

NO	DESCRIPTION
1	Main Guardhouse
2	Vehicles Park Area
3	Management/Company Car Park Area
4	Ambulance & Clinic
5	Main Office (double storey)
6	Electrical/Electronic Workshop
7	Piping Workshop
8	Mechanical & Machine Shop
9	Sub-contractors Workshop
10	Preblast Mat Storage
11	Blasting Plant
12	Steel Mat Storage
13	Hull Workshop 1
13	Hull Workshop 2
13	Hull Workshop 3
13	Hull Workshop 4
13	Hull Workshop 5
14	Main Warehouse 1
14	Main Warehouse 2
14	Main Warehouse 3
15	Canteen
16	Tool Store
17	Main Store

NO	DESCRIPTION
1	Guardhouse
2	Workers Scan Station
3	Car Park (Visitors)
4	Motorcycles Park (Staffs)
5	Car Park (Staffs)
6	Car Park (Clients)
7	Admin Office (3 Storey)
8	Client Office (2 Storey)
9	Preservation Warehouse
10	E&I Workshop
11	Carbon Steel Piping Fabrication Shop
12	Stainless Steel Piping Fabrication Shop
13	Covered Warehouse
14	Plate Cutting & Plate Girder Shop
15	Pre Fabrication Yard
16	Laydown Area
17	Sand Blasting & Painting Shop
18	Open Assembly & Fabrication Area

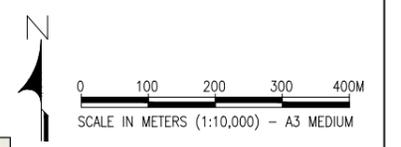
LAND-USED	PARCEL	ACRES	SQM	NUMBER OF LOT
<b>FACTORY (DETACHED)</b>				
	B2	2.54	10,277	1
	B3	2.73	11,033	1
	B4	1.97	7,959	1
	B5	2.25	9,116	1
	B6	2.02	8,157	1
	B7	1.50	6,066	1
	B8	1.96	7,944	1
	B9	2.02	8,192	1
	B10	1.56	6,295	1
	B11	1.87	7,557	1
	B12	2.16	8,748	1
	E1	0.48	1,961	1
	F1	0.70	2,819	1
	F2	0.77	3,133	1
	H1,H7,H8,H14	1.13	4,571	4
	H2-H6,H9-H13	1.13	4,582	10
total:		40.37		163,361
<b>FACTORY (SEMI-DETACHED)</b>				
	F3	0.29	1,163	1
	F4-F7	0.30	1,202	4
	F8	0.39	1,583	1
	E2-E8,E11-E17	0.37	1,500	12
	E9,E10	0.52	2,123	2
	D1	0.42	1,696	1
	D2-D9,D12	0.37	1,498	16
	D19	0.51	2,056	1
	D10,D11	0.52	2,123	2
	D20	0.51	2,056	1
total:		15.26		61,766

Land-Used	Parcel	Acres	SQM
INSTITUTION	B1	28.37	114,800
PLACE OF WORSHIP	include in institution land		
UTILITIES	-	-	-
GREEN & PROMENADE	-	-	-
INFRASTRUCTURE (ROAD)	-	-	-
total:		28.37	114,800

Land-Used	Parcel	Acres	SQM	PLOT RATIO (*TBA)	Max GFA (sqm)
BUSINESS PARK	A1	22.17	89,710	4	358,842
total:		22.17	89,710.40		358,842

Land-Used	Parcel	Acres	SQM	Density (*TBA)	Units
RESIDENTIAL PARK	A2	5.87	23,775	60 units / acre	352
	A3	9.36	37,879	60 units / acre	562
total:		15.23	61,654		914

ENVIRONMENTAL IMPACT ASSESSMENT  
 PROPOSED DEVELOPMENT OF KUANTAN MARITIME HUB AT MUKIM SUNGAI KARANG, KUANTAN, PAHANG DARUL MAKMUR



**OVERALL PROJECT LAYOUT**

FIGURE: ES-3

**ENVIRONMENTAL IMPACT ASSESSMENT**  
**PROPOSED DEVELOPMENT OF KUANTAN**  
**MARITIME HUB AT MUKIM SUNGAI KARANG,**  
**KUANTAN, PAHANG DARUL MAKMUR**

