

الحكومة العامة  
ماترا

M A T R A H  
INFRASTRUCTURE  
INTEGRATION AND  
REDEVELOPMENT

**ROADS AND DRY UTILITIES IN MATRAH**

**Preliminary Planning and Design 2016**

ICE Oman - November 8, 2016

## The New Infrastructure Plan in Matrah

- Roads
- Wet Utilities
- Dry Utilities
- Service Corridors
- Implementation Strategy



## ROADS AND DRY UTILITIES IN MATRAH

UTILITY	EXISTING CONDITION	PRELIMINARY PROJECT	UNITS (S.I.)	NOTE
ROADS	42.5	15.0	km	The 15 km roads include all the works on the existing main roads and the new roads.
POWER SUPPLY	33	39.0	km	The new power supply includes a primary and secondary network only (the tertiary-line project will increase this number). The network will be fed by Ruwi's and Muscat's existing electrical primary substation.
TELECOM NETWORK	18	35	km	The new FOC telecommunication network include a primary and secondary network only (the tertiary-line project will increase this number). The network will be connected by the existing FOC system in RUWI.
STREET LIGHTING SYSTEM	10	30	km	The new lighting system include the main roads the souq and the residential areas. The network will be replace the existing one and all the luminaries will utilize LED lamps.
SOLAR PLANTS	0	1,450.00	kW	The new renewable energies plants will be located in the parking areas on the car shadings and on the roof for the multi stories buildings. They will be grid connected to the MEDC network.
SECURITY SYSTEM	0	7	Nr. Of Areas	The new security system includes the main roads, the Souq and other hot spots within the project area. The network will be connected to the new FOC system .
UTILITY TUNNELS	0	3.2	km	Utility Tunnels are proper housing for all the main public utilities, wet (potable water, irrigation water, sewer) and dry ones (electricity LV, electricity HV, public lighting, fibers optical for telecommunications).





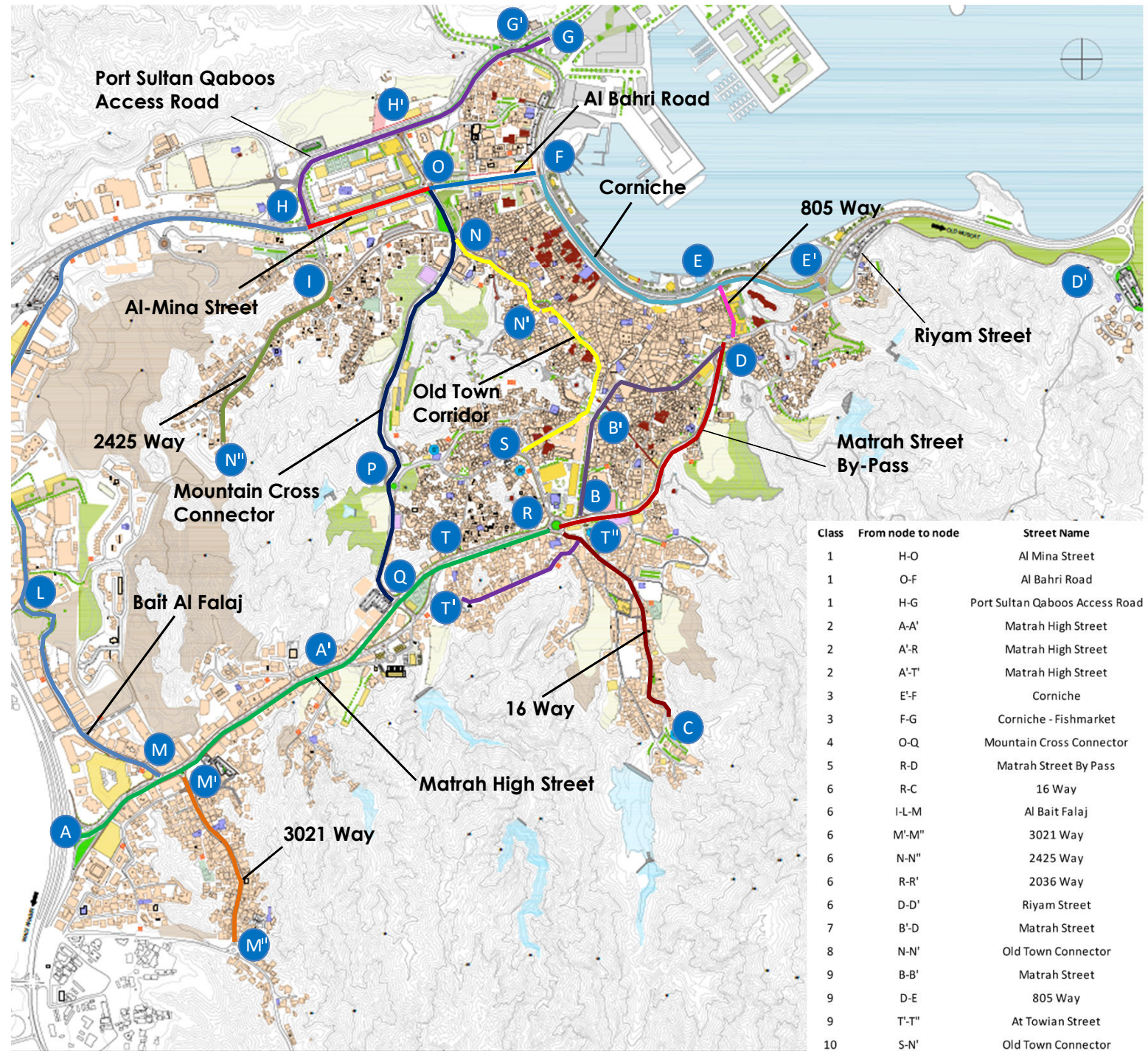
**NEW ROAD NETWORK**



# THE NEW ROAD NETWORK IN MATRAH

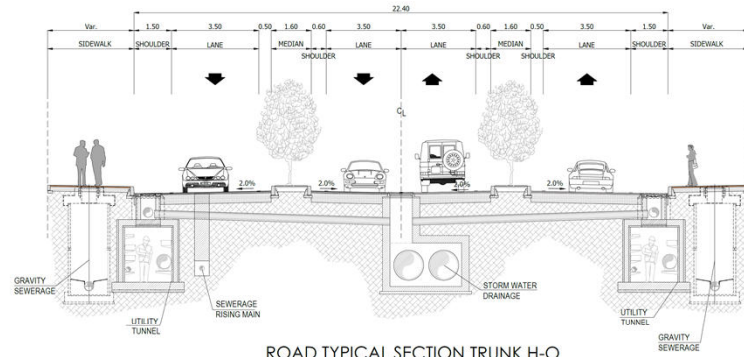
List of planned interventions on overall 15 km:

1. New access road to Sultan Qaboos Port from Al Mina Street.
2. Creation of the Old Town Corridor as an emergency lane and for resident use within the old town.
3. Downgrade of, in the long term, the use of Corniche as a local connector, in order to improve the quality of its pedestrian space.
4. Creation of the new "Mountain Cross Connector" to improve the connection between the northern and southern parts of Matrah.
5. Creation of a service road along Bait al Falaj street.
6. Enlargement of the Matrah Street section to double carriageway (avoiding demolitions).
7. Creation of the Matrah St bypass to provide access to Al Areen while relieving the old town Souq of traffic.

