

## APPENDIX 1 BACKGROUND INFORMATION DOCUMENT

### 1. INTRODUCTION

Alcatel Submarine Networks (ASN) has been contracted to supply and install the proposed 2AFRICA (West) Cable System connecting Africa to Europe and the United Kingdom (Figure 1) with the South African landing proposed at Yzerfontein, Western Cape on the West Coast of South Africa. The cable is to be operated by MTN (Pty) Ltd (Hereafter referred to as “MTN”) as the South African landing partner. MTN aims to secure local permits to land the 2AFRICA (West) cable at Yzerfontein and ACER (Africa) Environmental Consultants (ACER) has been appointed to obtain the required environmental authorisation and permits for this landing.

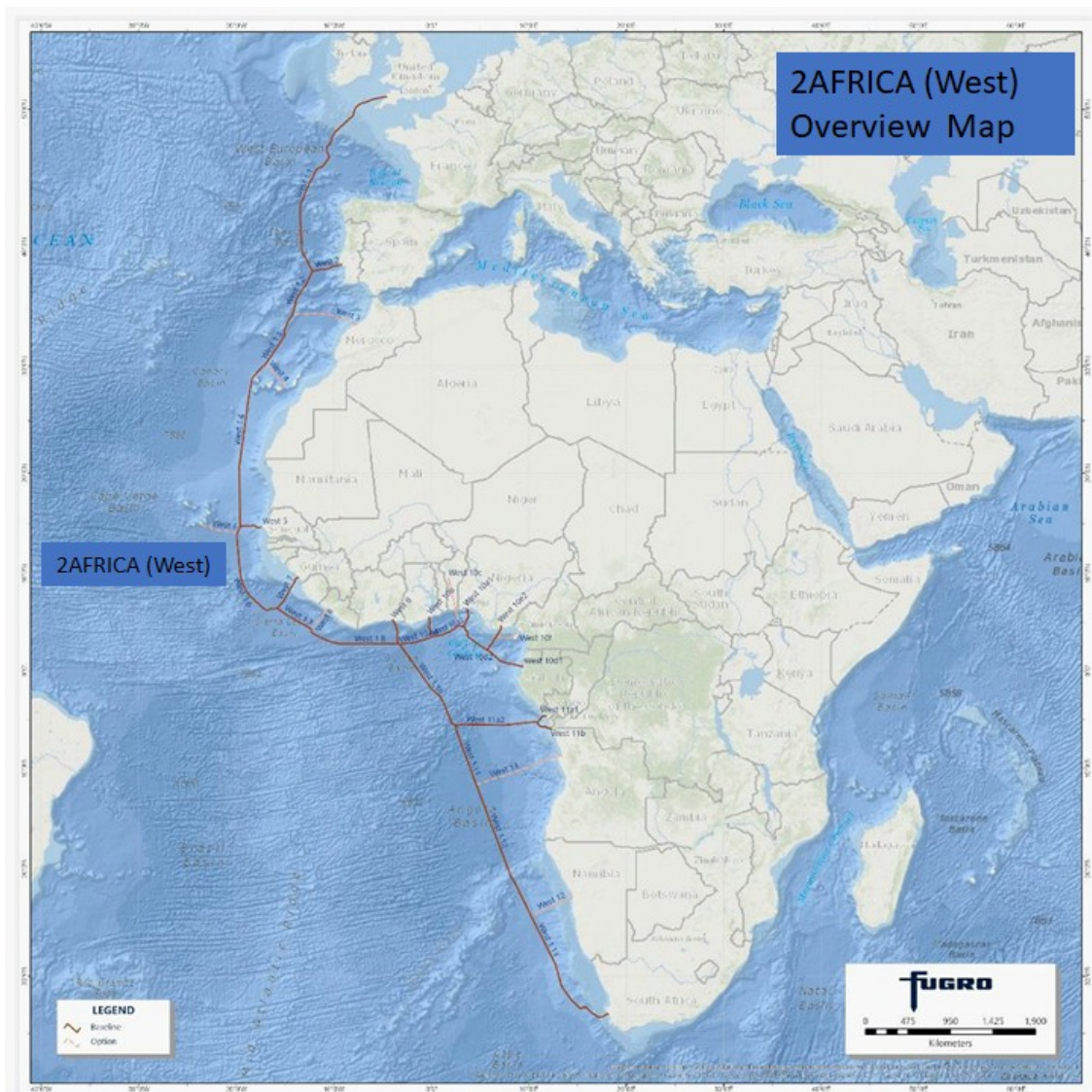


Figure 1 General overview of the proposed 2AFRICA (West) Cable System

## 1.1 Purpose of the 2AFRICA (West) Cable System

Submarine telecommunications cables are important for international telecommunications networks, transporting almost 100% of transoceanic internet traffic throughout the world ([www.iscpc.org](http://www.iscpc.org)). This is significant because it is widely recognised that access to affordable international bandwidth is key to economic development in every country.

Currently, Africa relies primarily on satellites to provide its international communications. Communication via submarine telecommunications cables generally allows for lower cost, better performance and greater capacity (throughput) than that available via satellite. Improvement in Africa's information technology infrastructure via telecommunications cables is expected to remove one of the current key inhibitors to development in Africa and support economic growth and opportunities on the continent.

With the landing of the 2AFRICA (West) Cable System, businesses and consumers will benefit from enhanced capacity and reliability for services such as telecommuting, HD TV broadcasting, Internet services, video conferencing, advanced multimedia and mobile video applications.

