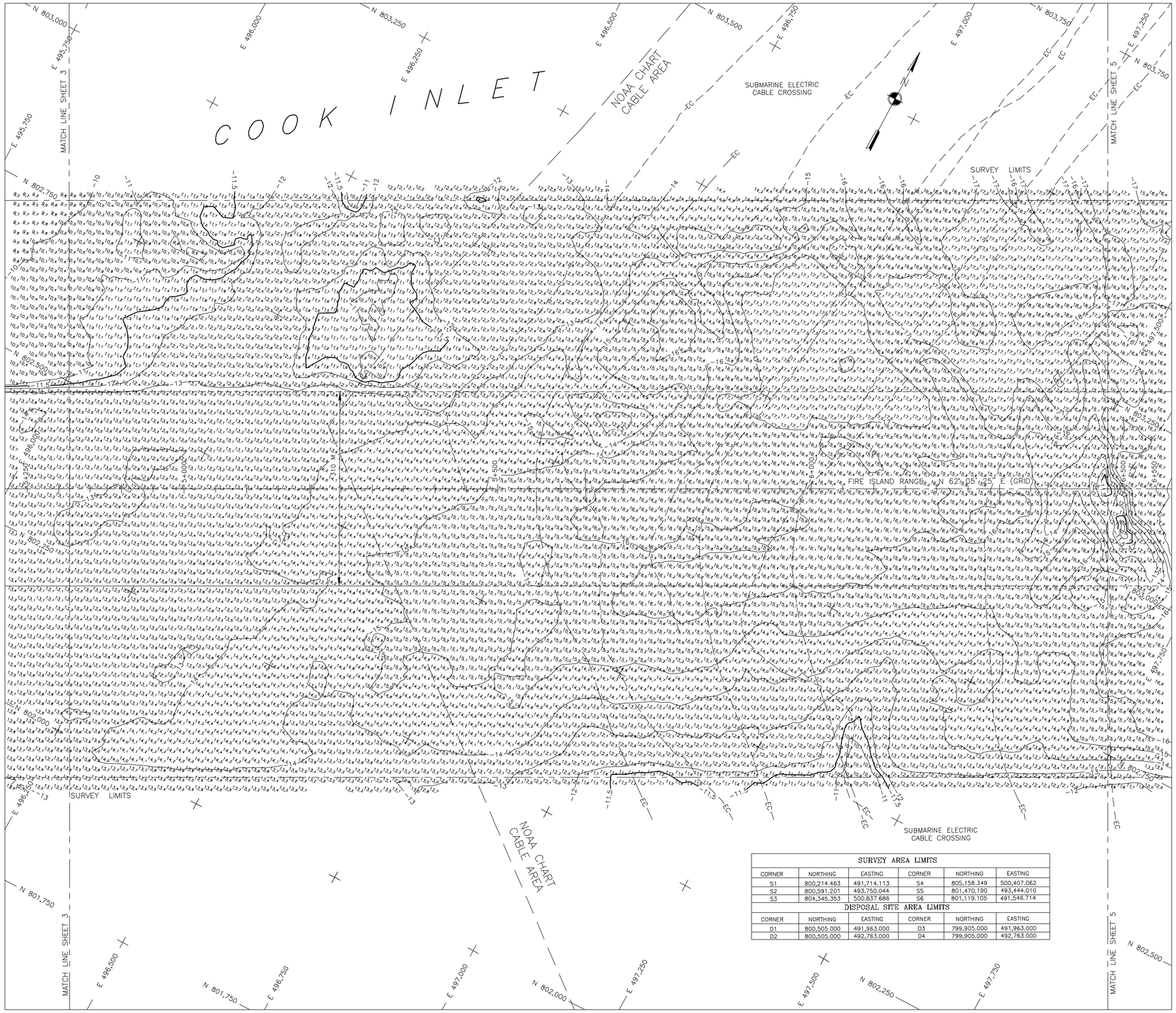
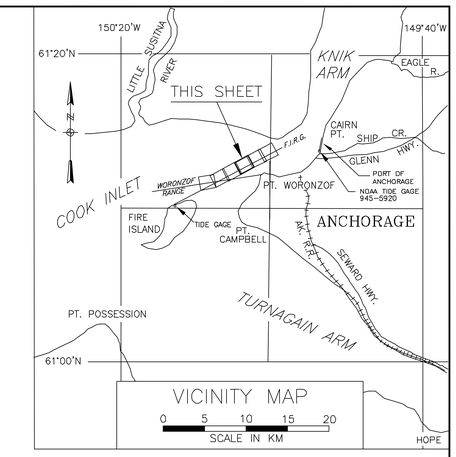
U. S. ARMY




