

# ISRAEL METRO

September 2025



# M



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# Introduction

**Zohar Zoller**  
Deputy CEO, NTA

# ISRAEL

# Metro Project

**Noa Oren**

Deputy CEO – Metro, NTA

# Tel Aviv Metropolis

The Tel Aviv Metropolitan area is the country's business and financial heart and the center of a significant part of the economic activity responsible for most of Israel's national product.



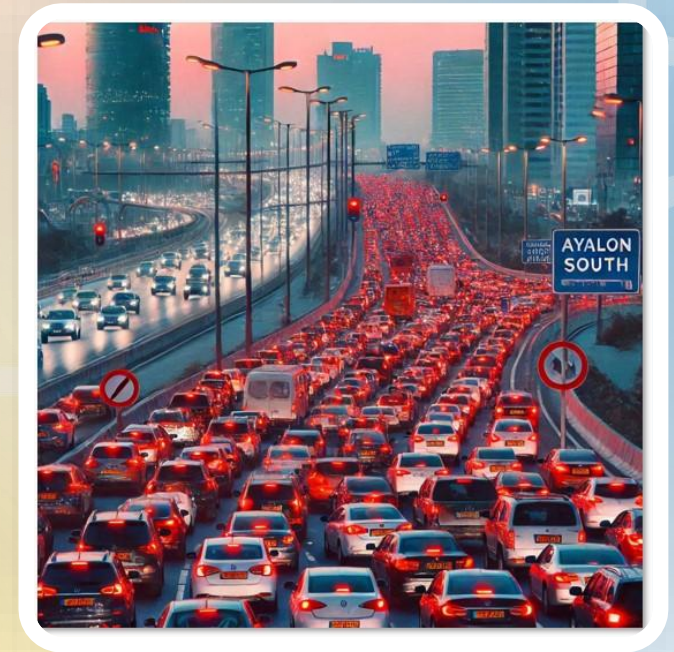
**44%**  
of the  
population  
in Israel



**50%**  
of jobs



**62%**  
of Business  
product



# Facts and Figures

The largest and most complex project ever delivered in Israel!

**\$40-50bn**  
Estimated cost

**\$8.5bn**  
Economic  
benefits

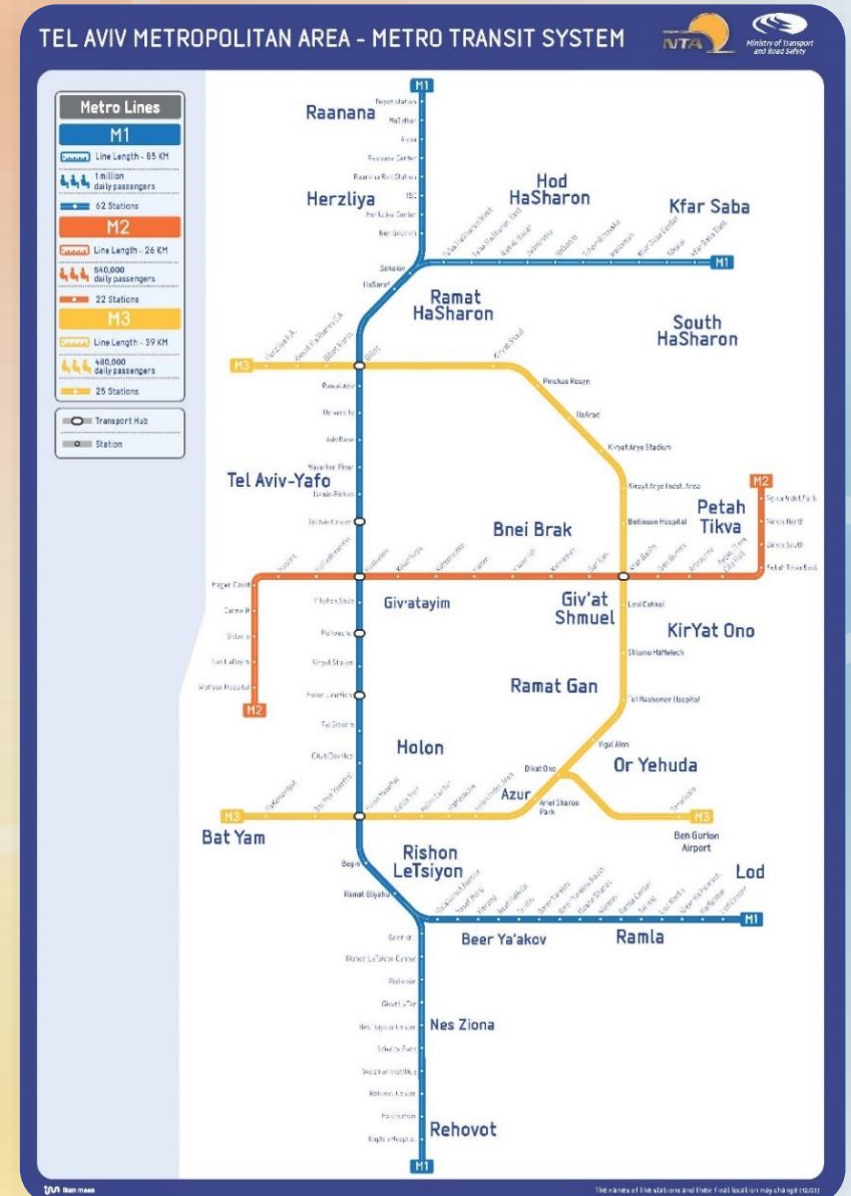
**2037**  
Stage A –  
Operation

**+30%**  
Increase use of  
Public transport

**2 mil**  
Passengers  
per day

# General Overview

- 3 Lines (M1/M2/M3)
- 150 km Underground Network (double tunneling)
- 109 Stations
- 24 Municipalities
- 4 Depots
- 7 Transportation Hubs

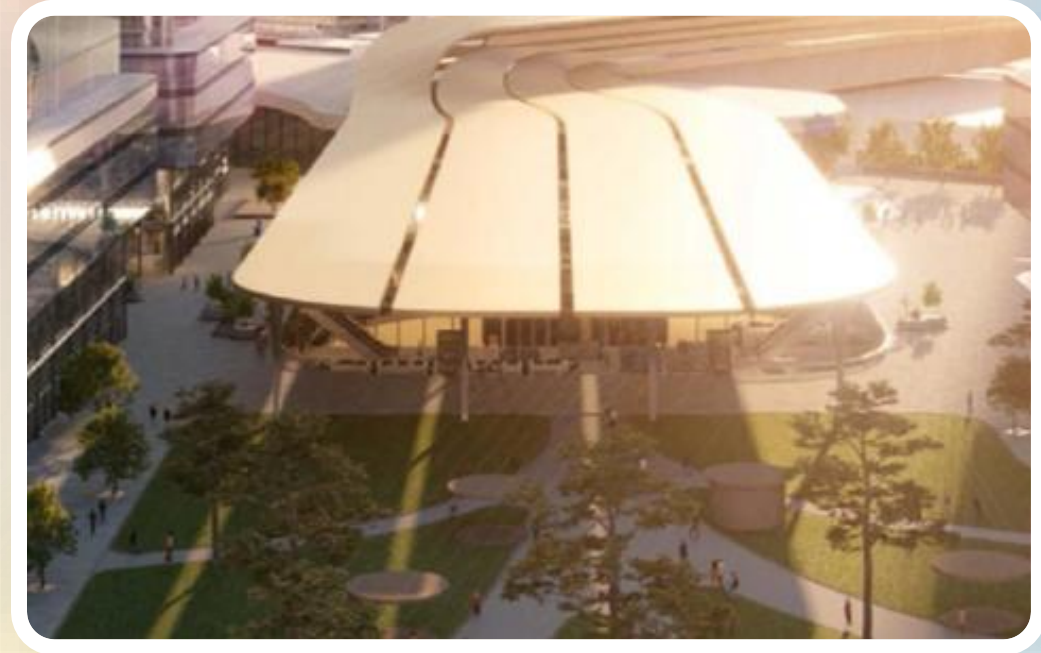


# LVC (Land Value Capture)

## Development Above Stations



Glilot  
Gordon Architects



TLV Center  
HQ Architects

# Managerial Structure



# Project Staging

The Metro Project is divided into two main execution stages:

Stage Execution	Track Length	M1	M2	M3	Total network
<b>1</b>	stations	28 km	26 km	24 km	<b>78 km</b>
	Depots	20	22	17	<b>59 Stations</b>
		Rishonim	Sgula	Mesubim	<b>3 Depots</b>
<b>2</b>	Track Length	58 km	-	11 km + 5 km to airport	<b>74 km</b>
	stations	42	-	7 km + 1 km to airport	<b>50 Stations</b>
	Depots	Ra'anana	-	-	<b>1 Depot</b>
		<b>85 km</b>	<b>26 km</b>	<b>39 km</b>	

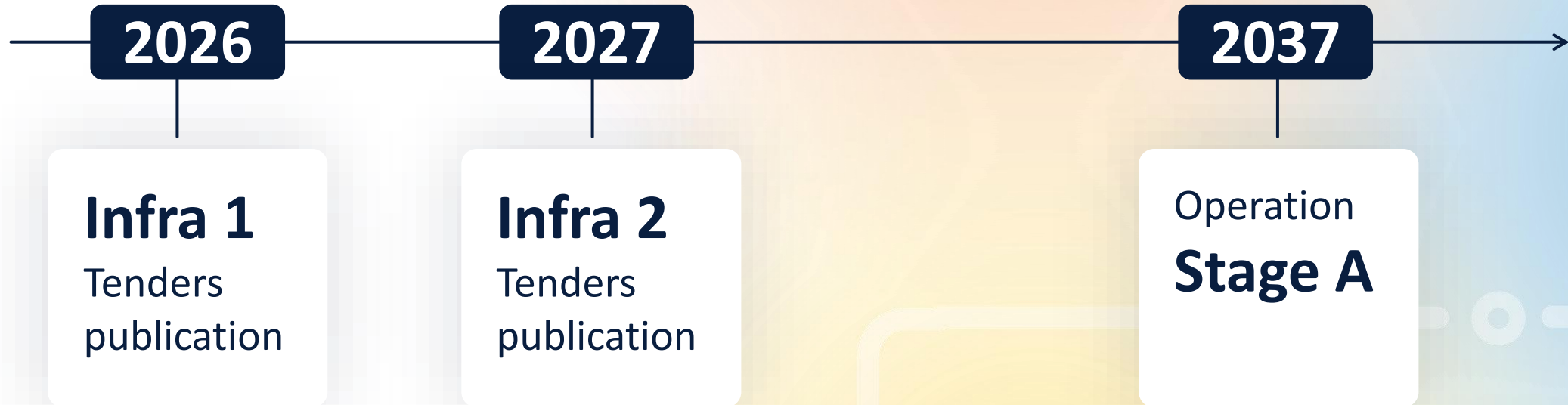
**Total: 150 km, 109 Stations**

M1-M3  
Connection (Gilot)



M1-M3  
Connection (Kfar Ganim)

# Major Milestones



# Line M1

**Kobby Ben Atar**

VP, Head of Metro Line M1

# M1

# M1 Highlights

**85 km**  
Length

**62**  
stations

**2**  
Depots

**15** Transfer  
Stations

**14**  
Municipalities



# Project Staging – Stage 1

M1 Line is divided into two main execution stages

Track Length

28 km

Depots

Rishonim

stations

20

Operational Elements

10

- Starts From Rishon Le Zion HaRishonim including the Depot until Gilit
- Execution Stage 1 is divided into 3 Sub-stages of operation as follows:
  - **Sub-stage 1** – Rishonim to Holon Junction
  - **Sub-stage 2** – Holon Junction to Namir Pinkas
  - **Sub-stage 3** – Namir Pinkas to Gilit