**SHIPYARD**

NO	DESCRIPTION
1	Main Guardhouse
2	Vehicles Park Area
3	Management/Company Car Park Area
4	Ambulance & Clinic
5	Main Office (double storey)
6	Electrical/Electronic Workshop
7	Piping Workshop
8	Mechanical & Machine Shop
9	Sub-contractors Workshop
10	Preblast Mat Storage
11	Blasting Plant
12	Steel Mat Storage
13	Hull Workshop 1
13	Hull Workshop 2
13	Hull Workshop 3
13	Hull Workshop 4
13	Hull Workshop 5
14	Main Warehouse 1
14	Main Warehouse 2
14	Main Warehouse 3
15	Canteen
16	Tool Store
17	Main Store
18	Carpentry Workshop
19	Ship Repair Workshop
20	Ship Repair/Dock Master Workshop
21	Control Room
22	Shiplift Working Area
23	Shiplift
24	Drydock
25	Dockgate
26	Flooding Room
27	Pump Room
28	Bollard
29	Copper Grit Blasting & Storage Area
30	Workers Accommodation Area
31	Compressor House
32	Gas Centre
33	Substation
34	Water Tank
35	Sewerage Treatment Plant
36	Subcontractors Complex
37	Disposal Area
38	Scrap Area
39	Safety & Environment
40	Security Office
41	Weightbridge