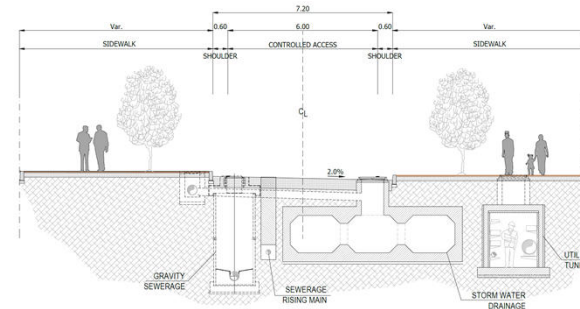




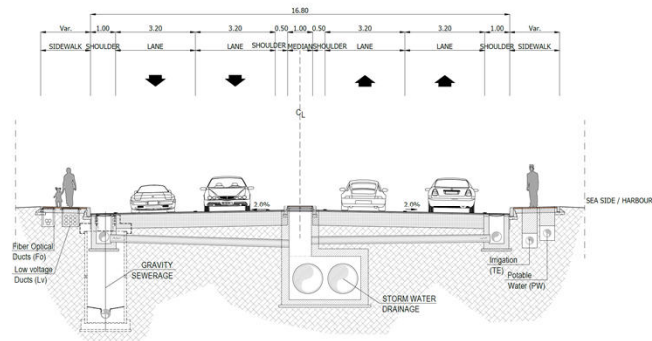
# TYPICAL ROADS CROSS-SECTIONS



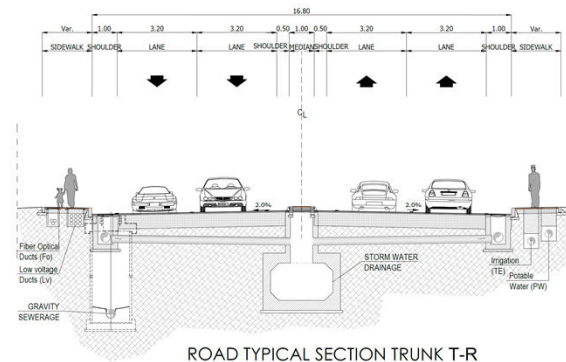
ROAD TYPICAL SECTION TRUNK H-O  
AL - MINA STREET  
SCALE 1:100



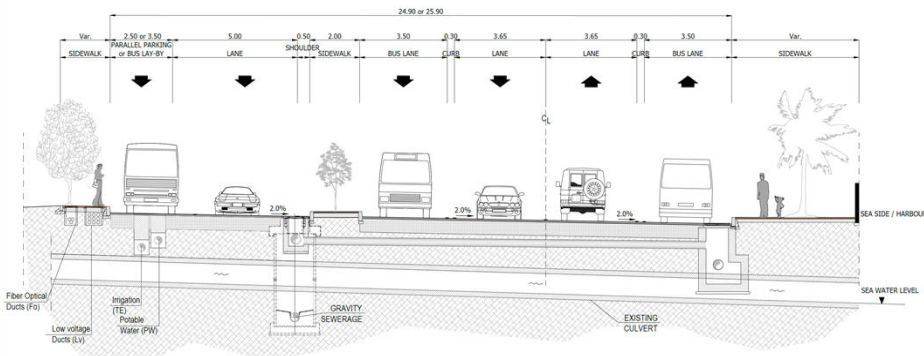
ROAD TYPICAL SECTION TRUNK O-F  
AL BAHRI ROAD  
SCALE 1:100



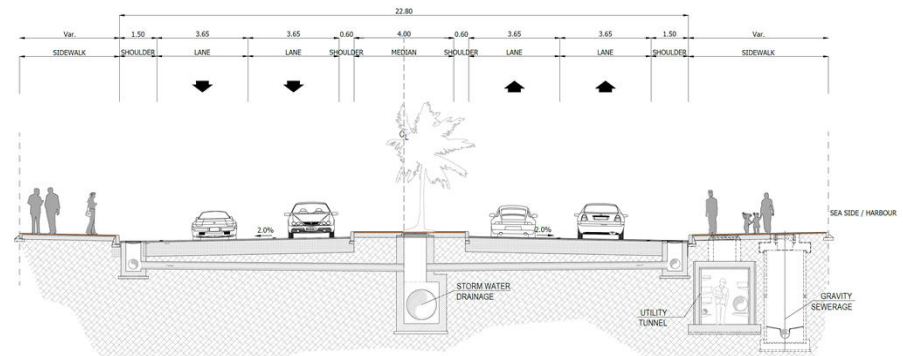
ROAD TYPICAL SECTION TRUNK A-A'  
MATRAH HIGH STREET  
SCALE 1:100



ROAD TYPICAL SECTION TRUNK T-R  
MATRAH HIGH STREET  
SCALE 1:100



ROAD TYPICAL SECTION TRUNK E-F  
CORNICHE  
SCALE 1:100



ROAD TYPICAL SECTION TRUNK H-G  
CORNICHE - PORT SULTAN QABOOS ACCESS ROAD  
SCALE 1:100

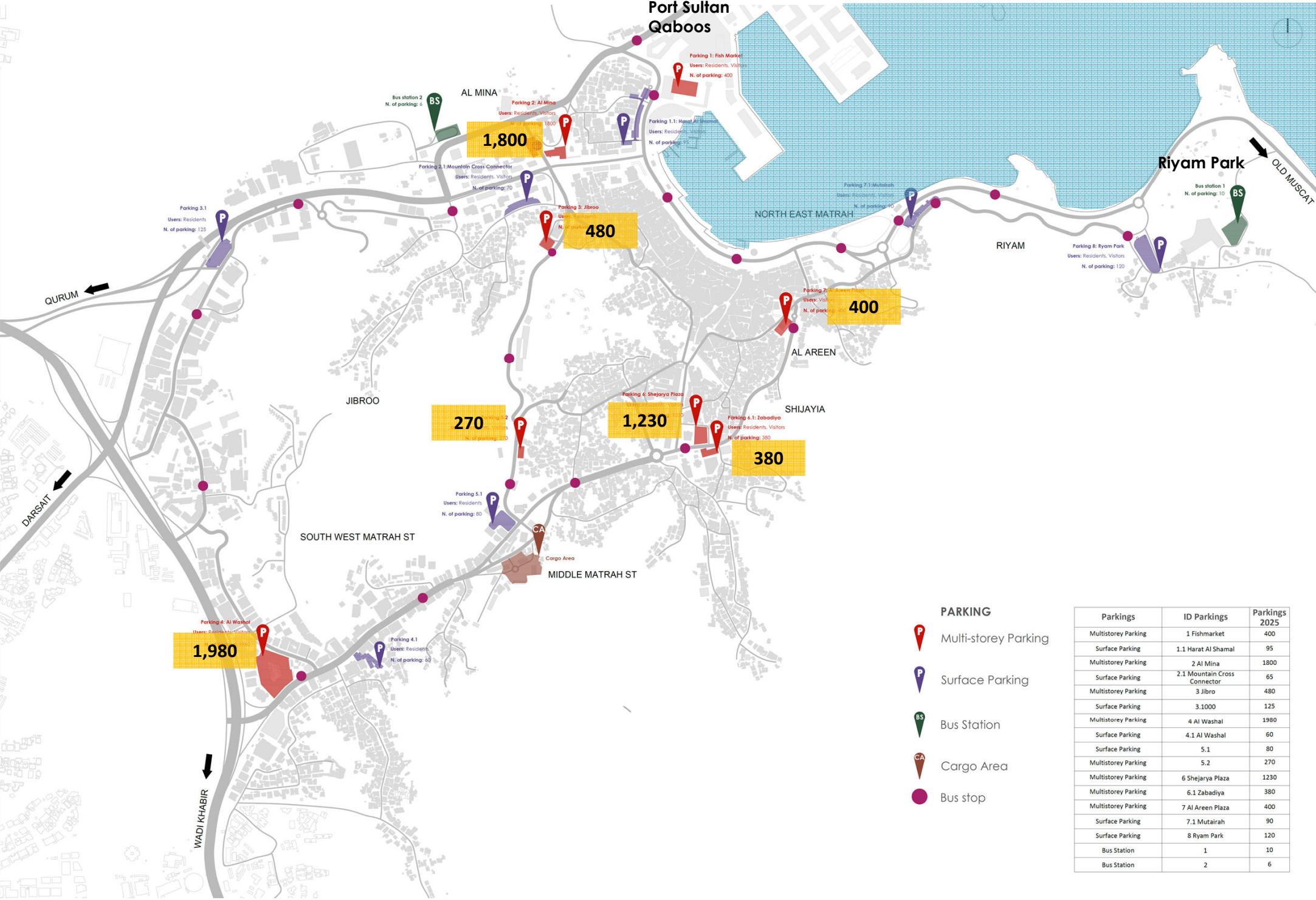
Class	From node to node	Street Name
1	H-O	Al Mina Street
1	O-F	Al Bahri Road
1	H-G	Port Sultan Qaboos Access Road
2	A-A'	Matrah High Street
2	A-R	Matrah High Street
2	A-T	Matrah High Street
3	E-F	Corniche
3	F-G	Corniche - Fishmarket
4	O-Q	Mountain Cross Connector
5	R-D	Matrah Street By Pass
6	R-C	16 Way
6	I-L-M	Al Bait Falaj
6	M-M'	3021 Way
6	N-N'	2425 Way
6	R-R'	2036 Way
6	D-D'	Riyam Street
7	B-D	Matrah Street
8	N-N'	Old Town Connector
9	B-B'	Matrah Street
9	D-E	805 Way
9	T-T'	Al Towian Street
10	S-N'	Old Town Connector

## NOTES

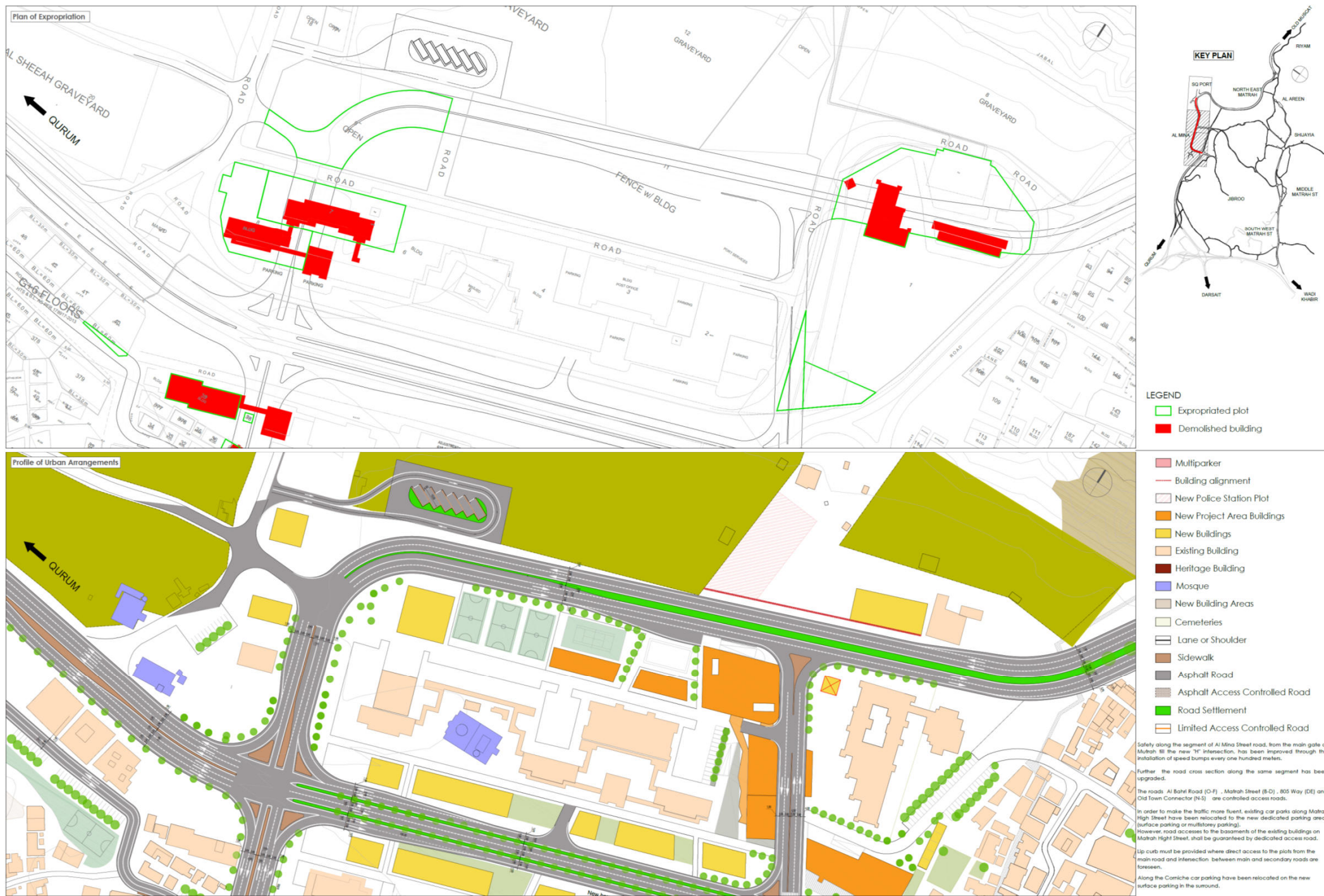
- Sections OF, BB', DE, N'S and B'D are controlled access roads.
- Correspondence between road sections and the respective road pavement is shown in table "Pavement Road" found in drawing "Typical Junctions" (D/PF/TR/1s/2.0.2).
- Typical sections include all utilities, but not all utilities are extended along the entire road development. For planimetric arrangement see drawings Wet/ Dry Utilities Overlapping General Plans.
- All utilities constructional details are contained in the Typical Drawings.
- The storm water drainage system is part of the Al - Mina culvert project anticipated by the client.
- The storm water drainage system is part of the Fishmarket pipes project anticipated by the client.



