

NAMPORT PORT CAPACITY TO HANDLE GREEN FUELS NOW AND IN FUTURE

**By: Executive Port
Engineering and ICT**

MAY 2024, V1



www.namport.com

*Navigating a
sustainable future
for our ports*

Our Ports



Port of Walvis Bay

- Comprises 1,500 hectares of land in South Port, North Port and Fishing Harbour sections;
- Current land capacity deemed sufficient to cater for demand over the next 30-50 years
- Longer term (>50 years) land reclamation projects planned for both the South and North Ports

Port of Lüderitz

- Comprises 25 hectares of land at Robert Harbour.
- Current port land nearly fully occupied
- Short to medium term (5 years) - additional capacity to be created through optimization of the existing land and reclaiming 16ha additional land.
- long term (> 5 years) - new port planned at Angra Point (Lüderitz) with 886 hectares of additional land.

Northern Namibia

- New deep-water port planned at Angra Fria in the skeleton coast national park, about 100km South of the Namibia/Angola Border, or Kunene river.



Port of Walvis Bay

**NATURAL 30Km BREAKWATER
- PELICAN PENINSULA**



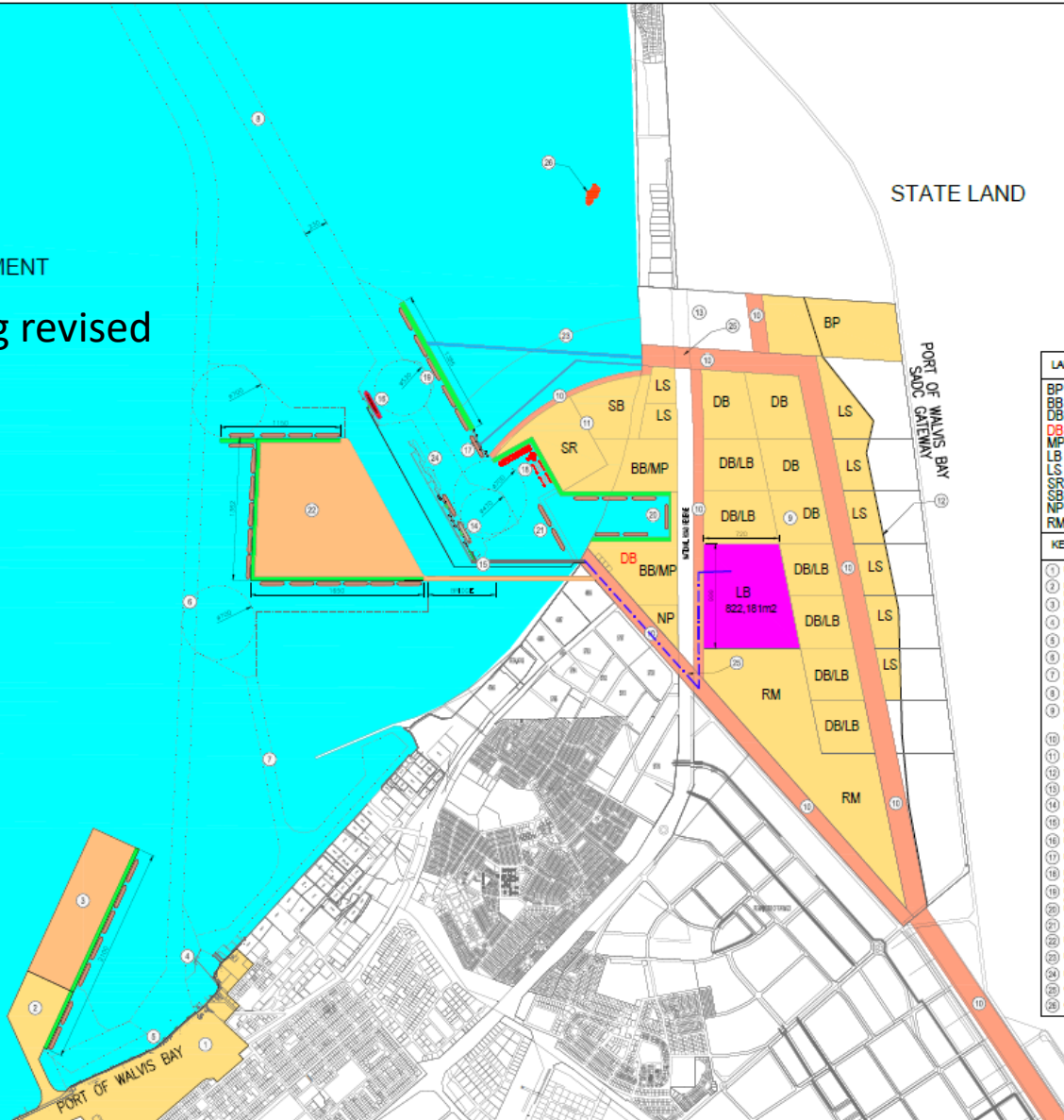
Port of Walvis Bay – Master Plan

WBH-602-W-414-20-R6



PORT OF WALVIS BAY
LONG TERM DEVELOPMENT

Outdated, being revised
As of May 2024



LEGEND:

- PORT OF WALVIS BAY - LAND AREAS
- PORT OF WALVIS BAY - LAND AREAS SPECIFIC FOR SERVICES AND UTILITIES CORRIDORS
- PORT OF WALVIS BAY - WATER AREA - LEGAL JURISDICTION
- SEALED DREGGED TIDE LINES
- NEW QUAY WALL
- LAND AREA FOR LIQUID BULK - ALLOCATION APPROVED
- PRODUCT PIPELINES RUNNING IN SEWTLIDE

LAND USE ZONING

BP BUFFER BOND
BB BREAK BULK
DB DRY BULK
DB TEMPORARY DRY BULK
DB MULTIPURPOSE
NP LIQUID BULK (TANK FARMS)
LS LOGISTICAL SUPPORT / WAREHOUSING
SR SHIP REPAIR
BB/MP SUPPLY BASE
NP HARBOR ADMN
RM RAILWAY MARSHALLING YARD AND RAIL TERMINALS

