

**Proclaimed Fishing Harbours – Work Package 3**

29-31 August Site Visit

**Coega Development Corporation**

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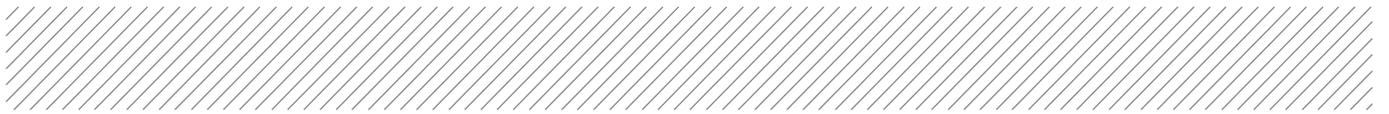
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# 1 Introduction

Further to receiving the Letter of Award for the Professional Consultancy Services for Coastal Engineering Infrastructure Activities – Proclaimed Fishing Harbours Western Cape (Work Package 3), Aurecon mobilised the project team on 18 August 2016 and commenced with the Inception Stage of the project. One of the critical elements was to identify and finalise the scope of work with a representative from Coega Development Company (CDC). To this effect, Aurecon undertook an initial site visit to the three small harbours, which form work package 3, to gain an understanding of the harbour infrastructure status quo and harbour officials' requirements/recommendations.

The site visit was conducted over three days from 29 to 31 August 2016 to enable the site team to spend a day on each site. Along with gaining an in-depth understanding of the harbours, the objective of the visit was to refine the study scope and identify the critical infrastructure components requiring urgent rehabilitation. At all three of the harbour sites, meetings and site walk-about were conducted with representatives from the harbour operational staff, as indicated further in this reports.

The site visits served as setting a baseline for the data gathering stage for the team and to build up a photographic record and reference system for the remainder of the project.

## 2 Site visit planning

### 2.1 Logistics

The availability of the CDC Project Manager, Mr Ulrich Pearce, the Harbour Masters from the sites and the site team served to set the site visit dates and travel plans.

The Aurecon project team visiting the sites consisted of the following members:

Werner Gous (Project Director) – only St Helena

James Wiley (Civil Engineer and site visit coordinator) – all 3 sites

Malan Schrecker (Marine Expert) – all 3 sites

The full site visit team and local representatives from the Department of Agriculture, Forestry and Fisheries (DAFF) are as listed in the respective site reports.

The chosen sequence for the site visits was:

Day 1: Travel from Aurecon Century City to St Helena Bay; Stay over in St Helena

Day 2: Travel from St Helena Bay to Laaiplek; Travel from Laaiplek to Lamberts Bay; Stay over at Lamberts Bay

Day3: Spend day at Lamberts Bay harbour and travel back to Aurecon Century City

The structure of this report also follows the above sequence and the respective site visit reports are contained in sections 3, 4 and 5.



## 2.2 Safety Planning

Site safety considerations were discussed prior to the visits with the following aspects forming part of the upfront discussions:

- 1) The chosen travel dates, routes and travel distances were discussed ahead of the trip and the above itinerary was agreed with the client as it also was the most effective in terms of seeing all sites and minimising unnecessary travel.
- 2) The possibility of travelling on gravel roads was discussed upfront and it was agreed that only where absolutely necessary, that gravel roads would be used. Extra care for driving on gravel was discussed.
- 3) The team agreed on the basic PPE for all Aurecon team members to be taken along and as a minimum the following was implemented:
  - Aurecon Reflective Vests
  - Safety shoes
  - Caps/hats for sunburn
  - Hard hats were taken along but after an evaluation of the site areas to be inspected these were only to be used where necessary.
- 4) The typical risks related to the environment of small craft fishing harbours were discussed and pointed out between team members as the following:
  - Quay wall edges and water areas
  - Slipways (noise, dust, mechanical equipment)
  - Potential unprotected services
- 5) At the offset of the site visits the necessary contact numbers with the respective Harbour Masters were to be shared between team members. Safety discussions with regard to PPE per site were to be noted as indicated in the site visit report.

## 3 St Helena Bay Harbour

### 3.1 Kick-off to Site Inspection

Official site inspection and walk through commenced at 10.25am on 29 August 2016 with the following persons in attendance:

- Werner Gous (Aurecon)
- Malan Schrecker (Aurecon)
- James Wiley (Aurecon)
- Ulrich Pearce (CDC)
- Mr Ndivhuwo Kwinda (Harbour Master / DAFF)
- Mr Angelo Vraagom
- Mr Jaques Rosant

It was discussed and decided that hi-vis vests and safety shoes would be sufficient with regards to PPE.

### 3.2 Harbour Layout

The below image serves to identify the major harbour infrastructure components investigated during the site visit.



Figure 1: Layout of St Helena Bay Harbour

### 3.3 Breakwater and Coastal Quay

#### 3.3.1 Breakwater

In general, the main breakwater is in good condition (including the concrete structural elements, concrete causeway/deck, concrete crest wall and the outer armour units). However, beyond the 'Coastal Quay' there is evidence that the concrete deck has deteriorated somewhat and may, at some stage, require remedial works – primarily patch repairs. This could be attributed to higher exposure of the deeper section to waves and potential overtopping.

It was brought to our attention that the electrical cable running along the length of the breakwater to the 'Coastal Quay' has been stolen and requires replacement.



Figure 2: St Helena Bay Harbour main breakwater (eastern face)



Figure 3: St Helena Bay Harbour main breakwater (western face)

### 3.3.2 Coastal Quay

The 'Coastal Quay' is in good condition with no immediate remedial works to the concrete elements required. However, the following was noted:

- Bollards – require general clean (sand blasting) and painting.
- Fenders – service all the tyre fenders, chain supports and fastenings.
- Potable water supply – extend the fresh water supply from the existing HDPE pipe to suitable points along the quay.

The possibility of extending the quay to accommodate larger and/or more vessels was raised by the harbour master and officials. If considered desirable, this possibility could be investigated.



Figure 4: Coastal quay along the breakwater

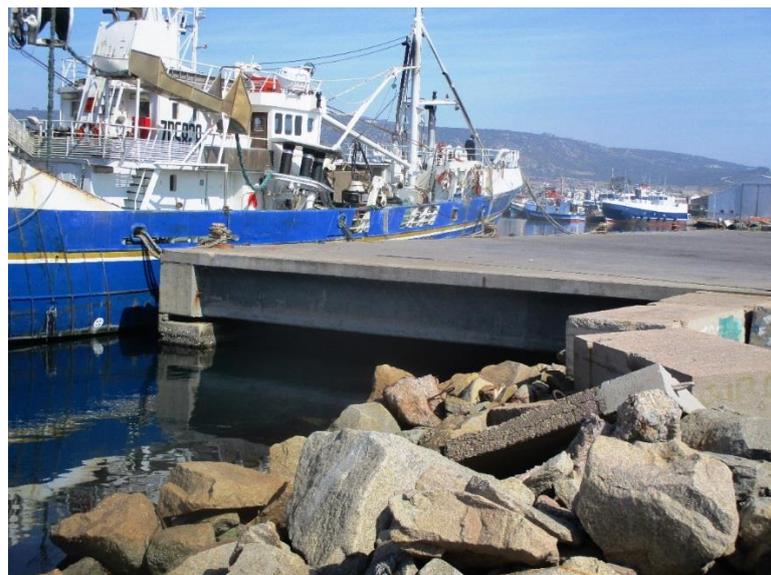


Figure 5: Coastal quay

## 3.4 Jetties and Quay Furniture

### 3.4.1 Jetty 1

The concrete jetty structure is generally in good condition.