# INTERMODAL PARKING STRATEGY



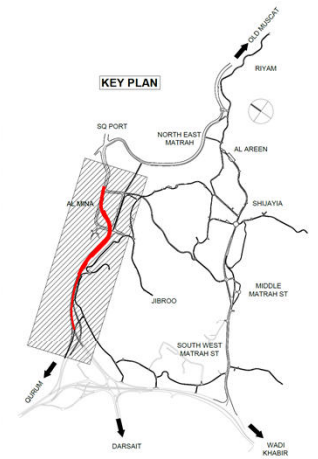
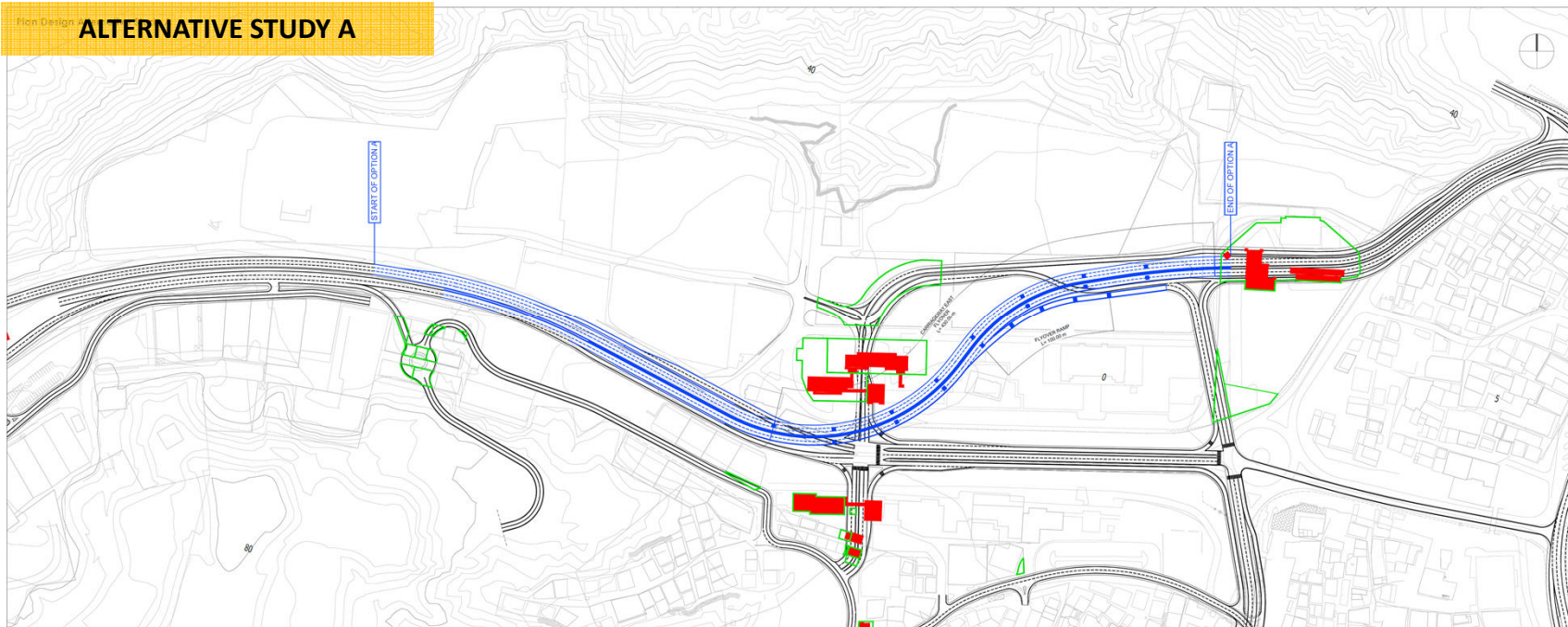
## PORT SULTAN QABOOS ACCESS ROAD (1/2)





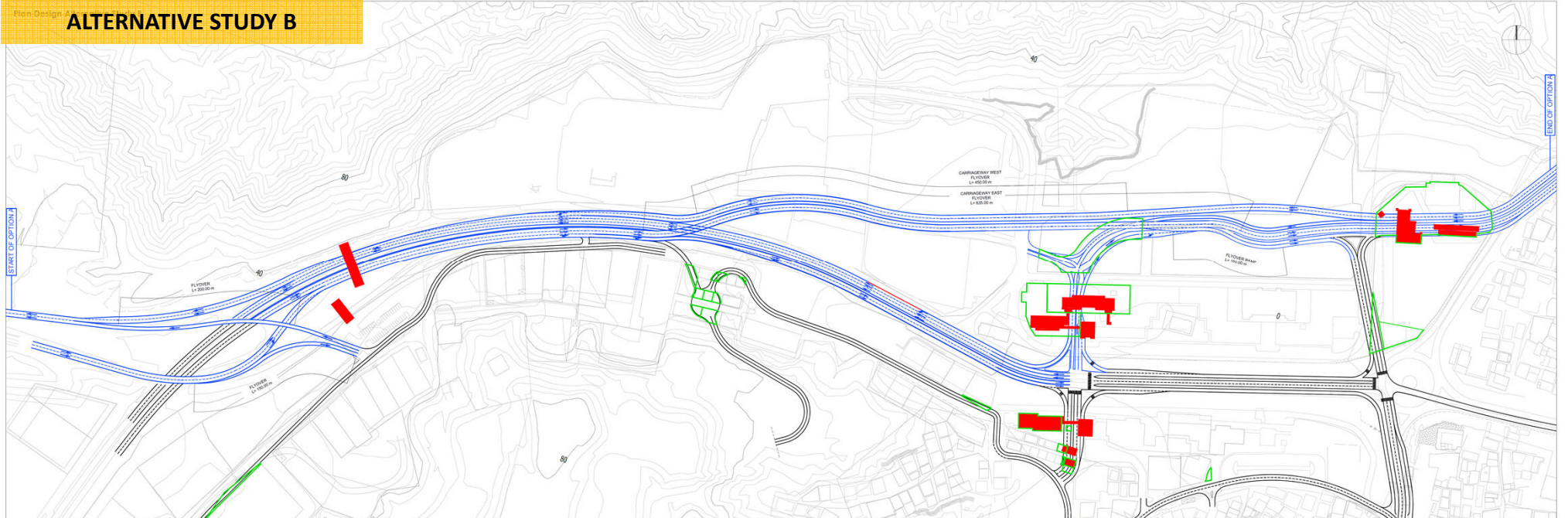
# PORT SULTAN QABOOS ACCESS ROAD (2/2)

## Plan Design **ALTERNATIVE STUDY A**



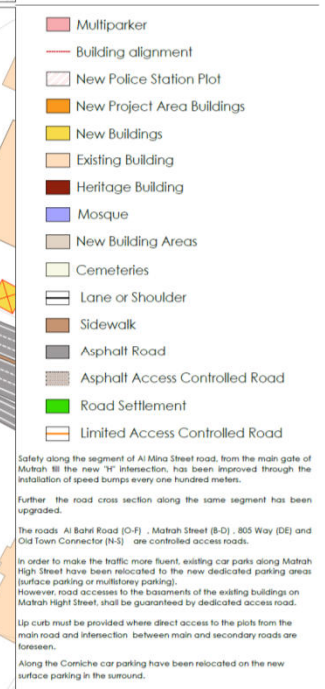
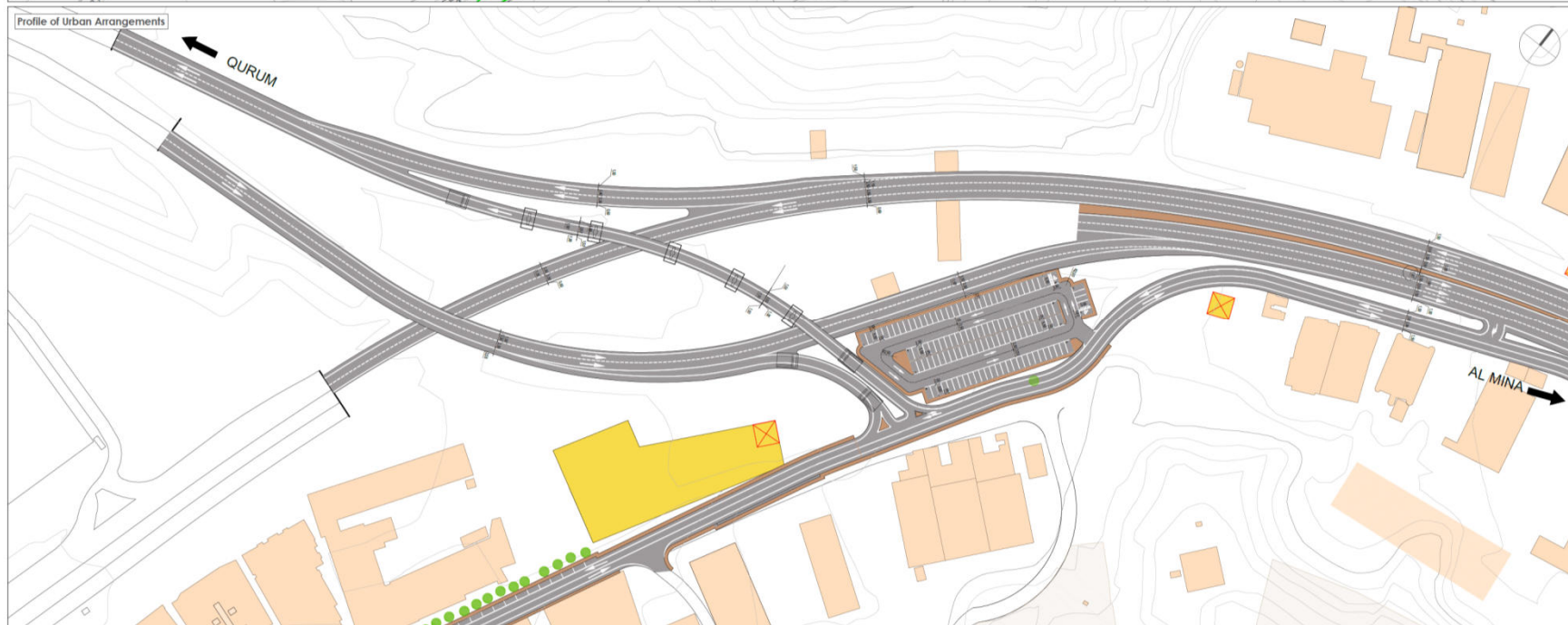
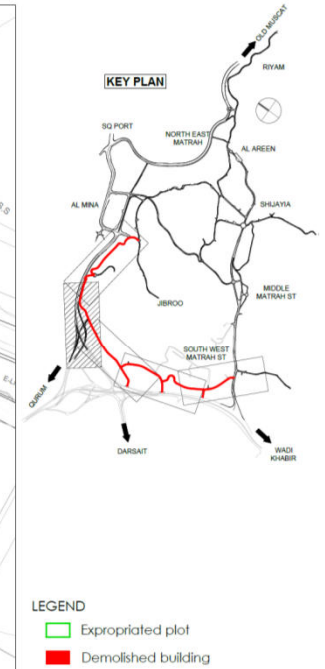
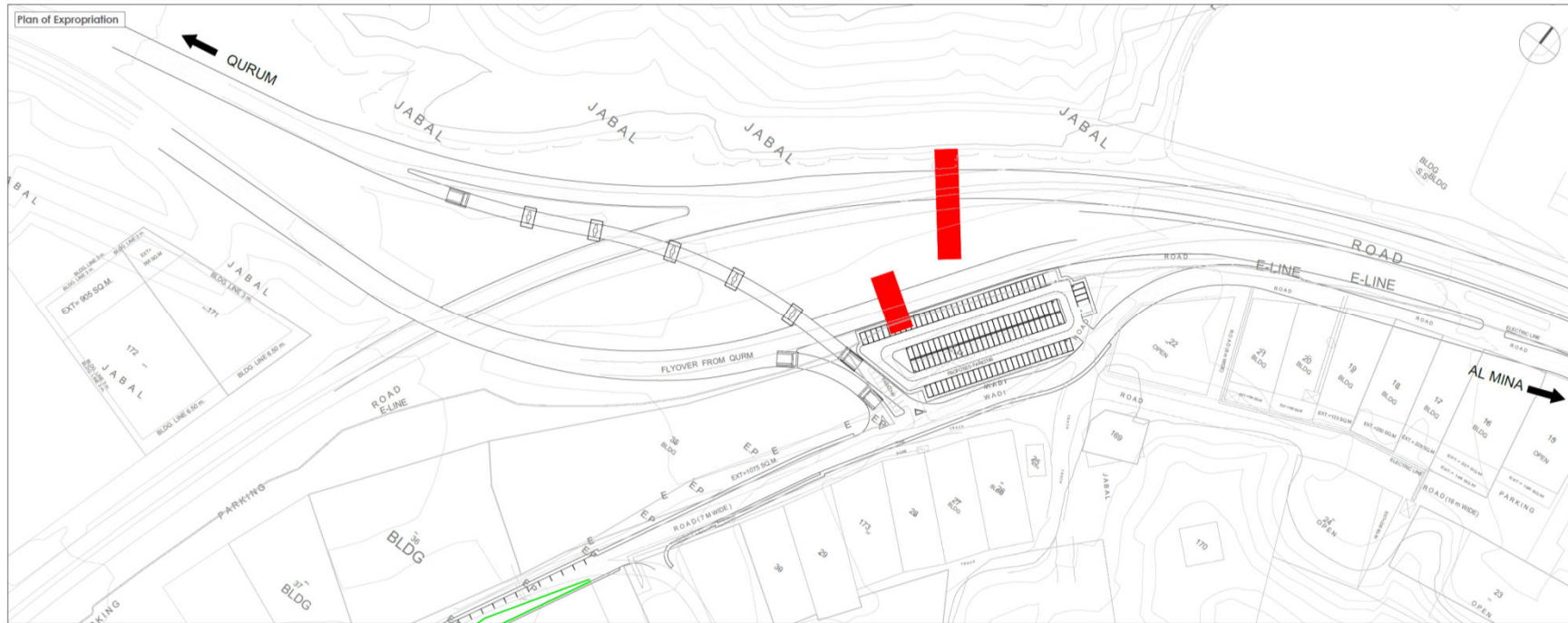
- LEGEND**
- Expropriated plot
  - Demolished building
  - Lane or Shoulder of Preliminary Road
  - Alternative Study

