



Notification to conduct a Cable Route Survey

2Africa Subsea Cable System | Seychelles

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To

SMSA (SEYCHELLES MARITIME SAFETY AUTHORITY)
Ministry of Tourism, Civil Aviation, Ports and Marine

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1. Introduction

The 2Africa cable system is a planned subsea telecommunications network with a design span over 30,000km along the east and west African land mass. Originating in Egypt (East) and UK (West), and terminating in South Africa, the network will link several West and East African countries along the route.

Alcatel Submarine Networks (ASN), a company headquartered in Paris, France, with offices in London, England, will build and install the 2Africa subsea cable system. ASN has in turn contracted Fugro Germany Marine GmbH (FGMG) to conduct a cable route survey for the subsea cable system, which started in April 2020.

1.1 Project Overview

Figure 1.1 provides a project overview including the landing sites of the 2Africa subsea cable system based on the by ASN supplied RPL.

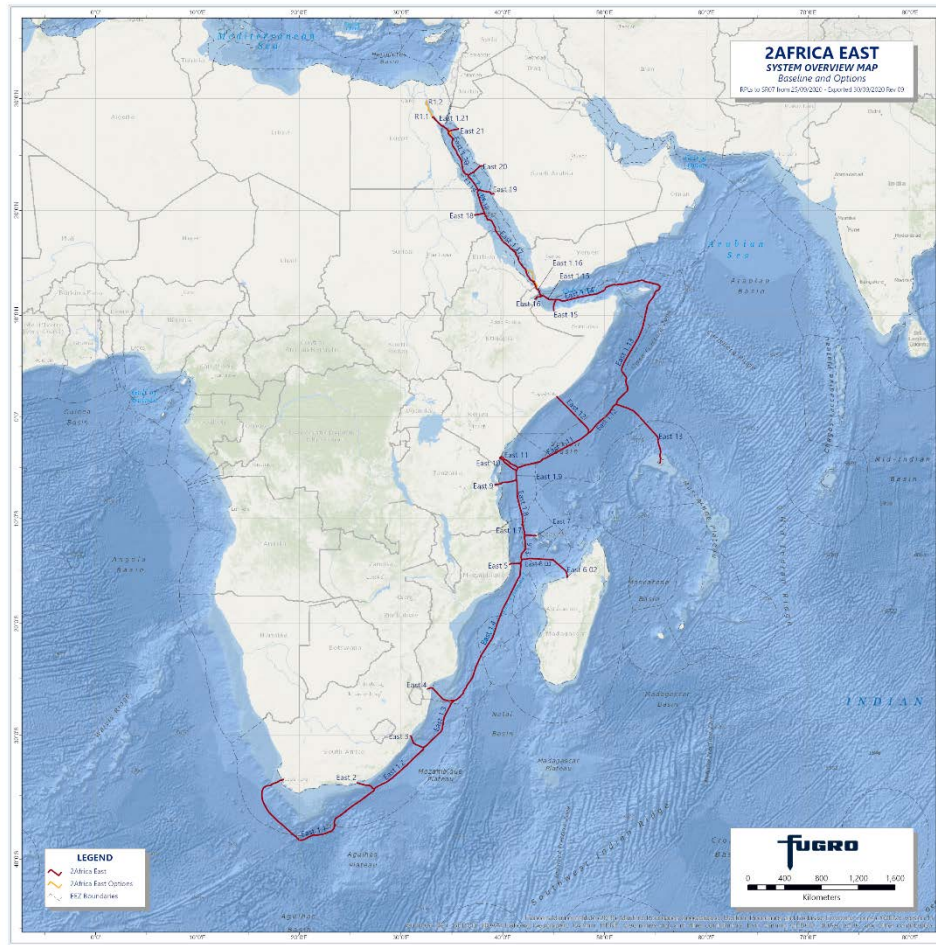


Figure 1.1: 2Africa East subsea cable system overview.

1.2 Locations of the Survey

Within this section we will provide a detailed overview of the planned survey work for the potential landing of the 2Africa Subsea Cable System in the Seychelles.