Broadband traffic is growing exponentially due to new applications like cloud computing and on-demand video. Furthermore, the demand for new connectivity reflects an end-user and business environment in which ultra-broadband access is essential for sustainable growth and development. In an African and local context, the cable will support the objectives set out by NEPAD and provide a means of fulfilling the South African Government's requirements in terms of digital television broadcasting.

## 2. PURPOSE OF THIS DOCUMENT

This Background Information Document (BID) provides information about the proposed 2AFRICA (West) Cable System and the Environmental Impact Assessment (EIA) required for environmental authorization to land the cable at Yzerfontein in the Western Cape, South Africa. The BID covers:

- The purpose of the proposed 2AFRICA (West) Cable System.
- Applicable environmental legislation.
- Project activities.
- Route alignment and landing site alternatives.
- Potential issues associated with the proposed cable system.
- The Environmental Impact Assessment process.
- Information on how to register as an Interested and/or Affected Party.

## 3. APPLICABLE ENVIRONMENTAL LEGISLATION

In terms of the requirements of the Environmental Impact Assessment (EIA) Regulations of 2014 (as amended), published under the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), the installation of the proposed 2AFRICA (West) Cable System and associated infrastructure triggers several listed activities in GN R. 325 and 327, as detailed in Table 1. This requires the undertaking of a full Scoping and EIA process.

### 3.1 Environmental Assessment Practitioner

In accordance with the EIA regulations, ACER was commissioned as the Environmental Assessment Practitioner (EAP) to undertake the EIA for the 2AFRICA (West) Cable System landing at Yzerfontein.

**Table 1 Listed Activities potentially triggered by the proposed 2AFRICA (West) Cable system landing at Yzerfontein.**

Activity	Reason
<b>Listing Notice 1 (No. R 327 of 2017)</b>	
<p><b>Activity 15</b> The development of structures in the coastal public property where the development footprint is bigger than 50 square metres, excluding -</p> <ul style="list-style-type: none"> <li>(i) [...];</li> <li>(ii) [...];</li> <li>(iii) [...]; or</li> <li>(iv) [...].</li> </ul>	<p>The project will entail the landing of a marine telecommunications cable at Yzerfontein Beach. This will require the digging of a trench along the beach (coastal public property) into the intertidal zone and the installation of the telecommunications cable and associated equipment.</p>
<p><b>Activity 17</b> Development-</p> <ul style="list-style-type: none"> <li>a. in the sea;</li> <li>b. [...];</li> <li>c. within the littoral active zone;</li> <li>d. in front of a development setback; or</li> <li>e. if no development setback exists, within a distance of 100 metres inland of the high- water mark of the sea or an estuary, whichever is the greater;</li> </ul> <p>in respect of-</p> <ul style="list-style-type: none"> <li>i. [...];</li> <li>ii. [...];</li> <li>iii. [...];</li> <li>iv. [...]; or</li> <li>v. infrastructure with a development footprint of 50 square metres or more -</li> </ul> <p>but excluding-</p> <ul style="list-style-type: none"> <li>(aa) [...];</li> <li>(bb) [...];</li> <li>(cc) [...]; or</li> <li>(dd) [...].</li> </ul>	<p>The project will entail the landing of a marine telecommunications cable at Yzerfontein Beach. This will require the digging of a trench along the beach into the intertidal zone and the installation of the telecommunications cable. buried to a depth of 1,500 m water depth to provide additional protection.</p>
<p><b>Activity 18</b> The planting of vegetation or placing of any material on dunes or exposed sand surfaces of more than 10 square metres, within the littoral active zone, for the purpose of preventing the free movement of sand, erosion or accretion, excluding where -</p> <ul style="list-style-type: none"> <li>i. the planting of vegetation or placement of material relates to restoration and maintenance of indigenous coastal vegetation undertaken in accordance with a maintenance management plan; or</li> </ul> <p>[...].</p>	<p>The project may entail the rehabilitation of the shoreline on Yzerfontein beach where construction activities associated with the laying of the underground telecommunications cable will disturb the shoreline. Although unlikely, given the 2AFRICA/West cable will feed into the existing West Africa Cable System (WACS) infrastructure on the beach, this listed activity has been included in the event that rehabilitation of the shoreline is required.</p>
<p><b>Activity 19A</b> The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from -</p> <ul style="list-style-type: none"> <li>(i) the seashore;</li> <li>(ii) the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is the greater; or</li> <li>(iii) the sea; —</li> </ul> <p>but excluding where such infilling, depositing, dredging, excavation, removal or moving -</p> <ul style="list-style-type: none"> <li>(a) [...];</li> <li>(b) [...];</li> <li>(c) [...];</li> <li>(d) [...]; or</li> </ul>	<p>The project will entail the excavation and deposition of more than 5 m<sup>3</sup> of material within a 100 m of the high-water mark of the sea when trenching for, and backfilling of, the marine telecommunications cable takes place.</p>