## Plan Design **ALTERNATIVE STUDY B**



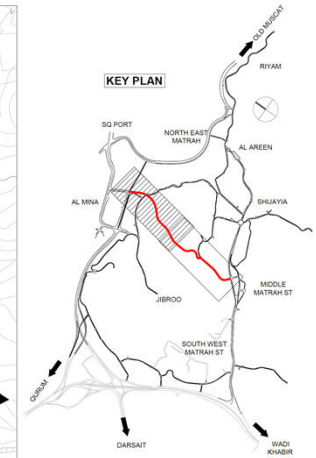
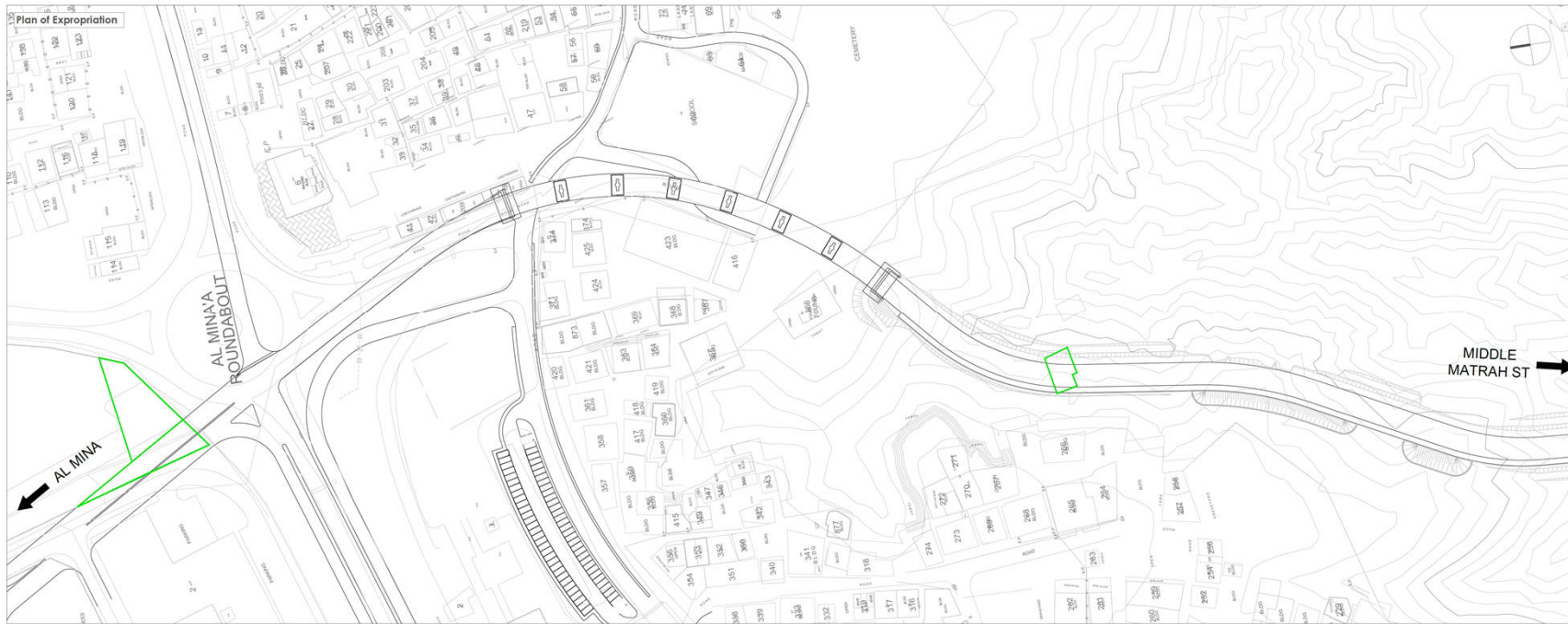


# NEW CONNECTION ROAD TO QURUM HEIGHTS





# MOUNTAIN CROSS-CONNECTOR (1/2)



- LEGEND**
- Expropriated plot
  - Demolished building



- Multiparker
- Building alignment
- New Police Station Plot
- New Project Area Buildings
- New Buildings
- Existing Building
- Heritage Building
- Mosque
- New Building Areas
- Cemeteries
- Lane or Shoulder
- Sidewalk
- Asphalt Road
- Asphalt Access Controlled Road
- Road Settlement
- Limited Access Controlled Road

Safety along the segment of Al Mina Street road, from the main gate of Matrah Hill the new "H" intersection, has been improved through the installation of speed bumps every one hundred meters.

Further, the road cross section along the same segment has been upgraded.

The road, Al Bahi Road (C-1), Matrah Street (B-2), 805 Way (D-E) and Old Town Connector (H-5) are controlled access roads.

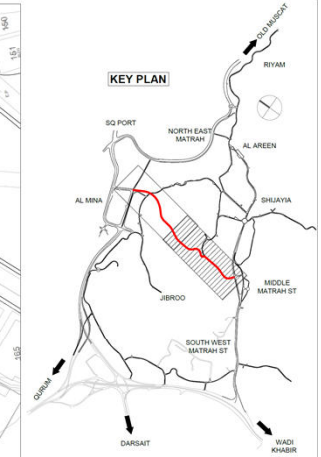
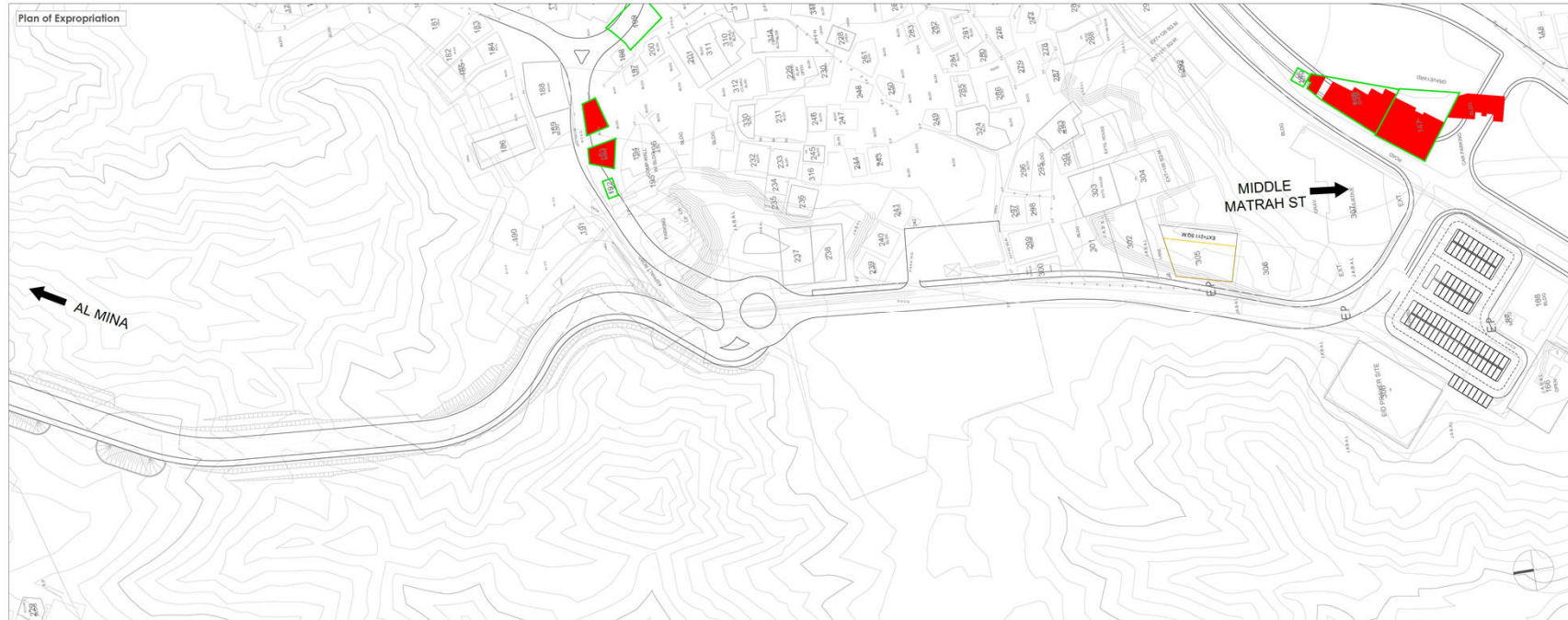
In order to make the traffic more fluent, existing car parks along Matrah High Street have been relocated to the new dedicated parking areas (surface parking or multistorey parking). However, road accesses to the basements of the existing buildings on Matrah High Street, shall be guaranteed by dedicated access road.

Lip curb must be provided where direct access to the plots from the main road and intersection between main and secondary roads are foreseen.

Along the Corniche car parking have been relocated on the new surface parking in the surround.



# MOUNTAIN CROSS-CONNECTOR (2/2)



## LEGEND

- Expropriated plot
- Demolished building
- Multiparker
- Building alignment
- New Police Station Plot
- New Project Area Buildings
- New Buildings
- Existing Building
- Heritage Building
- Mosque
- New Building Areas
- Cemeteries
- Lane or Shoulder
- Sidewalk
- Asphalt Road
- Asphalt Access Controlled Road
- Road Settlement
- Limited Access Controlled Road



Safety along the segment of Al Mina Street road, from the main gate of Muthah till the new "H" intersection, has been improved through the installation of speed bumps every one hundred meters.

Further, the road cross section along the same segment has been upgraded.

The roads Al Bahri Road (O-F), Matrah Street (B-D), 805 Way (D-E) and Old Town Connector (N-S) are controlled access roads.