1.2.1 Segment E13 landing in Machabee

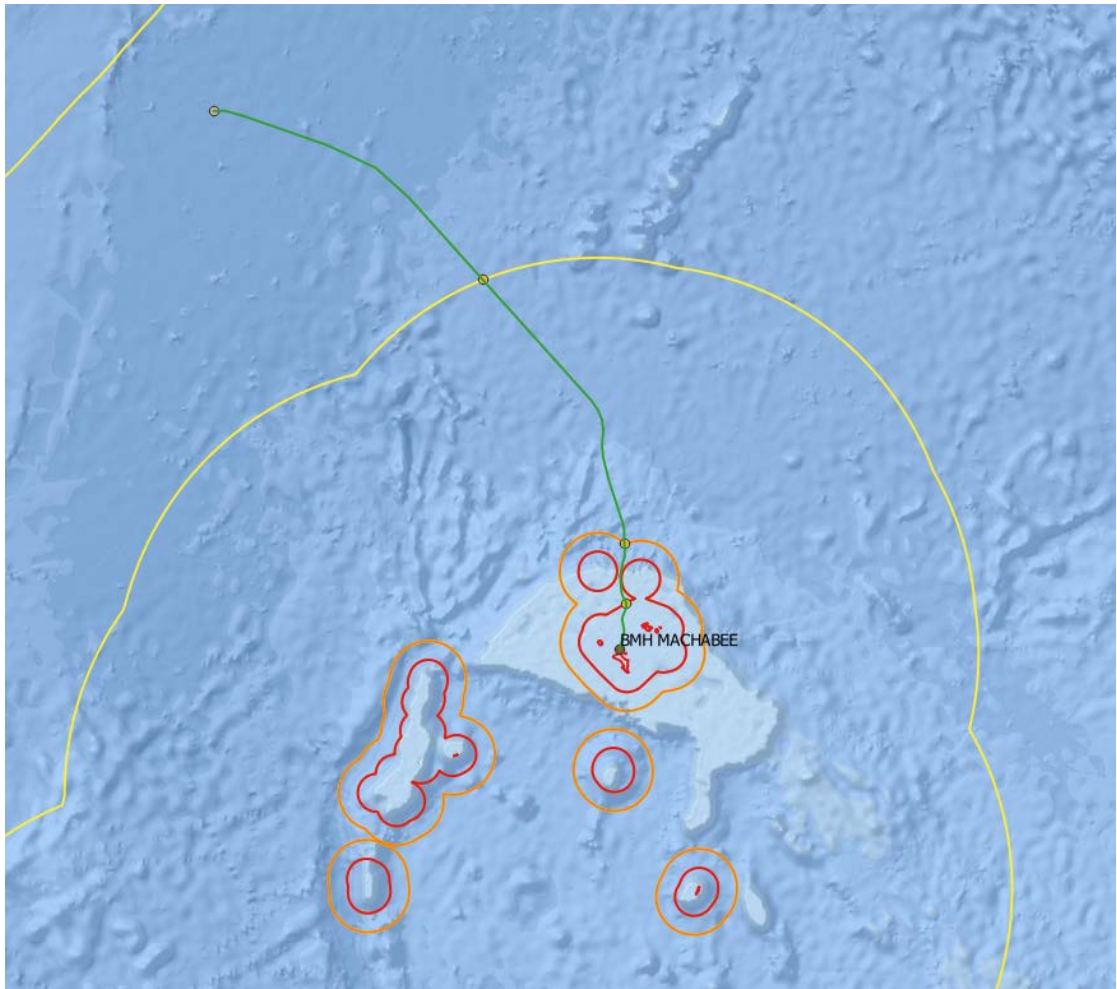


Figure 1-2: 2Africa Overview of segment E13 route towards landing point in Machabee.

The survey within Seychelles waters has 5 components. Below is a table of the starting and stopping points of each component of the survey:

Table 1.1: Overview Survey Components branch E13 landing in Machabee (Positions - WGS84)

Phase	Starting Point	Stopping Point	Starting Latitude	Starting Longitude	Stopping Latitude	Stopping Longitude
Topographic Survey	BMH	0m WD LAT	04 33,8830S	055 26,8340E	04 33,8830S	055 26,8340E
Diver Swim Survey	0m WD LAT	3m WD	04 33,8830S	055 26,8340E	04 33,7720S	055 26,8250E
Inshore Survey	3m WD LAT	15m WD LAT	04 33,7720S	055 26,8250E	04 33,5760S	055 26,8093E
Shallow Water Survey	15m WD	1500m WD	04 33,5760S	055 26,8093E	03 41,3010S	055 27,5870E
Deep Water Survey	1500m WD	Exit EEZ Seychelles	03 41,3010S	055 27,5870E	00 35,8552S	053 58,3790E

Each component will have different requirements/procedures, which are described within section 3.

1.2.2 Segment E13 landing in Carana (OPTIONAL)



Figure 1-3: 2Africa Overview of segment E13 route towards landing point in Carana.

The survey within Seychelles waters has 5 components. Below is a table of the starting and stopping points of each component of the survey:

Table 1.2: Overview Survey Components branch E13 landing in Carana (Positions - WGS84)

Phase	Starting Point	Stopping Point	Starting Latitude	Starting Longitude	Stopping Latitude	Stopping Longitude
Topographic Survey	BMH	0m WD LAT	04 33,9854S	055 27,1991E	04 33,9854S	055 27,1991E
Diver Swim Survey	0m WD LAT	3m WD	04 33,9854S	055 27,1991E	04 33.91100S	055 27.2380E
Inshore Survey	3m WD LAT	15m WD LAT	04 33.91100S	055 27.2380E	04 33,7635S	055 27,3152E
Shallow Water Survey	15m WD	1500m WD	04 33,7635S	055 27,3152E	03 41.3010S	055 27.5870E
Deep Water Survey	1500m WD	Exit EEZ Seychelles	03 41.3010S	055 27.5870E	00 35,8552S	053 58,3790E

Each component will have different requirements/procedures, which are described within section 3.