The fendering system, comprising tyres, chain supports and fastening, requires a general service. Approximately 8 tyre fenders need to be replaced. The bollards along the jetty require cleaning and repainting.

There is no supply of potable water along the jetty and this has been identified as a potential future requirement.



Figure 6: Jetty 1

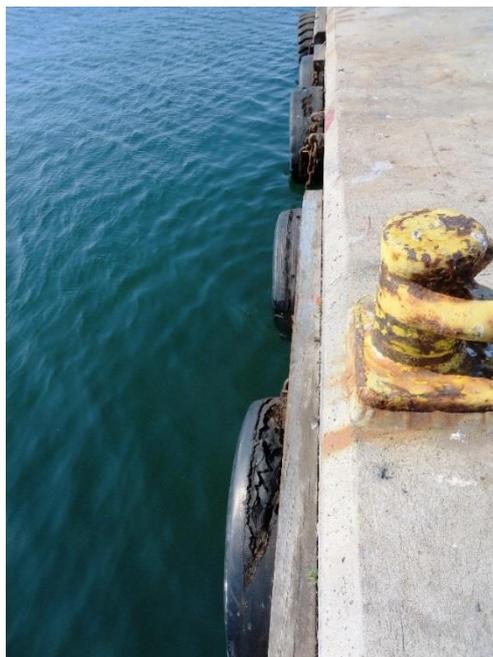


Figure 7: Damaged tyre fenders along Jetty 1

### 3.4.2 Jetty 2

The concrete jetty structure is generally in good condition. It was noted that at the head of the jetty, along the slipway face, the corner has been damaged, presumably by impact from vessels entering the slipway, and requires repair.

One fender is missing along the slipway face of the jetty whilst another tyre fender requires replacement on the south face. Apart from replacement of the missing and damaged fenders a general service of the tyre fenders, chain supports and fastenings is required. The bollards along the jetty require cleaning and repainting.

There is no supply of potable water along the jetty and this has been identified as a potential future requirement.



Figure 8: Sunken vessels alongside Jetty 2



Figure 9: Exposed reinforcement at NE corner of Jetty 2

### 3.4.3 Jetty 3

The concrete jetty structure is generally in good condition. However, it was noted that there is a crack below one of the bollards near the head of the jetty, which will require repair. A general service of the tyre fenders, chain supports and fastening is required. The bollards along the jetty require cleaning and repainting.

It was noted that there is no supply of potable water along the jetty and this has been identified as a potential future requirement.



Figure 10: Jetty 3



Figure 11: Crack below steel bollard on Jetty 3

#### 3.4.4 Jetty 4

The concrete jetty structure is generally in good condition. However, there are approximately 3 tyre fenders missing along the northern face of the jetty and one fender needs to be replaced on the eastern face. Apart from replacement of the missing and damaged fenders a general service of the tyre fenders, chain supports and fastenings is required. The bollards along the jetty require cleaning and repainting.

It was noted that there is no supply of potable water along the jetty and this has been identified as a potential future requirement.



Figure 12: Sunken vessels alongside Jetty 4

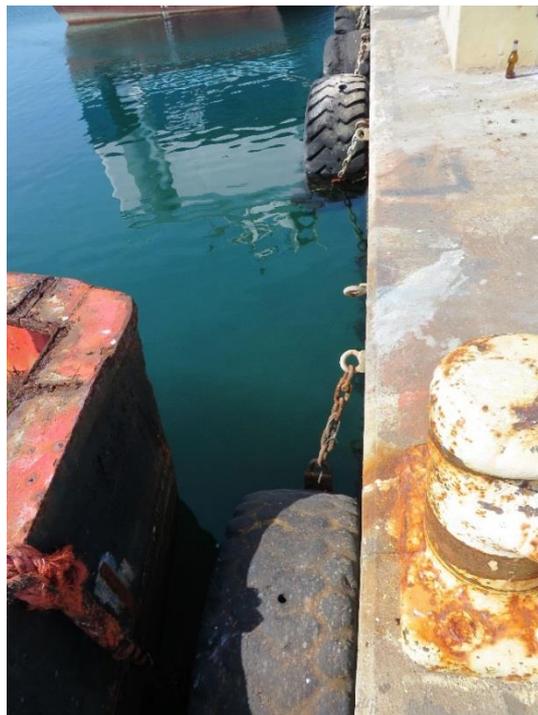


Figure 13: Missing tyre fender at Jetty 4

### 3.4.5 Timber Quay 1

Timber Quay 1 shows evidence of deterioration of the timber deck with the majority of the deck panels needing replacement. The condition of the supporting reinforced concrete piles are still to be ascertained as it requires an inspection by divers.

As with the above jetties, a number of the tyre fenders need replacement, whilst a general service of the remaining fenders, chain supports and fastenings is required. The bollards along the jetty require cleaning and repainting.

It was noted that there is no supply of potable water along the jetty and this has been identified as a potential future requirement.



Figure 14: Timber Quay 1



Figure 15: Degraded wooden deck and rusted bollards at Timber Quay 1

### 3.4.6 Timber Quay 2

Timber Quay 2 has recently been refurbished and is in good condition. It was noted that two tyre fenders are missing whilst one of the bollards requires repair. Apart from the repair needs, the bollards along the jetty require cleaning and repainting.



Figure 16: Timber Quay 2



Figure 17: Damaged bollard

### 3.4.7 Timber Quay 3

Timber Quay 3 has also recently been refurbished and is in good condition. The bollards along the jetty require cleaning and repainting.