Activity	Reason
<b>Listing Notice 2 (No. R 325 of 2017)</b>	
<p><b>Activity 14</b> The development and related operation of-</p> <ul style="list-style-type: none"> <li>(i) [...];</li> <li>(ii) an anchored platform; or</li> <li>(iii) any other structure or infrastructure – on, below or along the seabed;</li> </ul> <p>excluding -</p> <ul style="list-style-type: none"> <li>(a) [...]; or</li> <li>(b) [...].</li> </ul>	<p>The 2AFRICA (West) Cable System will be placed on the seabed. In shallow waters (less than 1,500 m in depth) the cable will be buried under the seabed to provide extra protection.</p>
<p><b>Activity 26</b> Development--</p> <ul style="list-style-type: none"> <li>i. in the sea;</li> <li>ii. [...];</li> <li>iii. within the littoral active zone;</li> <li>iv. [...]; or</li> <li>v. if no development setback exists, within a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever is the greater;</li> </ul> <p>in respect of--</p> <ul style="list-style-type: none"> <li>a) [...];</li> <li>b) [...];</li> <li>c) inter- and sub-tidal structures for entrapment of sand;</li> <li>d) [...];</li> <li>e) [...];</li> <li>f) [...];</li> <li>g) [...]; or</li> <li>h) underwater channels;</li> </ul> <p>but excluding the development of structures within existing ports or harbours that will not increase the development footprint of the port or harbour.</p>	<p>Although unlikely to be triggered, this listed activity has been included as the trench for the marine cable may result in the entrapment of sand within the inter- and sub-tidal zones. In addition, the trench in which to bury the cable may be construed as an underwater channel.</p>

#### 4. PROJECT ACTIVITIES

##### 4.1 Submarine Cable Terminology

- BU – Branching Unit** is a piece of equipment used in subsea systems that allows the cable to be split to serve more than one destination.
- BMH – Beach Manhole** is a concrete utility vault where the marine portion of the cable is connected to the terrestrial portion. This is situated at the shoreline above the high-water mark. This is mostly buried with an access port at the ground surface.
- CLS – Cable Landing Station** is a building that functions as a control center for the cable system and where the submarine system connects to the domestic telecoms network.

##### 4.2 Description

The 2AFRICA (West) Cable System will enter South African territorial waters approximately 22 km (12 Nm) from the seashore. The exact position of the final section of the cable will be identified based on a combination of engineering, environmental and economic factors and will require

offshore and nearshore surveying of the seabed; however, the general alignment for this landing enables the cable to make landfall at the existing submarine cable WACS landing point and will take into consideration existing cable systems within the area.

South Africa will be the southern-most point of the cable system (end station). The final route of the marine portion of the cable will be identified based on a combination of engineering, environmental and economic factors; however, the general alignment of the 2AFRICA (West) cable will follow the WACS cable alignment.

It is important to note that if the preferred landing alternative is selected the 2AFRICA (West) cable will not require the construction of a Beach Man Hole (BMH) or Cable Landing Station (CLS) as the current WACS BMH and CLS operated by Telkom SA SOC Limited (Telkom) will be used by MTN. Therefore, the only activities to be undertaken during the installation and operation of the 2AFRICA (West) Cable System are the following:

- ❑ Laying of the cable and associated activities in the offshore environment including cable burial to a water depth of 1,500 m.
- ❑ In shallower waters where hard substrates are encountered and cable burial is not possible, the cable will be anchored to the seabed to prevent cable movement.
- ❑ Excavations within the intertidal zone to bury the cable before being anchored into the existing WACS BMH at the Yzerfontein Main Beach.
- ❑ Installation of the onshore cable section between the BMH and the CLS site outside Yzerfontein. Existing sleeves will be used to run the cable from the beach to the CLS, i.e. no construction will be required for the onshore cable alignment.

### **4.3 Project Phases**

The project phases are Pre-installation, Installation, Operation and Decommissioning.

#### **4.3.1 Pre-installation**

A detailed survey of the sea bottom and geology will be undertaken to inform the proposed cable alignment. Also, a survey will be conducted at the landing site to determine the final alignment of the cable at the shore crossing to access the proposed BMH site at Yzerfontein.

Route Clearance (RC) and Pre-Lay Grapnel Run (PLGR) operations will be conducted prior to the laying and burial operations along those sections of the route where burial is to be performed to ensure that, as far as practically possible, the burial operation will not be hindered or the cable and burial equipment damaged.

A PLGR is required for all areas with planned burial to 1,000 – 1,500 m water depth prior to cable installation. This process will remove all debris on the seabed surface (for example, old fishing nets, ropes/wires and anchor chains) that may obstruct the ploughing process. The PLGR vessel will operate as close to shore as possible and out to sea to the extent of the plough burial depth. Divers will remove debris near shore or avoid debris by doing minor adjustments to the cable alignment in the near shore environment.

RC along the proposed cable route will be performed if necessary. Both the RC and PLGR operations will be performed prior to the main cable lay operation. The PLGR operation will be to industry standards employing towed grapnels; the type of grapnel being determined by the nature of the seabed. Any debris recovered during these operations will be discharged ashore on completion of the operations and disposed at a waste facility licensed to receive the waste.

### **4.3.2 Installation**

The 2AFRICA (West) Cable System, comprising a marine fibre optic cable, will be installed using a purpose-built cable ship (Figure 2) fully equipped with all the necessary equipment, tools and facilities to safely handle and install, join, test and power the submerged plant including simultaneous lay and plough burial. The vessel will have sufficient power and dynamic positioning capability to carry out the installation in the expected weather and current conditions.