1.3 Purpose of the Survey

The principle objective of the Marine Cable Route Survey is to confirm or amend the preliminary route, as proposed by ASN, to ascertain a feasible and safe route for cable system design,

deployment, survivability, and subsequent maintenance. The results of the survey will also allow decisions to be made about cable armoring and burial. The survey will identify all route obstacles and cable hazards and provide detailed information to support cable route and installation engineering.

1.4 Timeline of the Survey

The survey start is scheduled to start around mid/end of January 2021 and will approximately take until mid of February 2021 for completion.

Under consideration of the survey locations and of the time of the year the survey operations are planned to be conducted, the potential impact of severe weather delaying the survey operations is relatively low. Nevertheless, it would be highly appreciated if some contingency in terms of validity for the permit could be considered. The detailed schedule for the survey work can be found within Appendix E .

2. Anticipated Vessels in the Area

The MV Fugro Gauss will perform the survey work until 15m of water depth. The Alumaster will be deployed as a survey launch from the MV Fugro Gauss respectively and cover the inshore survey towards the beach landing. All vessel specification sheets can be found within Appendix C.

2.1 MV Fugro Gauss

Table 2.1: Fugro Gauss Details



Contact	Details
Name of vessel	MV Fugro Gauss
Nationality	Gibraltar
IMO Nr.	7824883
MMSI Nr.	236403000
Call sign	ZDIA4
Equipment	See Appendix D
Owner	Fugro

2.2 Fugro Alumaster

Table 2.2: Fugro Alumaster Details



Contact	Details
Name of vessel	Fugro Alumaster
Nationality	n/a
IMO Nr.	n/a
MMSI Nr.	211793210
Call sign	DH3054
Equipment	See Appendix D
Owner	Fugro

3. Project Overview

In the following sections each component of the survey will be described in some more detail including the equipment to be used. All detailed charts can be found within Appendix B and detailed equipment specifications can be found within Appendix D.

3.1 Topographic Land Survey

Table 3.1: Overview Topographic Land Survey

Item	Description
Scope	BHM/HDD location until 0m WD LAT, 250m wide survey corridor
Methodology	<p>The land/topographic survey will be located at Machabee. Every 25m bar probing until a maximum depth of 3m will be performed. During this process no soil samples will be recovered or collected, as only the top soil type will be described and documented.</p> <p>A Topographic Laser Scanner in combination with RTK positioning will be used to digitalize the landing site area.</p> <p>The survey boundaries will extend 125 meters to each side of the proposed cable route.</p> <p>Technical specifications and pictures of the equipment to be used to conduct the survey are provided within Appendix D</p>
Equipment	RTK positioning, Topographic Laser Scanner, Camera and probing bar.



Figure 3-1: 2Africa overview of segment E13 landing point in Machabee.



Figure 3-2: 2Africa overview of segment E13 landing point in Carana (OPTIONAL)

3.2 Diver Swim Survey (to be confirmed)

Table 3.2: Overview Diver Swim Survey

Item	Description
Scope	0m WD until 3m WD LAT, 250m wide survey corridor
Methodology	<p>Divers will swim along survey lines, record video on all lines, and perform every 25m sampling (picture and sediment description) and bar probing until a maximum depth of 2m. The extents of the diver swim survey are outlined within Appendix B as well as within previous section 3.2. The samples will be immediately photographed, then returned to the seafloor, making this process non-invasive to the seafloor.</p> <p>Technical specifications and pictures of the equipment to be used to conduct the survey are provided within Appendix D.</p>
Equipment	Depth gauge measurements, video camera, and probing bar.

3.3 Inshore Survey

Table 3.3: Overview Inshore Survey

Item	Description
Scope	3m WD until 15m WD LAT, 500m wide survey corridor
Methodology	The inshore survey extends from the 3-meter water depth contour to the 15-meter water depth contour. The boundaries of the inshore survey extend 250 meters to each side of the

Item	Description
	<p>centreline of the proposed cable route. The extents of the inshore survey are outlined within Appendix B.</p> <p>The work to be performed for the inshore survey involves a small boat as the Alumaster and /or Fugro Surveyor 1 being launched from the mother vessels MV Fugro Gauss and/or MV Fugro Supporter performing day-time operations to survey the seafloor with MBES, SSS, and SBP.</p> <p>Furthermore, a Geometrics G-882 magnetometer shall be used to help locate and geo-reference any existing cables or pipelines that are within the survey corridor. It will not be used on most survey lines but instead used only when existing cables or pipelines are encountered. The magnetometer will be a standard commercial passive system, putting no energy into the water, and poses no significant threat to marine life. It will be shallow towed astern of the vessel, close to the surface of the water.</p> <p>The inshore survey requires use of a small clamshell grab sampler to take sediment samples approximately once every kilometer. Each sample takes only a small sample of the top sediment layer on the seafloor. The samples will be immediately photographed, then returned to the seafloor, making this process non-invasive to the seafloor.</p> <p>Technical specifications and pictures of the equipment to be used to conduct the survey are provided within Appendix D.</p>
Equipment	MBES, SSS, SBP, MAG, GS