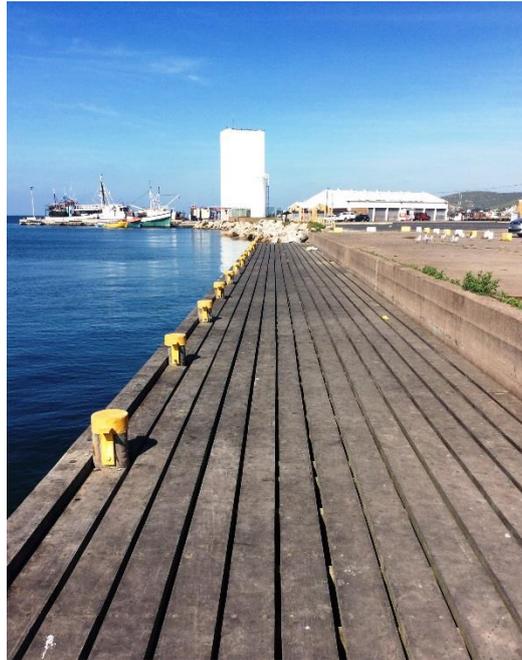


Figure 18: Timber Quay 3

## 3.5 Slipways

### 3.5.1 Main Slipway and Cradle

The main repair slipway is located between Jetties 2 and 3. The slipway layup area has capacity to accommodate 4 vessels at a time. However, the presence of an abandoned wreck, which has been lying at the SE repair bay for approximately 13 years (according to the harbour staff), has reduced this capacity to 3. The existing cradle/lift is said to work adequately with no issues raised or identified pertaining to the rail system. However, the use of divers to investigate the portion of the rail below the low water mark is recommended.

The harbour officials did raise the following:

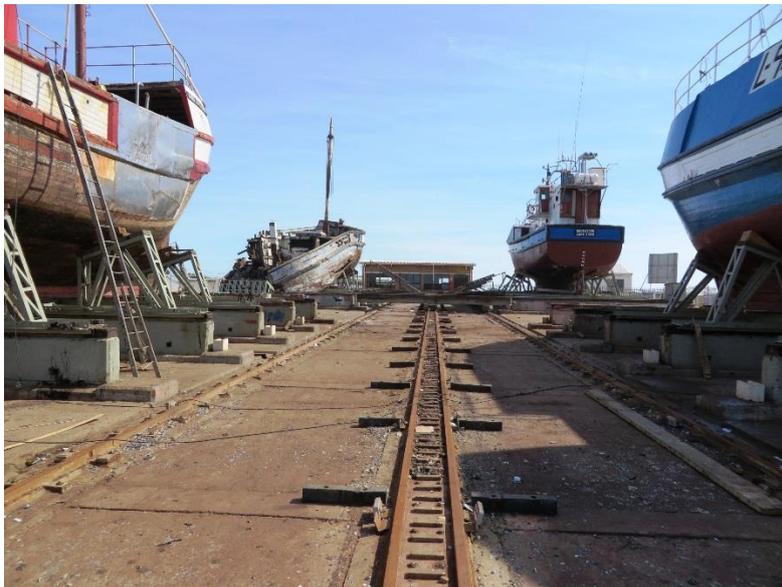
- Main winch – possibility of upgrading the main winch capacity from 100t to 150t / 200t to cater for larger vessels.
- Horizontal winches – possibility of upgrading the capacity of the horizontal or sideslip tirlfords/winches.
- Operations – currently the slipway operations are labour intensive with the cradle arms needing to be raised into position manually as well as the fixed support trestles ('bökkies'). It usually requires approximately 15 personnel to complete the positioning of the vessel and the harbour does not have this man power, resulting in crew and deck hands from the vessels to assist with this work.
- Firewater pumps not operational (discussed in section 3.9). This raised a concern with the project team over the safety of the overall slipway operation, given the inherent hazard of fire due to the flammable and combustible items such as timber hulls, ship diesel, LPG gas canisters etc.

Based on the above, an investigation into improving the current operations of the slipway facility is suggested with specific focus on automating the cradle arms, the horizontal movement and positioning of vessels and upgrading of the main winch capacity.

The provision of potable water to the slipway is also required.



**Figure 19: Entrance to the slipway repair facility**



**Figure 20: Slipway cradle rail**



Figure 21: Slipway cradle

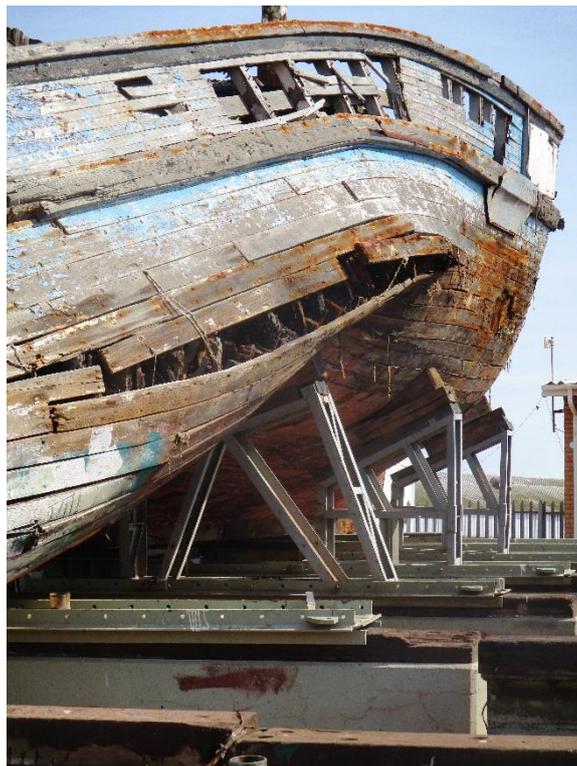


Figure 22: Wrecked vessel on the SE repair bay

### 3.5.2 Small Recreational Slipway / Boat Launch Ramp

The boat launch is generally in a good condition. However, the winch requires general maintenance and an overall service. The supply of water to the facility is required for the cleaning of the vessels.

A bathymetric survey in the vicinity of the launch ramp is recommended to assess the possibility of extending the ramp to deeper depths in order to cater for deeper draft vessels.



Figure 23: Boat launch ramp

### 3.6 Shore Crane



Figure 24: Shore crane on Jetty 2

### 3.7 Dredging

In general the wider basin of the St Helena harbour does not appear to be in need of major dredging. However, the main dredging requirements in need of further investigation, as raised by the harbour officials, were:

- There is a submerged rock about 10 to 15 meters north of Jetty 4, which presents a serious navigational hazard to vessels trying to berth alongside this jetty.
- Dredging is required along and in the vicinity of Timber Quay 2 (near the DAFF offices).



### **3.8 Sunken Vessels**

The removal of sunken vessels along Jetty 2 (see Figure 8) and Jetty 4 (see Figure 12), two vessels at each jetty, is required to open up berth space and improve capacity.

### **3.9 Utilities and Bulk Services**

In addition to the specific items with regards to the jetties, breakwater and slipway, the following issues were raised with regards to utilities and bulk services:

- Improved water supply to the fish preparation and cleaning facility (at the DAFF office) is required, both fresh water and possibly sea water. The sea water could potentially be extracted along Timber Quay 1.
- Firefighting system – the current firefighting sea water intakes and pumps along Jetty 2 are not operational and should be repaired as soon as possible.
- Man-hole cover – the replacement of a severely corroded and broken man-hole cover at the entrance to the DAFF office is required

## 4 Laaiplek Harbour

### 4.1 Kick-off to Site Inspection

Official site inspection and walk through commenced at 9:00am on 30 August 2016, with the following persons in attendance:

- Malan Schrecker (Aurecon)
- James Wiley (Aurecon)
- Mr Ndivhuwo Kwindu (Harbour Master / DAFF)
- Mr Abraham Jansen
- Mr "Constable"

It was discussed and decided that hi-vis vests and construction boots would be sufficient with regards to PPE.