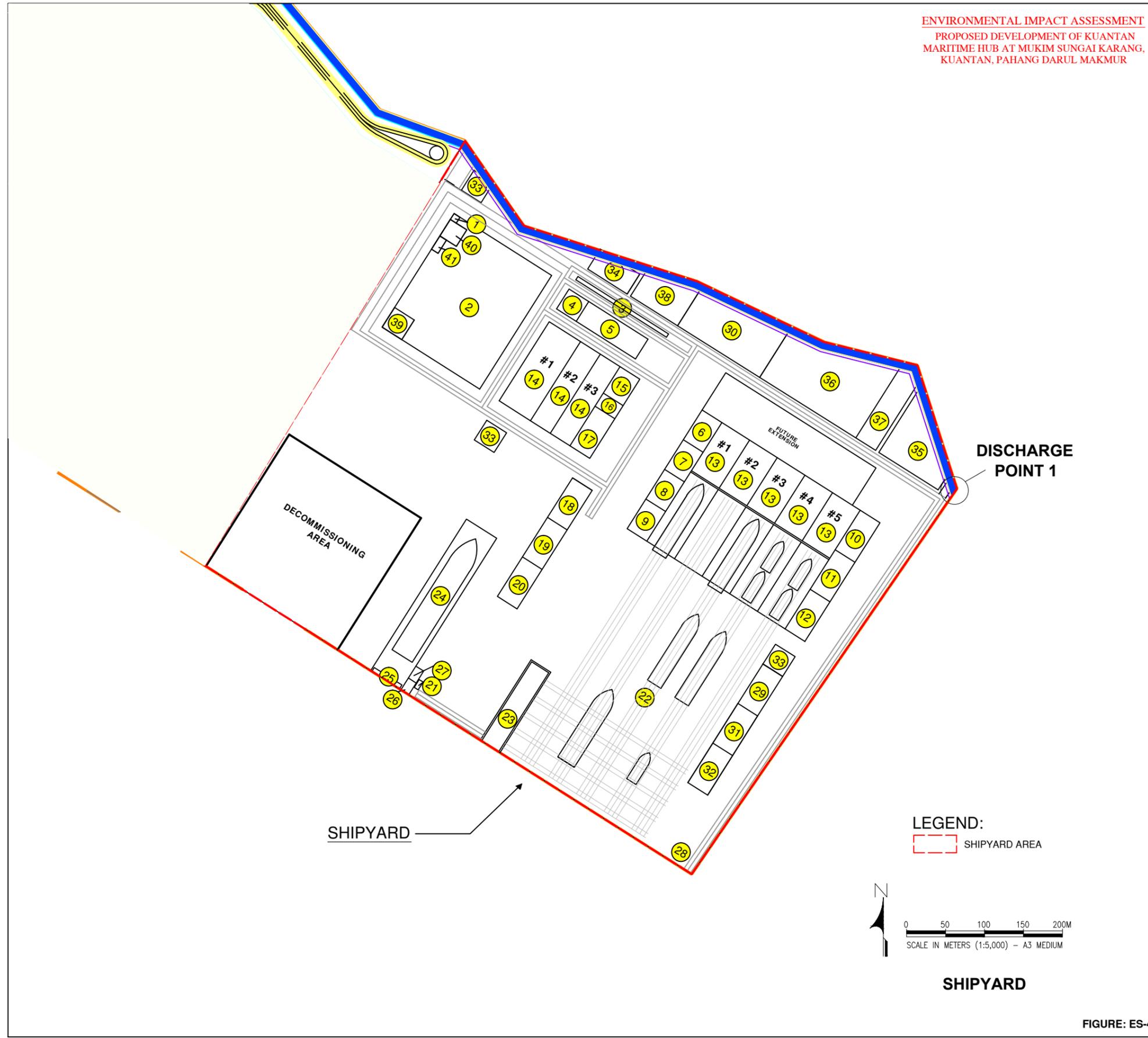


FIGURE: ES-4

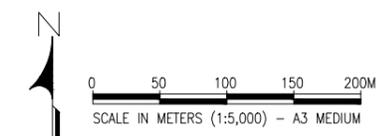
ENVIRONMENTAL IMPACT ASSESSMENT  
 PROPOSED DEVELOPMENT OF KUANTAN  
 MARITIME HUB AT MUKIM SUNGAI KARANG,  
 KUANTAN, PAHANG DARUL MAKMUR

FABRICATION YARD

NO	DESCRIPTION
1	Guardhouse
2	Workers Scan Station
3	Car Park (Visitors)
4	Motorcycles Park (Staffs)
5	Car Park (Staffs)
6	Car Park (Clients)
7	Admin Office (3 Storey)
8	Client Office (2 Storey)
9	Preservation Warehouse
10	E&I Workshop
11	Carbon Steel Piping Fabrication Shop
12	Stainless Steel Piping Fabrication Shop
13	Covered Warehouse
14	Plate Cutting & Plate Girder Shop
15	Pre Fabrication Yard
16	Laydown Area
17	Sand Blasting & Painting Shop
18	Open Assembly & Fabrication Area
19	Workers Canteen
20	Workers Toilet & Prayer Room
21	Loadout No. 1
22	Loadout No. 2
23	Gas Centre
24	Garnet Blasting & Storage Area
25	Substation
26	Water Tank
27	Sewerage Treatment Plant
28	Subcontractors Complex
29	Disposal Area
30	Scrap Area
31	Security Office
32	Weightbridge
33	Safety & Environment
34	Ambulance & Clinic
35	Pipe Jointing Rack
36	Loadout No. 3
37	Workers Accommodation Area

LEGEND:

FABRICATION YARD AREA



FABRICATION YARD

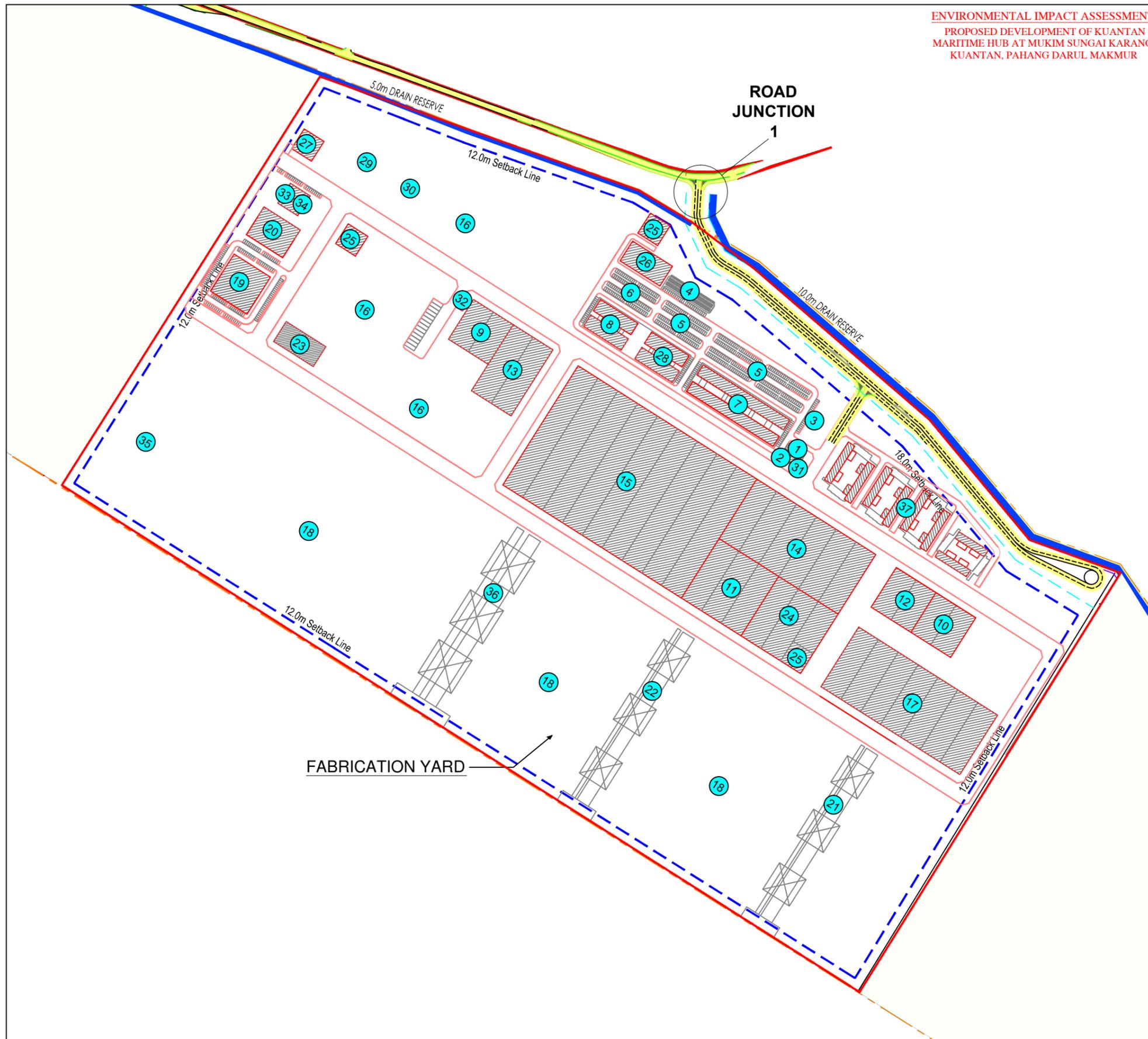
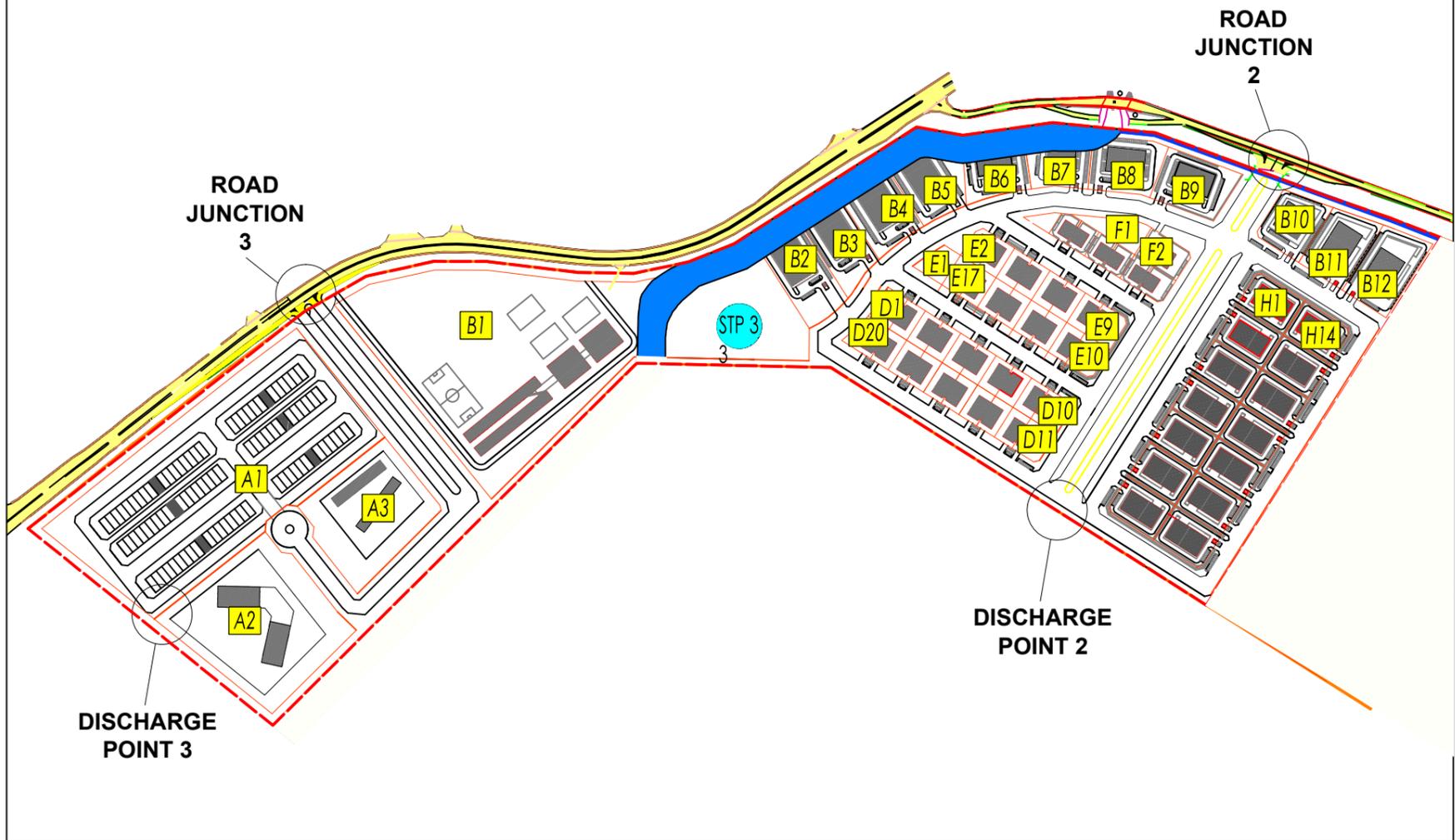