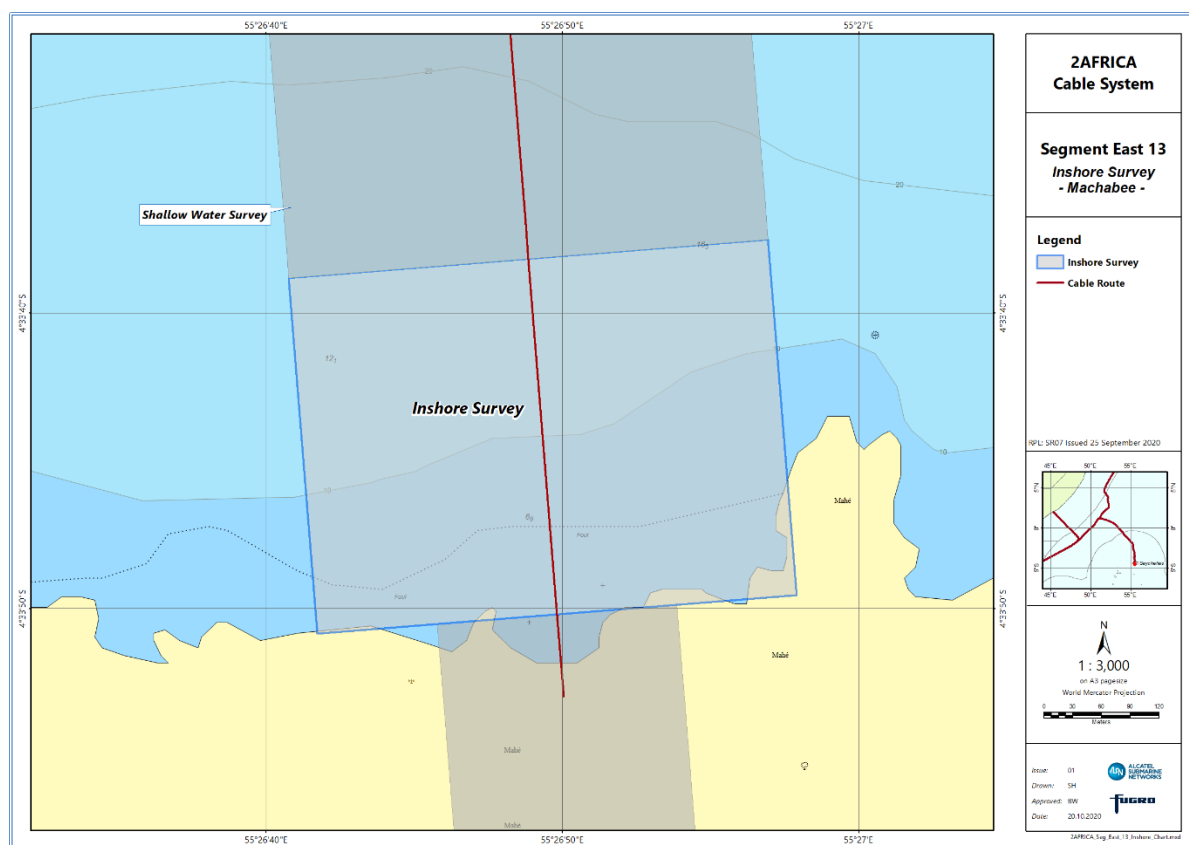


Figure 3-3: 2Africa overview of segment E13 Machabee inshore survey.