# Project Staging – Stage 2

Track Length

57 km

Depots

Ra'anana

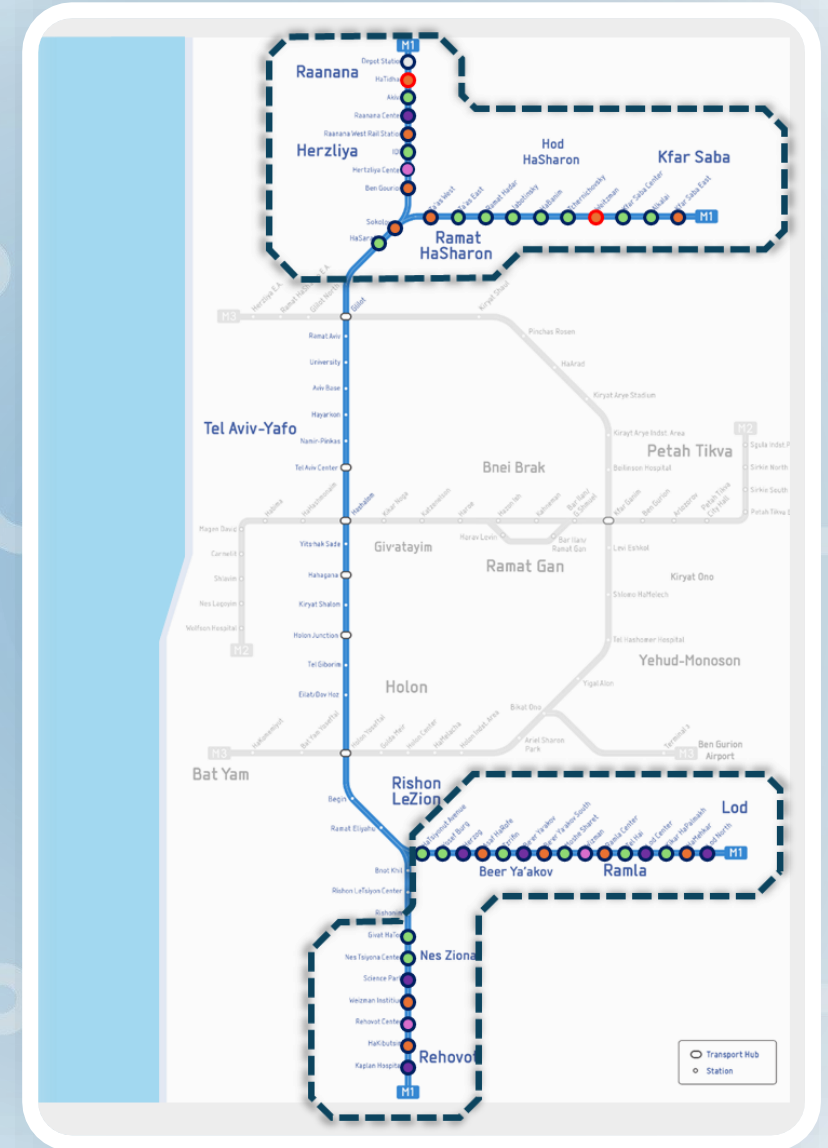
stations

42

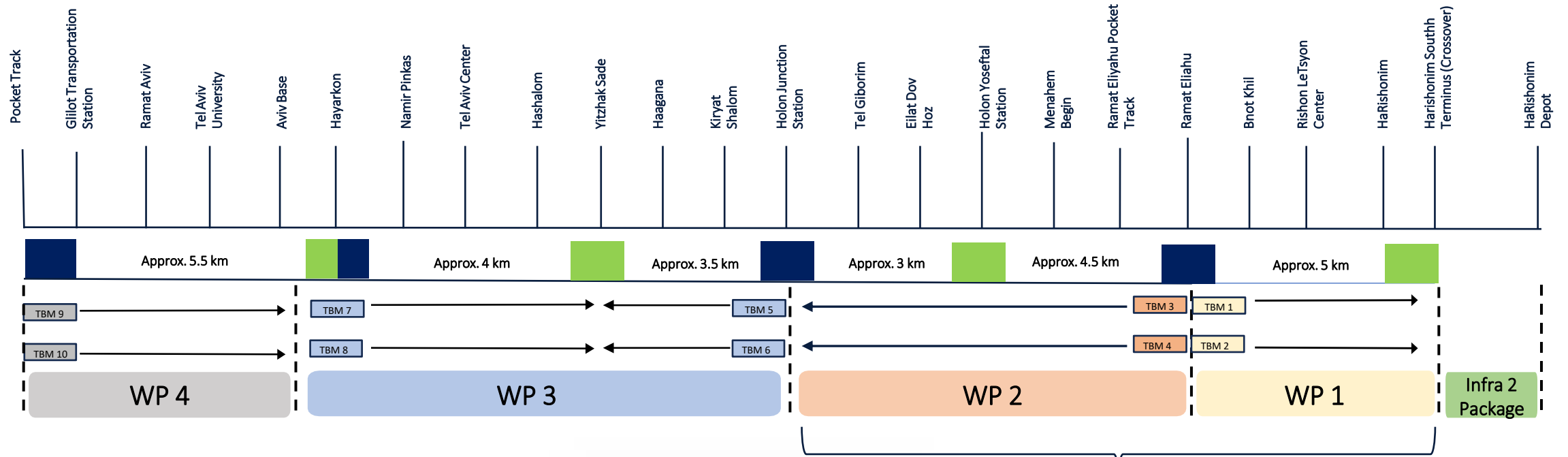
Operational Elements

15

- Execution stage 2 is divided into **Southern Branches** and **Northern Branches**:
  - The Southern Branches start from Lod in the east and Rehovot in the south (29 Km)
  - The Northern Branches include the continuation from Gilot to Kfar Saba in the east and Ra'anana in the north including Ra'anana Depot (28 Km)



# Packaging Strategy



Optional as One Package

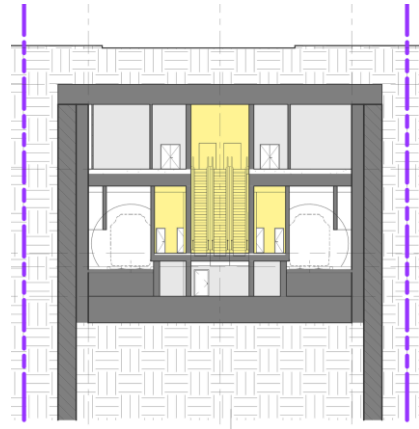
Work Packages	No. of C&C Stations
Package 1	4
Package 2	5
Package 3	7
Package 4	4
<b>Total</b>	<b>20</b>

Launching Shaft
  Retrieval Shaft
  TBM

→ TBM drive

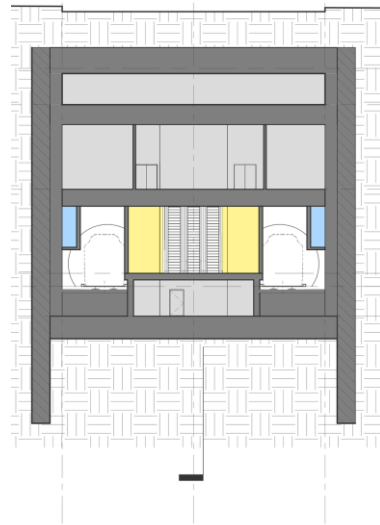
# Typical Stations – M1

There are 4 types of stations in M1 Line:



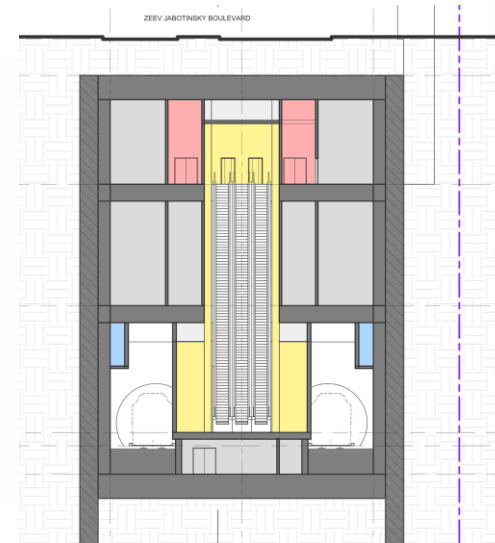
## 2 Level Station

Depth - ~24m  
Length - ~226m  
Width - ~22m



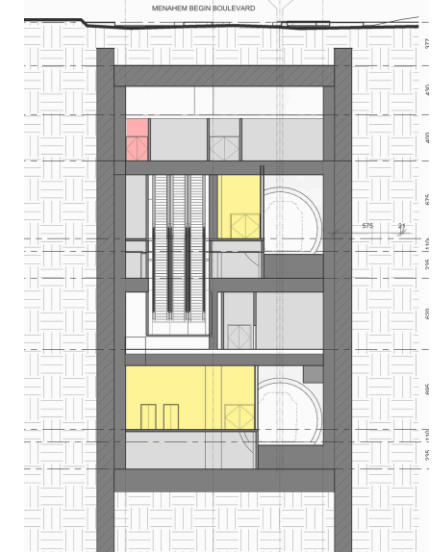
## 2 Level + Crossover

Depth - ~25m  
Length - ~225m  
+ ~100m Crossover  
Width - ~22m



## 3 Level Station

Depth - ~37m  
Length - ~193m  
Width - ~21m



## Narrow Station

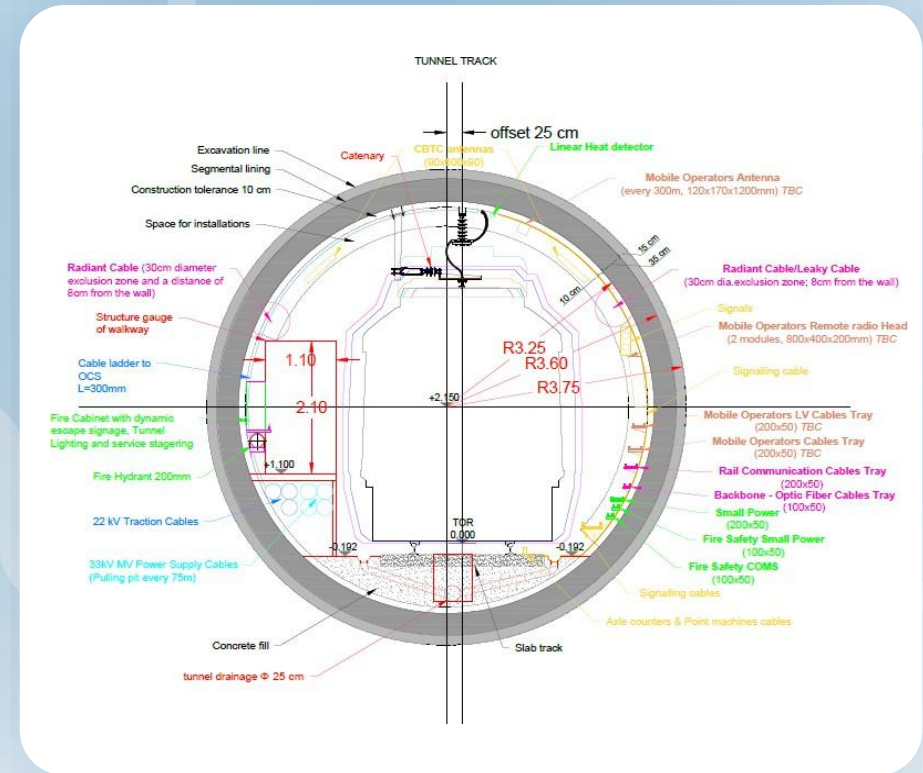
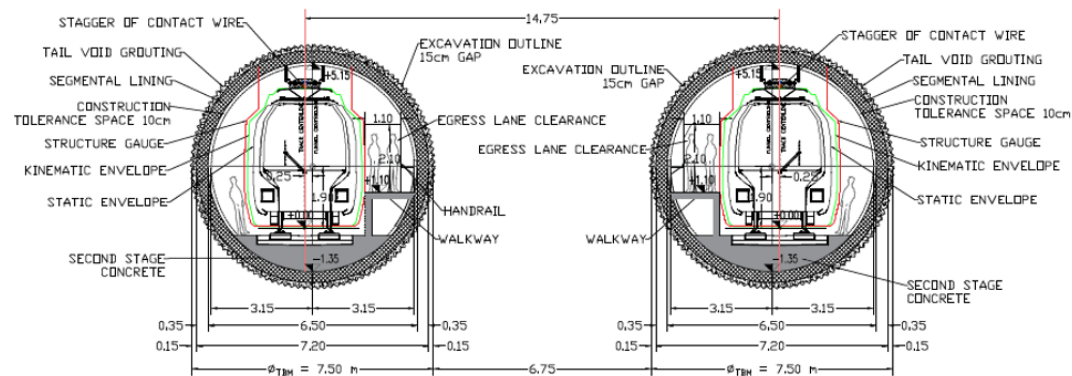
Depth - ~40m  
Length - ~190m  
Width - ~17m

# Tunnel- M1

- It is defined a universal type of ring 5+1 configuration with no screwed bolts between segments.
- Inner tunnel diameter 6.5 meters, outer tunnel diameter 7.5 meters.
- Twin tunnels with one track per tunnel.

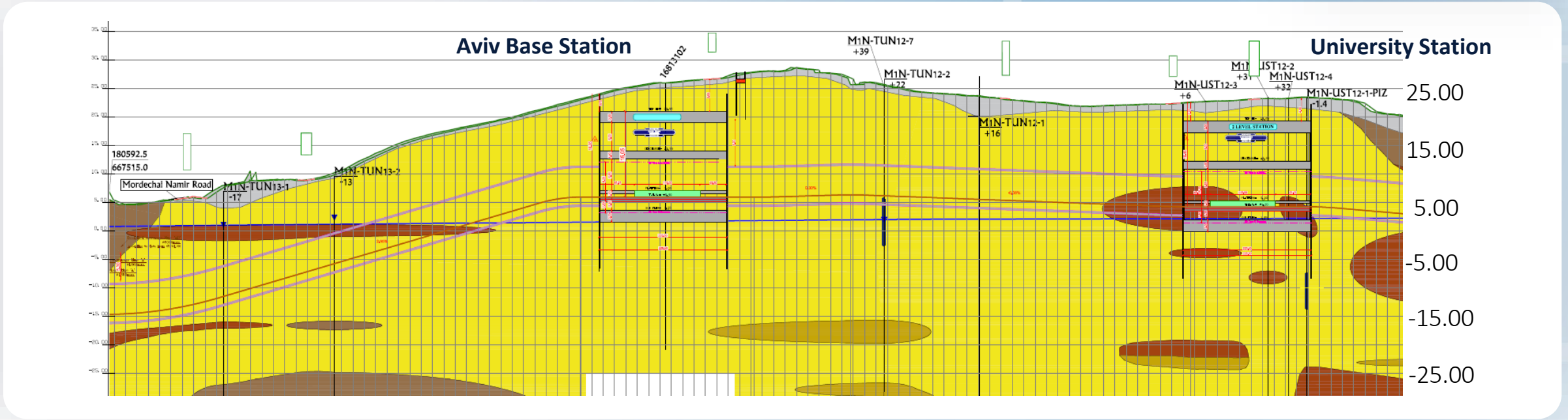
TUNNEL SECTION - INNER DIAMETER 6.50m

A<sub>EXCAVATION</sub> = 44+44 m<sup>2</sup>



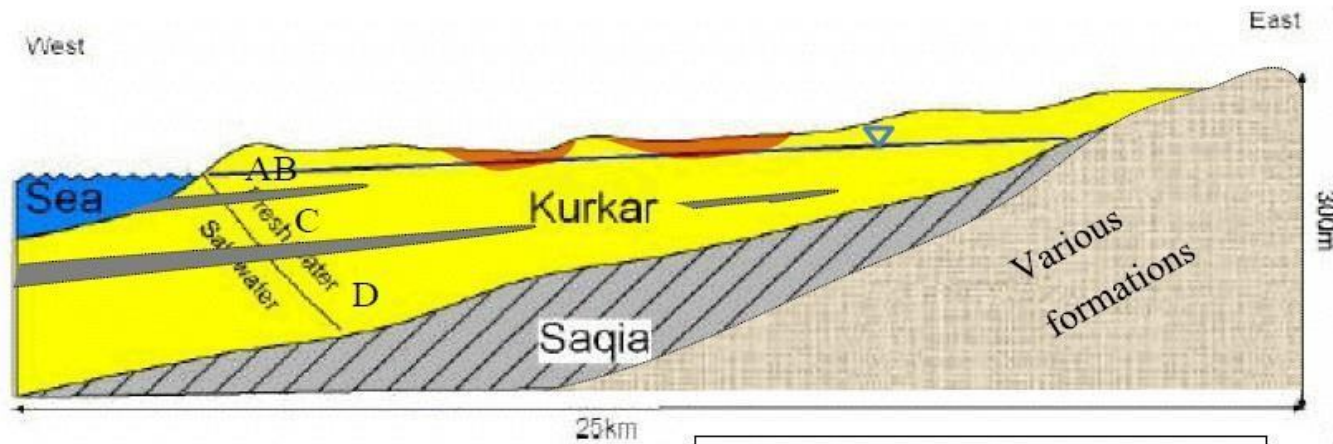
# Geological Cross Section






- M1 Line is characterized by dominance of fine sand and loose Kurkar (yellow), with discontinuous layers of Clay and “Hamra”.
- There are places along the M1 Line, in few stations, such as the Hagana station that are located in clayey terrain (as in areas like the Ayalon and Yarkon Rivers), but most of the ground along the line is sandy.