FIGURE: ES-5



MARITIME INDUSTRIAL PARK

LAND-USED	PARCEL	ACRES	SQM	NUMBER OF LOT
FACTORY (DETACHED)	B2	2.54	10,277	1
	B3	2.73	11,033	1
	B4	1.97	7,959	1
	B5	2.25	9,116	1
	B6	2.02	8,157	1
	B7	1.50	6,066	1
	B8	1.96	7,944	1
	B9	2.02	8,192	1
	B10	1.56	6,295	1
	B11	1.87	7,557	1
	B12	2.16	8,748	1
	E1	0.48	1,961	1
	F1	0.70	2,819	1
	F2	0.77	3,133	1
	H1, H7, H8, H14	1.13	4,571	4
	H2-H6, H9-H13	1.13	4,582	10
	<b>total:</b>		<b>40.37</b>	
FACTORY (SEMI-DETACHED)	F3	0.29	1,163	1
	F4-F7	0.30	1,202	4
	F8	0.39	1,583	1
	E2-E8; E11-E17	0.37	1,500	12
	E9, E10	0.52	2,123	2
	D1	0.42	1,696	1
	D2-D9; D12-D19	0.37	1,498	16
	D10, D11	0.52	2,123	2
	D20	0.51	2,056	1
<b>total:</b>		<b>15.26</b>		<b>61,766</b>

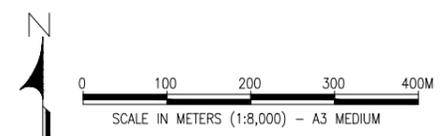
Land-Used	Parcel	Acres	SQM	Density (*TBA)	Units
RESIDENTIAL PARK	A2	5.87	23,775	60 units / acre	352
	A3	9.36	37,879	60 units / acre	562
<b>total:</b>		<b>15.23</b>	<b>61,654</b>		<b>914</b>

Land-Used	Parcel	Acres	SQM		
INSTITUTION	B1	28.37	114,800		
PLACE OF WORSHIP				include in institution land	
UTILITIES					
GREEN & PROMENADE	-				
INFRASTRUCTURE (ROAD)	-				
<b>total:</b>		<b>28.37</b>	<b>114,800</b>		

Land-Used	Parcel	Acres	SQM	PLOT RATIO (*TBA)	Max GFA (sqm)
BUSINESS PARK	A1	22.17	89,710	4	358,842
<b>total:</b>		<b>22.17</b>	<b>89,710.40</b>		<b>358,842</b>