KEY NOTES:	COMPLETION
1 EXISTING PORT OF WALVIS BAY LAND AREA	
2 NEW CONTAINER TERMINAL ON RECLAIMED LAND	2017
3 FUTURE EXTENSION OF THE NEW CONTAINER TERMINAL	2025 AND BEYOND
4 EXISTING TANKER BERTH IN THE PORT OF WALVIS BAY	
5 BERTHS 1 TO 8 - EXISTING PORT OF WALVIS BAY	
6 ENTRANCE CHANNEL AT -14.5m CD - EXISTING PORT OF WALVIS BAY	
7 ENTRANCE CHANNEL AT -8.5m CD - EXISTING PORT OF WALVIS BAY TOWERS HARBOUR	
8 ENTRANCE CHANNEL AT -18.5m CD - NEW PORT OF WALVIS BAY SADC GATEWAY	2017
9 PORT OF WALVIS BAY SADC GATEWAY LAND AREA + 1330 Ha EXCLUDING LAND TO BE RECLAIMED	2017
10 SERVICES AND UTILITIES CORRIDORS	2020
11 NEW LAND TO BE RECLAIMED	2017
12 WESTERN EDGE OF HIGH DUNE BELT	
13 PRIVATE LAND - MARICULTURE	
14 PHASE 1: OIL TERMINAL AT SAGO GATEWAY	2017
15 PHASE 1: SMALL CRAFT HARBOUR AT SAGO GATEWAY	2017
16 PHASE 2: LNG TERMINAL AT SAGO GATEWAY	2018
17 PHASE 3: BULK TERMINAL AT SAGO GATEWAY	2019
18 PHASE 4: SHIP AND RIG REPAIR YARD AT SAGO GATEWAY	2018
19 PHASE 5: BOTSWANA COAL TERMINAL AT SAGO GATEWAY	2025
20 FUTURE DIG OUT BASIN AT SAGO GATEWAY	2025 OR BEYOND
21 ALTERNATIVE TO DIG OUT BASIN	
22 LONG TERM FUTURE PORT DEVELOPMENT AREA	FUTURE
23 LONG TERM LAND RECLAMATION BOUNDARY	FUTURE
24 FUTURE LIQUID BULK TERMINALS	FUTURE
25 GRADE SEPARATED ROAD CROSSING	
26 ISLAND PLATFORM	

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PROJECT NAME:
 MASTER PLAN - LAYOUT
PORT OF WALVIS BAY SADC GATEWAY

DRAWING NAME:
 DRAFT MASTER PLAN LAYOUT
 LIQUID BULK AREA FOR ALLOCATION

Drawn: DL/EN (DL/EN/LS)	14 DEPT	01
Checked: DL/EN (DL/EN/LS)	14 DEPT	01
Approved: AL/HE (AL/HE/LS)	14 DEPT	01
APPROVED:	DATE:	BY:

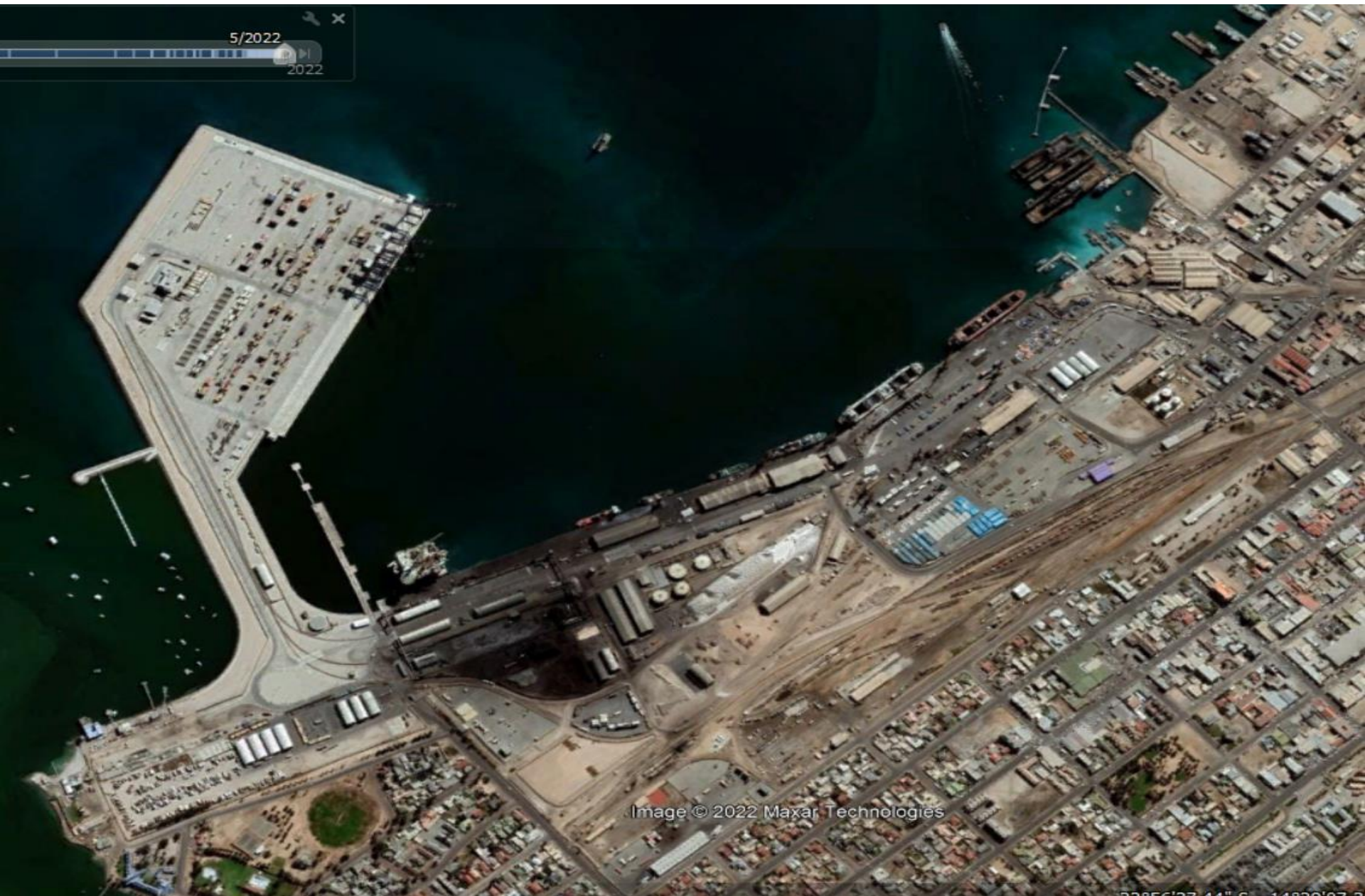
FOR DISCUSSION PURPOSES ONLY

DATE: MARCH 2015
 SCALE: 1:2000
 WBH-602-W-414-20-R6

Port of Walvis Bay – Three Sections



Port of Walvis Bay – South Port



Port of Walvis Bay CAPACITY

1. Containers

- NCT capacity of 750,000 TEU created in 2019. Future expansion of container handling capacity (>5 million TEU/a) is planned by additional land reclamation next to NCT as shown on the master plan, or at the north port at the planned dig out basin.
- Current actual throughput = 160,000 TEU's p.a.