During cable laying, an automatic log of all critical operational parameters will be kept including navigational data, speed, tension, slack, cable counter and plough. The burial technique used depends on the seabed conditions and other site-specific factors. At the shore crossing, a narrow trench to the BMH will be dug to bury the cable. Where necessary, the cable will be placed in a conduit or articulated pipes to protect it from external damage that may be caused by abrasion or other physical contact.



**Figure 2** Typical Cable Laying Ship

### **4.3.3 Operation**

Once installed and operational, the cable will not require routine maintenance. If the cable is damaged or needs repair, the damaged portion of the cable can be retrieved and repaired or replaced.

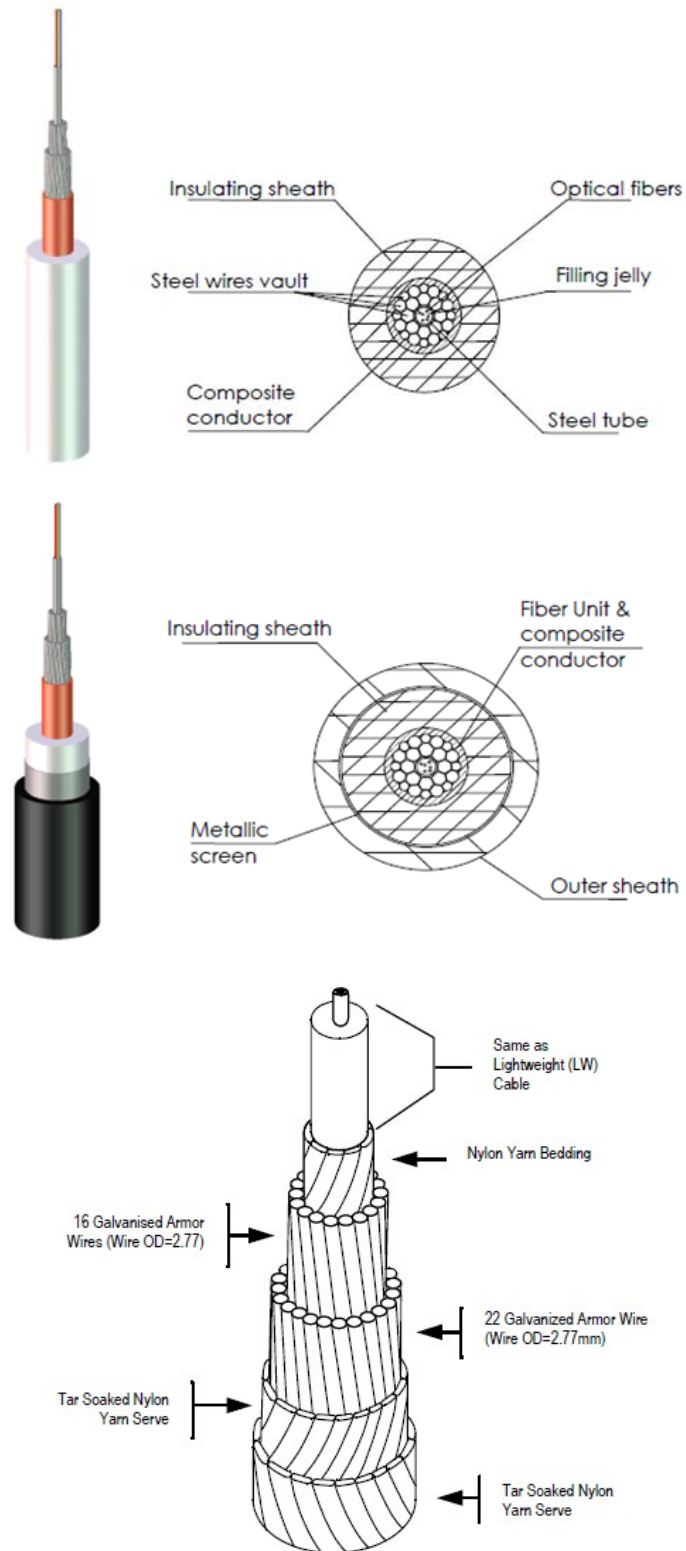
### **4.3.4 Decommissioning**

At the end of the cable lifetime (approximately 25 years) it is likely that the cable will remain in place, or in some places it may be removed. The terrestrial components, such as the BMH and CLS may be reused for a new submarine cable or an alternate purpose.

## **4.4 Cable Composition and Properties**

At each landing country associated with the 2AFRICA (West) Cable System, the proposed fibre optic cable will transit coastal waters and be brought on shore using industry-standard installation methods. Submarine cables, such as the one proposed for the 2AFRICA (West) Cable System, have an inner core structure that supports the optic fibres used to transport the communication signals via light (Figures 3). This cable core will be encased with steel-wire armour protection in areas where the risks of physical damage are highest (for example, from anchors and/or trawler nets). The cable will not contain any insulating oil or other hazardous substances. The cable, including armouring, resembles a garden hose with an approximate diameter of 35 mm

(unarmoured, the cable diameter is approximately 25 mm). Since the light signal loses strength en-route along the fibres, undersea repeaters (amplifiers) are installed along the cable to boost the signal. These repeaters are located many kilometres offshore.