LEGEND:

MARITIME INDUSTRIAL PARK AREA



MIXED  
 DEVELOPMENT AND  
 INDUSTRIAL PARK

**Table ES3: Main Project Components Proposed Under Phase 1 Development Planning**

Type of Development	Main Components
Shipyards	Workshops
	Blasting Plant
	Painting Plant
	Dry Dock
	Chemical Storage
	Gas Tank Storage
	Waste Storage
	Sewage Treatment Plant
Fabrication Yard	Workshops
	Blasting Plant
	Painting Plant
	Chemical Storage
	Gas Tank Storage
	Waste Storage
	Sewage Treatment Plant
Institution	Training Centre
	Quarters
Maritime Industrial Park	Industrial lots
Business and Residential Park	Shop lots
	Apartments
	Sewage Treatment Plant
Navigation channel and basin	Capital and maintenance dredging

This EIA will also study the reclamation of Phase 2 and Phase 3 which is planned for approximately 480 acres. However no assessment will be carried out on the land use of these phases as the development plan for these phases is not available at the time of this EIA study.



## 8 Project Activities

### 8.1 Construction and Installation Stage

The development of the proposed project will be separated into marine works and land works. The development of the Project will be carried out in Phases as mentioned in Section 5 of this Executive Summary. It is anticipated that upon the completion and approval of the EIA, and after other necessary permissions for development are granted, construction works of Phase 1 will commence. The construction and installation stage is expected to have the following activities.

**Table ES 4: List of Activities for Marine Works**

Activity	Description
Preparatory Works	<p>Hydrographical and bathymetric surveys will be carried out by licensed surveyor to determine the existing seabed level prior to the commencement of reclamation and dredging works.</p> <p>Arrangement and necessary approvals will be obtained for importing marine sand from an approved source and for disposal of unsuitable dredged materials at an approved disposal site. Tentatively the sand source (about 22 km from Project site) and dredged material disposal site (about 17.5 km from Project site) are indicated on <b>Figure ES8</b>. These locations are currently being used by other Projects in Kuantan. This EIA study does not include the sand source and disposal site for dredged material.</p>
Construction of Containment Bund	Prior to the construction of the sand containment bund and reclamation activity, floating silt curtains will be installed around the Project area to be reclaimed to contain potential sediment plume.
Reclamation Work	The reclamation works are expected to be carried out using 3 sand carriers with hopper barge capacity of 3,500 m <sup>3</sup> each. Each sand carrier is assumed to complete 4 trips per day with 3 hours of reclamation operation. Daily reclamation volume is estimated between 12,500 m <sup>3</sup> and 37,500 m <sup>3</sup> (maximum daily reclamation volume where the 3 sand carriers are working simultaneously). The total volume of sand required for overall reclamation works is estimated to be approximately 22.5 million m <sup>3</sup> , however this requirement will be in stages based on the development phases. The proposed filling material will be marine sand.
Shoreline Protection	Once the reclaimed site is stabilised, permanent shoreline protection will be installed as per proposed plan on <b>Figure ES9</b> . There will be two types of shoreline protection, namely designed slope with armour rock and retaining vertical wall along the seafront of shipyard and fabrication



ENVIRONMENTAL IMPACT ASSESSMENT  
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LEGEND:

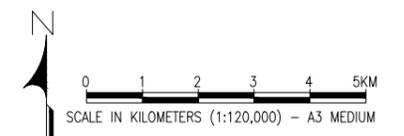
- PROJECT SITE
- DUMPING SITE
- SAND SOURCE

DUMPING SITE:

NO	EAST	NORTH
1	103° 35' 49.99"	3° 57' 5.00"
2	103° 34' 50.01"	3° 55' 9.98"
3	103° 36' 29.98"	3° 54' 10.00"
4	103° 37' 45.01"	3° 55' 50.01"

SAND SOURCE:

NO	EAST	NORTH
1	103° 38' 1.21"	3° 52' 2.0"
2	103° 35' 3.01"	3° 50' 3.01"
3	103° 40' 0.01"	3° 49' 0.01"
4	103° 37' 1.81"	3° 47' 4.2"



**SAND SOURCE AND  
 DREDGED MATERIAL  
 DISPOSAL SITE**



Source: Google Earth 2017

FIGURE: ES-8