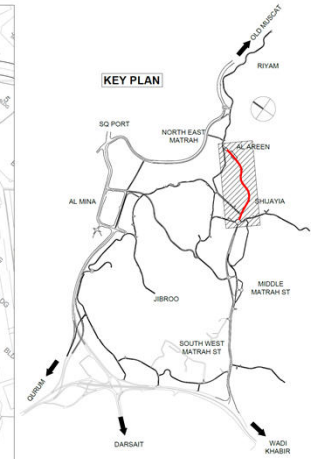
In order to make the traffic more fluent, existing car parks along Matrah High Street have been relocated to the new dedicated parking areas (surface parking or multistorey parking). However, road accesses to the basements of the existing buildings on Matrah High Street, shall be guaranteed by dedicated access road.

Lip curb must be provided where direct access to the plots from the main road and intersection between main and secondary roads are foreseen.

Along the Corniche car parking have been relocated on the new surface parking in the sunround.

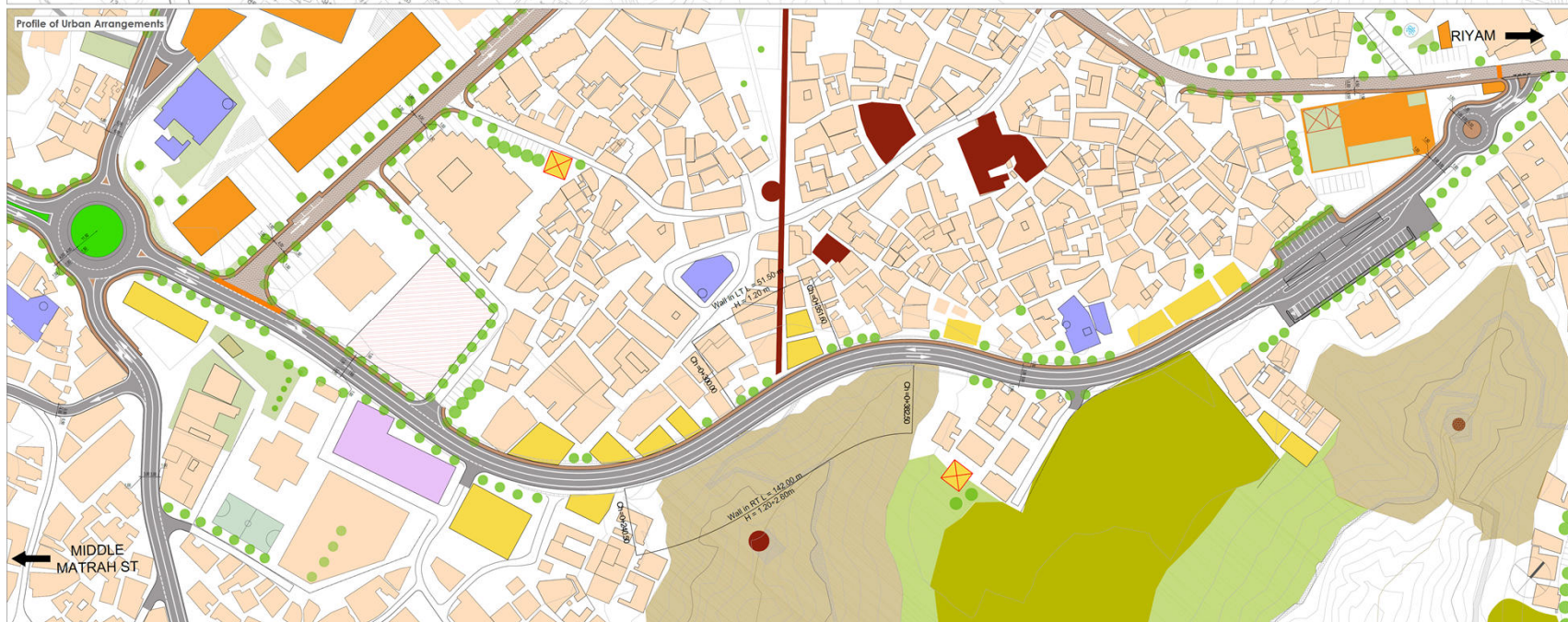


# MATRAH STREET BY-PASS



## LEGEND

- Expropriated plot
- Demolished building



- Multiparker
- Building alignment
- New Police Station Plot
- New Project Area Buildings
- New Buildings
- Existing Building
- Heritage Building
- Mosque
- New Building Areas
- Cemeteries
- Lane or Shoulder
- Sidewalk
- Asphalt Road
- Asphalt Access Controlled Road
- Road Settlement
- Limited Access Controlled Road

Safety along the segment of Al Mina Street road, from the main gate of Matrah III the new "H" intersection, has been improved through the installation of speed bumps every one hundred meters.

Further, the road cross section along the same segment has been upgraded.

The roads Al Bahri Road (O-F) , Matrah Street (B-D) , 805 Way (D-E) and Old Town Connector (N-S) are controlled access roads.

In order to make the traffic more fluent, existing car parks along Matrah High Street have been relocated to the new dedicated parking area (surface parking or multistorey parking). However, road accesses to the basements of the existing buildings on Matrah High Street, shall be guaranteed by dedicated access road.

Lip curbs must be provided where direct access to the plots from the main road and intersection, between main and secondary roads are foreseen.

Along the Corniche car parking have been relocated on the new surface parking in the surround.





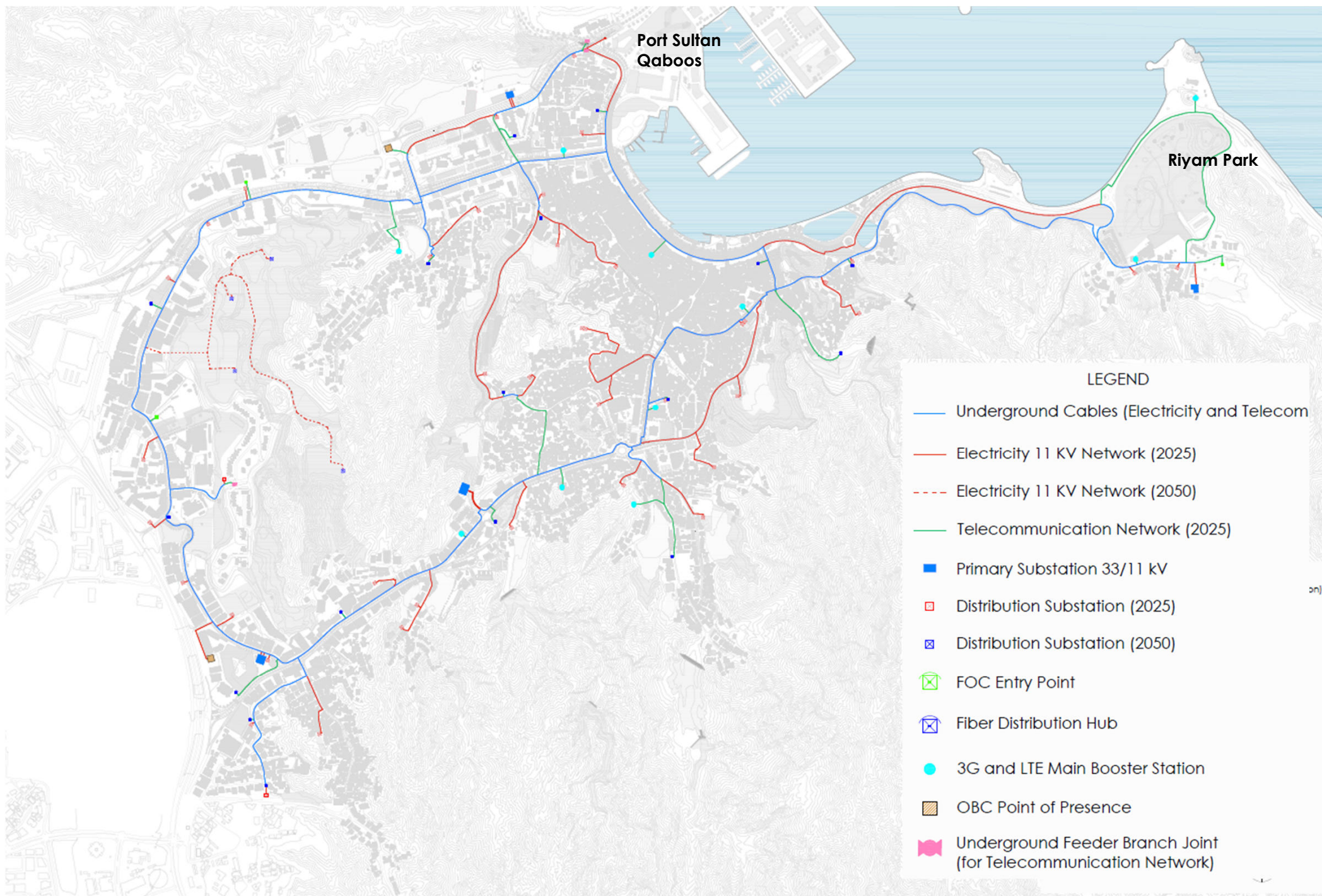
## DRY UTILITIES NETWORK

The MIIR's dry utilities are composed by:

- power supply
- telecom network
- public lighting
- renewable energies
- security system