**Figure 3** Schematic diagram of a typical lightweight fibre-optic telecommunications cable for deep water showing an unprotected cable (top) and a protected cable (middle) and an armoured cable used in shallow waters (bottom)

## 5. ROUTE ALIGNMENT AND LANDING SITE ALTERNATIVES

### 5.1 Alignment of the 2AFRICA (West) Cable System Offshore

The cable route runs along the West Coast of Africa in deep water (generally parallel to the coastline) and approaches South African coastal waters from the north (i.e. from Namibian waters). The proposed 2AFRICA (West) Cable System closely follows the alignment of the WACS submarine cable system which also lands at Yzerfontein.

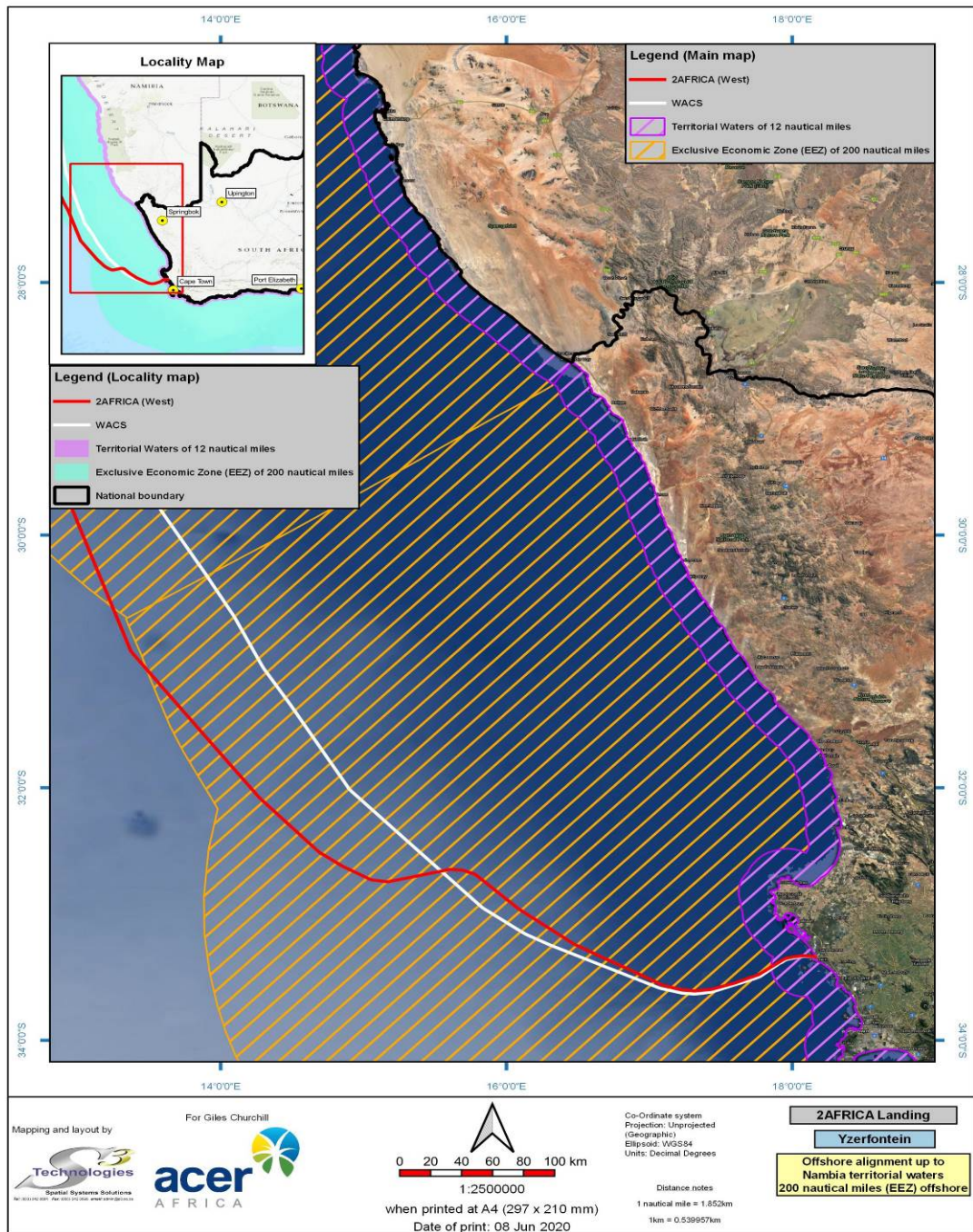
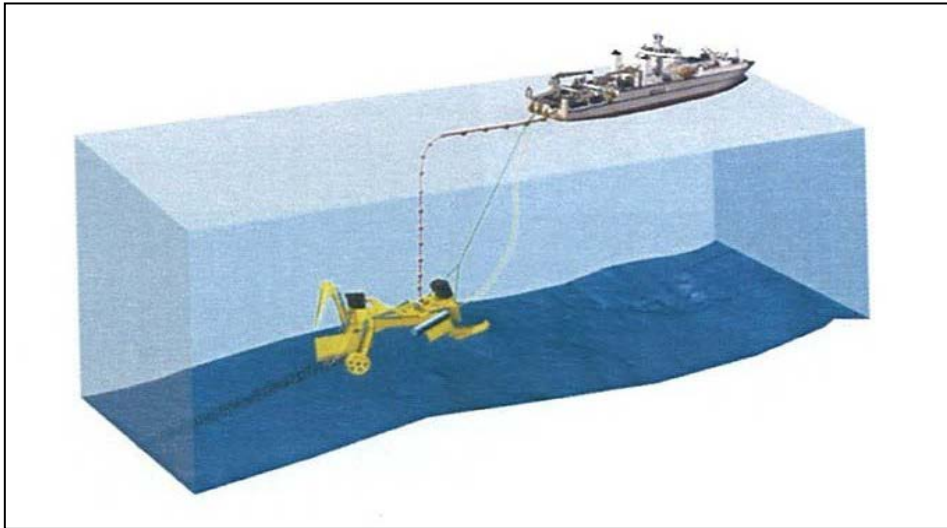