# Hydro - Geology

- The Metro tunnels pass through the Coastal Aquifer - a porous, Phreatic Aquifer.
- Going eastwards from the sea, the Aquifer gets thinner, groundwater level rises and hydraulic conductivity decreases.
- The general flow direction is seawards.
- The Aquifer is polluted in places and is heavily exploited for drinking and irrigation.
- Most of the tunnels would be submerged under groundwater.



Sand+Kurkar+Hamra	
Alluvium	
Marine Clay lenses	
Saqia Group (Clays)	
Previous Sedimentary rocks	

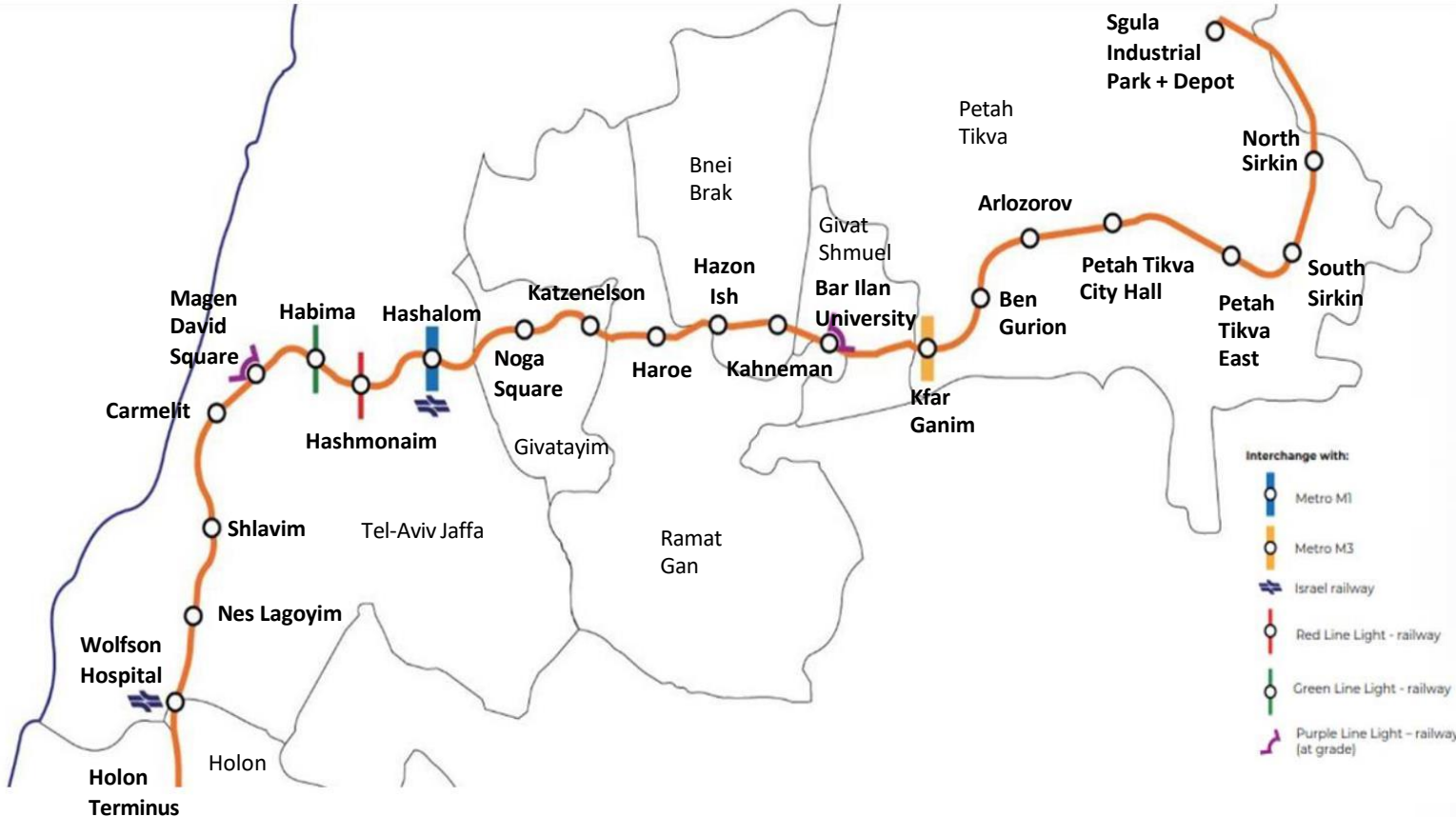
# Line M2

**Adi Kain Carni**

VP, Head of Metro Line M2

M2

# Overview



**26 Km Length**

**22 stations**

**7 Municipalities**

**1 Depot**

**2 Interchange Stations**

# Project Scope

## Advanced Works

(by local Contractors)

- Enabling Works including Utilities diversion
- Acoustic protection
- Launching Shafts (2)

## Infra #1

- Launching Shafts (2)
- 23 km of Tunnelling
- 19 x Underground Stations
- 1 x At Grade Station
  - 2 Hubs (by others)
  - crossovers
- Eastern Portal, Terminus

## Infra #2

- Fit out & Station MEP Systems
- Rolling Stock
- Track & Power
- Operations & Maintenance

## Segula Depot

Depot early works  
(site preparation and earth works)

**Infra #1:** Bridges and structures that are not Rail Systems-dependent

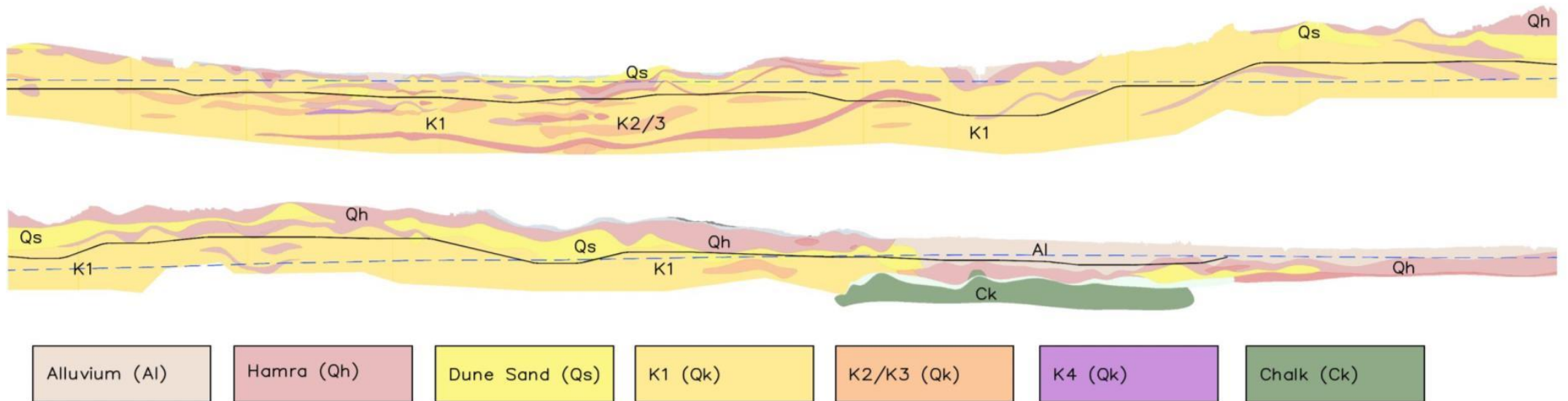
**Infra #2:** Test track, Power, Rail Systems, communications and fit out

# Sample section – Haroe to HaShalom



- Urban environment
- Depth of stations across M2 line:  
~ 25m to 38m (from ground level to top of rail)

# Geotechnical Conditions



- Majority of TBM & mined excavation in Dune Sand to K2 Material
- Blue dashed line - water level
- Black line - alignment

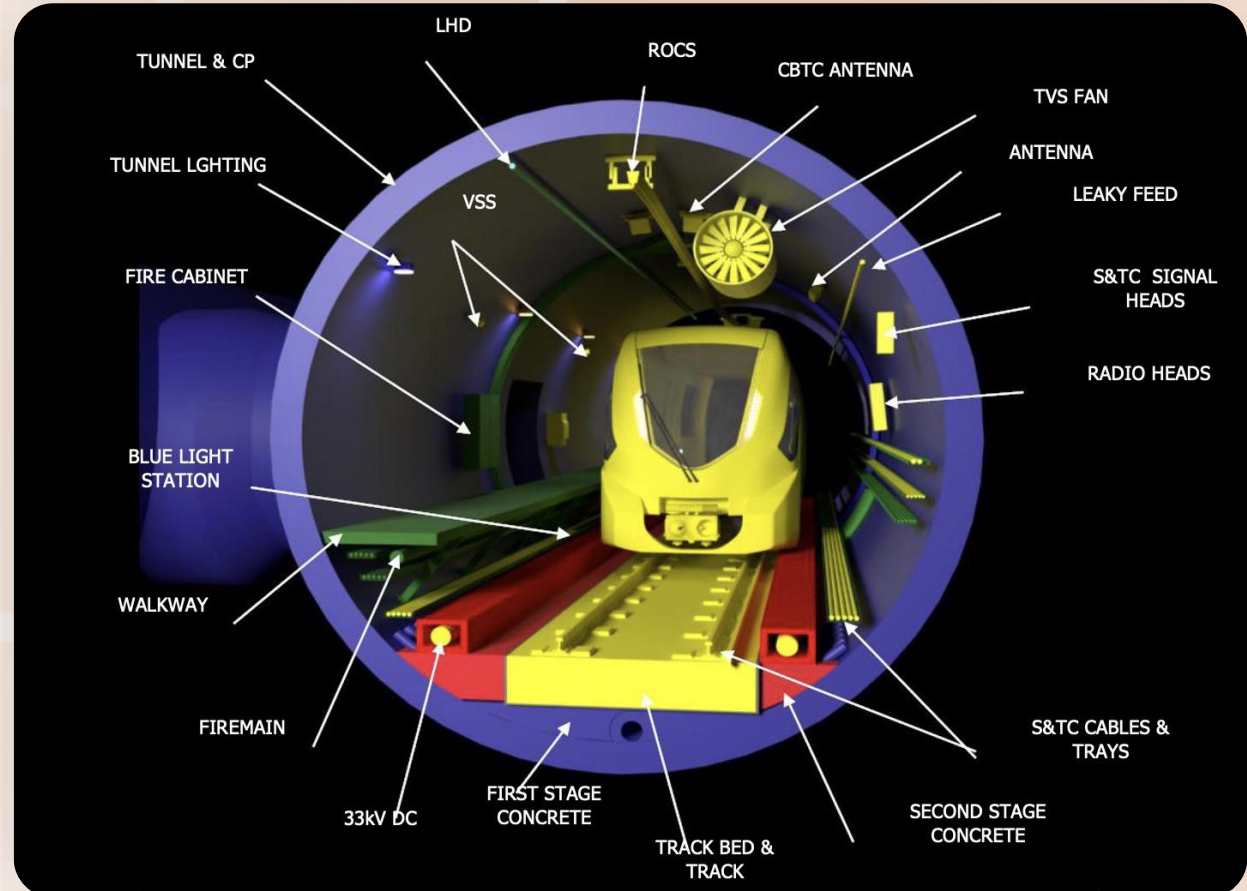
# Indicative Tunnel Layout by Package

INFRA 1: CIVILS

INFRA 2: CIVILS

INFRA 2: ARC & MEP

INFRA 2: RAIL SYSTEMS



# Indicative Cut & Cover Station Layout

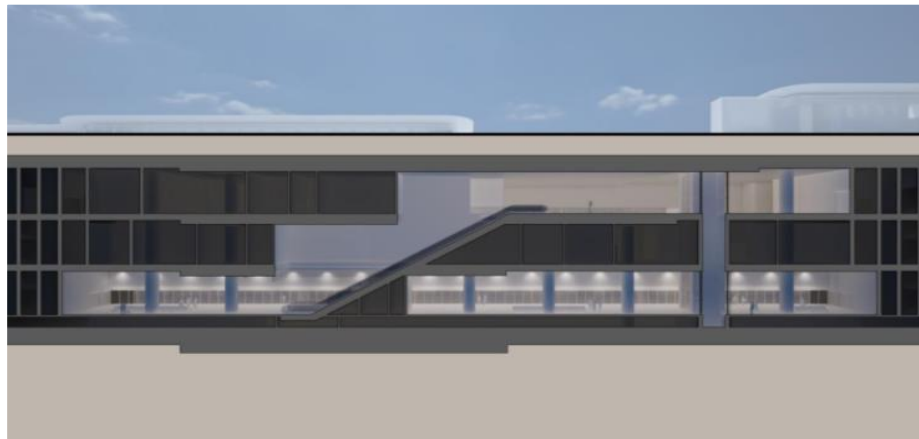
## 11 Cut & Cover stations Dimensions:

~ 180m long

~ 23m wide



Long. Section 3 level C&C station

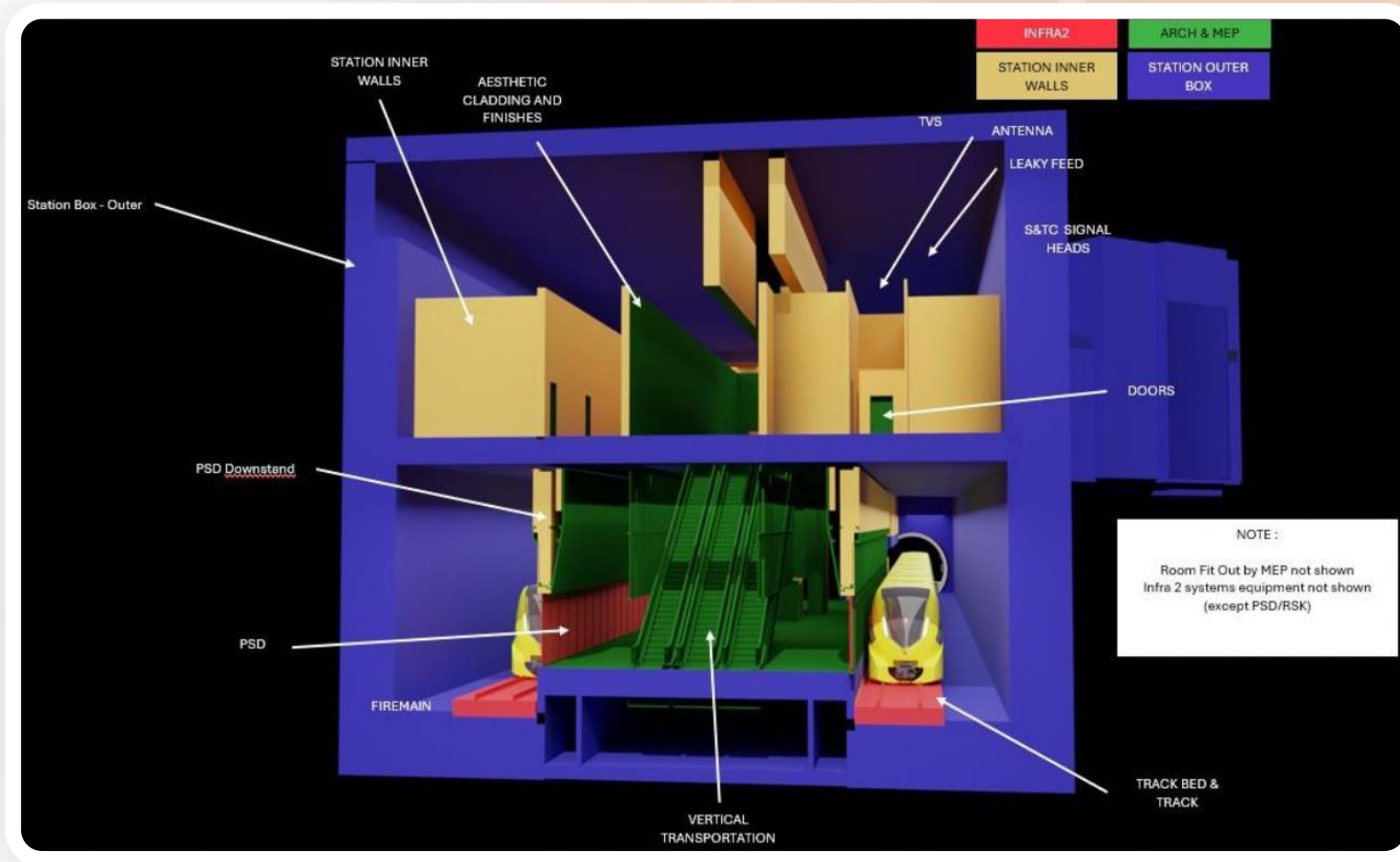


Sectional view, typical C&C station



View of Platform, typical C&C station

# Indicative Cut & Cover Station by Package

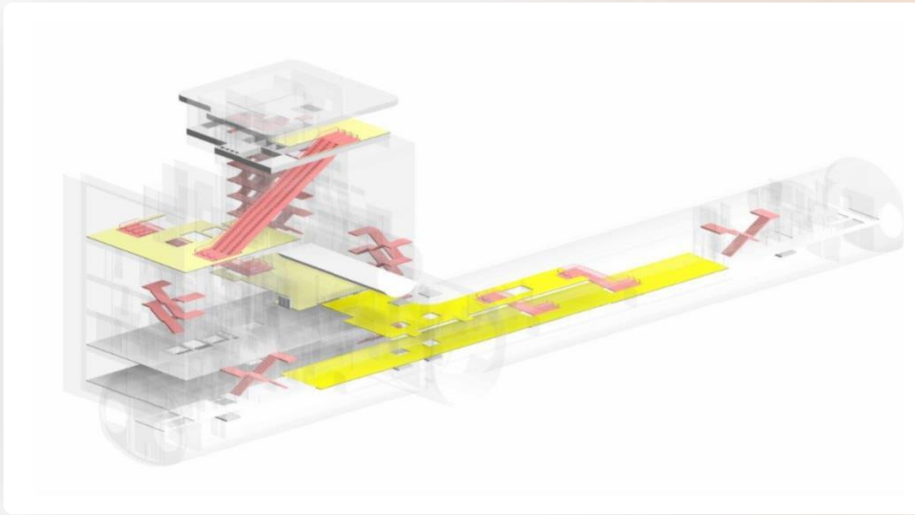


# Indicative Mined (NATM) Station Layout

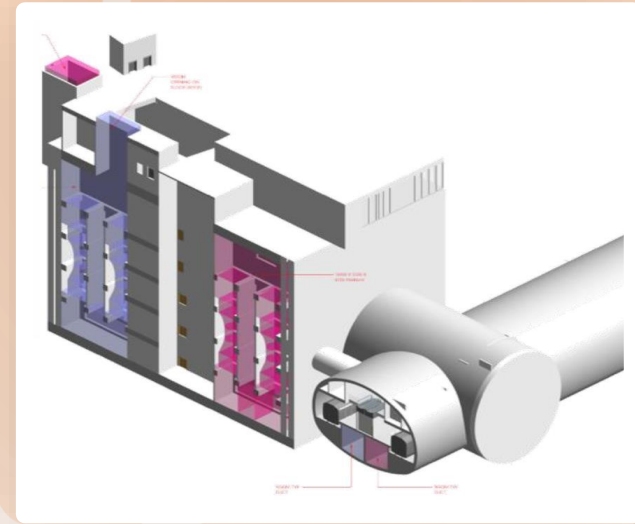
## 8 Mined (NATM) stations Dimensions:

Cavern cross-section: ~ 21.6m wide x 16.8m high

Station length: ~170m



Axo view of mined station Public routes



Cutaway view of TVS in mined station

# Indicative Mined (NATM) Station by Package

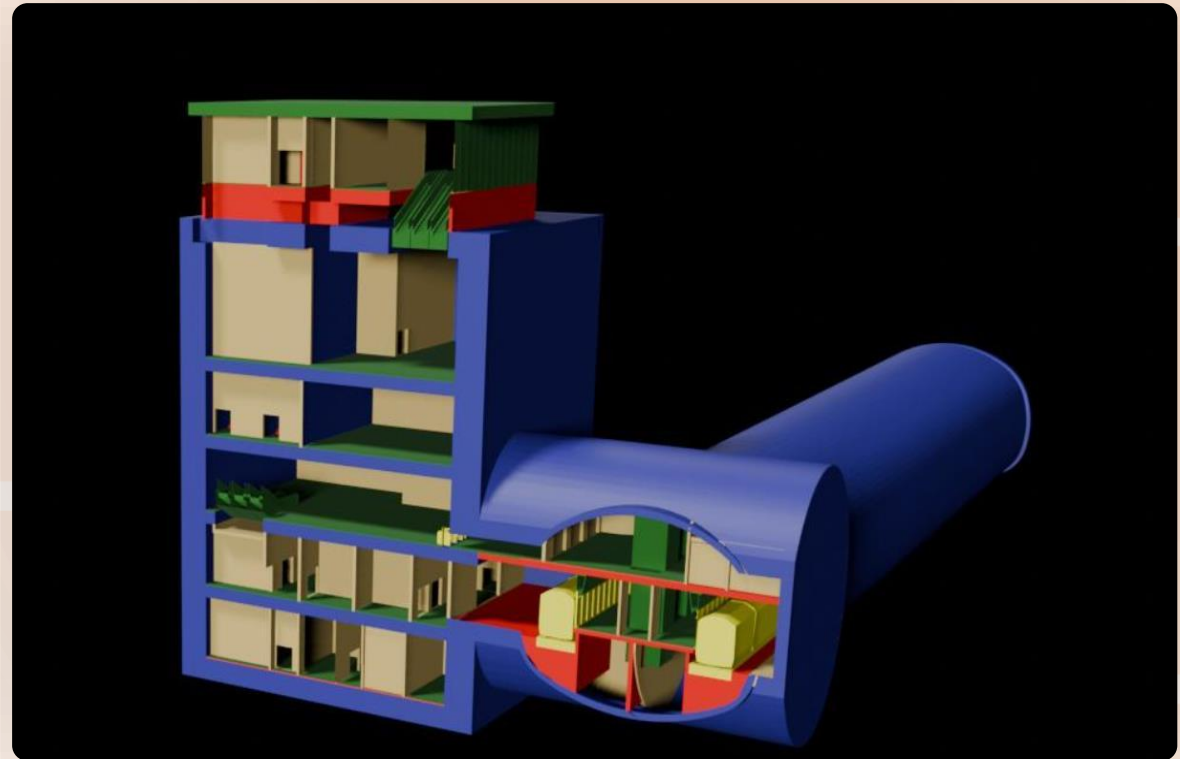
INFRA 1: CIVILS

INFRA 2: CIVILS

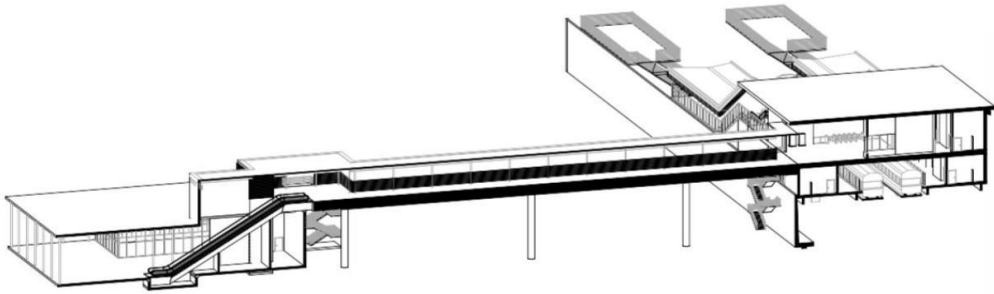
INFRA 2: PARTITION WALLS

INFRA 2: ARC & MEP

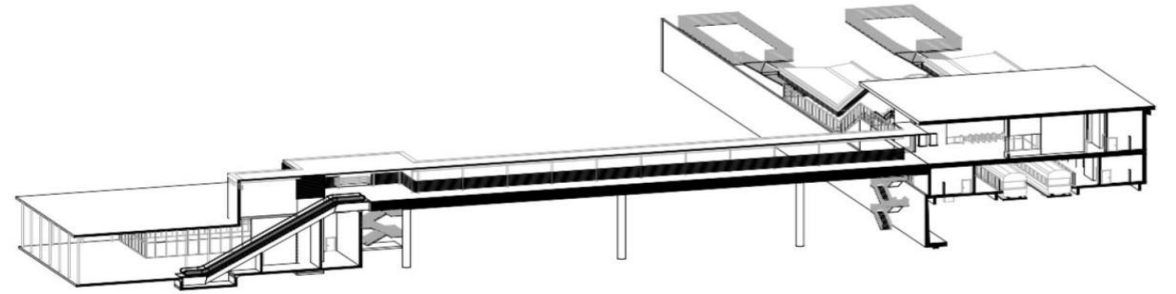
INFRA 2: RAIL SYSTEMS



# Indicative At Grade Station Layout



Axo view of at grade station



Section through at grade station

# Indicative Depot Layout by Package

ADVANCED WORKS (SUB SURFACE)