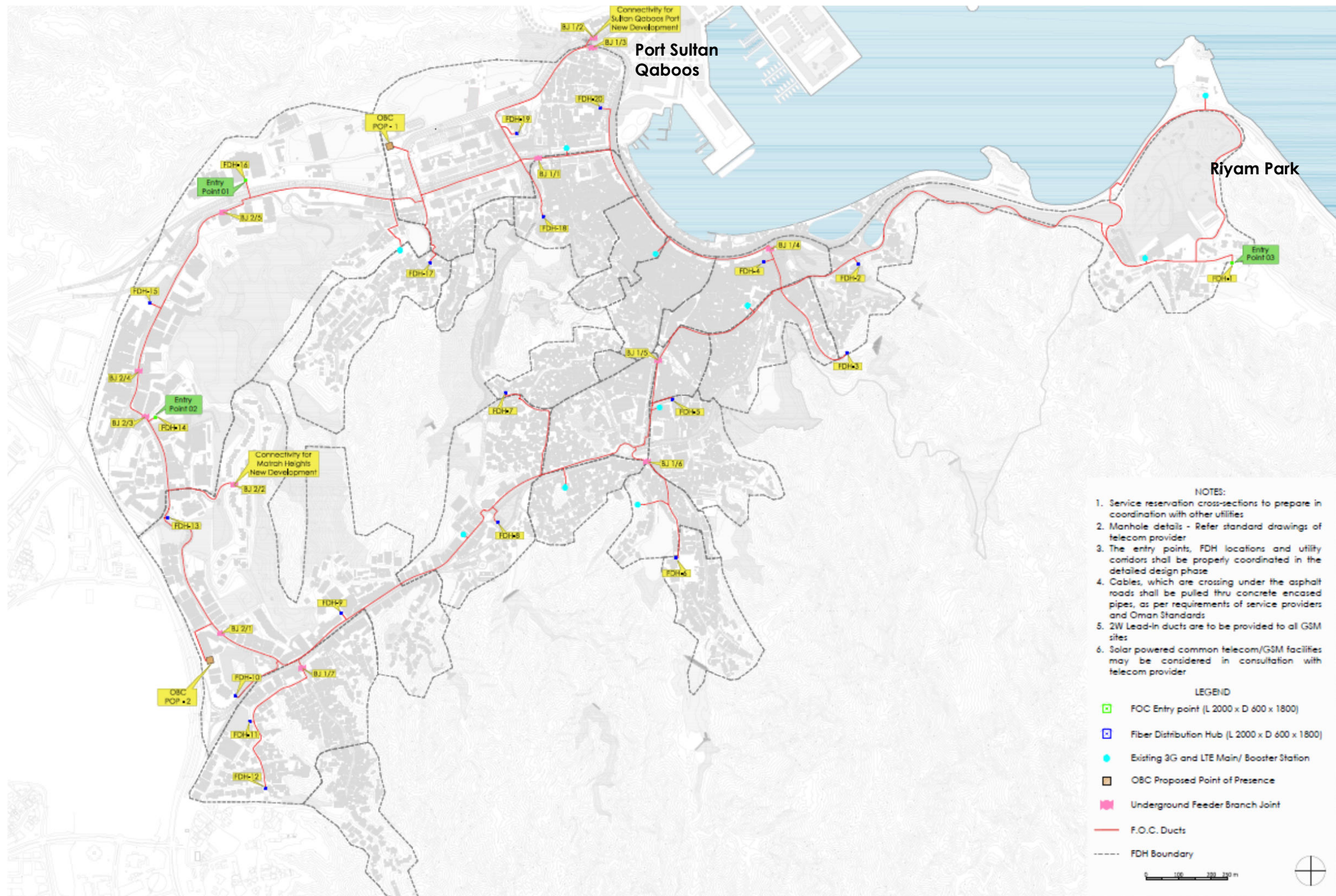


# THE NEW POWER SUPPLY NETWORK IN MATRAH



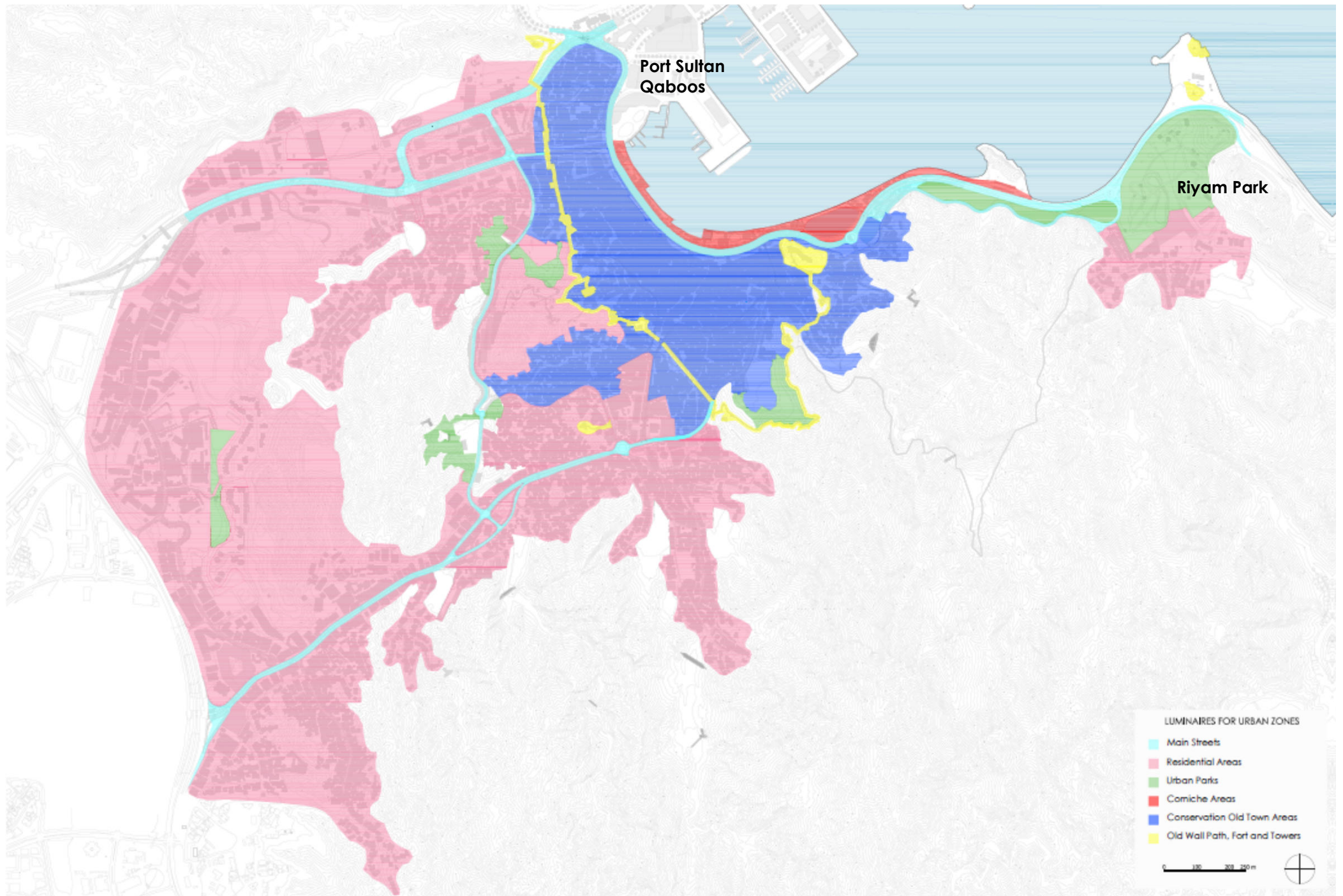


# THE NEW TELECOMMUNICATION NETWORK IN MATRAH



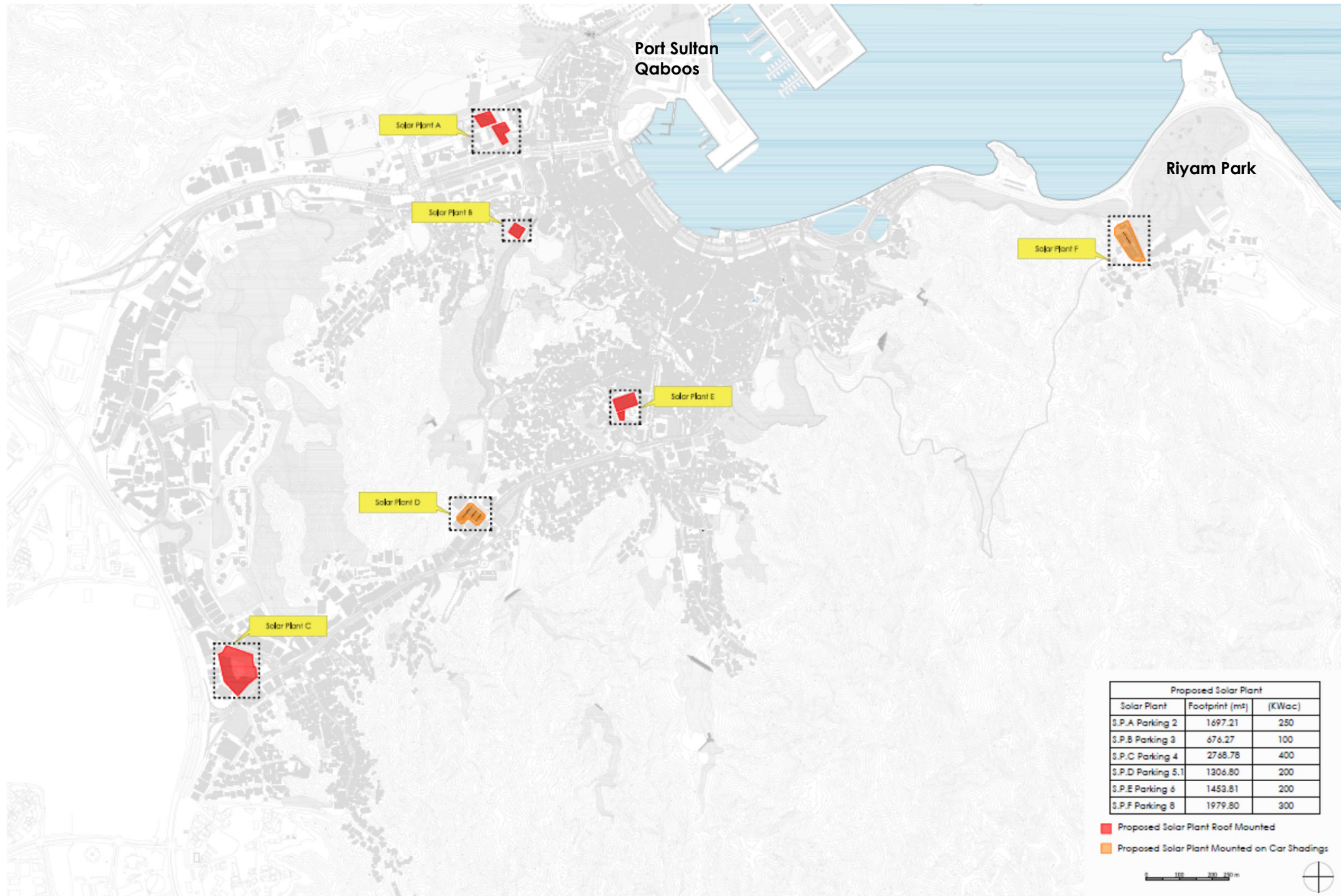


# THE NEW PUBLIC LIGHTING SYSTEM IN MATRAH



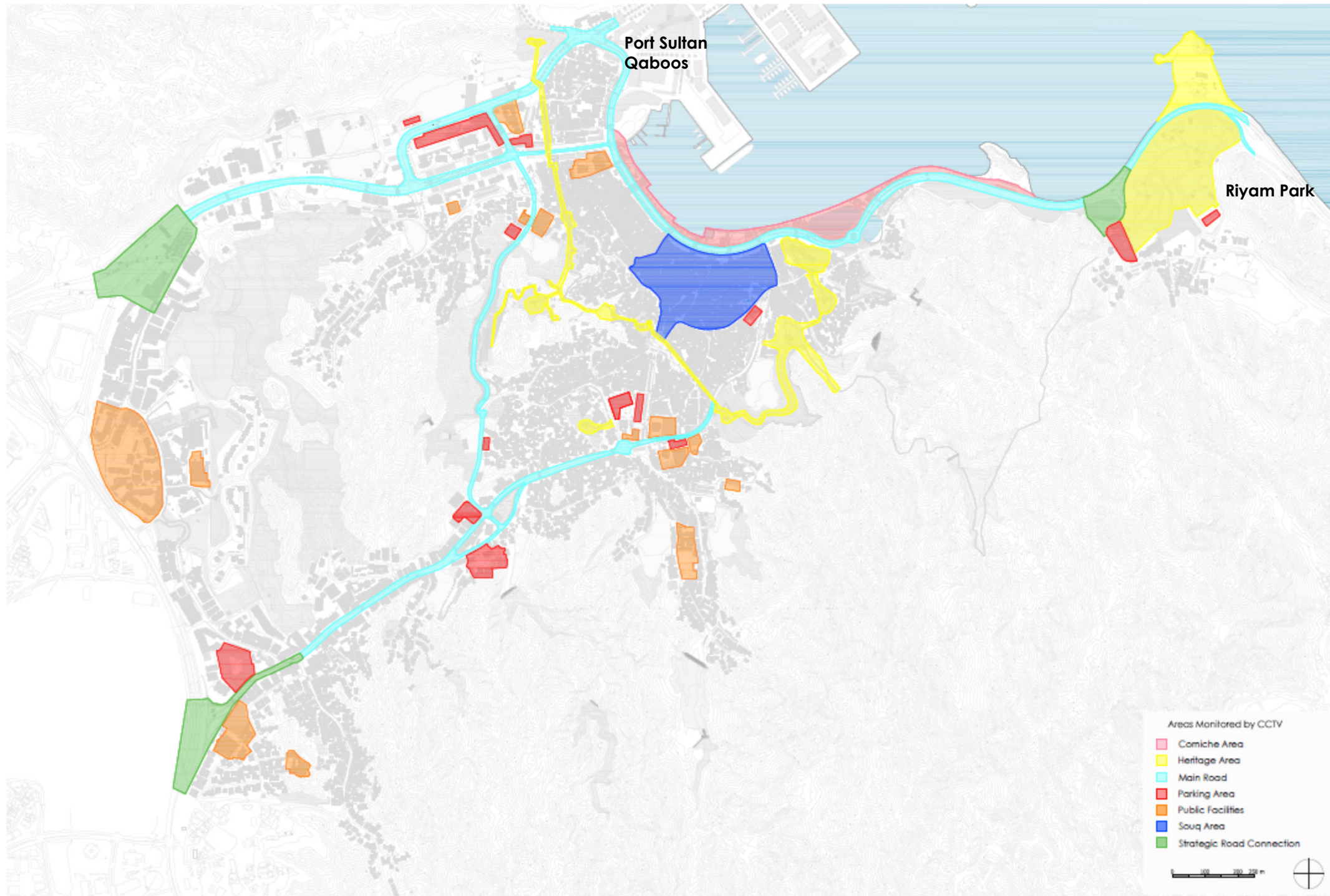


# THE RENEWABLE ENERGIES SYSTEM IN MATRAH





# THE NEW SECURITY SYSTEM IN MATRAH



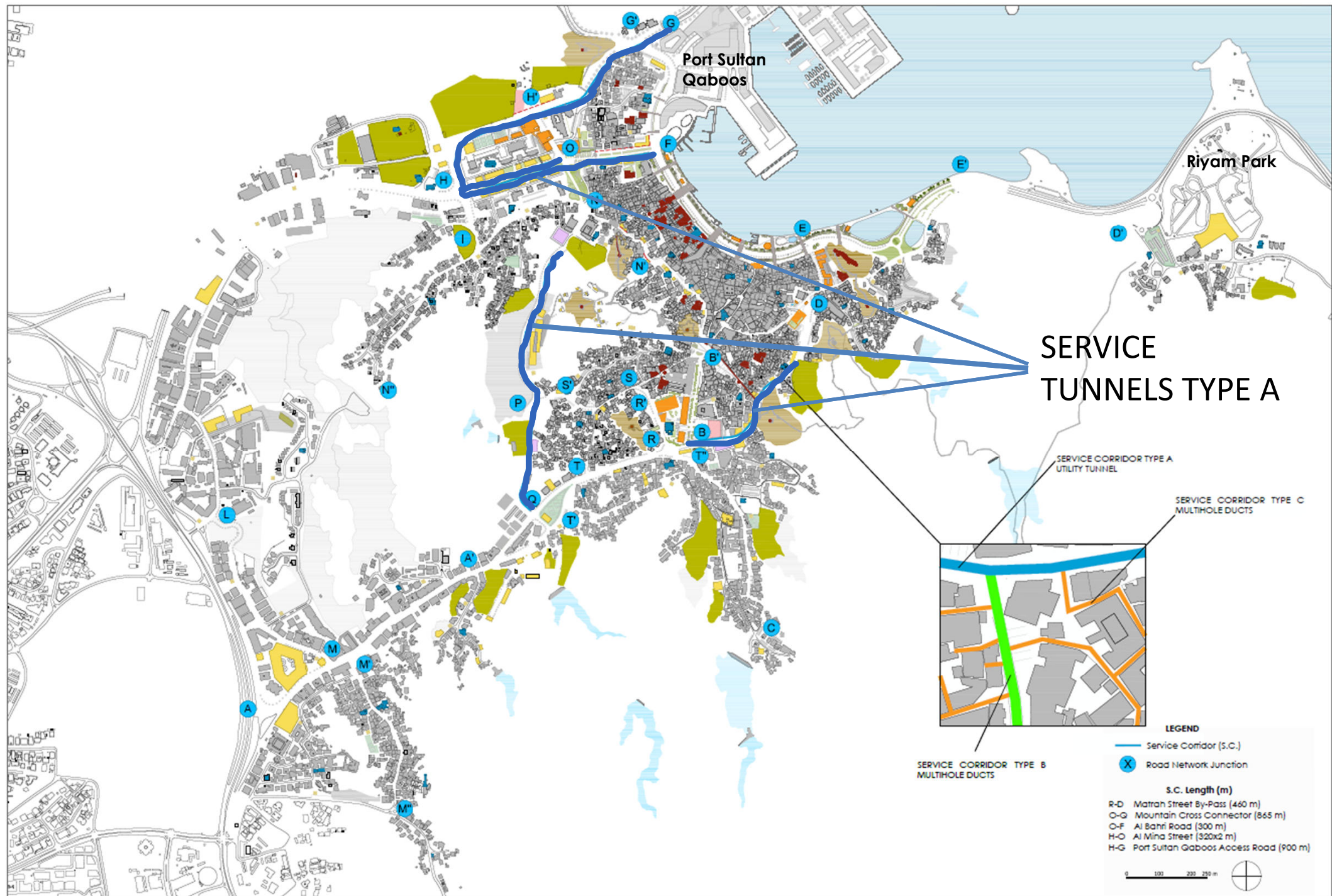