Figure 4 Alignment of the 2AFRICA/West Cable System in relation to existing marine telecommunications cables which land at Yzerfontein



As the cable route changes direction to approach the coastline of Yzerfontein, the cable will be buried beneath the sandy seabed of the shallower marine waters. This is typically achieved with the use of a specially designed plough which is submerged onto the seabed by the cable laying ship. The cable is then fed from the ship to the plough which effectively buries the cable to a depth of approximately 1 - 1.5 metres. This burial is intended to provide protection to the cable from the hazards posed by ships' anchors, fishing activities and the like (Figure 5).



**Figure 5 Cable-laying ship feeding the cable to the plough on the seabed**

The footprint of the submarine cable plough is limited to where the four plough skids are in contact with seabed surface and the ploughshare, which is approximately 0.2 m wide. The seabed will be left nearly undisturbed after ploughing. Only temporary track marks from skids and plough share will remain visible just after installation but will over time disappear due to seabed currents and wave action. Ploughing is a well proven industry standard cable burial process which will keep the environmental impact to an absolute minimum compared to other burial techniques available for cable protection, like water jetting, airlifting, sediment dredging, rock cutting and rock placement.

Once waters are too shallow for vessel access, the remainder of the cable is manually guided to shore with the use of buoys, small boats and divers (Figure 6). The cable is then pulled via a winch into the existing WACS BMH at Yzerfontein and secured. The divers then re-enter the shallow waters with a handheld water jetting machine, which facilitates burial of the cable within the surf zone.



**Figure 6 Example of a cable being guided to shore by divers and small boats**

The final alignment will be selected taking into consideration any existing cables and their buffers, potential trawling grounds, reefs, and offshore exploration and mineral concessions to mitigate potential effects on other users of the seabed.

## 5.2 Alignment of the 2AFRICA (West) Cable System Onshore and Landing Alternatives at Yzerfontein.

From the surf zone, the cable will be buried along a route up the beach (by manual labour or excavating machinery) until it reaches the existing WACS conduit pipe which terminates on the main Beach in Yzerfontein (a Sea Earth Plate will also be installed on the beach adjacent to the cable). Once installed in the WACS pipe conduit on the beach no further disturbance to the terrestrial environment is anticipated as the 2AFRICA (West) cable will be accommodated within the existing WACS BMH (Figure 7) and sleeves along the front haul alignment to the WACS CLS.



**Figure 7** Location of the WACS BMH at Yzerfontein Main Beach

### Preferred Alternative (Alternative 1)

The preferred landing point (Alternative 1) is located at the northern section of the Yzerfontein Main Beach directly north of the public parking area. The existing pipe conduit for the WACS cable system is buried underneath the concrete access path to the beach and extends onto the beach (Figure 8). The proposed landing of the 2AFRICA cable will tie into this pipe conduit on the beach.

GPS Co-ordinates of the Alternative 1 infrastructure at Yzerfontein		
Location	Latitude	Longitude
BMH	S 33°20'23.91	E 18° 9'41.12
Landing Point	S 33°20'23.54	E 18° 9'38.35
WACS Conduit Opening on Beach	S 33°20'23.64	E 18° 9'38.94



**Figure 8 Alternative 1 - preferred landing site and position of the WACS Cable System Beach Man Hole (Source Google Earth 2020)**

### Alternative 2

The second landing site alternative is located approximately 40 m north of the WACS landing point and the WACS BMH to the north of Yzerfontein Main Beach (Figure 9). The proposed landing point can be accessed along Park Street which enters the municipal caravan park in which the BMH would be located. The proposed landing point is directly in front of the protected dune cordon to the north of Yzerfontein Main Beach, i.e. the 2AFRICA cable would have to be installed through or under this dune to reach the proposed BMH site.

GPS Co-ordinates of the Alternative 2 infrastructure at Yzerfontein		
Location	Latitude	Longitude
BMH	S 33°20'22.82	E 18° 9'41.86
Landing Point	S 33°20'21.87	E 18° 9'38.09