### 4.2 Harbour Layout

The below image serves to identify the major harbour infrastructure components investigated during the site visit.



Figure 25: Layout of Laaiplek Harbour

### 4.3 Breakwaters / Training Walls

#### 4.3.1 Eastern Breakwater

Along the eastern breakwater, which was constructed in the late 1960's / early 1970's, there is evidence that the concrete sheet pile wall sections have separated at certain locations. This has resulted in significant loss of sand fill from the breakwater. In turn, this has led to the surface bed concrete slabs settling and severe distress is now evident in many places. Cracking and spalling of

concrete is widespread. Remedial works have previously been done, during 1990's, with the infill of granite aggregate and a new concrete deck was cast on-top of the original deck at the head of the breakwater.

The navigation aid at the head of the breakwater is out of service and requires maintenance.

It was also noted that signage and railings along the breakwater do not exist, which is a safety concern.



**Figure 26: Eastern breakwater and evidence of concrete deck settlement**



**Figure 27: Separation of the concrete sheet pile walls**

#### 4.3.2 Middle Breakwater

Similar to the eastern breakwater, the middle breakwater shows evidence of the concrete sheet pile walls separating and deflecting. As a result, the sand fill has been lost and the concrete deck shows evidence of distress, albeit not as significant as the eastern breakwater.

The channel marker at the head of the middle breakwater requires maintenance.



Figure 28: Middle breakwater

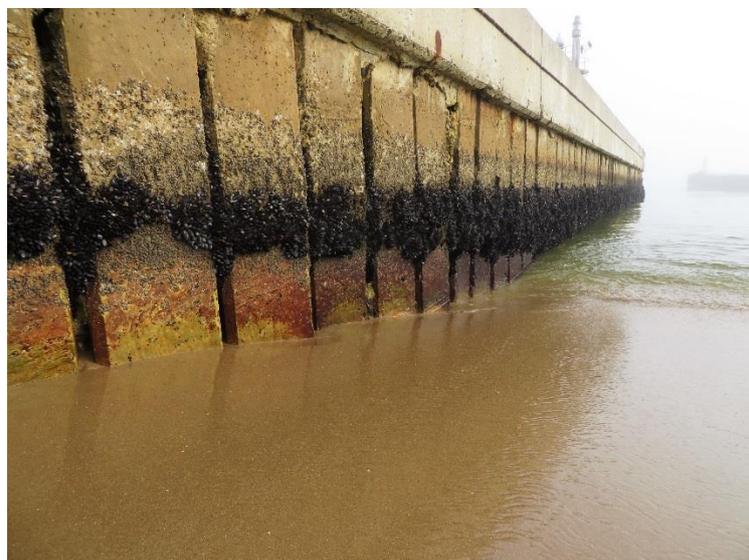


Figure 29: Separated and misaligned sheet pile walls

#### 4.3.3 Middle Training Wall

The middle training wall, which extends from the middle breakwater and along the Berg River to the Laaiplek Harbour boat launch ramp, was also constructed with the use of concrete sheet piles. At certain sections along the wall the sheet piles have separated, once again resulting in sand fill being lost from behind the wall. As a result, sinkholes/cavities have formed behind the training wall. In an attempt to remediate this, evidence suggests that ground anchors were installed to tie back the walls and concrete was placed behind the walls to fill in the gaps in the sheet pile wall. In some areas it is apparent that sand fill is still being lost.



Figure 30: Middle training wall



Figure 31: Sink hole alongside middle training wall

#### 4.3.4 Western Breakwater

Unfortunately, inspection of the western breakwater was not possible during the site visit of the harbour, as access was limited (no boat to take us across the channel).

#### 4.4 Slipway / Boat Launch Ramp

The existing boat launch ramp is generally in good condition with no alarming concerns. However, the harbour officials would like to expand the boat launch to allow for more than one boat to be launched or landed simultaneously.



Figure 32: Boat launch ramp



Figure 33: Boat being launched from the ramp

## 4.5 Timber Quay

### 4.5.1 Quay Structure

The entire timber deck is in a relatively poor condition, as may be expected due to the minimal maintenance done on it since its construction in the 1960's/70's. A number of the timber deck panels are loose and rotten. The piling will require further investigation by divers to determine the condition of these elements.

Key points raised and identified during the site inspection are:

- Vessels larger than the original design vessel are currently utilising the quay.
- During northerly winds, the mooring of larger vessels results in the timber quay swaying back and forth due to increased mooring loads applied to the structure.
- There are only 2 or 3 potable water supply points along the entire length of the quay, which makes the provision of water to all moored vessels difficult.

- The electrical cables run along the underside of the timber deck, across the support beams without being fastened to the structure.
- The electrical kiosks located along the quay are often out of service due to leaking during periods of rain.
- There is evidence of damage to the concrete barriers which block vehicle access onto the quay.
- On the far eastern end of the quay, near the shore crane, steel plates have been placed on top of the wooden deck, presumably to reinforce the deck to allow vehicles onto this area. It is believed that piles are arranged at closer spacing in this area to support this and that this area has therefore been designed for higher loadings.