2. Dry bulk, break bulk (clean and dirty) and Ro-Ro

- Conversion of old container terminal into multipurpose terminal behind berths 1 to 3 have more than doubled dry and break bulk capacity from 4 mtpa to 8 mtpa.
- Current throughput = 3.2 mtpa;
- Creation of new common user multipurpose bulk terminal at old container terminal RTG stack by 2024;
- Once actual dry and break bulk volumes approaches 8 mtpa a new dry bulk terminal at the North Port must be built, as planned (phase 3).
- Break bulk capacity behind berths 1 to 9 remains adequate for the next 20 years at least. Once additional dry bulk capacity is created at the North Port this will free up break bulk capacity at the south port.
- The new dig out basin planned at the north port will cater for additional break bulk capacity:

Port of Walvis Bay

3. Liquid bulk and Gas

- The Commissioning of the 2 x new 90,000DWT liquid bulk jetties at the North Port in 2020 replaces the current old 30,000 DWT tanker jetty.
- Capacity of the two new North Port jetties is 10 mtpa of liquids and gasses at least.
- Actual throughput in 2024 = 1.5 mtpa fuel imports;
- LPG and LNG terminals planned for the NorthPort within the next 5 years. LPG terminal concession was already awarded in April 2022.
- Ammonia bunkering and export terminals (land reservation) already awarded to three (3) developers, all currently in the feasibility study phase. All of which will use the existing 90,000DWT berths to bunker and/or export the ammonia.
- Total of 350 hectares minimum size of land is zoned for green hydrogen related activities at the North Port.

4. Ship and rig repair – landlord with exception of the Syncrolift platform

- Current Syncrolift (2,000 tons capacity);
- Namdock (15,000 tons capacity);
- the ability to accommodate drilling rigs/platforms at berths 1 to 8 as well as in the fishing harbour;
- Landreservation for a large graving dock awarded at the North Port 2024.

Port of Walvis Bay – South Port

5. Offshore supply base

- The South port has sufficient capacity for lay down of drilling pipes and machinery for the offshore drilling industry. Several new offshore drilling projects are in the pipeline and Walvis Bay and Luderitz are again being used as supply basis.
- A new modern and large supply base is planned for Walvis Bay and Lüderitz, with the Port of Lüderitz receiving priority in the medium term to serve the oil and gas fields on the Orange basin fully by 2028.

6. Passengers

- With the constriction of berth 9 the first dedicated passenger liner berth was created. The port can accommodate the biggest cruise ships of up to 350m LOA.
- Passenger receiving facilities were also recently constructed at the berth in the form of a small rubbhall.
- Passengers to be ferried to the waterfront and marina via shuttle bus service that may or may not be outsourced.

Port of Walvis Bay – South Port

7. Waterfront and Marina

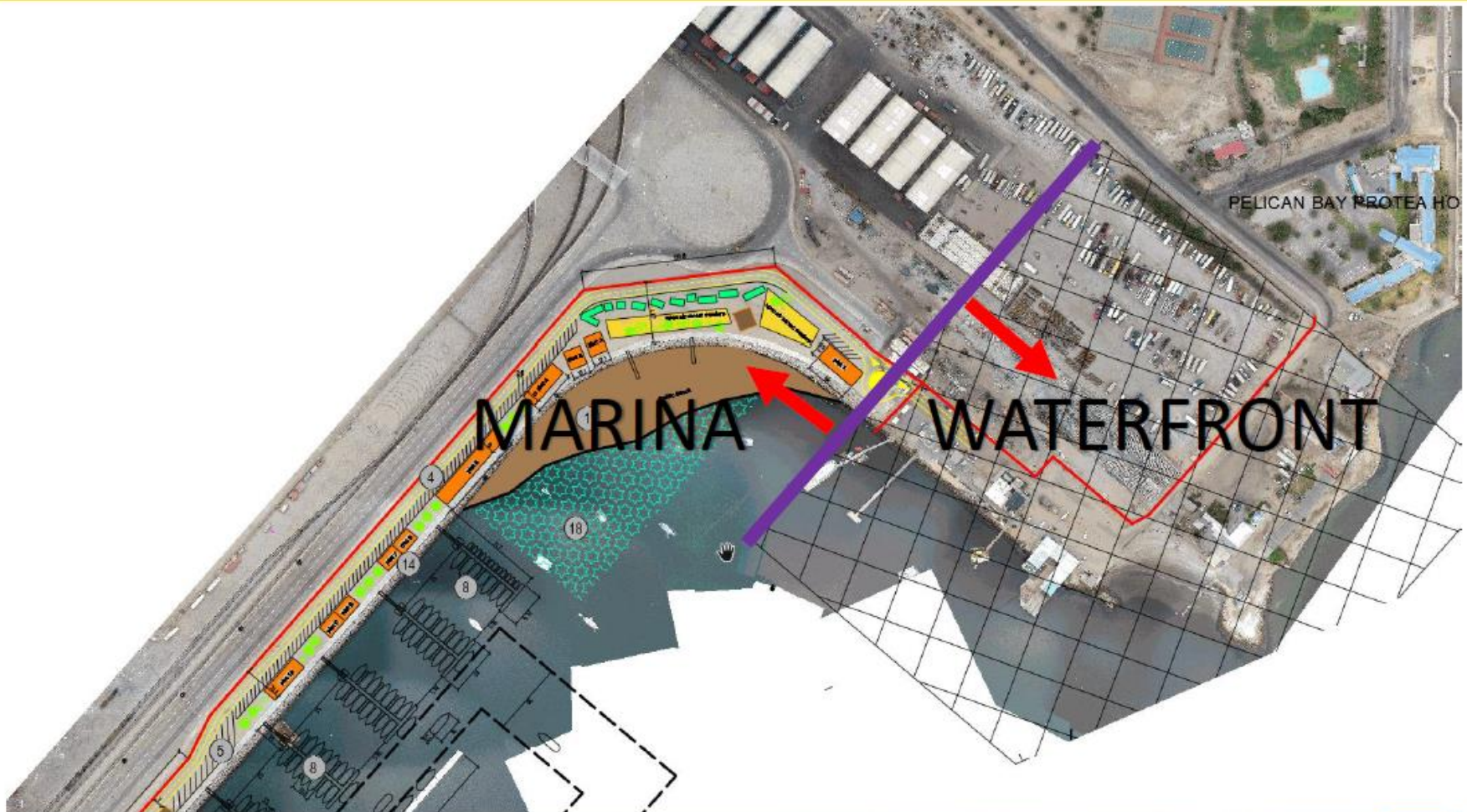
- a New Waterfront is planned on port land. 8 hectares of prime seaside port land will be leased to a private developer on a long term concession to develop and operate a modern waterfront with hotels, offices, restaurants, shops, conference facilities, fresh fish market, maritime museum, public open spaces and walkways, curios and arts and crafts. The project was delayed due to Covid, **but fresh Expression of interest was advertised by in 2022.**
- Marina Plots are available for allocation on a walk-in basis.



