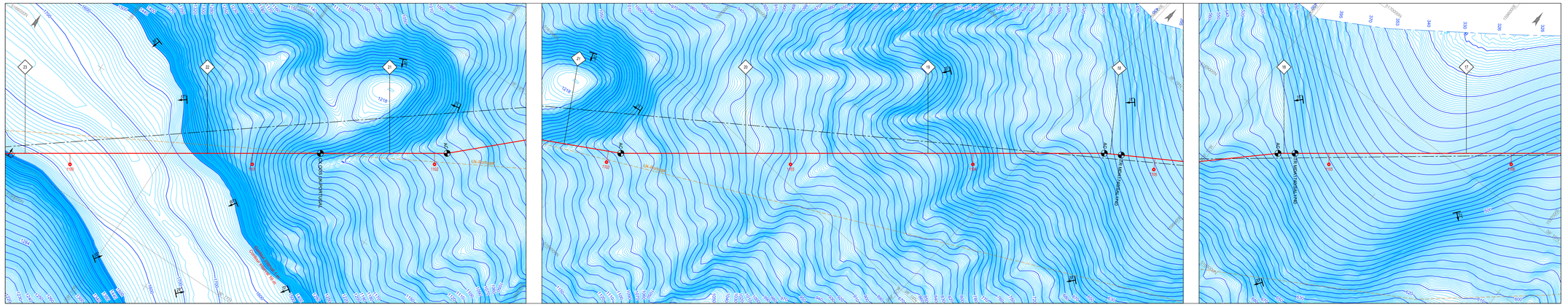
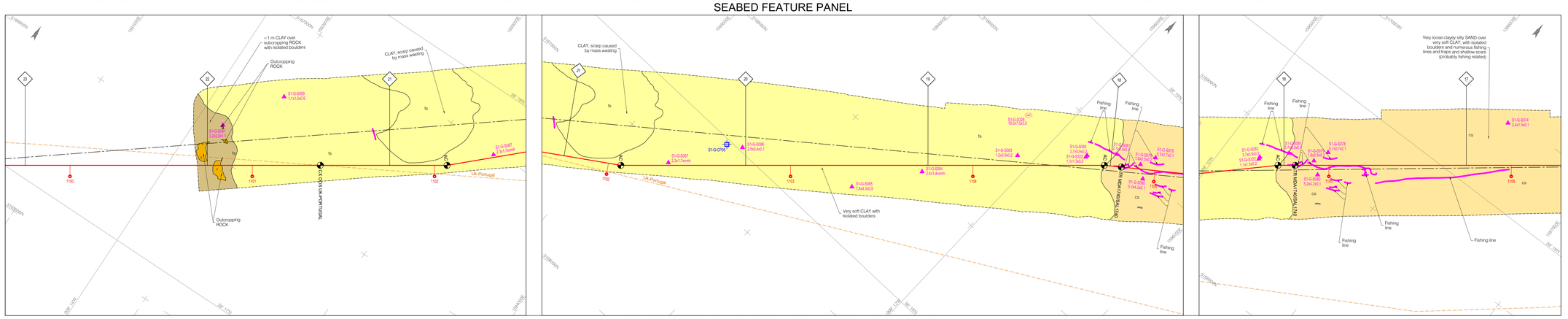
BATHYMETRY PANEL



