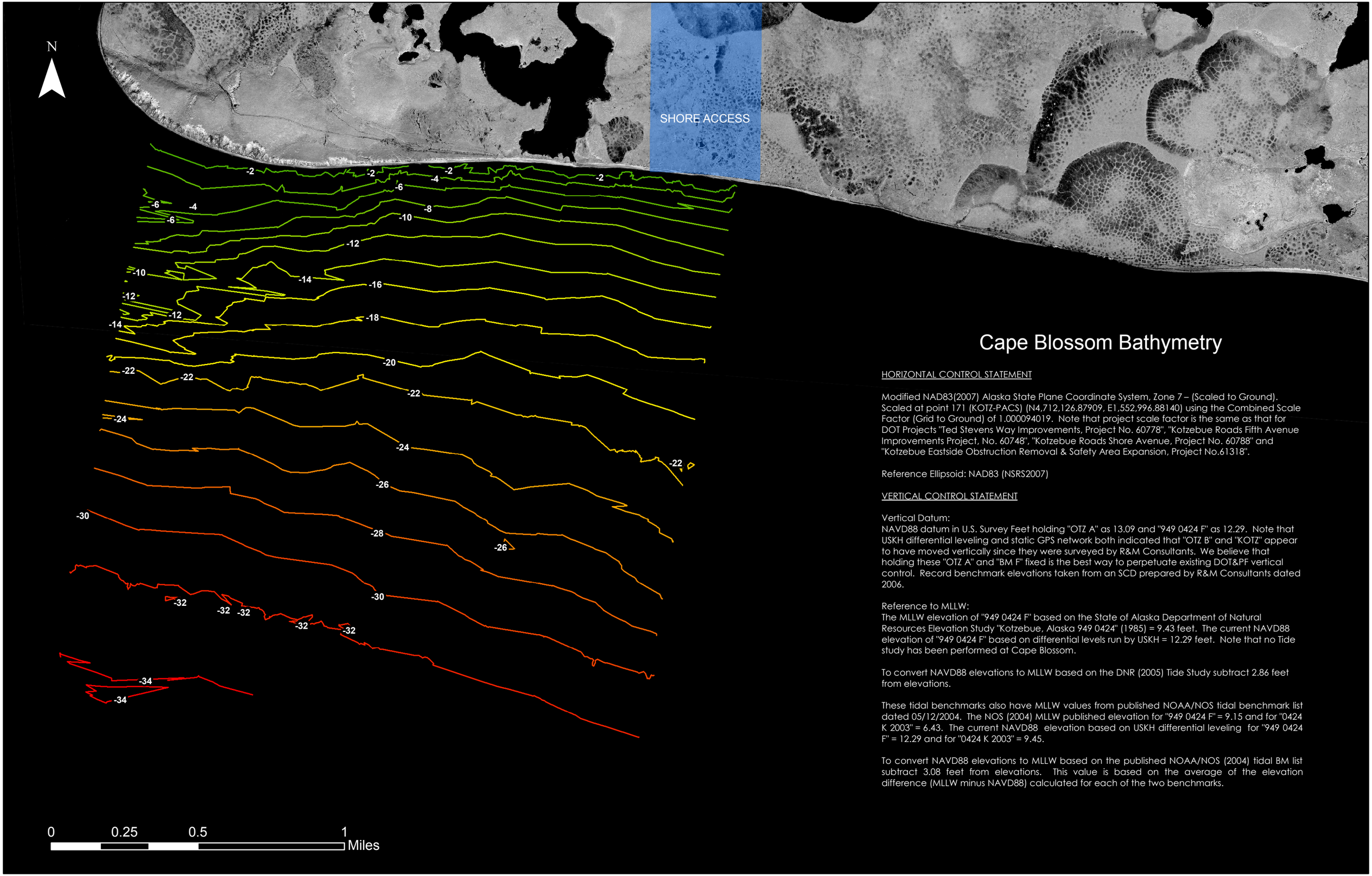

Cape Blossom Bathymetry

HORIZONTAL CONTROL STATEMENT

Modified NAD83(2007) Alaska State Plane Coordinate System, Zone 7 – (Scaled to Ground). Scaled at point 171 (KOTZ-PACS) (N4,712,126.87909, E1,552,996.88140) using the Combined Scale Factor (Grid to Ground) of 1.000094019. Note that project scale factor is the same as that for DOT Projects "Ted Stevens Way Improvements, Project No. 60778", "Kotzebue Roads Fifth Avenue Improvements Project, No. 60748", "Kotzebue Roads Shore Avenue, Project No. 60788" and "Kotzebue Eastside Obstruction Removal & Safety Area Expansion, Project No.61318".

Reference Ellipsoid: NAD83 (NSRS2007)

VERTICAL CONTROL STATEMENT

Vertical Datum:
NAVD88 datum in U.S. Survey Feet holding "OTZ A" as 13.09 and "949 0424 F" as 12.29. Note that USKH differential leveling and static GPS network both indicated that "OTZ B" and "KOTZ" appear to have moved vertically since they were surveyed by R&M Consultants. We believe that holding these "OTZ A" and "BM F" fixed is the best way to perpetuate existing DOT&PF vertical control. Record benchmark elevations taken from an SCD prepared by R&M Consultants dated 2006.

Reference to MLLW:
The MLLW elevation of "949 0424 F" based on the State of Alaska Department of Natural Resources Elevation Study "Kotzebue, Alaska 949 0424" (1985) = 9.43 feet. The current NAVD88 elevation of "949 0424 F" based on differential levels run by USKH = 12.29 feet. Note that no Tide study has been performed at Cape Blossom.

To convert NAVD88 elevations to MLLW based on the DNR (2005) Tide Study subtract 2.86 feet from elevations.

These tidal benchmarks also have MLLW values from published NOAA/NOS tidal benchmark list dated 05/12/2004. The NOS (2004) MLLW published elevation for "949 0424 F" = 9.15 and for "0424 K 2003" = 6.43. The current NAVD88 elevation based on USKH differential leveling for "949 0424 F" = 12.29 and for "0424 K 2003" = 9.45.

To convert NAVD88 elevations to MLLW based on the published NOAA/NOS (2004) tidal BM list subtract 3.08 feet from elevations. This value is based on the average of the elevation difference (MLLW minus NAVD88) calculated for each of the two benchmarks.