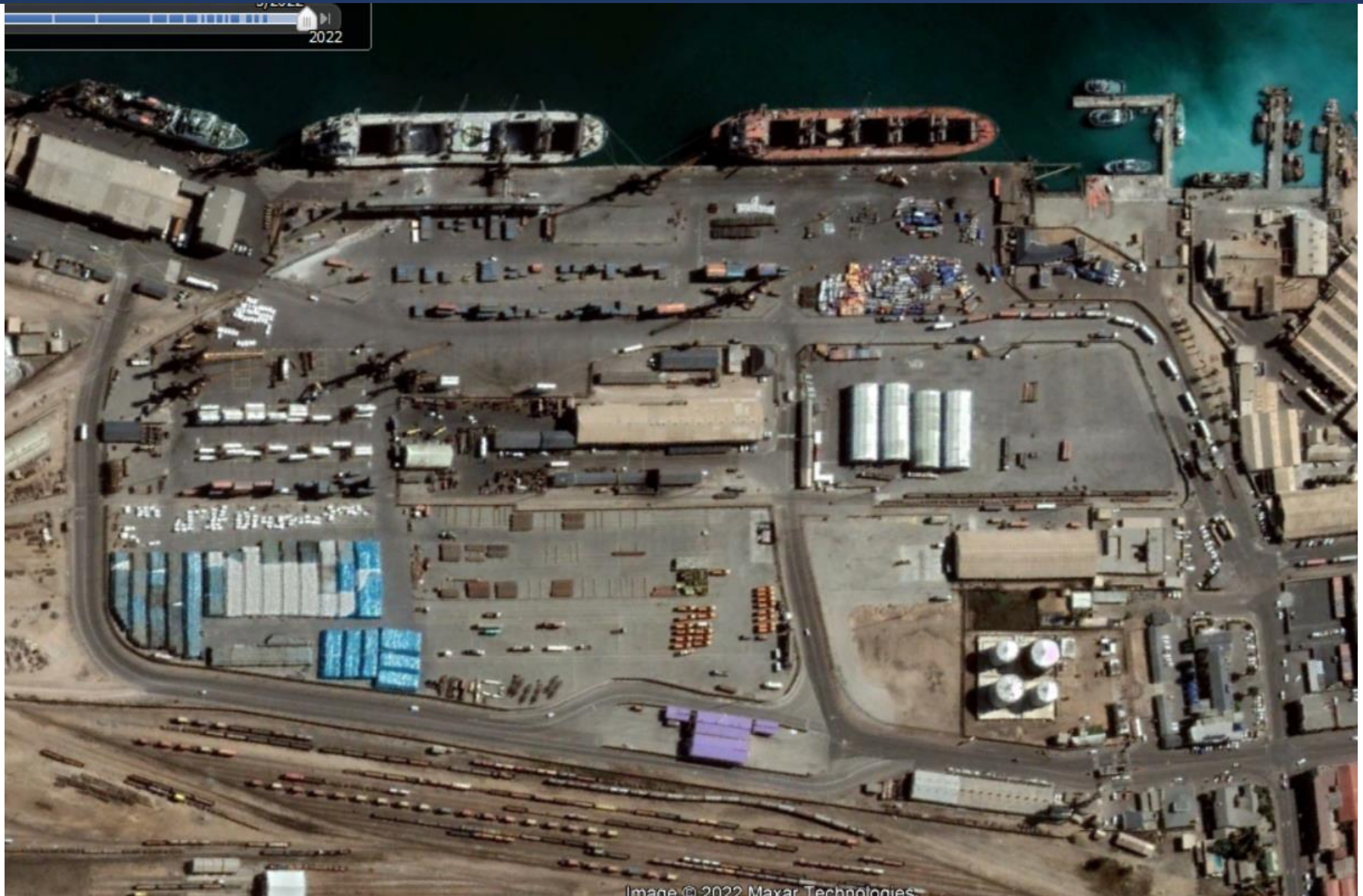
WATERFRONT AND MARINA PROJECTS

TWO SEPARATE PROJECTS:

1. NAMPORT WATERFRONT PROJECT
2. WALVIS BAY MARINA PROJECT



Port of Walvis Bay – South Port BERTHS 1 TO 3 - MULTIPURPOSE



Port of Walvis Bay – South Port BERTHS 4 to 8- MULTIPURPOSE



Port of Walvis Bay – South Port

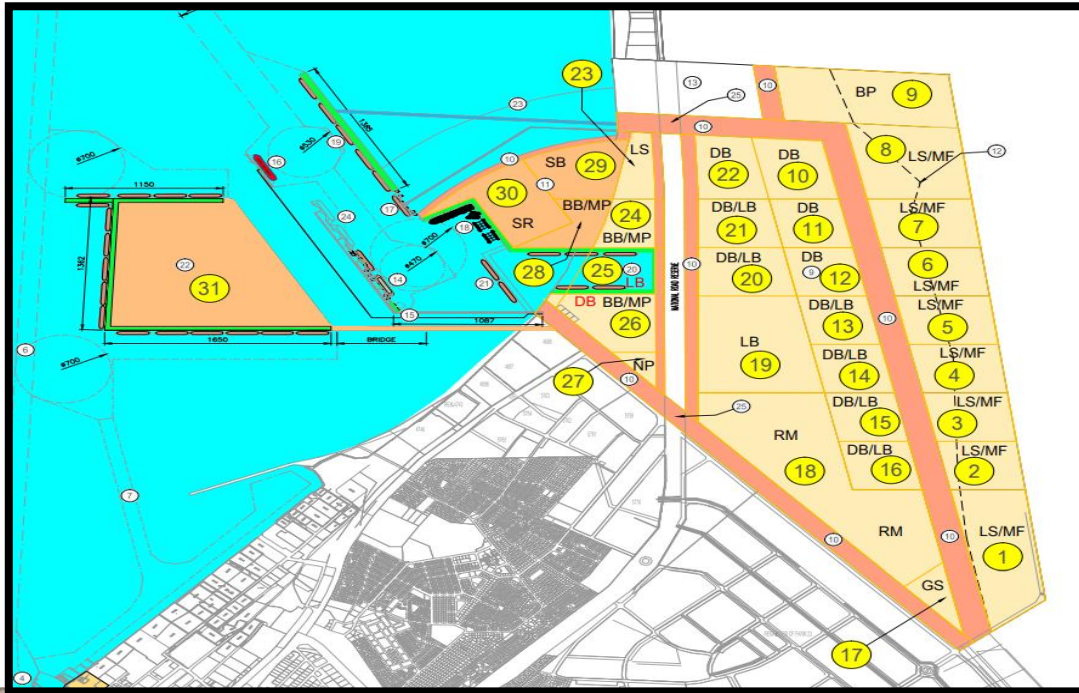


PORT OF WALVIS BAY – FISHING HARBOUR



- Fishing Harbour is the Biggest part of the Port of Walvis Bay by berth length with 4km berth length. Land areas owned by 15 different fishing companies;
- Water depth limited to -6.5m CD maintained.
- The fishing companies operating in the fishing harbour are diversifying their activities into non-fishing activities such as ship repair, scrapping of vessels, etc.

Port of Walvis Bay North Port



MASTER PLANNING COMPLETED

- Phase 1 : New Liquid Bulk Terminal (MME project)-
 - Can accommodate 2 x 90,000 DWT tankers at same time
 - 10 MTPA capacity for liquids and gasses including green fuels
- Dredged to -16.0M CD;
- Commissioned in Nov 2020
- Many future phases planned, 50 to 100 year planning horizon

