

## **G. Vertical and Horizontal Control**

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

The vertical control method used for this survey was VDatum.

All F00758 survey data were reduced to MLLW using VDatum methods. The ellipsoid to chart datum separation file used is VDatum\_Outline\_ACHARE\_Polygon\_xyWGS84-MLLW\_geoid12b.csar.

The horizontal datum for this project is World Geodetic System (WGS) 1984.\* The projection used for this survey is UTM 20N.

Horizontal and vertical positioning was achieved in accordance with practices outlined in the DAPR. Processing and products for Survey F00758 were conducted and completed in WGS84.

***\*The Field Unit conducted the survey project referencing WGS84 for the horizontal datum. AHB revised the products to horizontal datum of NAD83 and UTM 20N projection to meet HSSD product specification.***

## H. Additional Results

Chart comparison conducted using combined 2017-2018 survey data:

A comparison was made between the combined 2017-2018 survey data and Electronic Navigation Chart (ENC) US5PR52M in accordance with methods outlined in the DAPR. Numerous discrepancies between ENC US5PR52M and the combined 2017-2018 surveys were observed in the vicinity of Bahia de Sardinias (Figure 13):

- Area A: Three charted underwater rocks with least depths unknown were not observed in the data and are recommended for removal from the chart (Figure 14).
- Area B: The charted foul areas do not reflect areas dangerous to local marine traffic; the foul areas should be replaced with updated soundings and contours (Figure 15).
- Area C: A 4.9m sounding was observed near a charted 6.4m sounding. The discrepancy is not considered a danger to navigation due to the close proximity of shoaler soundings (Figure 16).
- Area D: A 5.2m sounding was observed near a charted 6.4m sounding. The discrepancy is not considered a danger to navigation due to the close proximity of shoaler soundings (Figure 17).

General revisions to charted soundings, depth contours, and area features are recommended.

Differences observed between F00758 and F00707 data:

Two significant differences between data from F00758 (2018) and F00707 (2017) were observed near the ferry terminal in Bahia de Sardinias over two localized depressions in the seafloor (Figure 18). The depressions were observed in both 2017 and 2018 data sets; however, the depressions were 1 to 1.25 meters deeper in the 2017 data. Neither depression is significant for charting purposes.

The mean difference between bathymetric surface nodes of F00758 and F00707 is 0.3 with a standard deviation of 0.1m.

High quality LIDAR data from a joint 2018 USACE/FEMA project can be found on NOAA's Digital Coast website at: [https://coast.noaa.gov/htdata/raster2/elevation/USACE\\_PR\\_Topobathy\\_DEM\\_2018\\_8571/](https://coast.noaa.gov/htdata/raster2/elevation/USACE_PR_Topobathy_DEM_2018_8571/)