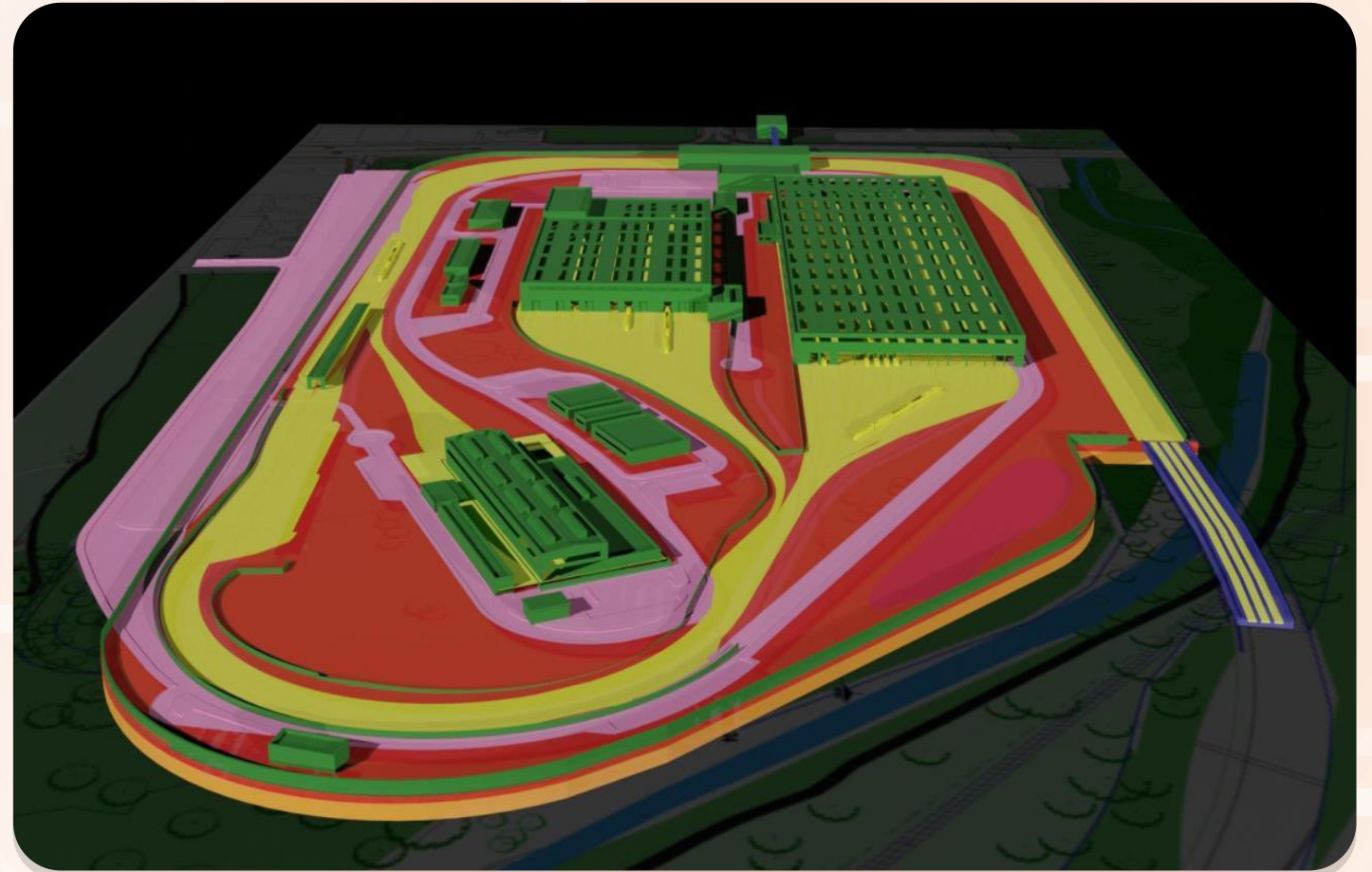
INFRA 1: BRIDGE

INFRA 2: CIVILS

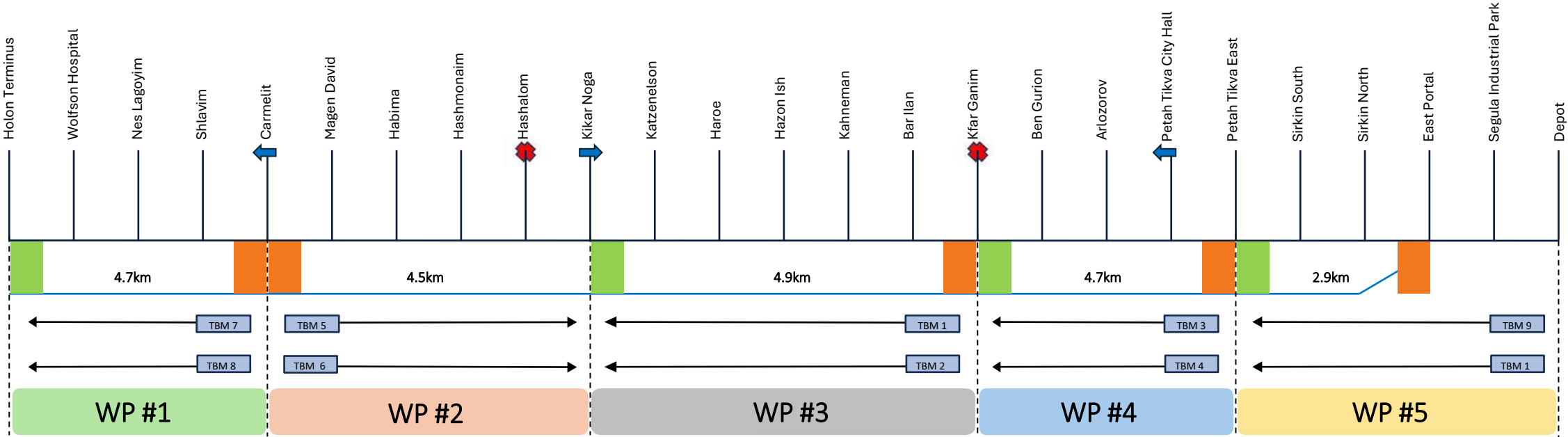
INFRA 2: ARC & MEP

INFRA 2: RAIL SYSTEMS

INFRA 2 : FINAL ROAD



# Infra #1 – Work Package



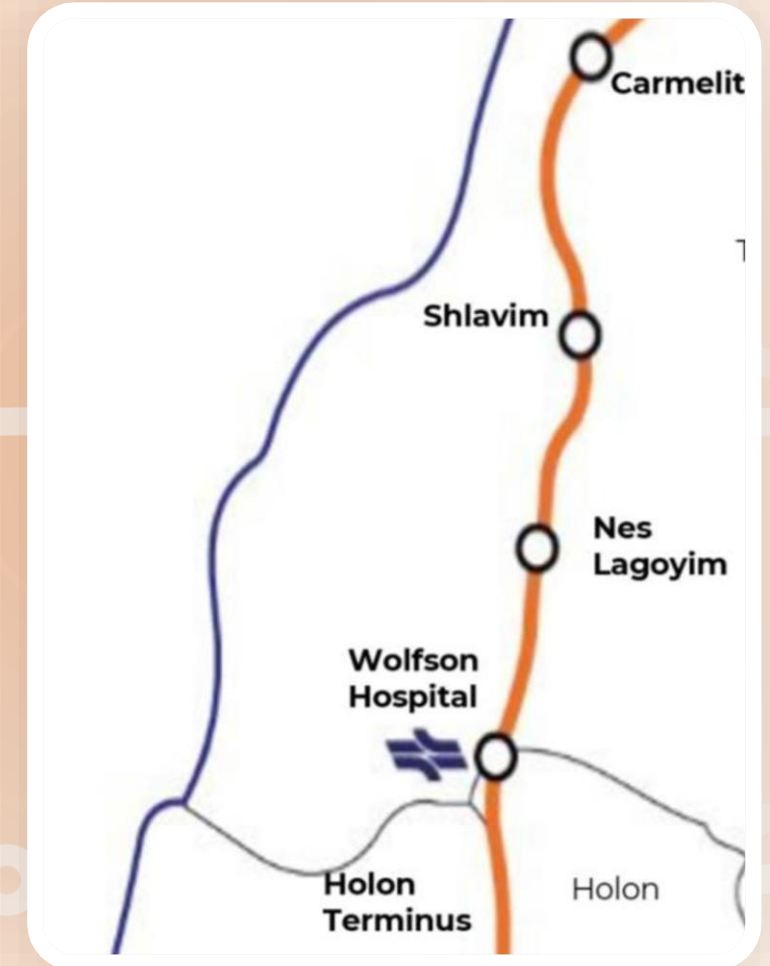
- Launch Site
- TBM drive
- Hub
- TBM Reception
- TBM
- Assignment WP

Note: Infra #1 work packages (stations and lengths) are approximate and subject to change

# Infra #1 – Work Package #1

## Highlights

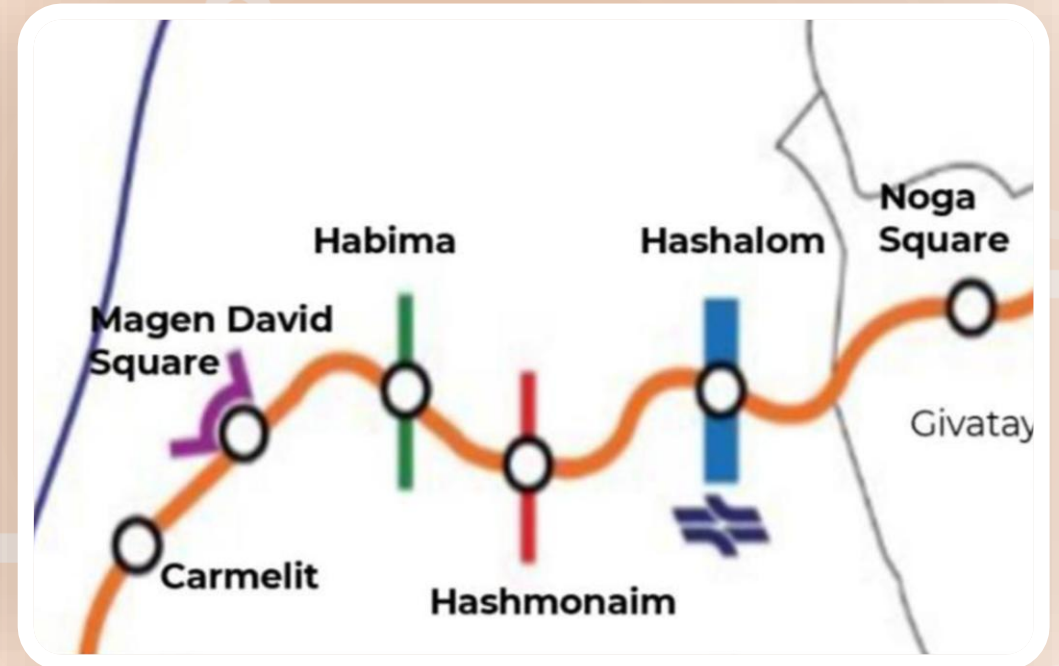
Launching Shaft	Carmelit South
TBMs	2
Tunneling	~4.7 km twin tunnel
Underground stations	4 x cut & cover plus terminus
Underground crossovers	2 x mined (NATM) 1 x cut & cover
Local municipalities	Tel Aviv, Holon



# Infra #1 – Work Package #2

## Highlights

Launching Shaft	Carmelit North (by others)
TBMs	2
Tunneling	~4.5 km twin tunnel
Underground stations	2 x cut & cover 1 x mined (NATM)
Local municipalities	Tel Aviv
Notes	Hashalom cut and cover station by M1



# Infra #1 – Work Package #3

## Highlights

Launching Shaft	Kfar Ganim (by others)
TBMs	2
Tunneling	~4.9 km twin tunnel
Underground stations	2 x cut & cover 5 x mined (NATM)
Underground crossovers	2 x mined (NATM)
Local municipalities	Ramat Gan, Bnei Brak, Givatayim, Givat Shmuel



# Infra #1 – Work Package #4

## Highlights

Launching Shaft	Petah Tikva East
TBMs	2
Tunneling	~4.7 km twin tunnel
Underground stations	2 x cut & cover 2 x mined (NATM)
crossovers	1 x mined (NATM)
Local municipalities	Petah Tikva



# Infra #1 – Work Package #5

## Highlights

Launching Shaft	Eastern Portal
TBMs	2
Tunneling	~2.9 km twin tunnel
At Grade Section	~1.2 km + depot
Underground stations	2 x cut & cover
At Grade	1 x station Eastern Portal Bridges and road (Depot)
Crossovers	1 x underground cut & cover
Local municipalities	Petah Tikva



# Line M3

**Lea Shmul**

VP, Head of Metro Line M3

# M3

# M3 Highlights

## Tel Aviv Metropolis M3 Line

A cutting-edge metro line that will revolutionize transportation in the central district of Israel.

