

C Vertical and Horizontal Control

This section is an overview of the methods to acquire and employ horizontal and vertical control for the survey conducted in St. Louis Bay. For a more detailed account refer to supplementary 14USM02 Horizontal and Vertical Control Report.

C.1 Vertical Control

C.1.1 Vertical Datum

The vertical datum calculated to correct bathymetry was MLLW NTDE 1983-2001. Ellipsoid reference techniques were used to correct the majority of the data, except five survey lines in Area 3. These lines were affected by the GPS issue as described in B.2.2. The separation between MLLW to GRS80 was calculated using:

- Tides collected from a USM gauge and NOAA CO-OPS gauge 8747437
- GNSS static survey over the primary benchmark
- 3-wire leveling connecting the USM gauge to secondary tidal staff and three benchmarks.
- Range ratio tidal datum transfer from USM tide gauge to CO-OPS gauge 8747437.

C.1.2 Existing Tidal Infrastructure

NOAA operates a tidal station outside the Bay Waveland Yacht Club in the northern section of the survey area, station 8747437. This gauge has been in continuous operation since 1978 and therefore was designated the primary gauge and used for the tidal datum transfer. Tides from this gauge were also used to correct soundings where GPS tides could not be applied.

Station 8747437	
Latitude	30° 19.5' N
Longitude	089° 19.5' W
MHW	1.225
MSL	0.994
DTL	0.993
NAVD88	0.728
MLLW	0.822
GT	0.529
MN	0.462
STND	0

Table 24 NOAA tide station 8747437 station location and datums