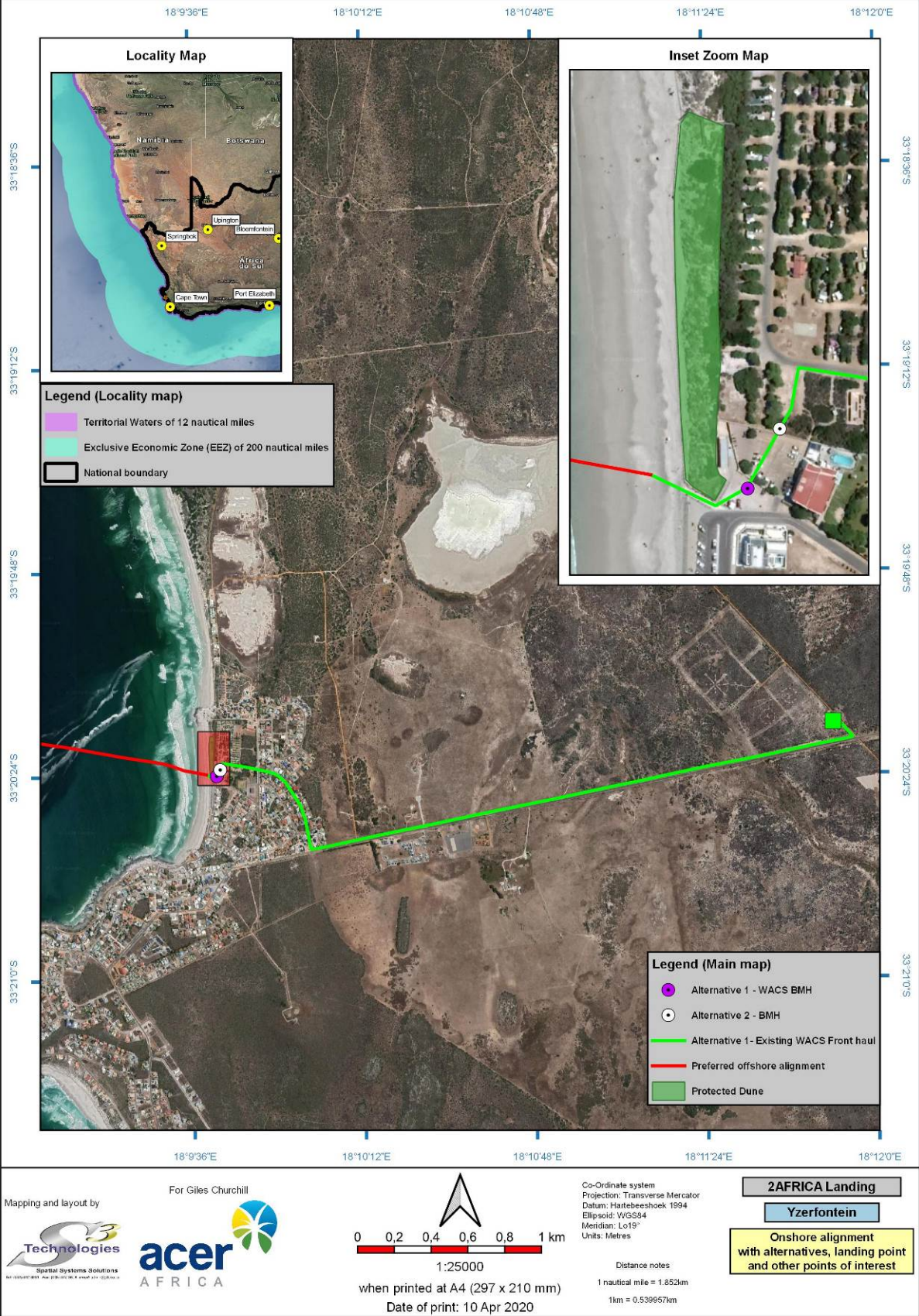


Figure 9 Location of the WACS BMH and Alternative 2 BMH at Yzerfontein Main Beach

## 6. POTENTIAL ISSUES ASSOCIATED WITH THE PROPOSED 2AFRICA (WEST) CABLE LANDING AT YZERFONTEIN.

Outlined below is a preliminary list of the potential environmental issues associated with a cable landing at Yzerfontein on the Western Cape Coast:

- ❑ *Effect on marine seabed environments.* Laying of the cable in deep marine waters, including the ploughing and burial of the cable in shallower waters, could disturb and/or degrade sensitive marine environments off the Western Cape Coast.
- ❑ *Effect on marine ecology and fisheries.* The cable has the potential to cause disruption to marine ecology, and commercial and recreational fisheries during its installation and operation.
- ❑ *Effects on offshore Oil and Gas (O&G) Concession Holders.* The cable has the potential to cause disruption to O&G exploration and mining and has the potential to impact on subsea infrastructure associated with the O&G industry. Approximately 98% of South Africa's EEZ is subject to a right or lease for offshore Oil and Gas (O&G) exploration or production. To mitigate impacts on the offshore O&G industry, MTN will engage with concession holders and draw up Memoranda of Understanding (MoU) which clearly outline the roles and responsibilities of both parties in terms of financial obligations, protection of subsea infrastructure, insurance, rights and obligations and principles of co-operation.
- ❑ *Effect on intertidal and beach ecology.* During construction, trenching of the cable may disturb or threaten the local fauna and flora within the beach and dune environment.
- ❑ *Effect on Cultural heritage Resources.* The proposed activity may impact on offshore and onshore cultural heritage resources along the proposed cable alignment.
- ❑ *Disturbance to the beach and dunes.* The beach will be disturbed, and coastal dunes could be disturbed during construction/installation activities.
- ❑ *Disturbance to residents and beach visitors during construction.* The beaches at Yzerfontein are public beaches used for bathing, surfing, shore-angling, etc. and are also lined with recreational and residential facilities. The installation of the cable in the nearshore environment is estimated to take two weeks to complete (landing and anchoring of the submarine cable) which will affect residents and visitors to the beach at the landing site.

As required in terms of NEMA, the cumulative impacts of the project will also be considered. Further to the above, additional issues may be identified during Scoping.