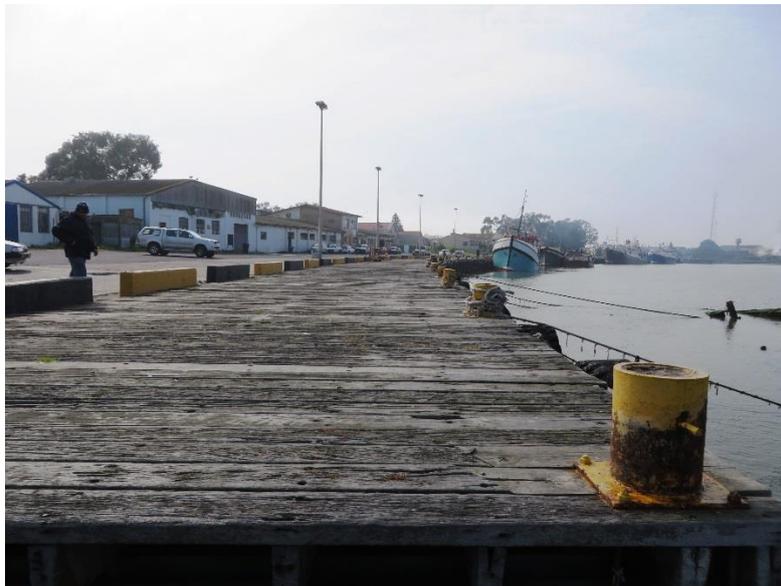


Figure 34: Timber quay



Figure 35: Sub-structure below the quay deck



Figure 36: Tyre fender and sunken vessel at the western end of the quay

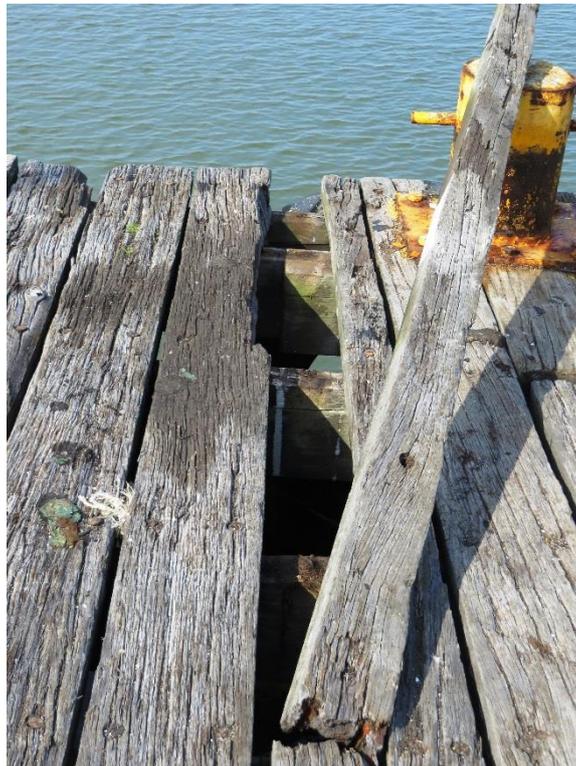


Figure 37: Broken timber deck panel on the quay

#### 4.5.2 Quay Furniture

Currently the majority of the tyre fenders along the quay require replacement and/or significant maintenance. In the order of 65 to 75% of the fenders require replacement. As for the rest, a general service of the tyre fenders, chain supports and fastening is required. All the bollards require cleaning and painting whilst roughly 10 to 15% require replacement.



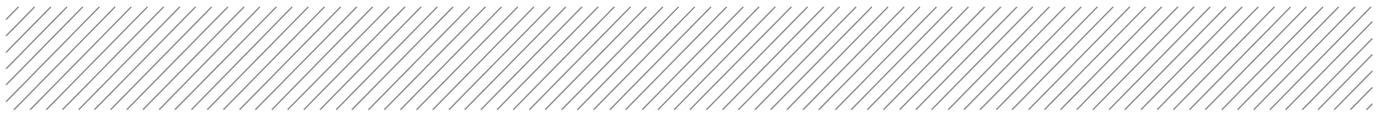
Figure 38: Missing bollard on timber quay



Figure 39: Damaged fender support on timber quay

#### 4.6 Shore Crane and Loading Platform

Laaiplek Harbour has a fixed shear-leg crane at the eastern end of the quay. Currently, it is out of order and in poor condition, most likely requiring replacement. Alongside the crane is a makeshift loading area constructed out of steel plates placed on top of the timber deck. It was raised that a better arrangement would be beneficial, possibly formalising this setup with a concrete deck and loading/unloading area.



**Figure 40: Broken shear-leg crane on eastern end of timber quay**



**Figure 41: Rusted crane support and broken winch system**

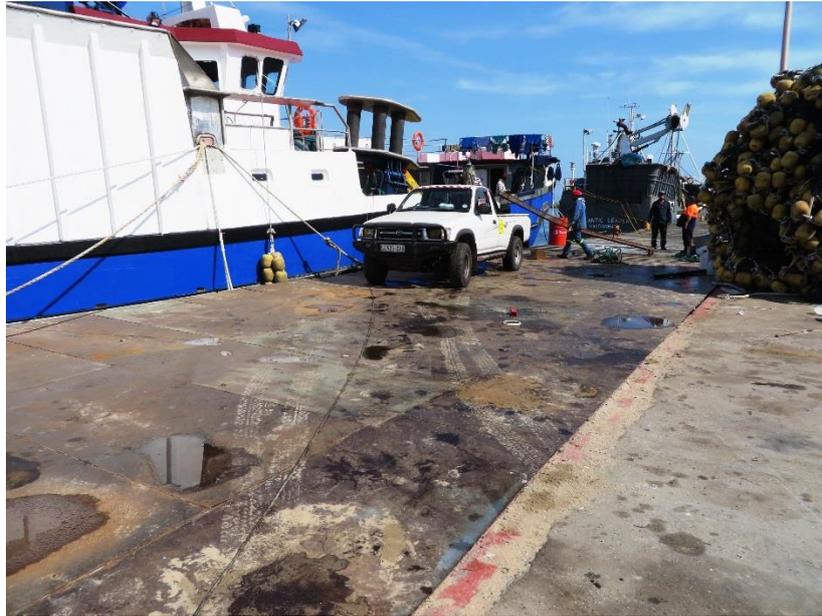


Figure 42: Steel loading platform at eastern end of timber quay

#### 4.7 Dredging

Currently, the navigation channel cannot safely cater for 2-way vessel traffic due to sedimentation issues. The original dredged material from the navigation channel was placed on the opposite side of the channel, resulting in the formation of a sand bank. Subsequently, this material is being slowly eroded during tidal changes and presumably deposited back, resulting in the channel being narrowed. Currently, the safe navigable channel width is approximately 20m.

#### 4.8 Sunken Vessels

There are two sunken vessels along the timber quay, one at either end of the quay. It is unknown whether the contents of the vessel tanks have been emptied or not.



Figure 43: Sunken vessel at the western end of the timber quay



Figure 44: Sunken vessel at the eastern end of the quay

#### 4.9 Coastal Erosion

Within the harbour limits, on the Hangbos side, there is significant evidence of coastal erosion at the eastern end of the rock revetment. According to the harbour officials the coastal erosion has been exaggerated over the last 2 years.



Figure 45: Coastal erosion adjacent to the rock revetment



Figure 46: Eroded area behind the rock revetment



Figure 47: Beach being impacted and eroded downstream of the revetment

#### 4.10 Utilities and Bulk Services

Electricity supply along the quay has been an issue due to cable theft, whilst potable water supply is restricted due to insufficient supply points.

#### 4.11 Additional Items Identified

The snoek shed, located at the top of the boat launch ramp, requires lighting to the outside of the building. Inside the shed the circular concrete cleaning tables for the fish, as in St Helena Bay Harbour, would be beneficial. The harbour officials mentioned that a salt water pump is available however they do not have all the necessary fittings for it to be operational.