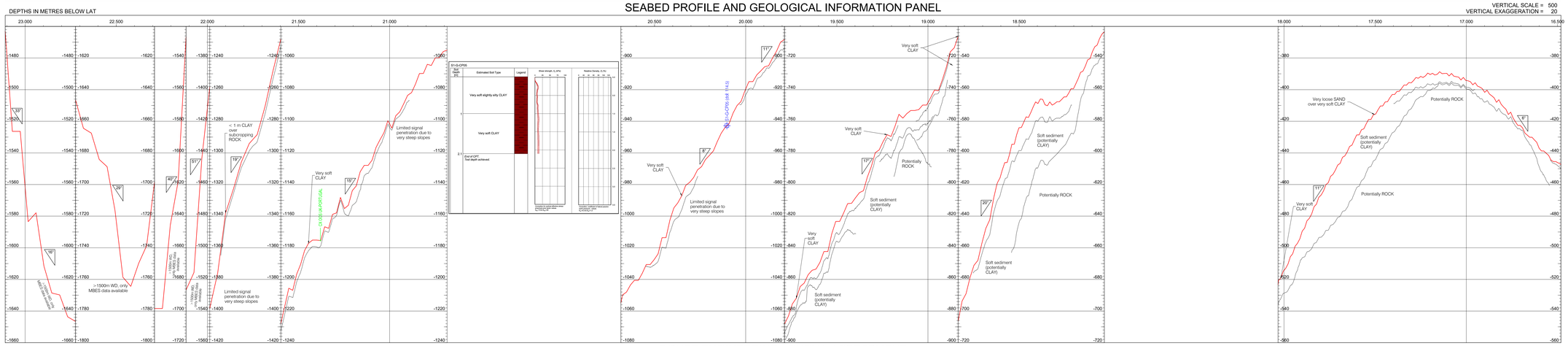
SEABED FEATURE PANEL



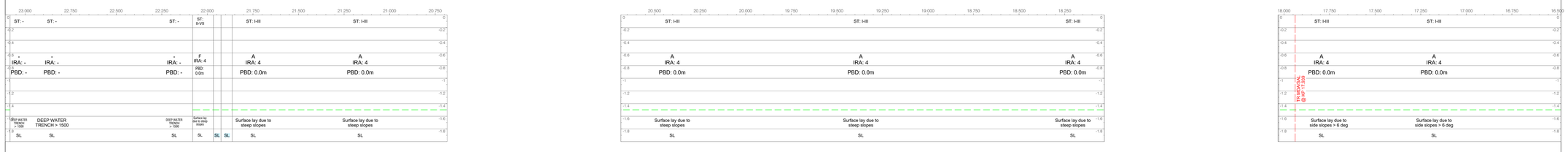
SEABED PROFILE AND GEOLOGICAL INFORMATION PANEL

DEPTHS IN METRES BELOW LAT

VERTICAL SCALE = 500
VERTICAL EXAGGERATION = 20



ROUTE ENGINEERING - BURIAL ASSESSMENT



Burial Categories

Category	Description
A	FULL PLOUGH BURIAL - Full plough cable burial expected to target
B	REDUCED VARIABLE PLOUGH BURIAL - Target burial cover depth might not be achieved due to seabed conditions. Reduced cable cover depth predicted > 0.5 m
C	POOR/VARIABLE PLOUGH BURIAL - Poor burial, to a predicted < 0.5 m cover depth
D	PLOUGH OVERBURIAL - Potential Cable overburial
E	CONTRACT SPECIFIC BURIAL - Cable burial to a specific target cover depth
F	UNPLOUGHABLE. Not ploughable, due to seabed conditions or route design criteria

Installation Risk Assessment (IRA) Categories

Category		Description
1	low risk	PLOUGHABLE / PLB ATTEMPT: No significant risk to the burial equipment due to seabed conditions
2	moderate risk	CHANGE IN BURIAL CONDITIONS (CBC): Change in seabed texture and/or topography. A plough/PLB attempt will be made and feasible burial (>0.5m) anticipated although target burial may not be reached.
3	significant risk	RISK OF NON-BURIAL (RNB): Moderate risk of damage to the cable and/or burial equipment due to seabed conditions; potential damage repairable onboard, using shipboard spares. A plough/PLB attempt will be made although there is a Risk of Non-Burial (Surface Lay) or burial to <0.5m.
4	high risk	SURFACE LAY / UNPLOUGHABLE / NO PLB ATTEMPT: High risk of damage to the cable and/or burial equipment due to seabed conditions; potential severe damage not repairable onboard using shipboard spares.