New Liquid Bulk Terminal at Port of Walvis Bay north port

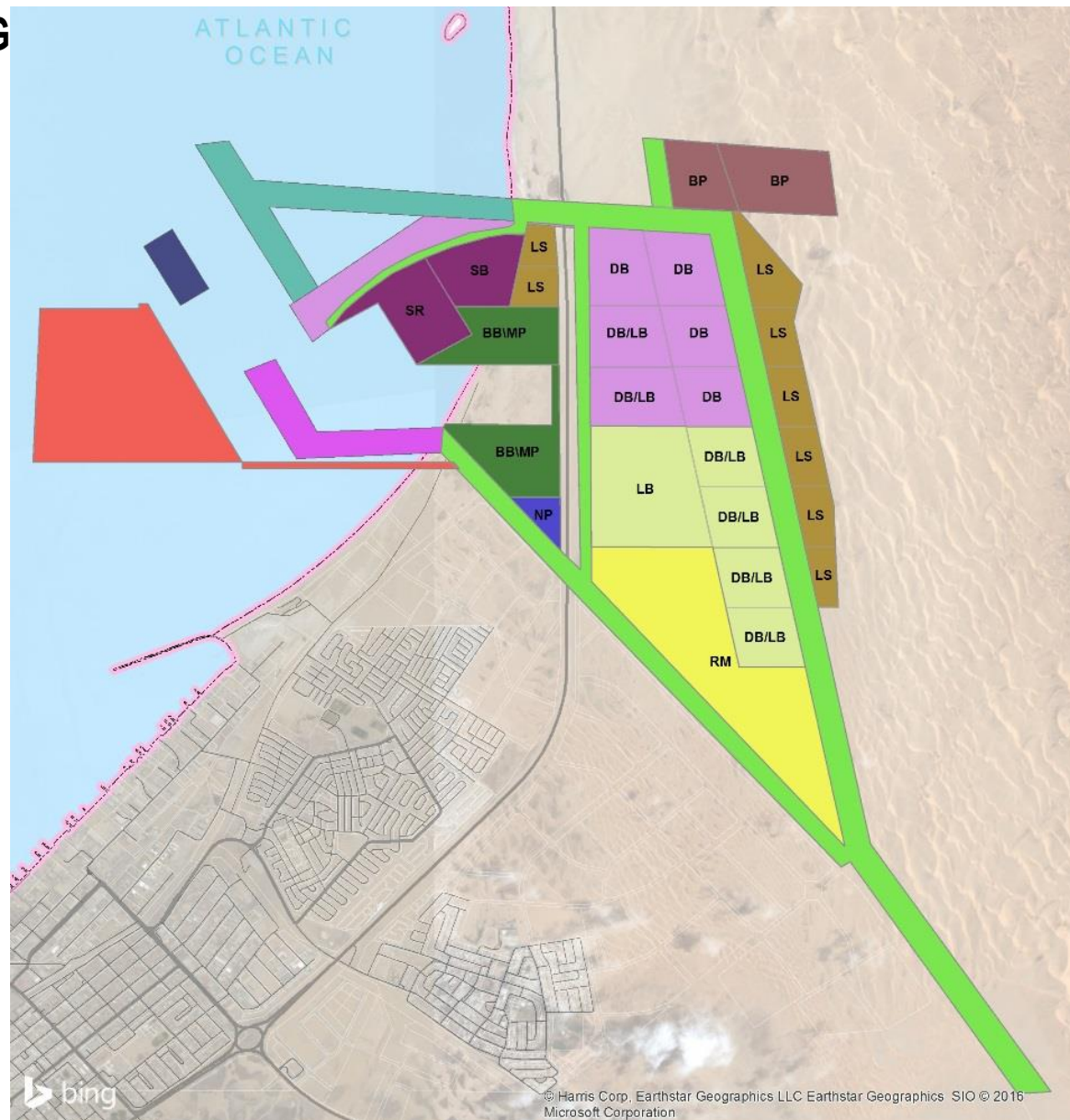
MME AND NAMCOR



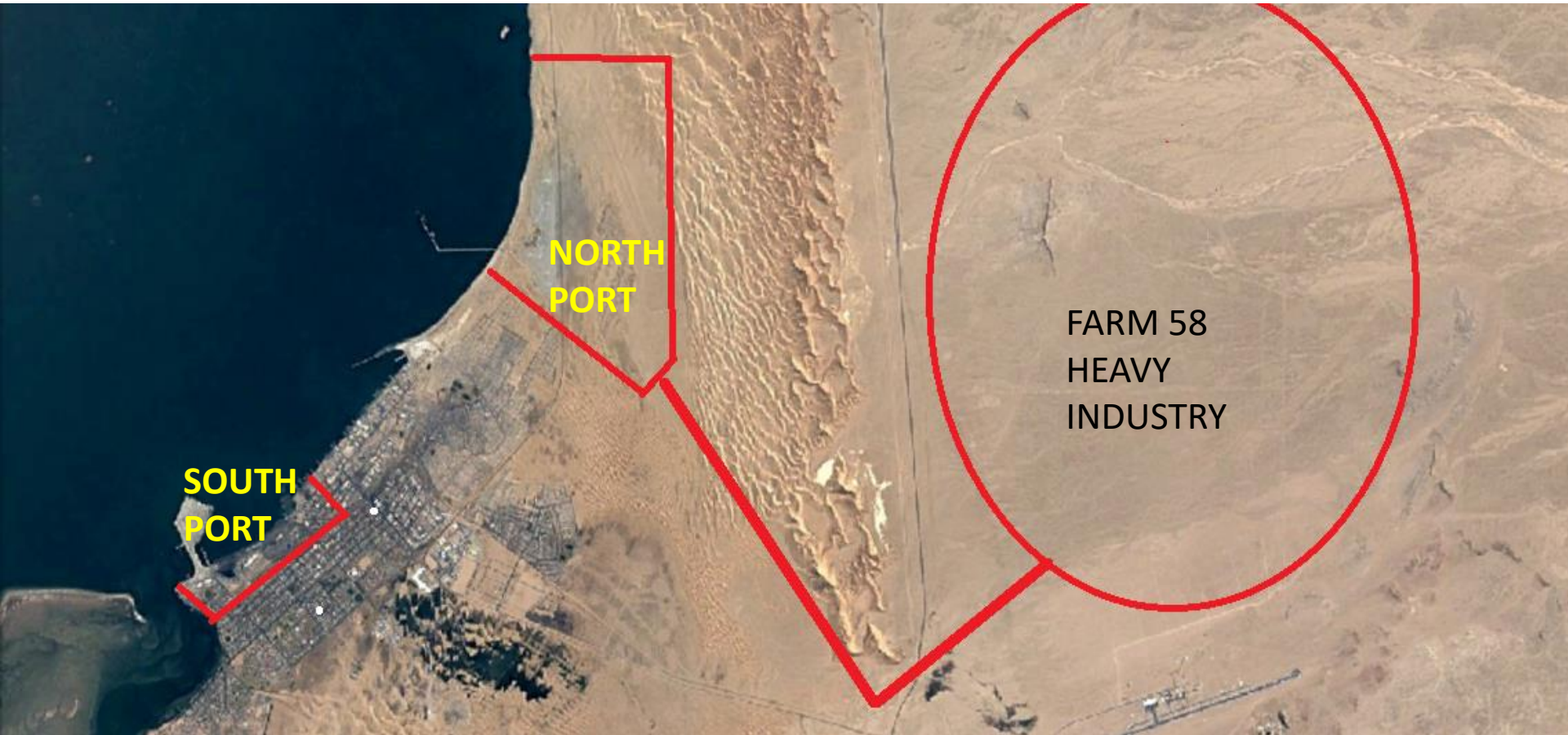
PORT OF WALVIS BAY – NORTH PORT PHASED 50 YEAR DEVELOPMENT PLAN

WALVIS BAY PORT EXPANSION PHASING

- Phase 1a - Bulk Liquid Berths
- Phase 1b - Tank Farm
- Phase 2 - LNG Terminal
- Phase 3 - Multi-purpose Dry Bulk Terminal
- Phase 4 - Ship Repair / Service
- Phase 5 - Botswana Coal Terminal
- Future Island
- Internal Port Roadway/Corridor Lighting
- Logistics Supply Store
- Multi-purpose / Break Bulk Terminal (MB/BB)
- New Namport Admin
- Phosphate Buffer Pond (Sandpiper MPP)
- Rail Marshalling Yard



Port of Walvis Bay North Port – Energy HUB



- North Port is the newest addition to the Port of Walvis Bay, with existing capacity of 10MTPA of liquid imports/exports, and/or an ammonia and/or methanol bunkering
- 1335 hectares of land, 100 hectares (out of 350ha) was already allocated for a Hydrogen production projects.
- New Multipurpose Terminal planned for the North Port

Port of Luderitz



Image Landsat / Copernicus



Port of Luderitz

- The Port of Luderitz, Robert Harbour, physically cannot easily expand due to the rock on which it is built and the town which completely surrounds it.
- All land plots are currently leased out.
- Berths are all over-utilized.
- Maximum depth alongside is 8.75m. Expansion of the current port is feasible but at the same depth.
- The 2010 Port Master Plan was recently revised in order to take into account the new green hydrogen industry, amongst others.
- Existing Port Capacity is 1.7 MTPA versus 1.2 MTPA actual
- Capacity will be increased to 3 MTPA with transshipment operations



Port of Luderitz – Robert Harbour

- The following vessels currently occupy the berths at Robert Harbour for 29 days in a month which equates to 95% berth occupancy on average.
 - Zinc
 - Manganese (TNP)
 - Manganese (PEK- Aug 2024)
 - Tanker
 - DBM Supply Tug
 - Total Supply Tug
 - Fishing Trawlers
 - Namport Tugs
 - Small Fishing Co.
 - Cruise ships
 - Bad weather days
- It is best practice to expand your port when berth occupancy reaches 65%



Port of Luderitz
– Robert
Harbour Quay
Wall Extension,
ULTIMATE
OPTION

- **PROJECT TO BE IMPLEMENTED IN PHASES**
- **TOTAL EXPANSION IN FUTURE:**
 - 15 hectares of land to be reclaimed adjacent to the current port;
 - Existing quay wall to be extended by 700m;
 - Project to be implemented in phases depending on actual demand;



Port of Luderitz – Robert Harbour Quay Wall Extension, PHASE 1

- **PHASE 1:**
 - 6 Hectares of land to be reclaimed adjacent to the current port;
 - Existing quay wall to be extended by 250m;
 - Construction to commence in 2025, for completion within 24 months;

Port of Luderitz – Robert Harbour Quay Wall Extension, PHASE 1

PHASE 1 PROJECT PROGRESS:

- EIA including Archeological study currently 85% completed;
- Financing, estimated at about NAD 2 billion, will be secured in Q3 2024;
- Tenders to be issued for construction by Q1 2025 if all approvals and financing are in place;
- Construction to be completed within 2 years, i.e., phase 1 can be commissioned by 2027;

Namport and Green Hydrogen

GOVERNMENT RENEWABLE ENERGY PROGRAM

- 25,000km² of land is being earmarked by the Government of Namibia for production of green hydrogen in Southern Namibia.
- 4,000km² has already been awarded to “Hyphen Hydrogen Energy” as “preferred bidder”;

GREEN HYDROGEN ACTIVITIES TO BE DEVELOPED INSIDE THE PORTS:

- Desalination plant, electrolyser, air separation units, ammonia production units, tank farms, administration, logistics zones and ammonia bunkering hub;