## 5 Lambert's Bay Harbour

### 5.1 Kick-off to Site Inspection

Official site inspection and walk through commenced at 9:00am on 31 August 2016, with the following persons in attendance:

- Malan Schrecker (Aurecon)
- James Wiley (Aurecon)
- Mr Masizakhe Paris (Harbour Master / DAFF)

It was discussed and decided that hi-vis vests and construction boots would be sufficient with regards to PPE.

### 5.2 Harbour Layout

The below image serves to identify the major harbour infrastructure components investigated during the site visit.



Figure 48: Layout of Lambert's Bay Harbour

### 5.3 Jetties and Quay Furniture

#### 5.3.1 Snoek Quay and Fish Cleaning Facility

The Snoek Quay appeared to be in good condition. During the site visit maintenance works were being carried out on the tyre fenders.

The fish cleaning facility was in adequate condition, but the roller doors for access to the cleaning benches from the parking area require replacement. The harbour master also suggested that an additional potable water supply point be placed at each cleaning bench. An additional high mast for lighting purposes was requested at the northern end of the cleaning facility along the quay to provide additional light as the lighting along that portion of the quay is poor.



Figure 49: Snoek Quay



Figure 50: Fish cleaning facility along Snoek Quay

### 5.3.2 Finger Jetty

The finger jetty, located alongside the slipway facility, is generally in good condition with some general cleaning and maintenance required along the concrete deck. The bollards along the jetty require

cleaning and repainting. A general service of the tyre fenders, chain supports and fastenings is required with the possible replacement of two fenders.



Figure 51: Finger Jetty



Figure 52: Bollard and electrical supply point on Finger Jetty

### 5.3.3 Main quay

The concrete gravity quay structure is in good condition with evidence of expected wear and tear from prolonged use. There is one missing bollard whilst the majority of the bollards along the quay require cleaning and repainting. Roughly 10 tyre fenders may require replacement with the remaining fenders are in need of a general service of the tyres, chain supports and fastenings.

Located alongside the main quay are two sunken vessels which take up approximately 50 to 55m of quay length and interfere with the efficient use of the shear-legs crane.



Figure 53: Fishing vessels moored alongside main quay



Figure 54: Sunken vessels alongside main quay occupying quay space

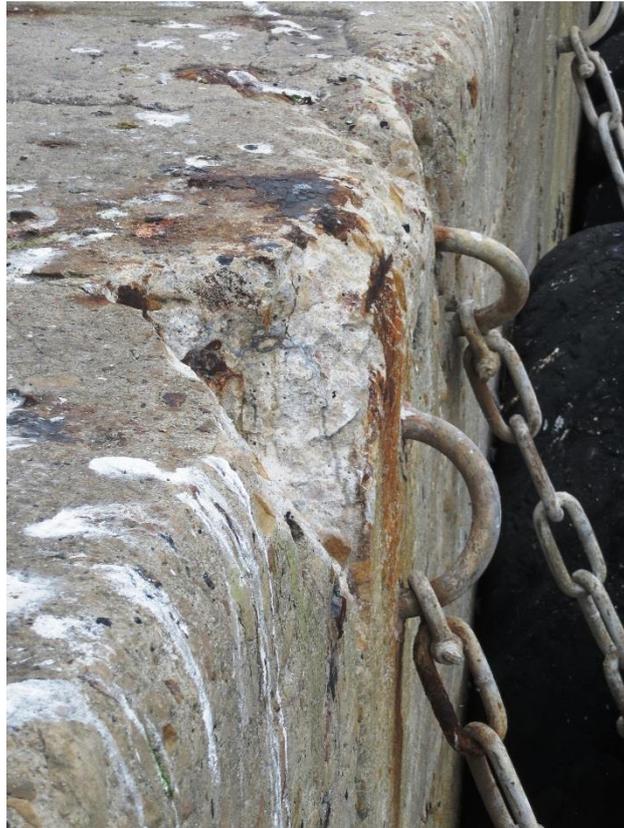
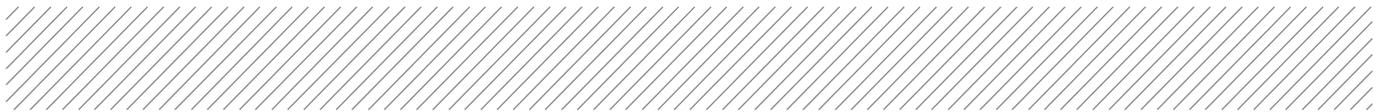


Figure 55: General wear and tear of the coping on the main quay



Figure 56: Tyre fenders and bollards along the main quay

#### 5.3.4 Secondary quay

The secondary quay, in front of Isabella's Restaurant, consists of concrete gravity blocks. Overall, the quay structure is in good condition with a couple of the tyre fenders in need of replacement. The remaining fenders require a general service. The bollards along the quay are in good condition but minor maintenance works may be necessary.

The back of the quay is open to the public and used as parking for visitors to Isabella's Restaurant. To accommodate this, a handrail has been erected. However, this handrail requires refurbishment and possibly replacement with a more robust solution.



Figure 57: Secondary quay

### 5.3.5 Timber Quay

The timber quay or landing platform located along the western breakwater is in relatively good condition. There is evidence of additional bracing provided to further secure the quay (cable bracing attached to the front corner piles). The tyre fenders are in good condition, but the bollards require cleaning and repainting.



Figure 58: Timber quay deck



Figure 59: Sub-structure and additional bracing cable of the timber quay



Figure 60: Bollard and tyre fender system on the timber quay

## 5.4 Breakwaters

### 5.4.1 Eastern Breakwater

The eastern breakwater structure is in good condition with the navigation aid at the head of the breakwater being fully functional. It was noted that there is a large amount of windblown sand which has accumulated alongside as well as on the breakwater structure, due to north / north-easterly winds.

The harbour master brought to our attention that, due to the issues with the public toilets, with only one toilet working, visitors to the harbour and Snoek Quay relieve themselves on the breakwater. This has become a major issue.



Figure 61: Windblown sand accumulated on the eastern breakwater



Figure 62: Sand build-up along the armour units of the eastern breakwater

#### 5.4.2 Southern Breakwater (connecting Bird Island)

The southern breakwater experiences regular overtopping, especially during high tide and significant swell conditions. This is evident by the pooling of water at certain locations on the concrete deck and degradation of the concrete surface. There is also numerous examples of broken concrete armour units which suggests that the units used may be too small.

Of major concern is the evidence of water penetrating through the breakwater structure into the harbour basin. This is apparent at a number of the structure's joints (between interlocking breakwater gravity structures) where the grout membrane has been damaged or completely removed. Over the years the wave action has widened the joints by eroding the concrete structure. This has created a passage through which water and sediment can penetrate the breakwater and enter into the harbour basin.

Furthermore, it was also stated that the rope handrails along the breakwater are often vandalised, allegedly by crayfish poachers who steal the rope. Therefore, an alternative handrail option would be beneficial.