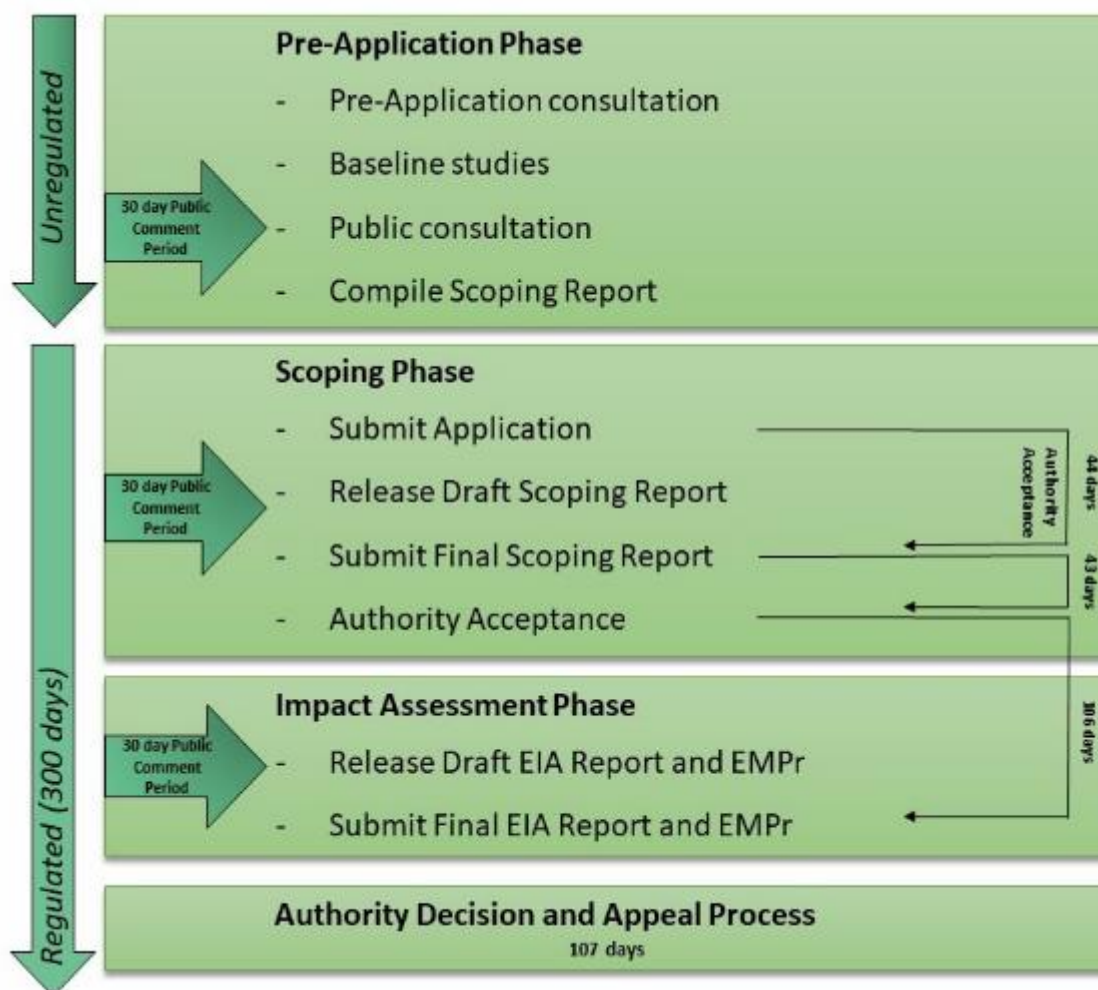
## 7. THE EIA PROCESS

The Environmental Impact Assessment Regulations, 2014 (as amended), apply to this project. Scoping and an Impact Assessment are required, which must be completed within 300 days of acceptance of the Application for Authorisation by the Department of Environment, Forestry and Fisheries (Figure 9).

### 7.1 Technical Activities

In support of the Environmental Impact Assessment, it is anticipated that the following specialist input will be required:

- ❑ Ecology (Vegetation) Assessment.
- ❑ Cultural Heritage Assessment (Onshore and Offshore).
- ❑ Fisheries and Marine Assessment.
- ❑ Beach and Dune Dynamics Assessment.
- ❑ Benthic Assessment.
- ❑ Wetland Assessment.



**Figure 9 Outline of the Environmental Impact Assessment process and legislated timeframes**

Findings will be used in the assessment of impacts and the identification of mitigation and management measures.

## 7.2 Public Participation

Public participation is an important component of the EIA process and aims to identify and proactively involve all parties that may have an interest in the project or be affected by it. This ensures that throughout the EIA process, the assessment is transparent, and it enables I&APs to comment on the project and/or raise concerns. This information is included in the Scoping and Environmental Impact Assessment Reports and is taken into consideration during the competent authority's review and evaluation of the application for environmental authorization.

## 8. REGISTRATION AS AN INTERESTED AND AFFECTED PARTY

Should you wish to learn more about the proposed 2AFRICA (West) Cable System and wish to register as an I&AP, please contact ACER as per the details provided below or complete and return the comment sheet provided herewith.

**ACER (Africa) Environmental Consultants**  
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**Please note that consistent with GNR 326, 42(a), 44(1) and 19(1)(a) (7 April 2017), all comments received will be captured in a Comments and Responses Report which will be made available to the competent authority and which will be placed in the public domain as part of the public review process of the EIA reports.**