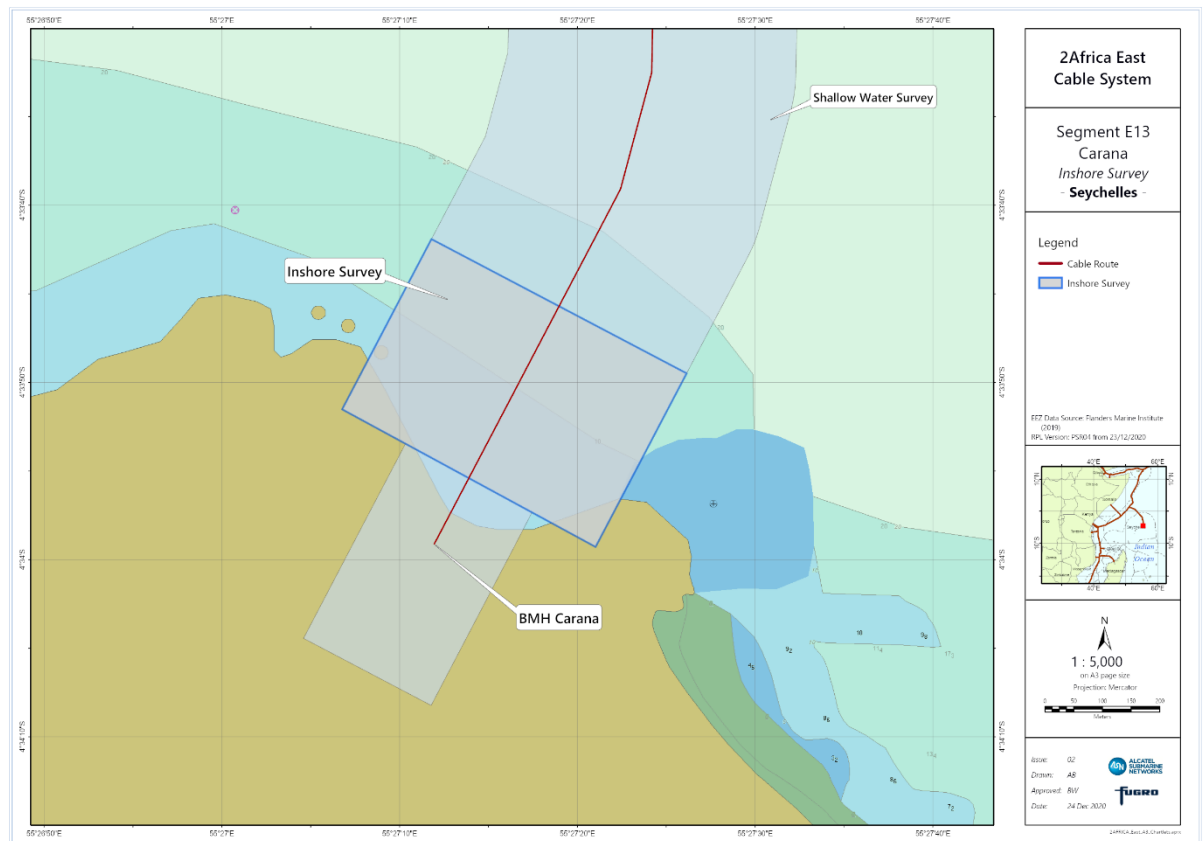


Figure 3-4: 2Africa overview of segment E13 Carana (OPTIONAL) inshore survey.

3.4 Shallow Water Survey

Table 3.4: Overview Shallow Water Survey

Item	Description
Scope	15m WD until 1000m WD, 500m wide survey corridor
Methodology	<p>The shallow water survey extends from the 15m WD until 1000m WD. The boundaries of the shallow water survey extend 250 meters to each side of the proposed cable routes are outlined within Appendix B.</p> <p>The work to be performed for the shallow water survey involves the MV Fugro Gauss, a foreign flagged vessel, performing 24 hour operations to ensotify the seafloor with MBES, SSS, and SBP.</p> <p>Furthermore, a magnetometer may be used to help locate and geo-reference any existing cables or pipelines that are within the survey corridor. It will not be used on most survey lines but instead used only when existing cables or pipelines are encountered. The magnetometer will be a passive system, putting no energy into the water. Likewise, it will be shallow towed from the back of the vessel, mitigating any risk of collision of the magnetometer, as it will be close to the surface of the water. The magnetometer that will be used for this survey is the Geometrics G-882.</p> <p>Also, the shallow water survey requires to use a gravity corer or grab samples (after gravity corer failure) to take sediment samples approximately every 10 kilometers. Each gravity core has a maximum length of 2 meters and a grab sample takes max. 250cm³ of the top sediment</p>

Item	Description
	<p>layer on the seafloor. The samples will be immediately photographed then returned to the seafloor, making this process non-invasive to the seafloor.</p> <p>Technical specifications and pictures of the equipment to be used to conduct the survey are provided within Appendix D</p>
Equipment	MBES, SSS, SBP, MAG, GS, GC