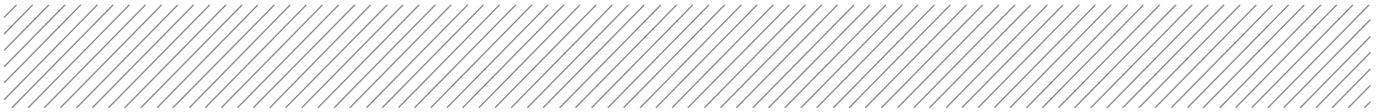


Figure 63: Water penetrating through a crack in the southern breakwater

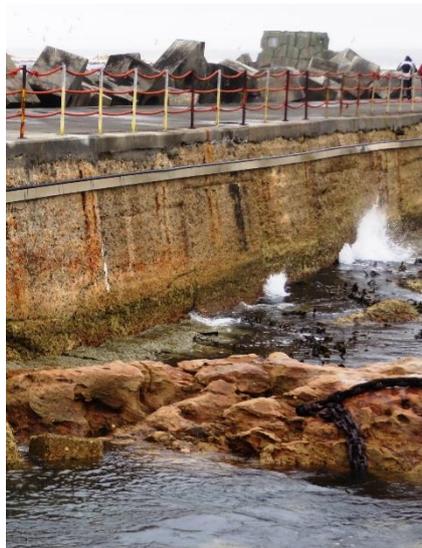


Figure 64: Evidence of water penetrating through the southern breakwater structure



Figure 65: Broken concrete armour units along the southern breakwater

#### 5.4.3 Western Breakwater

The concrete deck of the western breakwater shows evidence of concrete and reinforcement degradation. There are locations where the reinforcement is exposed and severe spalling of concrete has already taken place. It is recommended that a thorough investigation be undertaken to ascertain the condition of the materials and that proper concrete repairs be carried out, ideally within the next two years.

In a similar fashion to the southern breakwater, there is evidence of water penetrating through the breakwater structure into the entrance channel and outer basin.

According to the Harbour Master, overtopping by waves is less frequent at the western breakwater than at the southern breakwater. This is thought to be due to the protection offered by Bird Island

The navigation aid at the head of the breakwater is operational. The electrical supply cable, however, is not concealed or protected but is attached to the side of the breakwater. From experience, this is considered a risk in terms of theft or vandalism.



Figure 66: Concrete armour units along the western breakwater

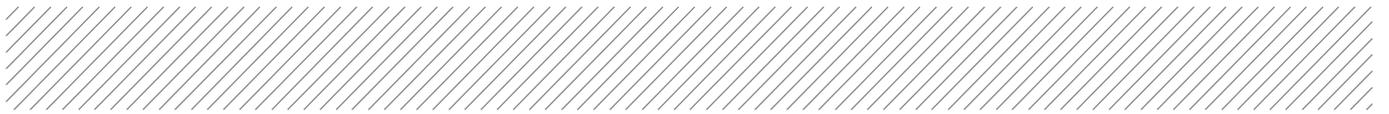


Figure 67: Different type of armour units used along the western breakwater



Figure 68: Reinforcement exposed along the western breakwater crest wall



Figure 69: Evidence of previous grouting repairs in the western breakwater joints



Figure 70: Water penetrating through crack in western breakwater structure  
(looking down the inner face of the breakwater towards the water)

## 5.5 Slipway and Boat Launch

### 5.5.1 Main Slipway and Cradle

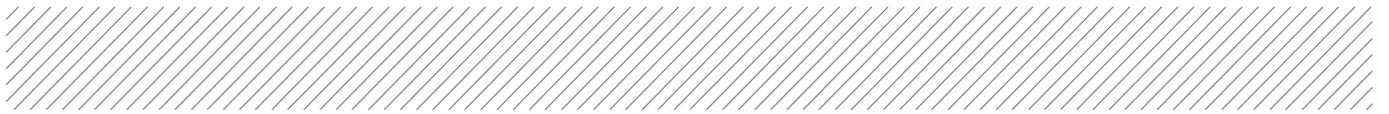
The 'new' main slipway at Lambert's Bay Harbour has the capacity to accommodate two vessels on the eastern side repair slips, whilst a third vessel occupies the cradle. The cradle consists of a vertical brace on the western side, whilst hydraulic cradle arms are operated on the other side and raised to hold the vessel in place. The vessels are then securely stabilised by 'bökkies' before the vessel is slid into position. The following key points are raised:

- Due to the configuration of the new cradle the 'old' slipway ramp on the western side cannot be used properly.

- There are a number of support beams (steel I-beams) located on the 'old' slip which need to be relocated to one of the 'new' slips in order for the 'new' slipway facility to be able to operate at full capacity.
- The main winch which pulls the cradle requires a service as its last service took place over 10 years ago.
- The side pulleys (horizontal winches) are currently being used at St Helena Bay Harbour and are required back in Lambert's Bay with two vessels scheduled for repairs at the slipway during the month of September.
- The harbour master has requested that an inspection of the portion of rail extending below the low water mark, most likely by divers, be undertaken as issues have been noticed when the cradle reaches this portion of the rails.
- The harbour master also raised security concerns at two locations within the slipway repair facility areas, namely:
  - A location between the spending beach and slipway where the public can walk along the revetment and climb up into the slipway area; and
  - At the main gate entering the slipway area. There is one main access gate and once the public are beyond the gate they can enter the slipway facility. The harbour master has suggested placing a secondary gate just behind the slipway winch control booth as to restrict access to the slipway whilst providing access to the DAFF office.
- Dredging of the harbour basin adjacent to the slipway is required as the majority of vessels can only use the slipway during high tide due to limited depth.



Figure 71: Slipway support beams and cradle



**Figure 72: Slipway cradle and rail system**



**Figure 73: Slipway vessel support beams**

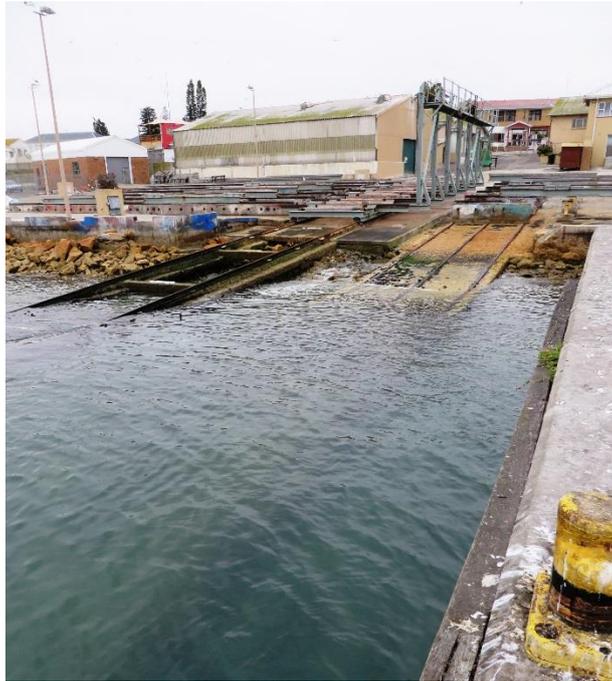


Figure 74: Slipway ramps – old slipway (right), and new slipway with facility (left)

### 5.5.2 Small Recreational Slipway / Boat Launch Ramp

In general, the concrete boat launch ramp is in adequate condition with cleaning works required. The removal of some fallen fenders from the adjacent Snoek Quay is required to eliminate any potential navigation hazards.