## SERVICE CORRIDORS

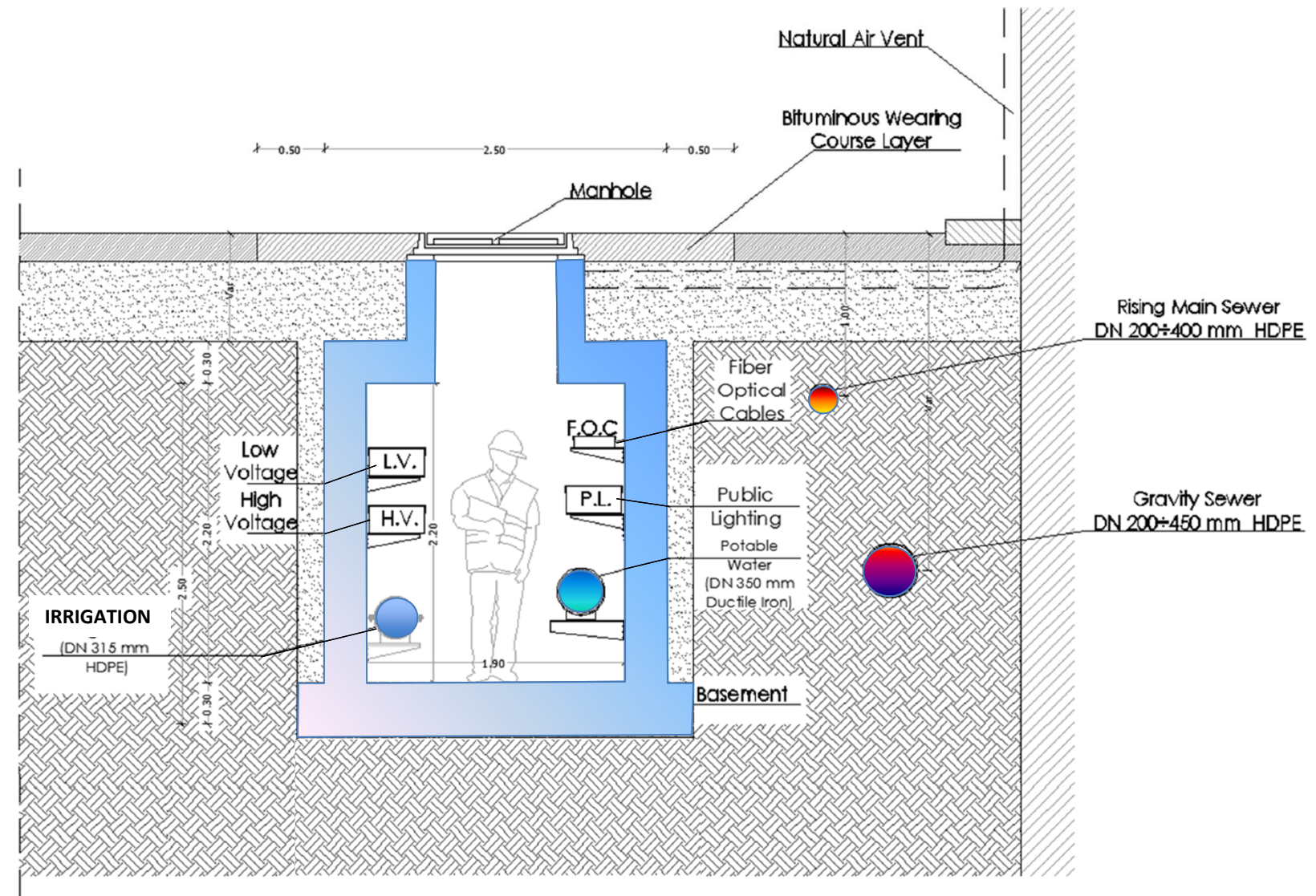


# THE UTILITY TUNNELS IN MATRAH





# UTILITIES INSIDE THE SERVICE CORRIDOR TYPE A





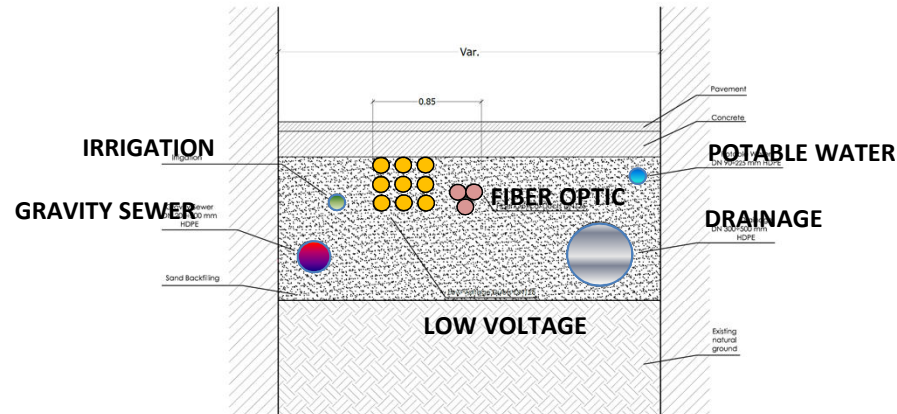
## UTILITIES TUNNEL EXAMPLE



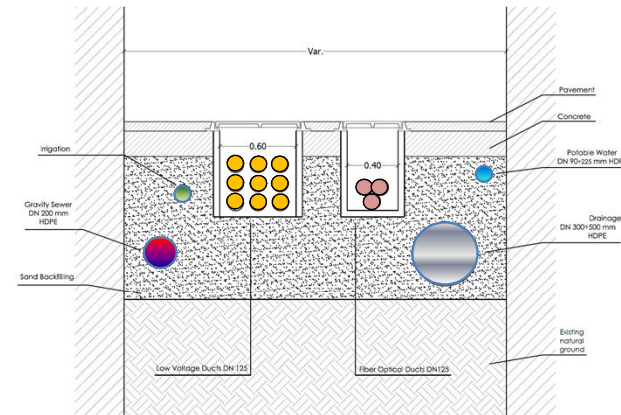


# UTILITIES INSIDE THE SERVICE CORRIDORS TYPE B & C

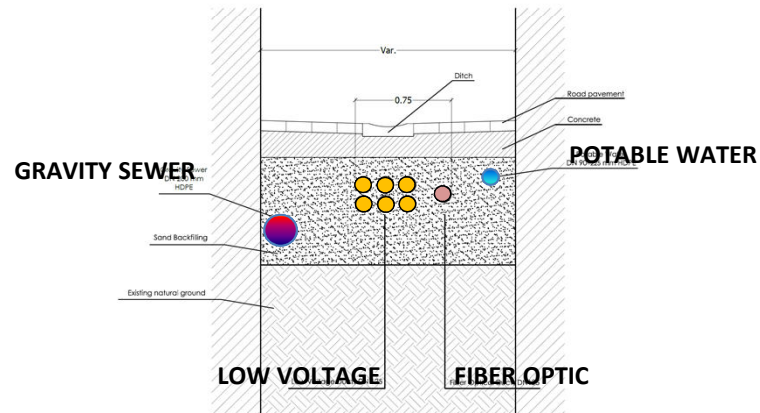
Service Corridor Type B  
Cross Section  
scale 1:20