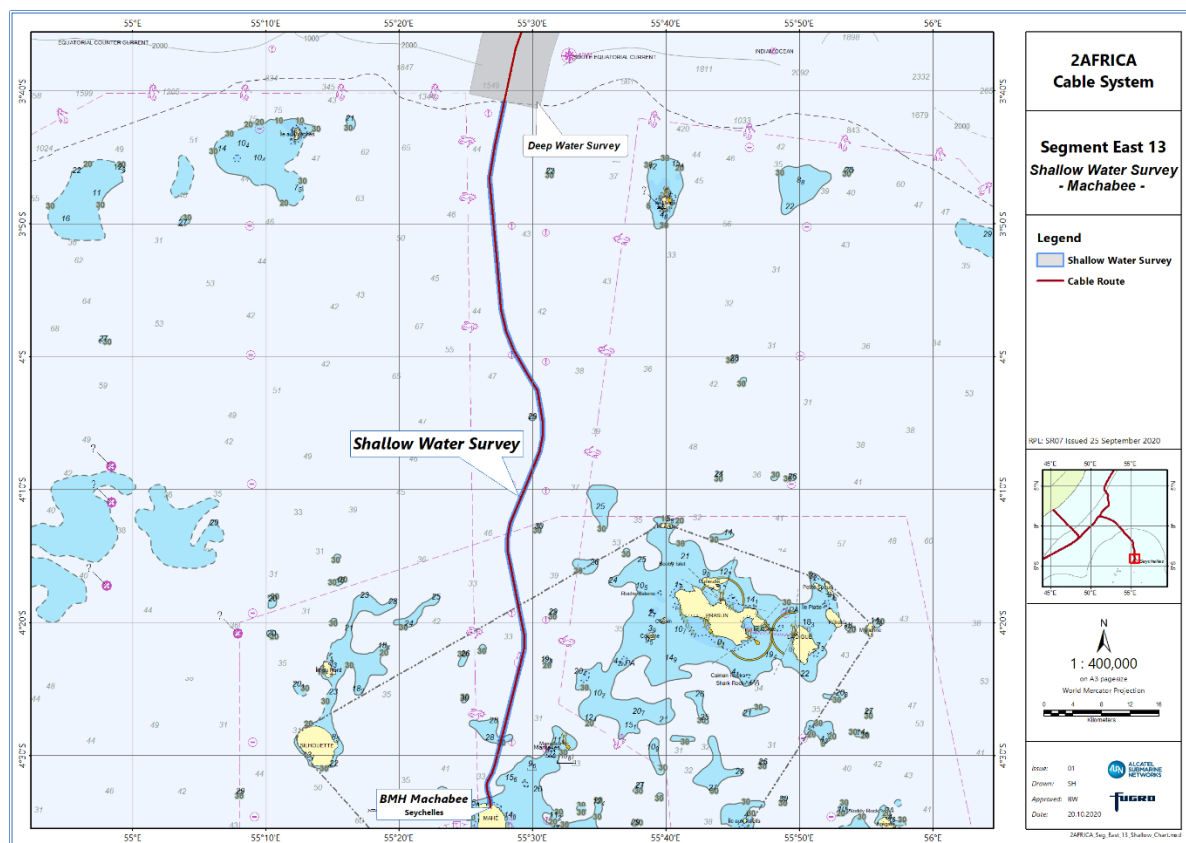


Figure 3-5: 2Africa overview of segment E13 Machabee shallow water survey.

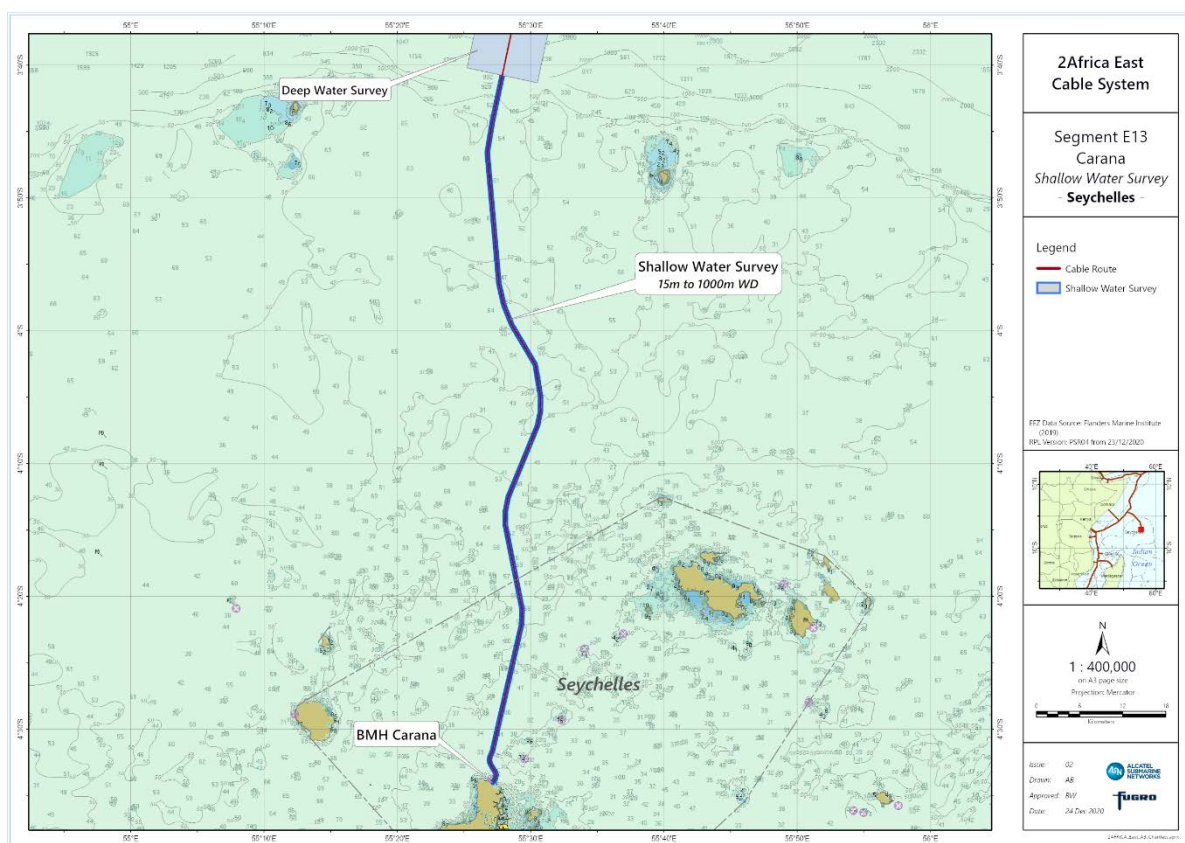


Figure 3-6: 2Africa overview of segment E13 Carana (OPTIONAL) shallow water survey.