Extent of Burial Category and Risk

Target Burial Depth

Seabed Type Classification for Burial Assessment

Sediment Type	Strength / Density Description	Undrained Shear Strength	Relative Density	Sediment Description
I	very soft / very loose	<20	<15	Typically, very loose SAND/SILT, or very soft CLAY/SILT
II	soft / loose	20 - 40	15 - 35	Typically, loose SAND/SILT, or soft CLAY/SILT
III	firm / medium dense	40 - 75	35 - 65	Typically, medium dense SAND/SILT, or firm SILT/CLAY
IV	stiff / dense	75 - 150	65 - 85	Typically, dense SAND/SILT, or stiff SILT/CLAY
V	very stiff / very dense	150 - 300	85 - 95	Typically, very dense SAND/SILT, or very stiff CLAY/SILT
VI	weathered bedrock / indurated sediment	>300	>95	Weathered bedrock or indurated sediment (partially cemented)
VII	Rock	---	---	Rock

Note:

For BAS sections with coloured marker please refer to BAS report Appendix A: 'EQUIANO_S1_APPENDIX A-BURIAL ASSESSMENT SURVEY REV02_PSR12.xlsx' BAS information is not displayed within these sections due to limited space

CARTOGRAPHIC SYMBOLS

- Post survey route with kilometre post and reverse kilometre post
- Alter course / Point on line / Beach manhole (BMH)
- Contractual route
- Chart matchline
- Coastline (from Admiralty Charts)
- Submerged wreck / Exposed wreck / Obstruction / Well / Platform / Explosives dumping ground and symbol or line feature in grey, plotted from desk top study (as-found in magenta). (for general symbols and abbreviations refer to British Admiralty Chart)
- Telecommunications cable position, In-service/Out-of-service/Planned (As found in magenta)
- Pipeline position, In-service/Out-of-service/Planned (As found in magenta)
- Power cable position, In-service/Out-of-service/Planned (As found in magenta)
- Unknown cable
- Maritime boundaries

BATHYMETRY

- Bathymetric contours in metres. Contour interval may be reduced to aid in clarity.
- Downslope gradient in degrees (°) as measured over the shortest significant distance
- Approximate limit of swath bathymetry coverage (shown only in areas of flat seabed)

SEABED FEATURES AND SHALLOW GEOLOGY

Loose Sediments:
- cor — Coral
- fs/cs/vcs — Gas seepage area with predominant sediment classification
- fs/cs/vcs — Boulders with predominant sediment classification
- fs — Fine sediment (predominantly CLAY/SILT)
- cs — Coarse sediment (SAND and GRAVEL)
- vcs — Very coarse sediment (COBBLES and BOULDERS)

Rock:
- fs/cs/vcs — Subcropping ROCK with predominant sediment classification (sediment thickness < target burial depth)
- r — ROCK outcrop (with veneer of sediments)
- hs — HARDGROUND (very dense/very stiff/ consolidated sediments; sediment thickness < target burial depth)

- Sediment or feature boundary
- Inferred sediment or feature boundary
- Approximate limit of side scan sonar coverage
- Seabed scar or trawl scar
- Anchor scar

- S001 5x3x0.8 — Isolated sonar contact with reference no. (length x width x height in metres where measurable; nmh = no measurable height)
- 50x0.5x1 — Linear sonar contact, dashed where partially buried
- M001 5 — Unidentified magnetic anomaly with reference number and amplitude in nanotesla (nT)
- M002 12 — Cable/Pipeline position, as determined by magnetometer, with reference number and amplitude in nanotesla (nT)
- S001 (5x1.5x1) — Located wreck with reference no. (length x width x height in metres where measurable)
- GC001 — Seabed sample location with ref. no.: GC (Gravity Core) PC (Piston Core) GS (Grab Sample) DS (Diver Sample) DP (Diver Probing) BP (Beach Probing)
- CP001 — CPT location with reference number
- 0.5 — Small outcrop of rock with height in metres if discernible
- ø0 — Seabed depression or pockmark with diameter (ø) and depth (D) in metres, where discernible
- 50/3 — General orientation of sandwave crest (Hachures on lee side where observable, with wavelength and height in metres)
- 40:8 — Orientation of megaripple crest (Hachures on lee side where observable, with wavelength and height in metres)
- 22 — Orientation of sediment ribbon
- 225 — Fault with depth below seafloor (Hachures on footwall)