The harbour master expressed his desire to widen the existing boat launch ramp to cater for more boats at a time. Currently, two boats and trailers can be accommodated on the ramp simultaneously. The widening of the ramp also assist in reducing the congestion generated during “the snoek run”, which not only impacts the harbour but also the town.



Figure 75: Boat launch ramp

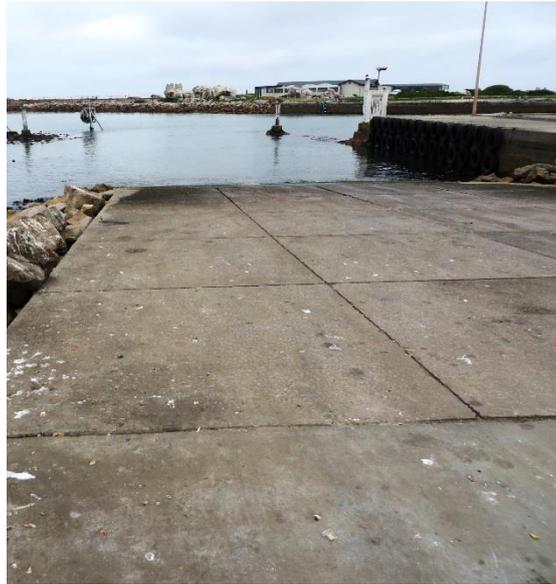


Figure 76: Concrete slabs at the boat launch ramp

## 5.6 Shore Crane

The shore crane at Lambert's Bay Harbour is a shear-leg crane, similar to that at Laaiplek Harbour. The crane cable was apparently shortened/cut when it got stuck in the winch. As a result, the cable is has insufficient length for all its desired application of loading/unloading of vessels. Therefore a new full length cable is required. Apart from the cable the crane works well.

It was noted that the presence of a sunken vessel in the immediate berth alongside the crane further reduces the usability of the crane.



Figure 77: Shear-leg shore crane

## 5.7 Dredging

Dredging of the harbour basin up to the inner harbour entrance channel is required. The last maintenance dredging works was undertaken over 15 years ago. There is visible evidence of sand banks and shallow areas within the harbour. Apart from the prolonged interval since the last maintenance dredging works, the issues identified at the southern (water penetration) and eastern (windblown sand) breakwaters are the most likely sources of sediment build-up in the basin.

## 5.8 Sunken Vessels

Currently, there are two sunken vessels located along main quay with one of these vessels having broken into two parts. It is currently unknown if the vessels still contain any diesel or other possible contaminants in their tanks.



Figure 78: Two sunken vessels along main quay

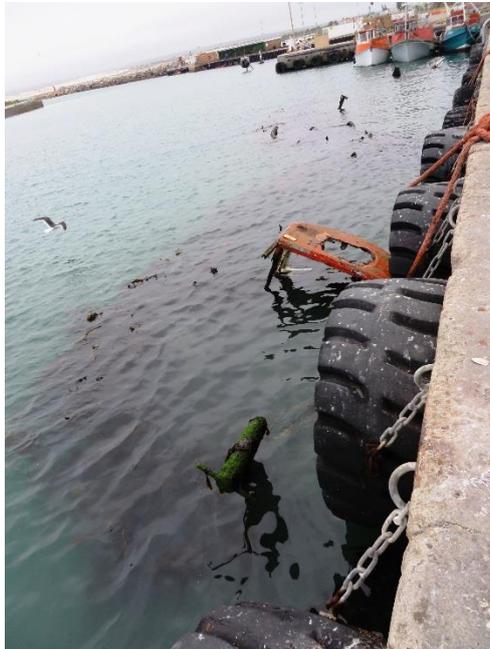


Figure 79: Sunken vessel moored along main quay

## 5.9 Utilities and Bulk Services

Apart from the aforementioned necessary additional potable water supply points and high lighting masts at Snoek Quay and the slipway, the following utilities and bulk services requirements were identified:

- Public toilets – the public toilets in the parking area behind Snoek Quay aren't fully operational. Only one toilet works. This requires urgent attention.
- Potable water supply – there is only one potable supply point along main quay. Additional supply points are required.
- Perimeter fencing – the perimeter fencing along the parking area behind Snoek Quay requires repairs as a result of damage from fishing vessel trailers.
- Roadway surface – the roadway surface to the steep outgoing lane, at the entrance to the parking area behind Snoek Quay, requires repairs.
- Storm water drainage – pooling of storm water along the perimeter fence of the parking area behind Snoek Quay is an issue which requires attention.

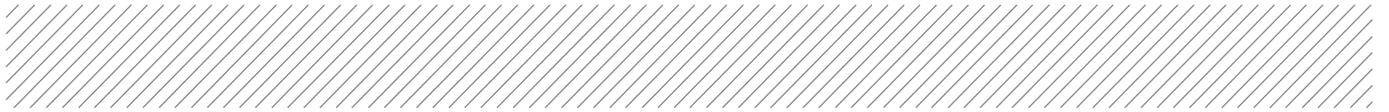


Figure 80: Damaged perimeter fence along the parking area behind Snoek Quay

## 5.10 Additional Items Identified

Additional items identified during the site visit included:

- The navigation aid, also referred to as the “Lighthouse” structure at the southern end of Snoek Quay has been displaced off its plinth foundation. It is significantly damaged and requires repairs.
- Revetment – the revetment in front of Isabella’s Restaurant (between main and secondary quay) requires repairs. It is evident that, although rubble is being dumped on this revetment, there is continued erosion of the slope, which will lead to the undermining of the adjacent roadway. This will significantly hamper access to main quay and create a safety hazard.



**Figure 81: Damaged navigation aid (a.k.a. Lighthouse)**



**Figure 82: Exposed reinforcement of navigation aid support structure**



**Figure 83: Rubble revetment between main and secondary quays**

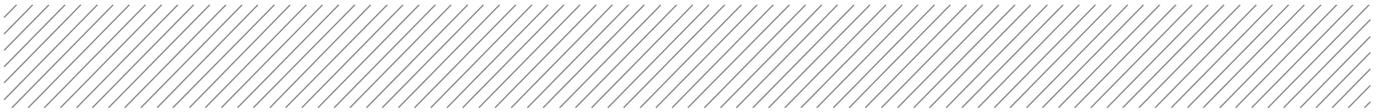


Figure 84: Evidence of the rubble revetment deteriorating



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