3.5 Deep Water Survey

Table 3.5: Overview Shallow Water Survey

Item	Description
Scope	1,500m WD until Exit EEZ, 3 x WD wide survey corridor, or a maximum of 10km
Methodology	<p>The deep water survey extend from the 1,500m WD until exit Seychelles EEZ. The boundaries of the deep water survey extend to 3 times the water depth centered on the proposed cable routes outlined within Appendix B.</p> <p>Mapping:</p> <p>The work to be performed for the deep water survey involves the MV Fugro Gauss, both a foreign flagged vessel, performing 24 hour operations to map the seafloor with MBES only.</p> <p>General:</p> <p>Technical specifications and pictures of the equipment to be used to conduct the survey are provided within Appendix D</p>
Equipment	MBES

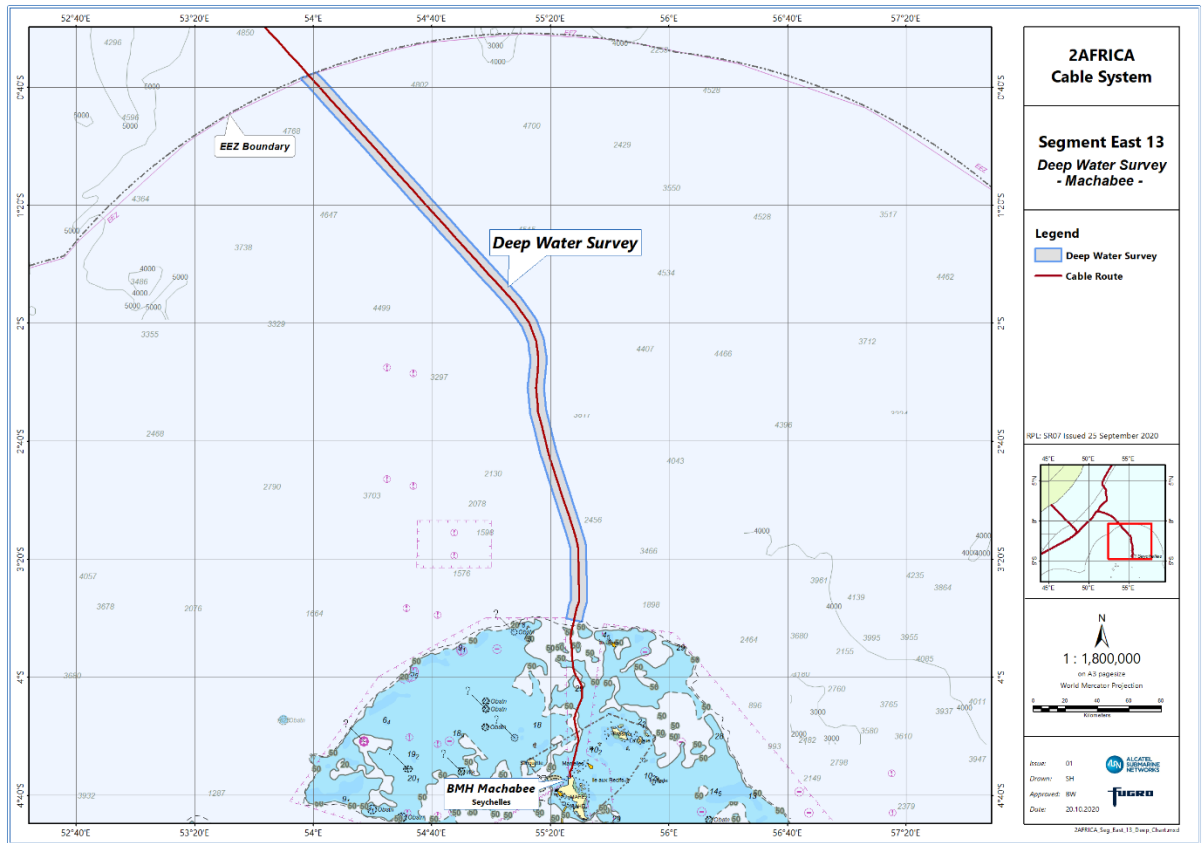


Figure 3-7: 2Africa overview of segment E13 Machabee deep water survey.