**39 km**  
Length

**25**  
stations

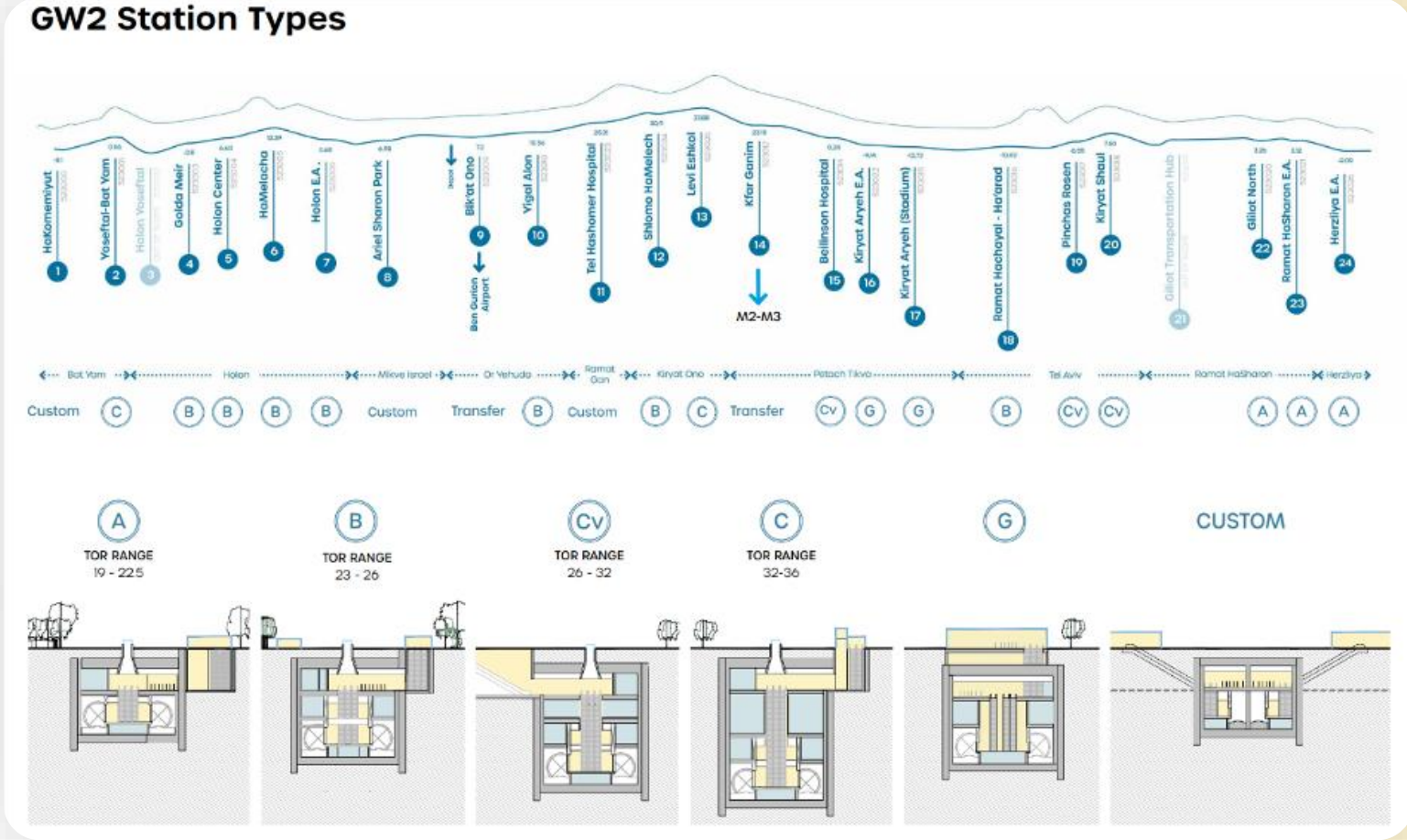
**1**  
Depot

**3** Interchange  
Hubs

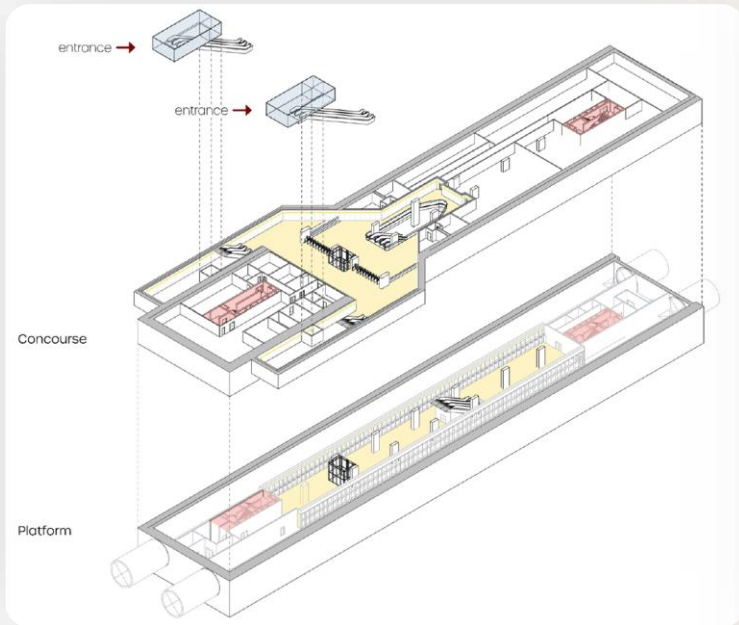
**8** operation  
Elements



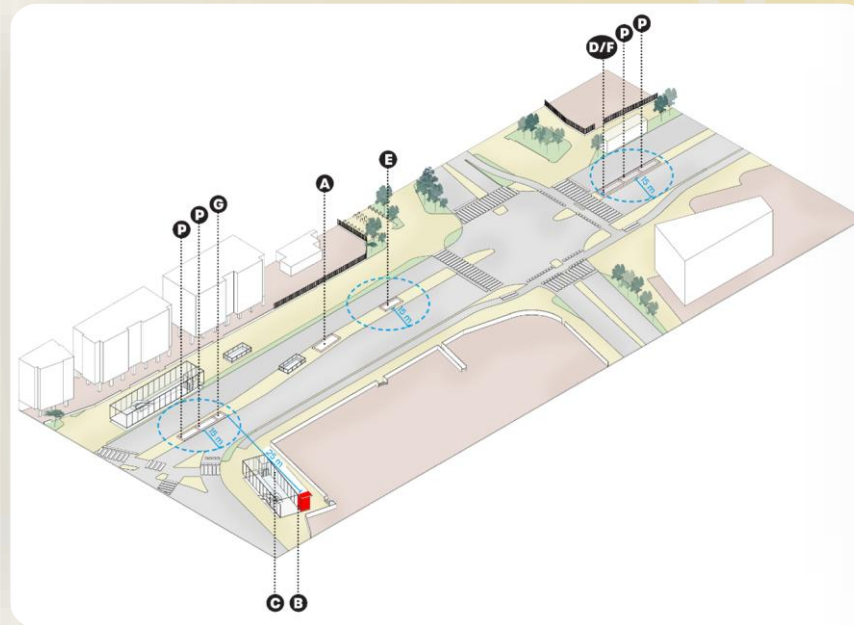
# GW2 - Alignment and Stations Types



# Indication Station Layout (Cut & Cover)



Underground Levels



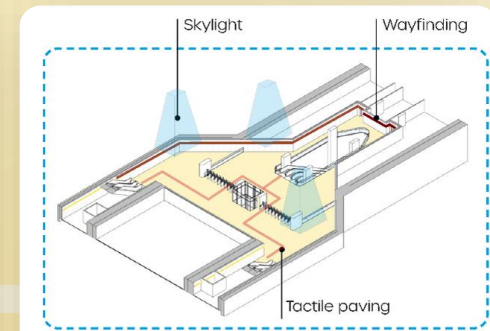
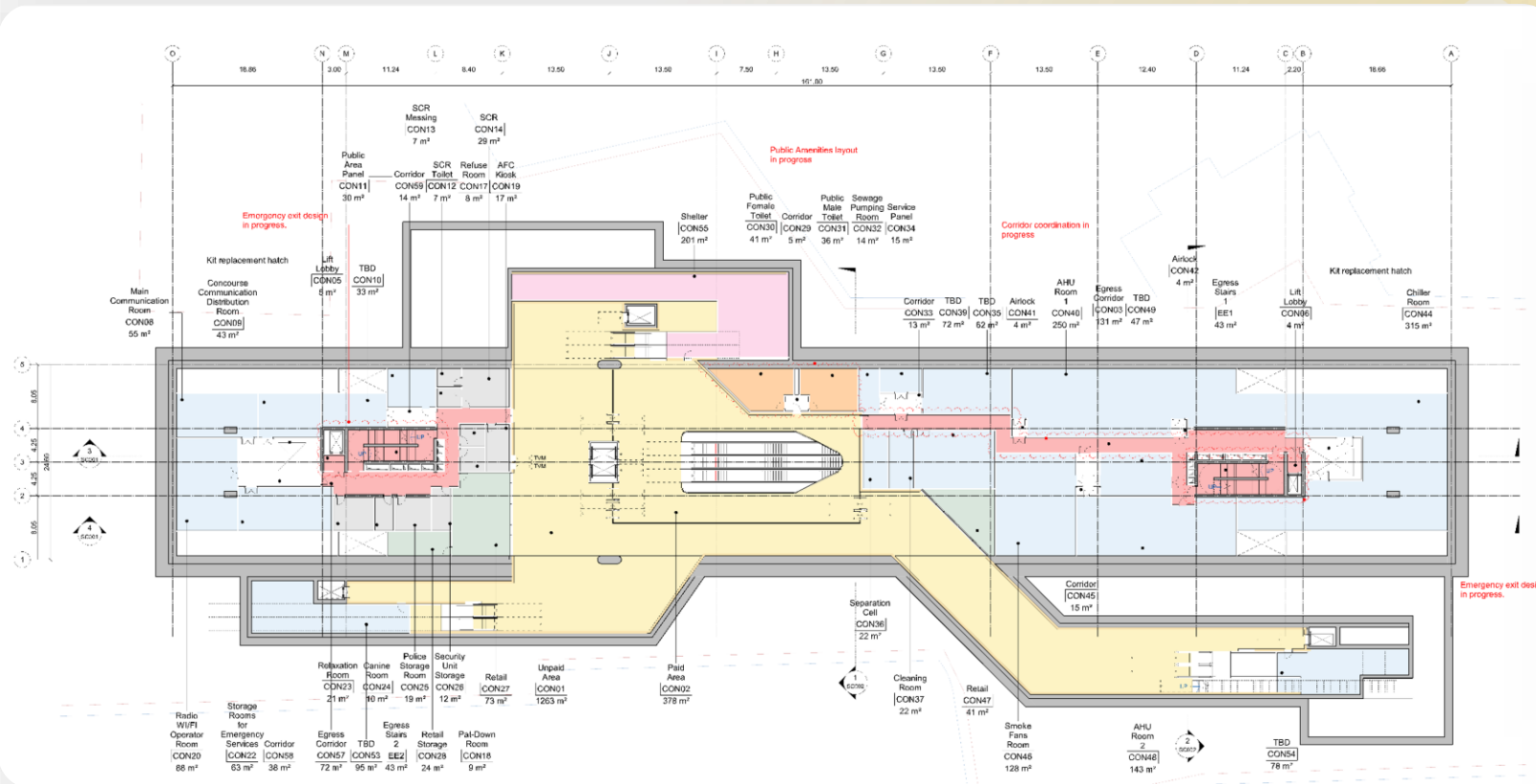
Grade Level

**Total: 22 UGS Stations**  
Phase A – 16 Stations  
Phase B – 6 Stations

**Dimensions:**  
Length ~ 165 meters  
Width ~ 24 meters

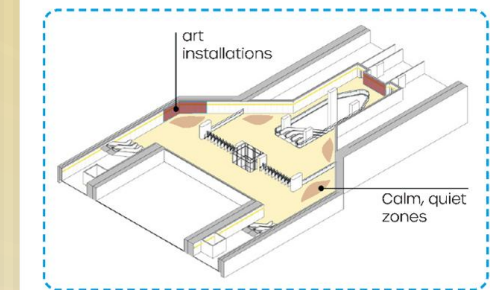
# Typical Station Layout - Concourse Level

## Concourse Level



### ACCESSIBILITY

Accessible to all passengers. Facilities and assistance for passengers with disabilities to ensure everyone can navigate the station comfortably.



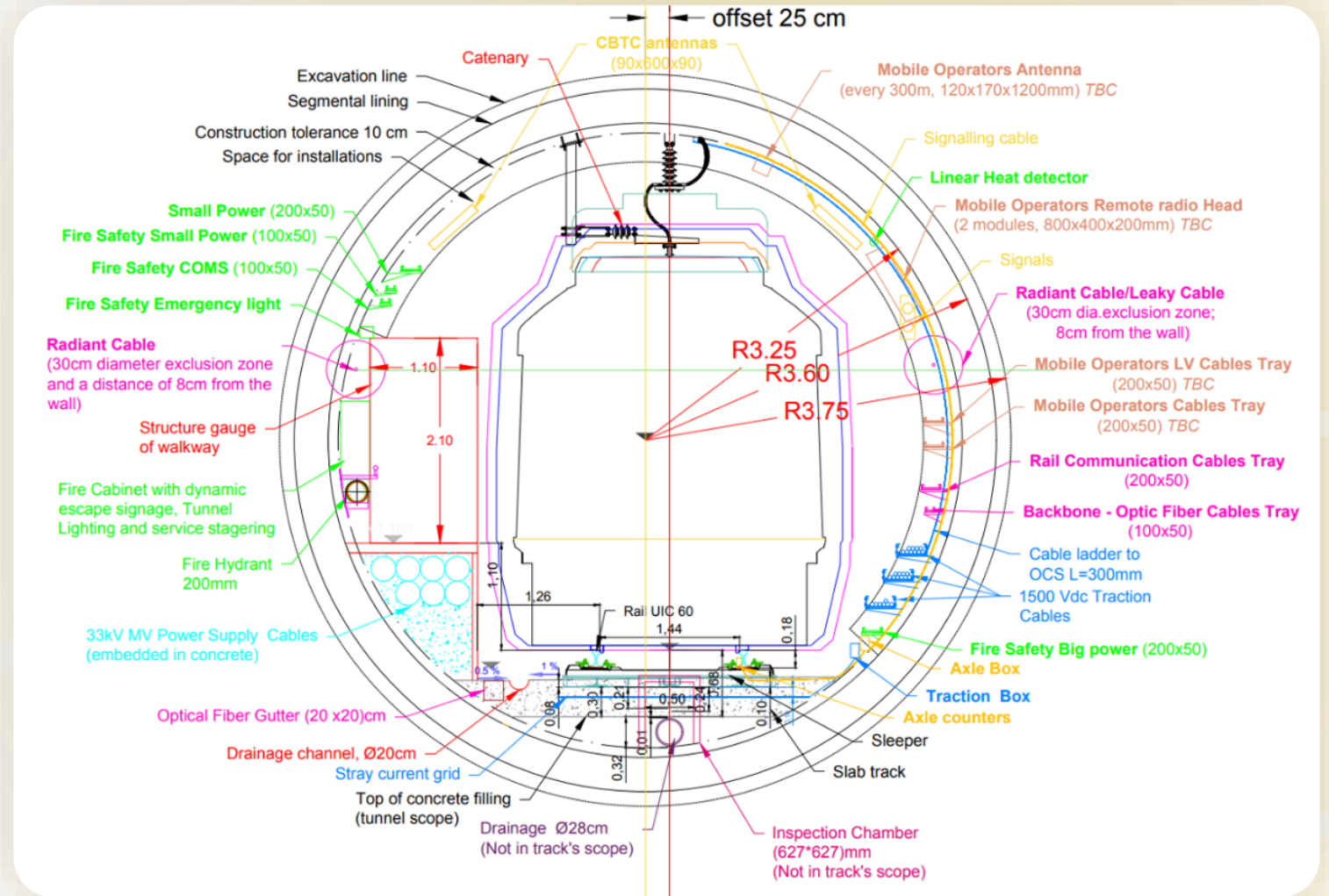
### STATION ENVIRONMENT

Aesthetically pleasing designs, such as green spaces and artwork, create a relaxing and enjoyable atmosphere.

# Cross section

## TBM tunnels (double-tube) :

- Excavation diameter = 7.5 m
- Internal diameter = 6.5 m  
(including 0.10 m tolerance drive on the radius)
- Segments thickness = 0.35 m
- Radial gap: = 0.15 m



# M3 Construction Stages

**CONSTRUCTION STAGE A** starts at Bat Yam Station and finishes at Yarkon National Park (Petach Tikva) stabling track.

- Length: 25 km
- 16 underground stations
- 9 operational elements
- Mesubim depot compound



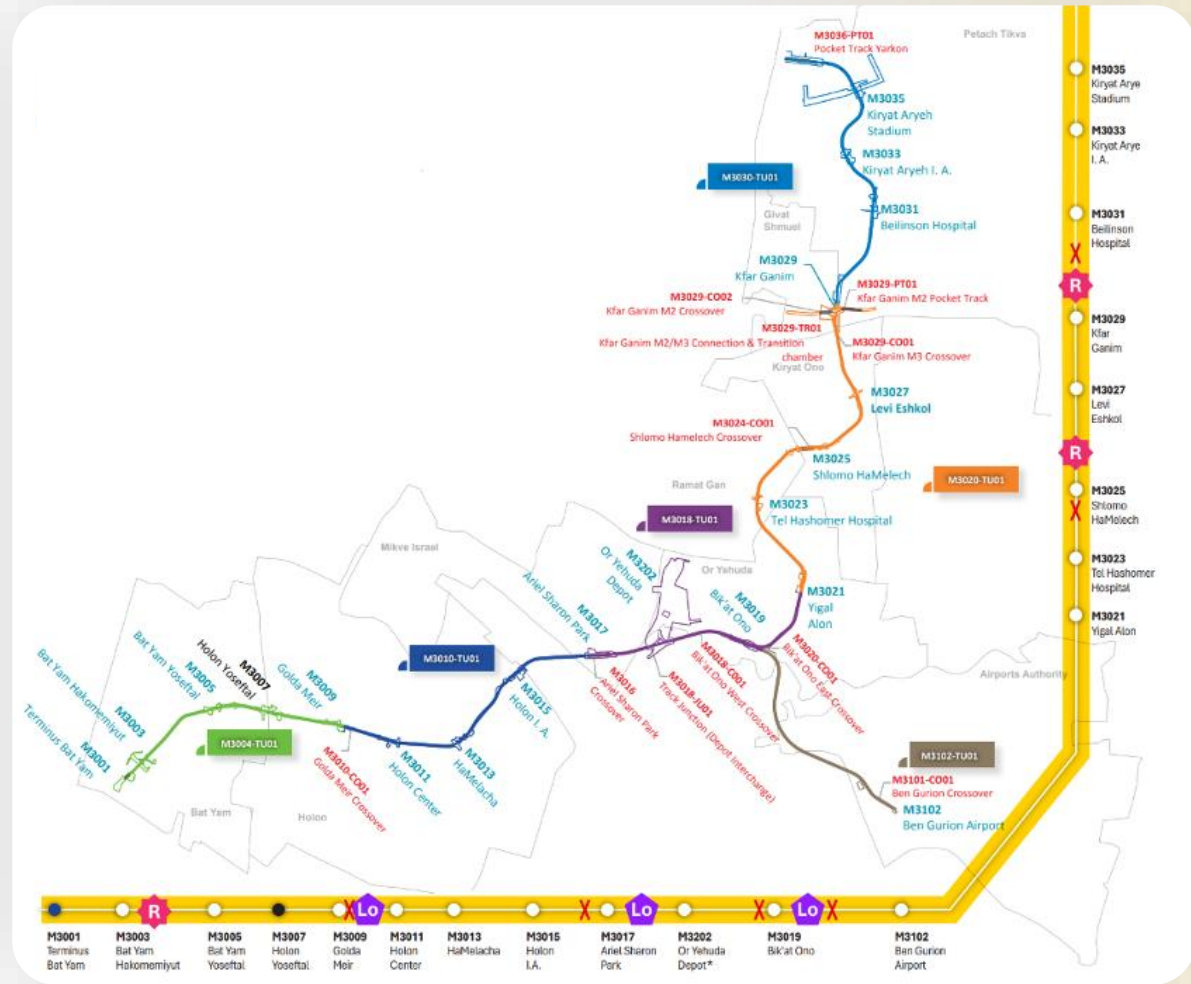
# M3 Construction Stages

**CONSTRUCTION STAGE B** starts at the Yarkon National Park (Petach Tikva) stabling track and finishes at Herzliya Station.