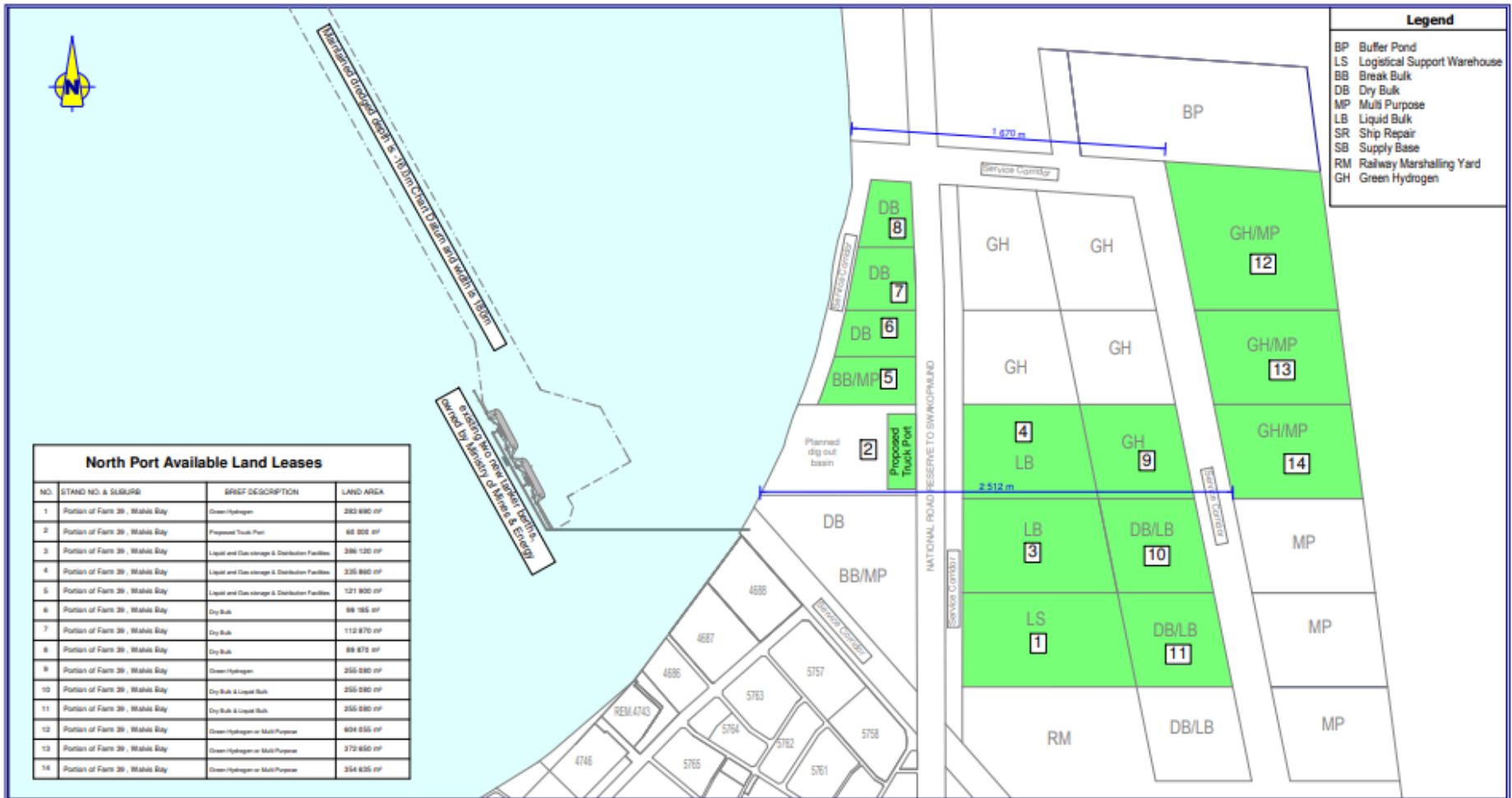
COMMON USER INFRASTRUCTURE TO BE OWNED AND OPERATED BY NAMPORT:

- Berths: Quay walls or jetties with suitable water depth
- Bulk pipelines to the berth(s) and handling/loading equipment on the berth(s).
- Any port infrastructure which may be shared amongst different hydrogen producers will be controlled by the port authority;

First Movers:

- CMB/O&L JV in the Port of Walvis Bay North Port;
- Hyphen in the Port of Luderitz Angra Point

PWB North Port Property Initiatives:

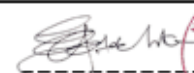




Legend	
BP	Buffer Pond
LS	Logistical Support Warehouse
BB	Break Bulk
DB	Dry Bulk
MP	Multi Purpose
LB	Liquid Bulk
SR	Ship Repair
SB	Supply Base
RM	Railway Marshalling Yard
GH	Green Hydrogen

North Port Available Land Leases			
NO	STAND NO. & SUBURF	BRIEF DESCRIPTION	LAND AREA
1	Portion of Farm 39, Walvis Bay	Green Hydrogen	263 690 m ²
2	Portion of Farm 39, Walvis Bay	Proposed Truck Port	60 900 m ²
3	Portion of Farm 39, Walvis Bay	Liquid and Gas storage & Distribution Facilities	396 120 m ²
4	Portion of Farm 39, Walvis Bay	Liquid and Gas storage & Distribution Facilities	325 860 m ²
5	Portion of Farm 39, Walvis Bay	Liquid and Gas storage & Distribution Facilities	121 800 m ²
6	Portion of Farm 39, Walvis Bay	Dry Bulk	99 165 m ²
7	Portion of Farm 39, Walvis Bay	Dry Bulk	112 870 m ²
8	Portion of Farm 39, Walvis Bay	Dry Bulk	89 879 m ²
9	Portion of Farm 39, Walvis Bay	Green Hydrogen	255 290 m ²
10	Portion of Farm 39, Walvis Bay	Dry Bulk & Liquid Bulk	255 290 m ²
11	Portion of Farm 39, Walvis Bay	Dry Bulk & Liquid Bulk	255 290 m ²
12	Portion of Farm 39, Walvis Bay	Green Hydrogen or Multi-Purpose	604 255 m ²
13	Portion of Farm 39, Walvis Bay	Green Hydrogen or Multi-Purpose	372 650 m ²
14	Portion of Farm 39, Walvis Bay	Green Hydrogen or Multi-Purpose	354 625 m ²



Notes
 1. This APP will be updated periodically and thus replaced by subsequent newer versions without prior notice. Please monitor the Namport website to download the latest version.


