

## C.1 Vertical Control

The vertical datum for this project is Mean Lower Low Water.

### ERS Datum Transformation

The following ellipsoid-to-chart vertical datum transformation was used:

Method	Ellipsoid to Chart Datum Separation File
ERS via VDATUM	OPR-E350-TJ-19_NAD83-MLLW_Geoid12B

*Table 10: ERS method and SEP file*

All soundings submitted for H13327 are reduced to MLLW using VDatum techniques as outlined in the DAPR.

## C.2 Horizontal Control

The horizontal datum for this project is North American Datum of 1983 (NAD 83).

The projection used for this project is Universal Transverse Mercator (UTM) Zone 18.

### PPP

Trimble-RTX service was used with an Applanix POS MVv5 GNSS-INS system to obtain highly accurate ellipsoidally referenced position data to meet ERS specifications for H13298 MBES and SBES data.

### WAAS

The Wide Area Augmentation System (WAAS) was used for real-time horizontal control during data acquisition.

## C.3 Additional Horizontal or Vertical Control Issues

### C.3.1 Loss of Primary DGPS fix.

HSLs 2903 and 2904 experienced losses of Primary DGPS mode in the POS/MV system on multiple days during survey acquisition. Below is a list of days on which this issue occurred and how many times losses were experienced. These losses were detected while reviewing the SBET's AutoQC graphs (Figure 47). All losses of Primary DGPS mode were less than one second in length and were correlated with losses of satellite coverage across both the primary and secondary GNSS receivers (Figure 48). The cause of this