- Length: 14 km
- 7 underground stations
- 5 operational elements
- Includes branch to Ben Gurion Airport



# M3 Stages A



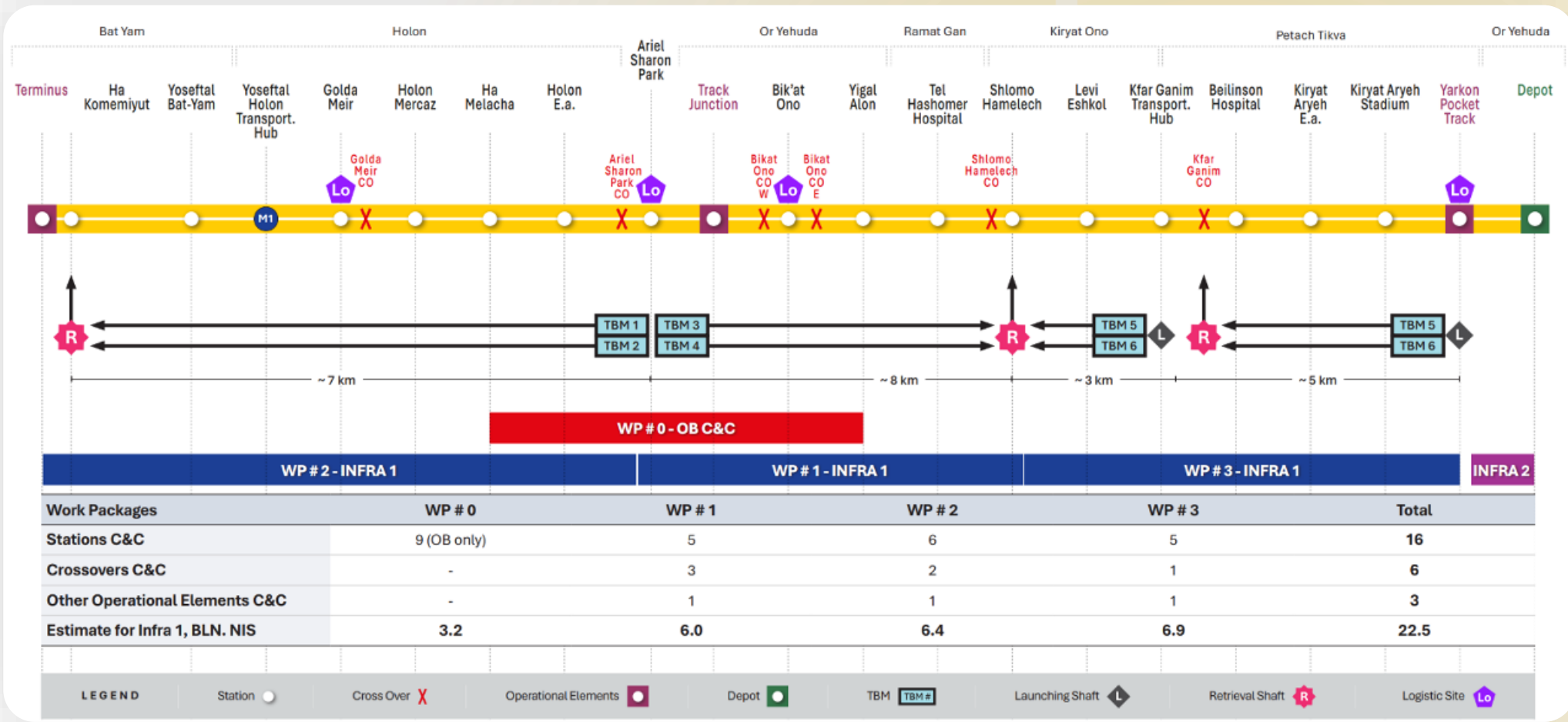
ELEMENT'S TYPE	UNITS
STAGE A	29
Station	16
Crossover	6
Chamber	3
Pocket Track	1
Terminus	1
Depot interchange	1
Depot	1
Tunnel	1 Km
Twin Tunnel	23 Km

**LEGEND**

Station	Cross Over
Operational Elements	Depot
TBM	Launching Shaft
Retrieval Shaft	Logistic Shaft

\*Note: Not part of WP # 1 Infra 1

# Infra 1 Packaging Strategy



# TBM Mining Scheme

The construction strategy encompasses 2x6 TBM drives. In the intermediate design phase, the construction schedule anticipates the stations to be built first. Consequently, the excavation length is estimated approximately, excluding station lengths.

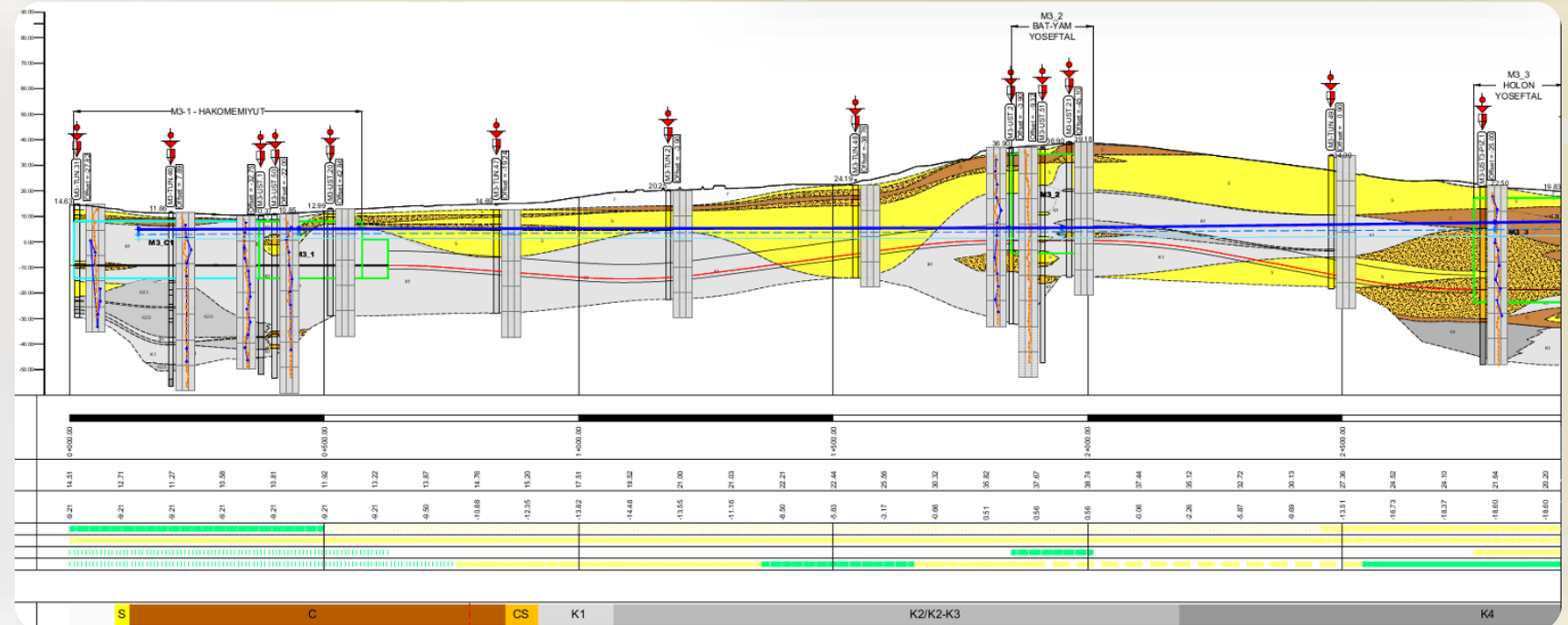
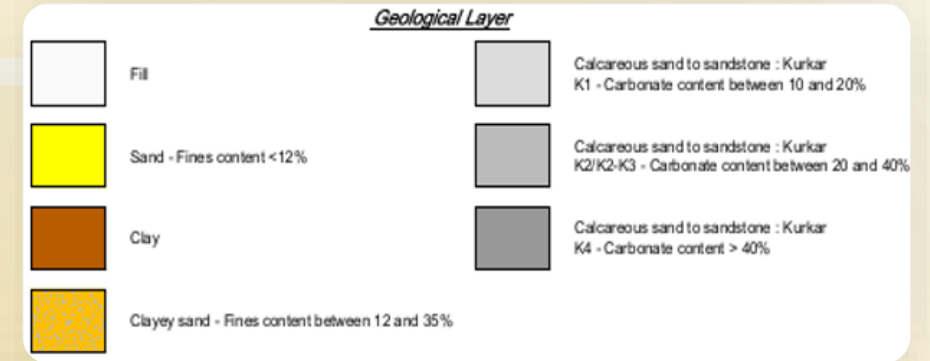
Drive	Launching	Retrieving	Length [m]
1	Ariel Sharon Cross-over	Hakomemiyut	6780
2	Ariel Sharon Park	Shlomo Hamelech Cross-over	5800
3a	Kfar Ganim	Shlomo Hamelech	2010
3b	Yarkon Pocket Track Chamber	Kfar Ganim Cross-over	4300
4	Glihot Transportation Hub	Yarkon Pocket Track Chamber	4600
5	Herzliya Employment Area	Glihot Transportation Hub	3200
6	Bikat Ono Chamber	Ben Gurion Airport	3420



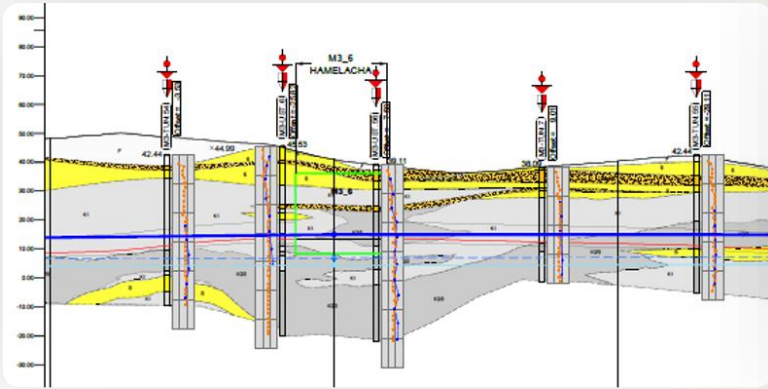
# M3 Geological conditions

M3 line is composed of 4 main typical geological layers :

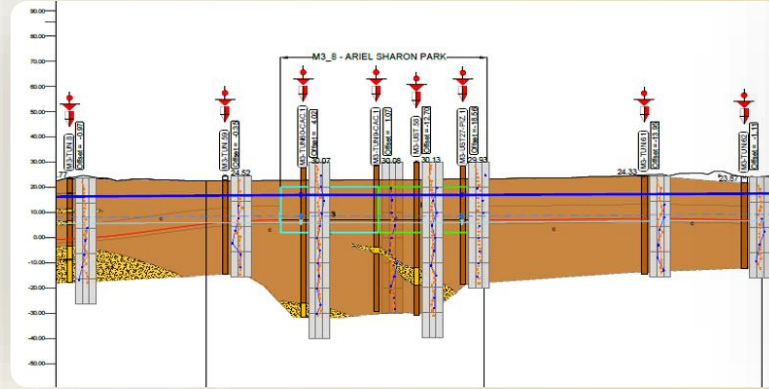
- Sand
- Clay
- Clayey sand
- Calcareous sandstone