## NOTES:

1. HORIZONTAL DATUM IS THE ALASKA STATE PLANE COORDINATE SYSTEM, ZONE 4, NAD83 IN METERS, HOLDING USACE SBC "N. END 1978" AS N 806,701.201, E 506,146.537 AND USACE SBC "S. END 1978" AS N 805,983.719, E 505,885.335.
2. VERTICAL DATUM IS MEAN–LOWER–LOW–WATER (MLLW=0.00m) IN METERS, BASED ON NOAA/NOS TIDAL DATUM ON THE 1960–1978 TIDAL EPOCH AT TIDE STATION "9455920" LOCATED AT THE PORT OF ANCHORAGE (SEE NOTE 6 BELOW).
3. SOUNDINGS ARE IN METERS AND ARE MINUS UNLESS OTHERWISE INDICATED.
4. NO HORIZONTAL OR VERTICAL CONTROL WAS SET OR ESTABLISHED DURING THIS SURVEY.
5. HYDROGRAPHIC DATA ACQUISITION WAS CONDUCTED SEPTEMBER 20–28, 2005 USING AN ODDM ECHOSCAN MULTI–BEAM DEPTH SOUNDER WITH A 200KHZ, 90 DEGREE SWATH–WIDTH TRANSDUCER (30 – 3 DEGREE BEAM ARRAY). POSITIONING, VESSEL ATTITUDE AND TIDES WERE PROVIDED IN REAL–TIME USING A CODA OCTOPUS F–180–1 INERTIAL ATTITUDE AND POSITIONING SYSTEM OPERATING ON KINEMATIC GPS CORRECTIONS BROADCAST FROM A TRIMBLE 4000SSI RTK GPS BASE RECEIVER SET AT "TERRA–9 2005". SOUND VELOCITY WAS MEASURED AND APPLIED USING AN AML SV–PLUS SOUND VELOCITY METER DEPLOYED DURING THE SURVEY. REAL–TIME–KINEMATIC HEIGHT VALUES WERE CALIBRATED TO DIRECT MANUAL TIDE OBSERVATIONS HOLDING USCGS TIDAL BENCH MARK "TIDAL 16 1966" LOCATED AT NOAA / NOS TIDE STATION "9455920" AT THE PORT OF ANCHORAGE (SEE NOTE 6). SURVEY DATA WAS COLLECTED USING QPS QINSY (V7.4) INTEGRATED SOFTWARE AND WAS PROCESSED USING CARIS "HIPS" (V5.4) SOFTWARE.
6. THE ELEVATION SHOWN FOR ALUMINUM CAP "AWWU 1994" IS SPECIFIC TO THIS PROJECT AND SHOULD NOT BE USED AS A BASIS OF VERTICAL DATUM FOR AREAS OUTSIDE OF THE COOK INLET NAVIGATION CHANNEL. THE ELEVATION REPRESENTS MEAN–LOWER–LOW–WATER AT THE NAVIGATION CHANNEL AND WAS DERIVED THROUGH COMPARISONS OF ZONED TIDE DATA (BASED ON THE NOAA/NOS TIDE STATION "9455920", LOCATED AT THE PORT OF ANCHORAGE), AND FROM HISTORICAL REDUNDANT MEASUREMENTS OF CERTAIN CROSS–SECTION DATA COMPARED TO PREVIOUS USACE PROJECT CONDITION SURVEYS. THE ELEVATION OF "AWWU 1994" IS 21.458m MLLW FOR THIS PROJECT.
7. THIS DRAWING IS INDICATIVE OF CONDITIONS AT THE TIME OF SURVEY.