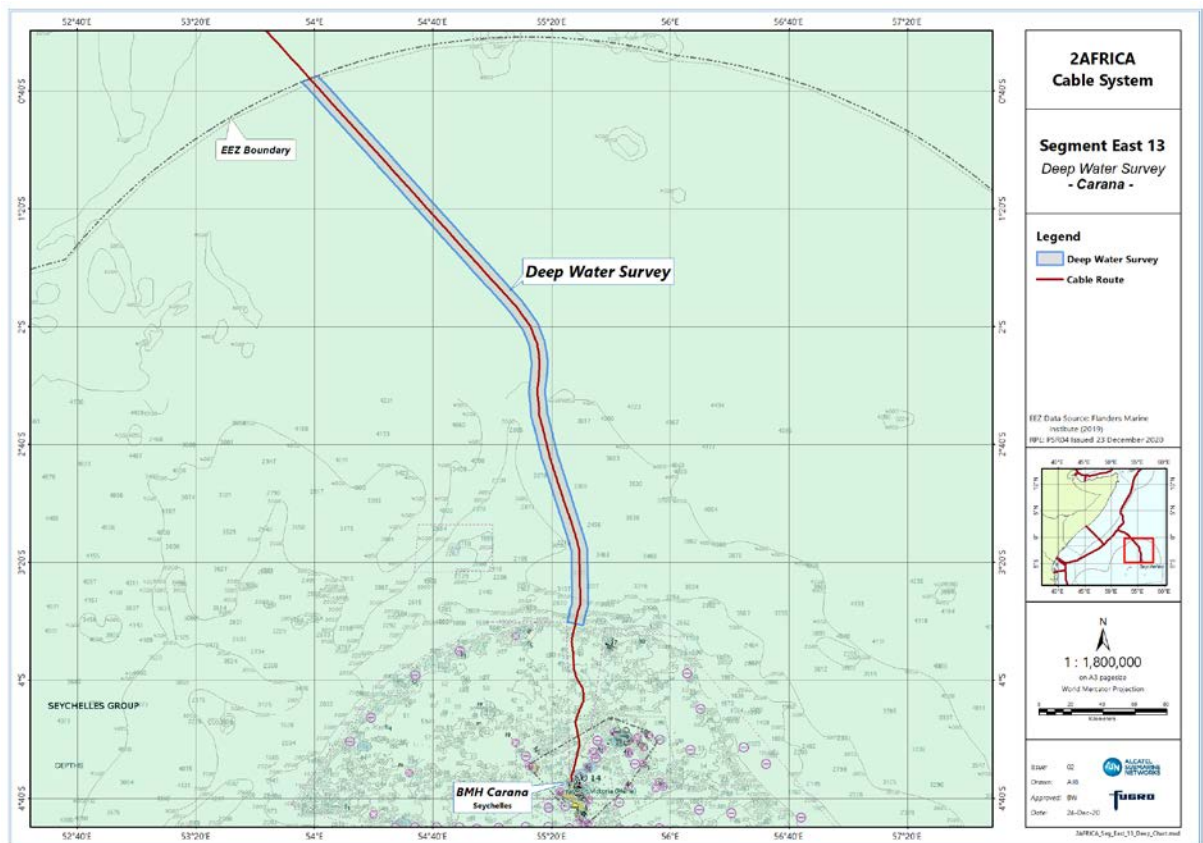


Figure 3-8: 2Africa overview of segment E13 Carana (OPTIONAL) deep water survey.

Appendix A

Route Position List

A.1 Route Position List

A.1.1 2AF_E13_BMH MACHABEE - BU SEZ_SR02_25-SEP-20

A.1.2 2AF_E13_BMH CARANA - BU SEZ_SR01_23-DEC-20

Appendix B

Overview Maps

B.1 Overview Maps

Appendix C

Vessel Specification Sheets

C.1 MV Fugro Gauss

C.2 Fugro Alumaster

Appendix D

Equipment Specification Sheets

- D.1 Equipment MV Fugro Gauss
- D.2 Equipment Fugro Alumaster

Appendix E

Time Schedule

E.1 Time Schedule

Table E.1: Schedule

Task Name	Duration	Start	Finish
E13_BMH MACHABEE - BU SEZ	16.1 dys	Tue 19 Jan '21	Thu 04 Feb '21
Deep Water Survey	2.4 dys	Tue 19 Jan '21	Fri 22 Jan '21
Clearance	1 dy	Fri 22 Jan '21	Sat 23 Jan '21
Topographic	1 dy	Sat 23 Jan '21	Sun 24 Jan '21
Inshore Survey	1.5 dys	Sun 24 Jan '21	Mon 25 Jan '21
Shallow Water Survey	4.7 dys	Mon 25 Jan '21	Sat 30 Jan '21
Coring (1 every 10km), in burial areas	0.5 dys	Sat 30 Jan '21	Sat 30 Jan '21
Transit to MB EEZ TZA/EEZ MOZ	5 dys	Sat 30 Jan '21	Thu 04 Feb '21