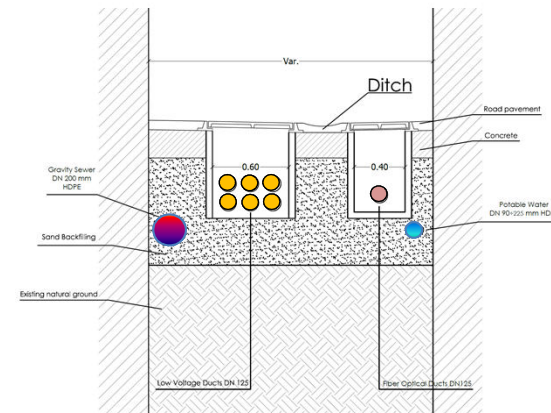
Service Corridor Type B  
Manhole Cross Section  
scale 1:20



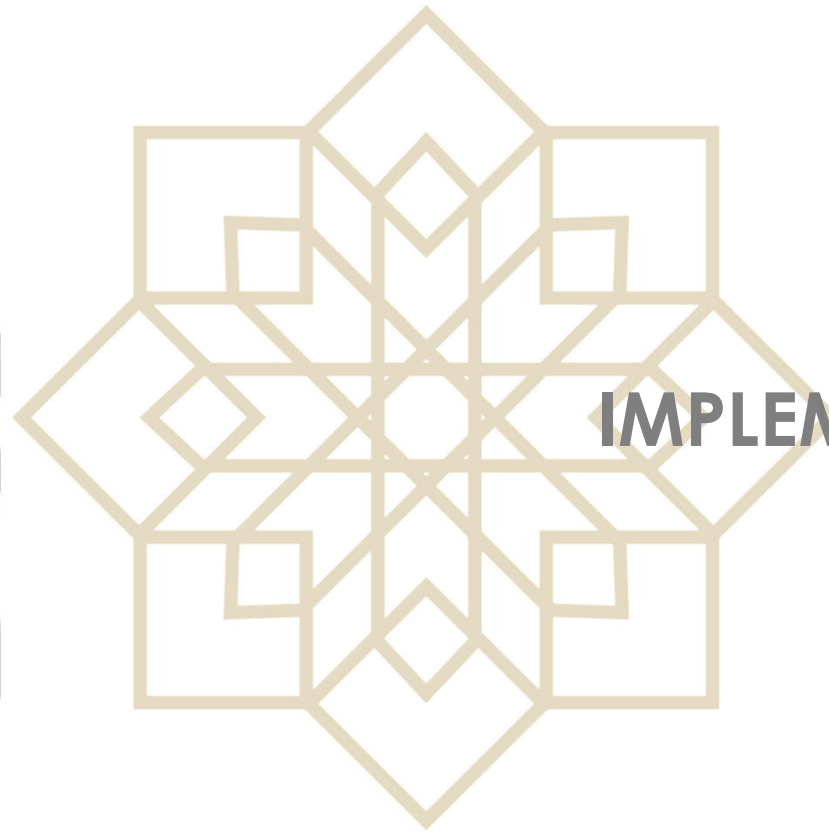
Service Corridor Type C  
Cross Section  
scale 1:20



Service Corridor Type C  
Manhole Cross Section  
scale 1:20





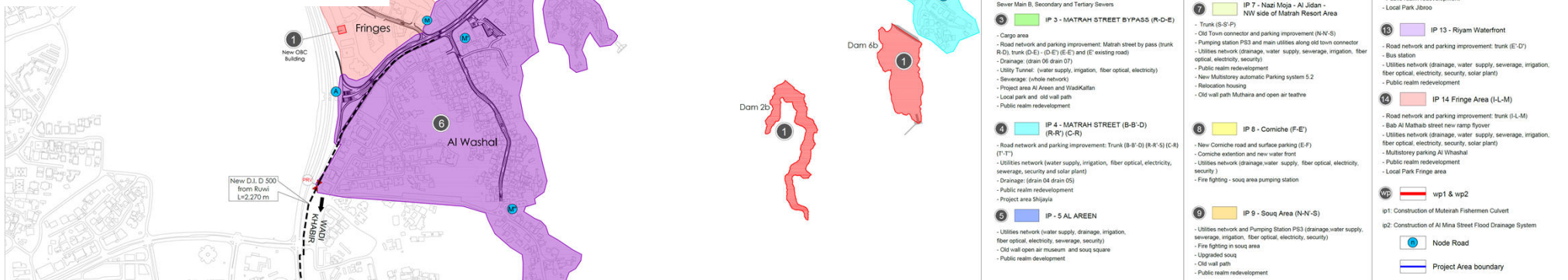


**IMPLEMENTATION**



# THE IMPLEMENTATION PACKAGES

The Implementation Plan must define the work packages and the actions necessary to achieve the project goals, whose execution is planned in a suitable timing to the Client's expectations. The Implementation Plan is defined through the setting of the major project phases, including detailed design needs, execution timing and capital funding needs, suitable tendering procedures with dates, permits, public consultation etc.








# THE WORK TEAM FOR THE PRELIMINARY PROJECT










































## CLIENT SUPERVISORS

 <b>Al Tayeb Al Harthy</b> Director of Department of Technical Studies MIIR Project Manager Muscat Municipality Muscat, Oman	 <b>Khalid Al Lawati</b> Senior Area Manager Haya Water Muscat, Oman	 <b>Amal Al Sabti</b> MIIR Project Coordinator Haya Water Muscat, Oman
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## TEAM LEADERS

 <b>Fausto Melli</b> Team Leader Civil Engineer Roma, Italy	 <b>Francesca Arici</b> Team Leader Urban Planner and Designer Palermo, Italy	 <b>Daniele Arno'</b> Deputy Team Leader Hydraulic Engineer Palermo, Italy
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## TECHNICAL TEAM IN MUSCAT

 <b>Ali Al Mujaini</b> Communicator Leader Muscat, Oman	 <b>Michele Angelo Cuccaro</b> Hydraulic Utilities Leader Hydraulic Engineer Roma, Italy	 <b>Pietro Ingrassia</b> M&E Leader Electric Engineer Palermo, Italy	 <b>Andreja Zumer</b> Architect Ljubljana, Slovenia	 <b>Marco Cuffaro</b> Hydraulic Engineer Palermo, Italy	 <b>Santi Mirabella</b> Road Engineer Catania, Italy
 <b>Massimo Baglieri</b> Architecture and Heritage Expert Architect Ragusa, Italy	 <b>Luigi Ledda</b> Spatial Planning Specialist Architect Palermo, Italy	 <b>Cesare Onorato</b> Urban Planning Specialist Architect Palermo, Italy	 <b>Zahara Al Lawati</b> Architectural Engineer Muscat, Oman	 <b>Roberto Lentini</b> Architect Palermo, Italy	 <b>Alessandra Mattioli</b> Road Engineer Roma, Italy
 <b>Giovanni Falaschi</b> Geology Leader Geologist Pisa, Italy	 <b>Tullio Giuffrè</b> Transport and Traffic Leader Transport Engineer Palermo, Italy	 <b>Giuseppe Tesoriere</b> Socio Economist Expert Economist Palermo, Italy	 <b>Chiara Serra</b> Architect Augusta, Italy	 <b>Arwa Al-Harthy</b> Engineer Muscat, Oman.	 <b>Emanuele Isola</b> Draftsman Roma, Italy
 <b>Antonio Alessi</b> Architectural Engineer Palermo, Italy	 <b>Gaetano Beninati</b> Irrigation, Water Supply Specialist Hydraulic Engineer Palermo, Italy	 <b>Giovanna Vinci</b> Waste Water and STP Specialist Hydraulic Engineer Palermo, Italy	 <b>Mirko Alvano</b> Architect Enna, Italy	 <b>Chiara Cei</b> Heritage Expert Engineer Livorno, Italy	 <b>Giuseppe Prestianni</b> Architectural Engineer Castelbuono, Italy
 <b>Deimi Buffa</b> Civil Engineer Palermo, Italy	 <b>Sara De Vito</b> Highway Design Expert Roma, Italy	 <b>Giorgio Gagliardi</b> Cartography Architect Torino, Italy	 <b>Massimiliano Fornaro</b> Civil Engineer Palermo, Italy	 <b>Jokha Al Harthy</b> Architect, Urban Planner Muscat, Oman	 <b>Francesco Giambrone</b> Civil Engineer Palermo, Italy
 <b>Dario Gueci</b> Urban Planner Palermo, Italy	 <b>Vincenzo Ruffino</b> Telecom Network Specialist Engineer Palermo, Italy	 <b>Giorgio Zenegaglia</b> Senior Structural Engineer Engineer Brescia, Italy	 <b>Agnes Astolfi</b> Environmental Specialist Manila, Philippines	 <b>Letizia Caprile</b> Architect Madrid, Spain	 <b>Nicandro Ottaviano</b> Civil Engineer Isernia, Italy
 <b>Mauro Alaimo</b> Modelling Specialist Hydraulic Engineer Palermo, Italy	 <b>Maged Guirguis</b> Road Engineer Cairo, Egypt	 <b>Giuseppe Lusco</b> Hydraulic Engineer Palermo, Italy	 <b>Qais Al Fahdi</b> Engineer Draftsman Muscat, Oman	 <b>Giorgia Carosi</b> Architect Rome, Italy	 <b>Imran Khan</b> Civil Engineer Islamabad, Pakistan

## MAIN OFFICE

 <b>Sergio Di Maio</b> CEO and Chairman Roma, Italy	 <b>Gabriele Speciale</b> Director Palermo, Italy	 <b>Moahmed Boukhalfa</b> Engineer Palermo, Italy	 <b>Vincenzo Canzoneri</b> Geotechnical Engineer Palermo, Italy	 <b>Silvia Sammataro</b> Structural Engineer Palermo, Italy	 <b>Renato Tutone</b> IT Engineer Palermo, Italy
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**Muscat Office:** Al-Ufuq Building, 3rd floor, Shatti Al Qurum :  
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