### NAVIGATION CHANNEL COORDINATES

| COR. | NORTHING | EASTING | STATION | DESCRIPTION |
|---|---|---|---|---|
| 1 | 800,866.784 | 491,630.414 | 0+000 | CENTERLINE (W) WORONZOF RANGELINE |
| 2 | 801,030.695 | 493,597.027 | 2+000 | WORONZOF/FIRE ISLAND RANGELINE INTERSECTION |
| 3 | 804,751.851 | 500,622.374 | 9+950 | CENTERLINE (E) FIRE ISLAND RANGELINE |
| 4 | 800,514.371 | 491,658.617 | 0+000 | CHANNEL LIMITS (S) |
| 5 | 800,882.605 | 493,648.587 | 2+023.754 | CHANNEL LIMITS (S) |
| 6 | 804,614.879 | 500,694.925 | 9+950 | CHANNEL LIMITS (S) |
| 7 | 804,888.823 | 500,549.823 | 9+950 | CHANNEL LIMITS (N) |
| 8 | 801,178.786 | 493,545.467 | 1+976.298 | CHANNEL LIMITS (N) |
| 9 | 800,819.197 | 491,602.211 | 0+000 | CHANNEL LIMITS (N) |

### △ CONTROL COORDINATES △

| STA. | NORTHING | EASTING | ELEVATION | DESCRIPTION |
|---|---|---|---|---|
| VAN DUSEN | 798,942.998 | 502,541.130 | | NGS SBC |
| AWWU 1994 | 801,415.521 | 498,604.321 | * | 3" ALCAP ( * SEE NOTE 6) |
| S. END 1978 | 805,983.719 | 505,885.335 | 12.335 | USACE SBC |
| N. END 1978 | 806,701.201 | 506,146.537 | 12.616 | USCGS SBC |
| TERRA–9 2005 | 806,195.329 | 506,019.017 | 24.500 | USCGS SBC |
| TIDAL 16 1966 | – | – | 12.355 | USCGS SBC |
| BM 13 | 798,786.275 | 489,247.050 | 8.553 | USCGS SBC IN ROCK |
| BM 12 | – | – | 8.525 | USCGS SBC IN ROCK |
| RIFE | – | – | 9.000 | USCGS SBC IN ROCK |
| NO 15 RESET 1966 | – | – | 11.320 | USCGS SBC IN PVMT |

### VOLUME COMPUTATIONS

| PROJECT DEPTH –11.5M MLLW– WORONZOF AND COMBINED FIRE ISLAND RANGE | CUBIC METERS |
|---|---|
| MINIMUM PAY LINE (–11.5m MLLW) | 1,439 |
| BETWEEN MINIMUM PAY LINE AND MAXIMUM PAY LINE (–12.5m MLLW) | 2,285 |
| VOLUME AVAILABLE ALONG SIDESLOPES (3:1, H:V) | 0 |
| TOTAL | 3,724 |

### SURVEY AREA LIMITS

| CORNER | NORTHING | EASTING | CORNER | NORTHING | EASTING |
|---|---|---|---|---|---|
| S1 | 800,214.463 | 491,714.113 | S4 | 805,158.349 | 500,407.062 |
| S2 | 800,591.201 | 493,750.044 | S5 | 801,470.180 | 493,444.010 |
| S3 | 804,345.353 | 500,837.686 | S6 | 801,119.105 | 491,546.714 |

### DISPOSAL SITE AREA LIMITS

| CORNER | NORTHING | EASTING | CORNER | NORTHING | EASTING |
|---|---|---|---|---|---|
| D1 | 800,505.000 | 491,963.000 | D3 | 799,905.000 | 491,963.000 |
| D2 | 800,505.000 | 492,763.000 | D4 | 799,905.000 | 492,763.000 |

SCALE 1:2,500

0 25 50 75 100 150 200 250 375 METERS

ALL COORDINATES, DIMENSIONS, AND ELEVATIONS ARE IN METERS

CONTRACT NO. W911KB–04–D–0006–0009

CONTRACTOR TERRA SURVEYS, LLC

CITY PALMER STATE ALASKA

ALASKA DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

SURVEYED: GCY/AMC
DRAWN: LES/AMC
CHECKED: KDW
SUBMITTED:

ANCHORAGE, ALASKA
COOK INLET NAVIGATION CHANNEL
PROJECT CONDITION SURVEY
SEPTEMBER 20–28, 2005

RECOMMENDED: PROJECT MANAGER | APPROVED: CHIEF OPERATIONS–READINESS BRANCH | DATE:

SURVEY NO. 2285–05

SCALE: 1:2500

SHEET 4 OF 6