SANDPIPER PROJECT

Verification Programme Report:
Mining Licence Area No. 170

SECTION D : APPENDICES

APPENDIX 3
Geophysics

3.1: Geophysical Processing Procedures
3.2: Geophysical Habitat Mapping

APPENDIX 3 – GEOPHYSICS

3.1 Geophysical Processing Procedures

FLEDERMAUS AND GEOCODER TOOLKIT PROCESSING PROCEEDURES FOR HABITAT MAPPING FOR NMP VERIFICATION PROGRAMME

AREA 1, SANDPIPER PHOSPHATE PROJECT

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1 BACKGROUND

MDC was commissioned by Namibian Marine Phosphate (NMP) on 06 August 2014 to post-process Kongsberg EM710 Multi Beam Echo Sounder (MBES) Bathymetry, EM710 Snippets and EdgeTech Side Scan Sonar Data which were acquired by a third-party. Data supplied to MDC were original raw Kongsberg (*.all) files and raw *.xtf EdgeTech files.

2 PROCESSING SOFTWARE USED

Fledermaus V7.4.0d, 64 bit Edition. Build17 May 2014
QINSy V8.10 Build 2014.03.06.1

3 EM710 BATHY PROCESSING PROCEDURE

1) The Kongsberg *.all files were imported into Fledermaus DMagic and re-projected to WGS84, UTM33S.
2) SANHO 10min predicted tides were applied (co-tidal solution using liner interpolation from Lüderitz and Walvis Bay tide stations. All soundings reduced to MSL.
3) A 1m Combined Uncertainty and Bathymetry Estimator (CUBE) surface was built in DMagic to IHO Order-1 (S44).
4) Blatant “fliers” (noise) were flagged as deleted in Fledermaus 3D Editor and the 1m CUBE updated.
5) An automated filter was applied 1m above and below the CUBE surface and all soundings outside1m from the CUBE surface were flagged as rejected.
6) The final 1mCUBEsurface was checked for sounding density and standard deviated and exported to ASCII (E,N,Z) for DTM creation and contouring.
7) The ASCII (E,N,Z) file was imported into QINSy Sounding Grid Utility for contouring (DXF) and Geotiff/KML Raster file creation.

A final 5mx5m bathy DTM grid was produced from the processed bathymetry and color-shaded by water depth.

4 DIGITAL DATA DELIVERABLES

4.1 BACKSCATTER MOSAICS

- NMP_Edgetech_SSS_Mosaic_30cm_Copper.tiff
- NMP_Edgetech_SSS_Mosaic_30cm_Grey.tiff
- NMP_Edgetech_SSS_Mosaic_30cm_Grey_crop.tif
- NMP_EM710_Snippets_Mosaic_50cm_Copper.tiff
- NMP_EM710_Snippets_Mosaic_50cm_Grey.tiff
- NMP_EM710_Snippets_Mosaic_50cm_Grey_crop.tif

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4.2 EM710 MULTIBEAM BATHY DATA

- NMP_5m_Bathy_CUBE_edit_Area1.xyz
- DTM Geotiff -190 to -225m Delivery SG 5x5m.tif
- DTM Geotiff -190 to -225m Delivery SG 5x5m.tfw
- DTM Geotiff -190 to -225m Delivery SG 5x5m.kml
- Contours 1m.dxf
- Colour Bar -190 to -225m.jpg
- Bathymetry_20140807100844.dxf

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