SHALLOW GEOLOGY PROFILE

- Seabed profile
- Major Reflectors
- 10° — Seafloor slope angle values in degrees
- CX OOS — Cable/Pipeline crossing

CHART COMMENTS:

Cable and Pipeline Crossings:
CX OOS COAX UK-Portugal (RPL), KP: 21.380, water depth: 1170 m, crossing angle: N/A
CX OOS COAX UK-Portugal (database), KP: 21.381, water depth: 1170 m, crossing angle: 4°

Hazards/Remarks:
The northeastern chartered area comprises very loose SAND over very soft CLAY with isolated boulders and numerous fishing gears scattered on the seafloor. A uncharted wreck is located in the northeast of the charted area. Further to the southwest the route continues on very soft CLAY with isolated boulders and a scarp caused by mass wasting with steep to very steep slopes (up to 31°). Near the southwestern boundary of the chart, outcropping and subcropping ROCK is located at the margin of a canyon (very steep slopes up to 70°) and until depth exceeds 1500 m.

GENERAL NOTES:

Survey Vessel :	MV Fugro Gauss
Navigation Systems :	Seapath 330+
Underwater Pos. Systems :	Kongsberg HiPap 351
Motion Sensor :	Seapath 330+ incl. MRU 5+
Bathymetry :	Kongsberg EM 122 / EM 712
Seabed Feature / SBP :	EdgeTech 4200 / Knudsen 3260
Magnetometer :	G-882 AR4

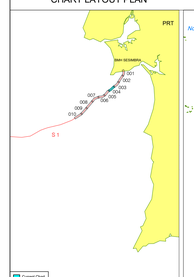
Descriptive Terms and Definitions:
The criteria used for interpretation and descriptions are presented in the Survey Report.

Bathymetry & Tide:
Depths in metres, reduced to Lowest Astronomical Tide (LAT).

GEODETIC PARAMETERS:

Projection:	Mercator	Longitude of Origin :	25° W
Datum:	WGS84	Standard Parallel :	25° N
Semi-Major Axis:	6 378 137.000 m	False Easting :	0 m
Inverse Flattening (1/f):	298.257 223 563 (Up to IRD 1/f=298.257 224)	False Northing :	1 000 000 m
		Scale Factor :	1

CHART LAYOUT PLAN



ROUTE OVERVIEW PLAN

Survey Date: December 2019

Scale : NATURAL SCALE 1 : 10 000 AT 25°N

0 200 400 600 800 1000m

Scale 8664.820837 at mid-latitude of chart

Contractor :

ALCATEL SUBMARINE NETWORKS

Surveyor :

Fugro Germany Marine GmbH

FGMG No.: 210-19-675

Project Name:

EQUIANO

Cable Route Survey

Document Title:

SEGMENT 1
BMH Sesimbra to BU MAD

ALIGNMENT CHART NO. 004 OF 010
(KP 16.481 to KP 23.110)

Rev	Date	Prepared by	Checked by	Approved by
2.0	06.03.2020	RMJ / IE	KS	BW
1.0	07.02.2020	RMJ / IE	KS	BW
0.0	20.12.2019	AB	OV	RY

REVISION 2

ROUTE BASED UPON: EQUIANO_S1_BMH SESIMBRA TO BU MAD_PSR12_14-JAN-20.xls

File Name: EQU_S1_AS-004_10k