 Port Engineer



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 Date: 16 July 2021
 Scale: 1 : 20000

Drawing title:
North Port Available Property Plan (APP)
 Project Name
 Namibian Ports Authority
PORT OF WALVIS BAY
North Port Available Property Plan (APP)
 Drawing no.
WBH-602-A-3123R2
 Sheet No.
1 of 1

MATERIAL IMPORTS AND EXPORTS RELATED TO GREEN HYDROGEN

IMPORTS – mostly break bulk

- Construction materials will include:
 - Wind Turbines – break bulk
 - Solar Panels – containerized
 - Process plant components – break bulk
 - Etc.

EXPORTS – mostly liquids

- Green Hydrogen carriers (ammonia)
- Bunkering fuel (ammonia and/or methanol);
- Synthetic fuels

Namport and Green Hydrogen

GREEN HYDROGEN ACTIVITIES THAT MAY BE DEVELOPED INSIDE THE PORTS:

- Desalination plants, electrolysers, air separation units, ammonia production units, tank farms, ammonia and/or methanol bunkering hubs, etc.;

COMMON USER INFRASTRUCTURE TO BE OWNED AND OPERATED BY NAMPORT:

- Berths: Quay walls or jetties with suitable water depth;
- Bulk pipelines inside and outside the ports to convey all related liquids and gasses;
- Handling/loading equipment on the berth(s).
- Any port infrastructure which may be shared amongst different hydrogen producers will be controlled by the port authority;

Port of Lüderitz – Angra Point

Master Plan Study for the Proposed Deepwater Port at Angra Point, Port of Lüderitz
Concept Development and Cost Estimate



Port of Rotterdam



Medium-Term Layout (2043)

LEGEND	
■	Green ammonia
■	Liquid bulk
■	Desalination plant
■	Manganese
■	Lead & zinc concentrate
■	Phosphate ore
■	Sulphur
■	Zinc ingots
■	General cargo
■	Project cargo
■	Fishing
■	Services and small craft
■	Port authority facilities
—	Conveyor
—	Rail
—	Road
—	Ammonia pipeline
—	Liquid bulk pipeline
—	Phosphoric acid pipeline
—	Phosphate ore slurry pipeline
—	Underground powerline
—	Overhead powerline
—	Potable water
—	Electrolysis water
—	Brine outlet pipe
- - -	Future port boundary
●	ADCP deployment (April 2023)



1. Expansion of Main Quay Wall in Robert Harbour by 200-300m to commence in 2024/5;
2. First Ammonia export berth at Angra Point to be commissioned by 2028 for export of 2MTPA of Ammonia. Up to 18MTPA ammonia export capacity is planned in total.

CONCLUSIONS

Port of Walvis Bay

- Adequate capacity exists in the Port of Walvis Bay today to accommodate all required imports and exports for the GH2 industry in the next 10 years;
- Port of Walvis Bay North Port Master Plan has sufficient scope to increase capacity and cater for the demand over the next 50 years;

Port of Luderitz

- Capacity in the current Port of Luderitz Robert Harbour is constrained.
- Expansion of Robert Harbour is being fast tracked to provide capacity for project cargo imports by 2025/6.
- Development of an export terminal at Angra Point by 2028 will provide a capacity to export up to 2 MTPA of ammonia;
- Angra Point Master Plan provides scope to create up to 18MTPA ammonia export capacity;

Namport Existing Port Operating Model

PORT OF WALVIS BAY CARGO OPERATIONS

		INFRASTRUCTURE	SUPERSTRUCTURE	PORT OPERATIONS
		Ownership and operation of berthing infrastructure such as jetties and quay walls	Ownership and operation of super structures such as cranes and cargo handling equip.	Cartage/Haulage to terminal/buffer storage
No.	Port Activity			
1	Container Operations	Namport	Namport	Namport
2	Break bulk cargo	Namport	Mixture of Namport & private	Mixture of Namport & private
3	Car/import operations	Namport	N/A	Private
4	Dry bulk cargo	Namport	Mixture of Namport & private	Private
5	Liquid bulk	Namport	Private	Private
6	Passenger operations	Namport	N/A	Private
7	Fishing operations berth 4	Namport	Mixture of Namport & private	Private
8	Fishing operations in fishing harbour	Private	Private	Private
9	Ship to ship operations	Namport	Private	N/A
10	Cold Storage operations	Namport	Private	Private



Namport Existing Port Operating Model

PORT OF WALVIS BAY SHIP AND RIG REPAIR

		INFRASTRUCTURE	SUPERSTRUCTURE	OPERATIONS
No.	Port Activity	Ownership of and operation of Berthing or dry docking infrastructure	Ownership and operation of superstructure such as cranes	Conducting of actual ship repair works
1.	Syncrolift dry docking ship repair operations	Namport	Mixture of Namport and Private	Private
2.	Floating dry docks repair operations	Private	Private	Private
3.	Alongside ship repair operations at the floating dry docks	Private	Private	Private
4.	Alongside ship and rig repair operations at berths 1 to 8 and syncrolift jetties	Namport	Private	Private
5.	Alongside ship and rig repair operations at fishing harbour	Private	Private	Private

- Although the Namdock Operations are completed private, Namport owns the majority shares and thus cannot objectively bring in another similar dry dock operator without being compromised.



Namport Existing Port Operating Model

PORT OF LUDERITZ CARGO OPERATIONS				
		INFRASTRUCTURE	SUPERSTRUCTURE	PORT OPERATIONS
No.	Port Activity	Ownership and operation of berthing infrastructure such as jetties and quay walls	Ownership and operation of super structures such as cranes and cargo handling equip.	Cartage/Haulage to terminal/buffer storage
1	Container Operations	Namport	Namport	Namport
2	Break bulk cargo	Namport	Namport	Mixture of Namport & private
3	Dry bulk cargo	Namport	Mixture of Namport & private	Private
4	Liquid bulk	Namport	Private	Private
5	Passenger operations	Namport	N/A	Private
6	Fishing operations	Namport	Mixture of Namport & private	Private
7	Ship to ship operations	Namport	Private	N/A
8	Cold Storage operations	Namport	Private	Private



LANDLORD MODEL IS THE WAY TO GO

- **THE MWT NATIONAL TRANSPORT POLICY** has spelled out in so many words that Namport should move to a Landlord model
- Most ports around the world and especially in the region has either already fully moved to the Landlord Port model or they are in the process;
- Namport already decided to apply the Landlord model at:
 - Walvis Bay NCT - Container Terminal
 - Walvis Bay North Port
 - Port of Luderitz Angra Point
- Only the following activities remain to be outsourced in order to realize a full Landlord model:
 - Break bulk incl. Luderitz, Syncrolift, Namdock (shares), tugboat services, pilotage services, passenger terminal, RO-RO;

THE END, THANK YOU!