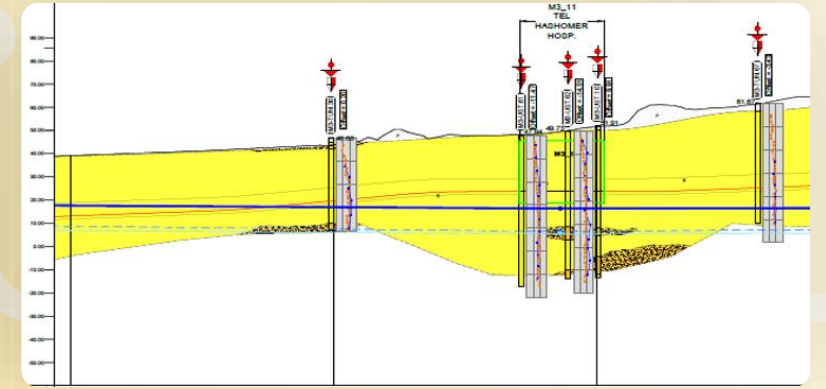
# M3 Geological conditions



**Section 1:** Sand, sandy clay and kurkar; representing the costal deposits in the South-West.



**Section 2:** Clay; representing Ayalon and Yarkon valleys.

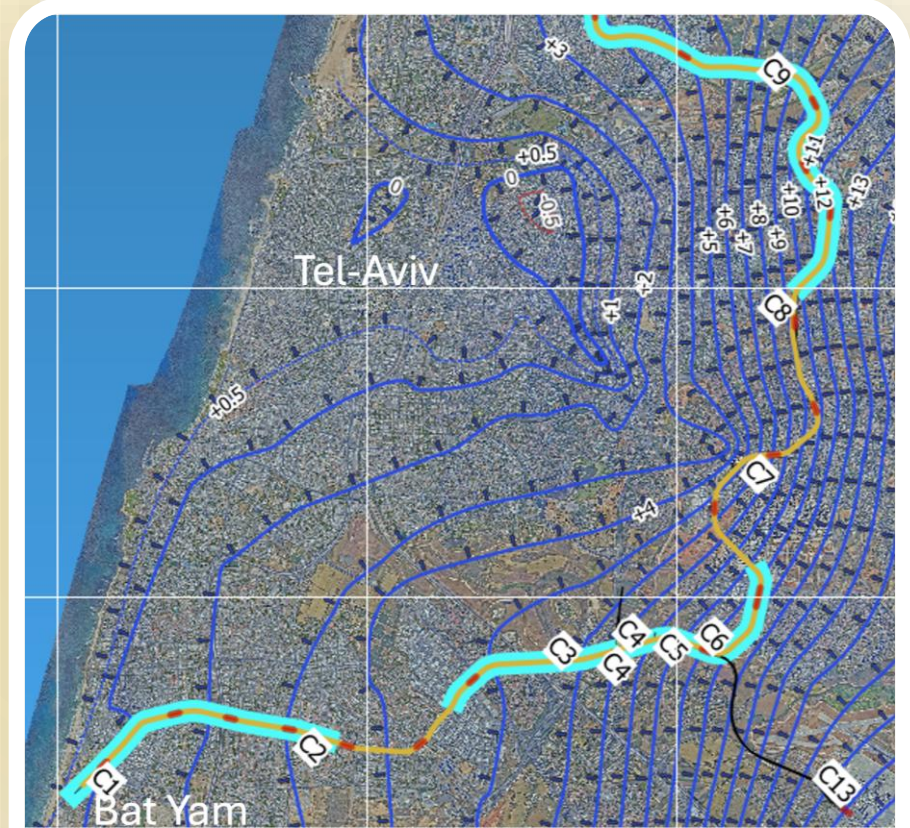
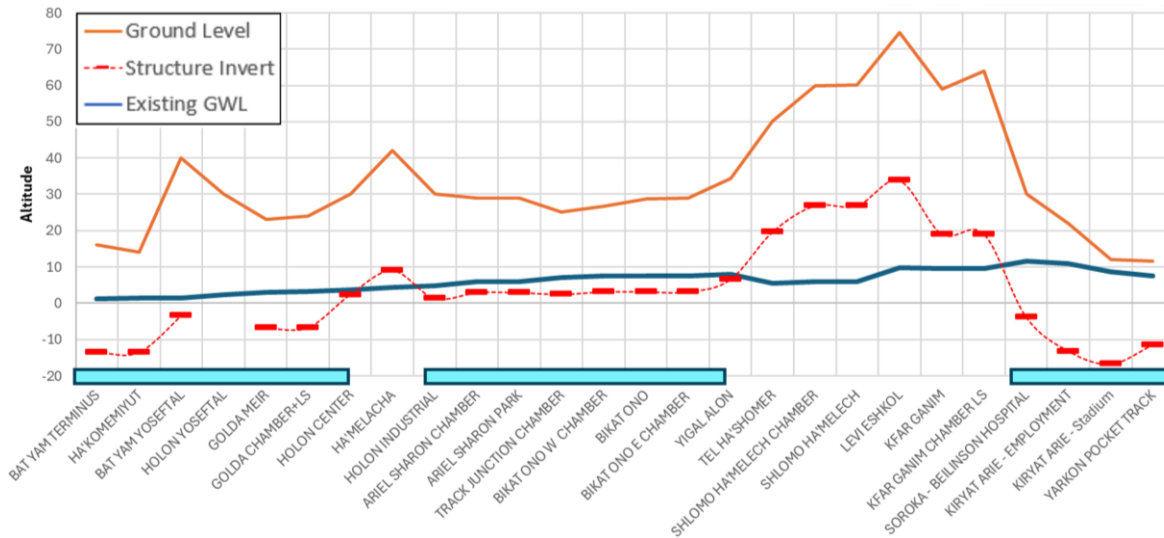


**Section 3:** Sand and sandy clay to clayey sand; representing all the rest.

Grade Level

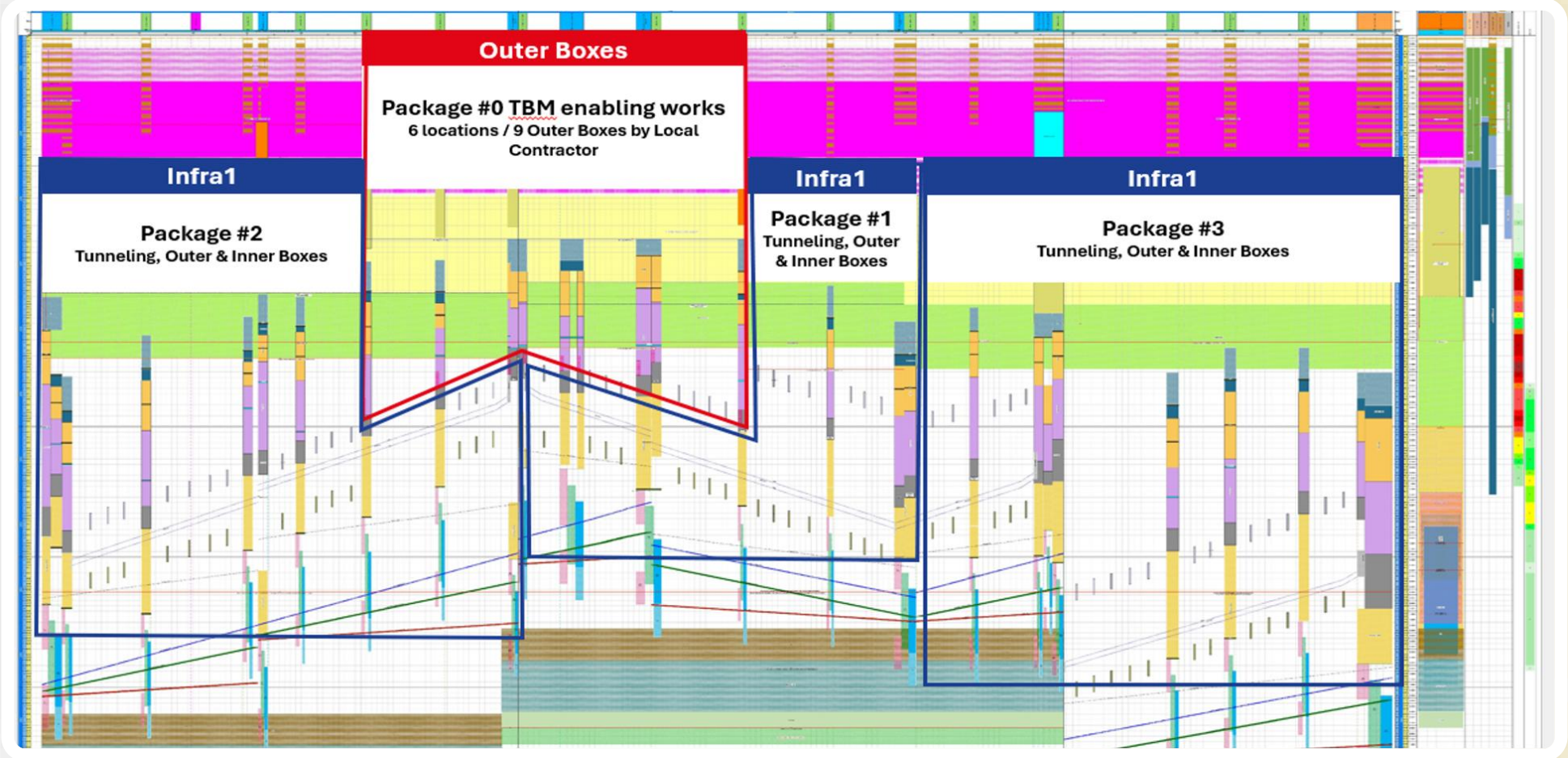
# Hydrogeological status

- Major part of the M3 line and 18 elements will be partially submerged below the groundwater level.
- Excavations for the 18 elements will require a groundwater control plan (i.e., dewatering – highlighted in **light blue**)



2023 GWL map

# Duration of Work by Work Packages



# ISRAEL

# Metro Project

**Helen Maor**  
Head of Procurement - Metro

# Procurement Strategy Scheme

M1

M2

M3

Enabling Works  
Utilities Diversion & Depot Early Works

NTA Contractors

Launching Shafts & Advanced Works

Tunneling & Stations: Outer-Box

Stations: Inner-Box  
Heavy Civil & Architectural Works



Core Transit Facilities

Electromechanical Systems  
Stations, Tunnel Fit-Out, ME

Track

Rolling Stock

Signaling

Operation & Maintenance

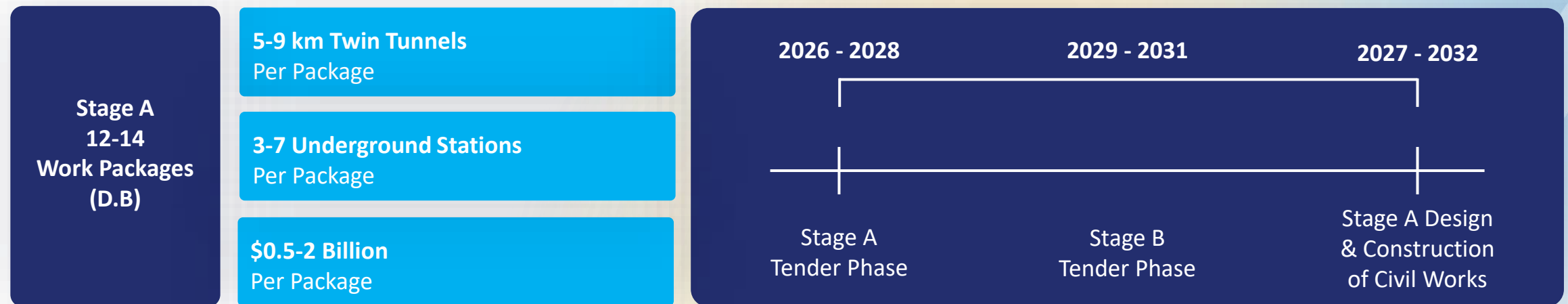
WP 4 INFRA II  
+  
O&M

INFRA II WP 6  
+  
O&M

# Tunneling And Stations Work Packages

## What are we looking for?

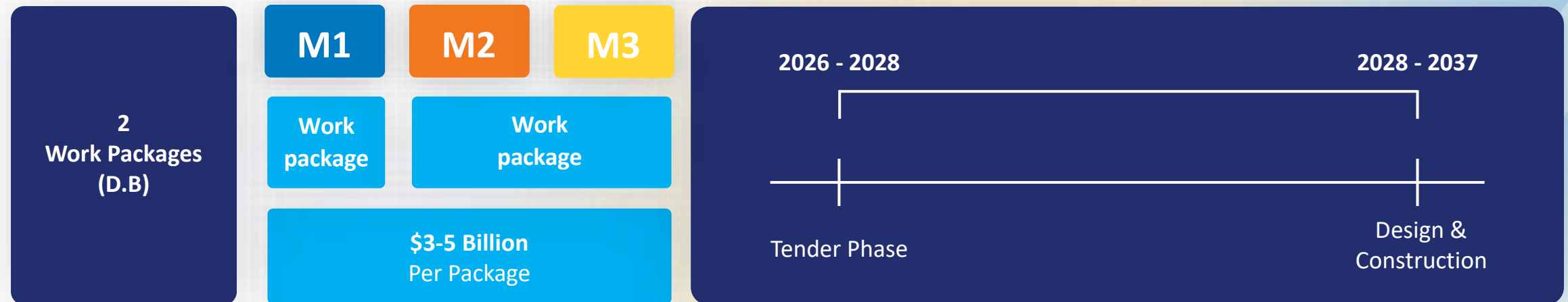
- Experience in mega D.B. Infra projects
- Experience in delivery of projects in urban environment
- Experience in Rail tunneling
- Experience in complex underground structures



# Systems And Rolling Stock Work Packages

## What are we looking for?

- Experience in mega D.B. Infra projects
  - Experience in delivery of projects in urban environment
  - Experience in delivery of Metro projects
  - Experience in integration of Rail projects
- Track
  - Electromechanical Systems
  - Signaling
  - Rolling Stock
  - Rail Systems
  - Depots



# Examples For Threshold Requirements For Experience Of Design And Construction Of TBM Tunnels

## 1 | Experience of Design and Construction of TBM Tunnels

1

Experience of Design and Construction of TBM Tunnels

2

Experience of Construction of Underground Structures

### Example for Threshold Requirements

Designed, Constructed and Completed TBM Tunnels operating in closed mode conditions in soft soil or sand

Constructed by EPBM or Slurry TBM

The internal diameter of the tunnel is at least 5.0 meters

Constructed beneath the groundwater table level; and

The tunnel or part thereof was constructed in a dense urban area

# Examples For Threshold Requirements For Experience Of Design And Construction Of Underground Structures

## 2 | Experience of Design and Construction of Underground Structures

1

Experience of Design and Construction of TBM Tunnels

2

Experience of Construction of Underground Structures

### Example for Threshold Requirements

Designed, Constructed and Completed Underground Structures

The construction method of the structure was Cut & Cover

The construction of the structure required the dewatering of groundwater

The structure was constructed utilizing diaphragm walls

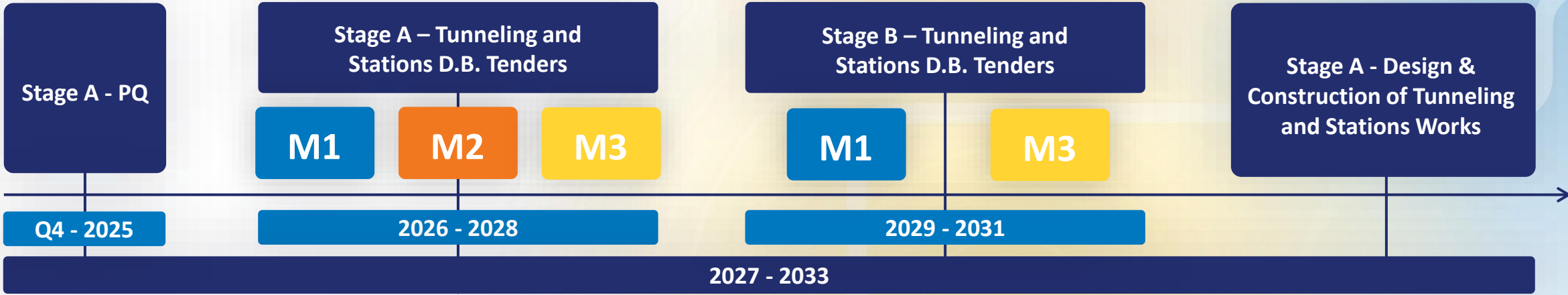
The structure was constructed in a dense urban area

# Opportunities

Let's discuss...

## What are we looking for?

- Experience in mega D.B. Infra projects
- Experience in delivery of projects in urban environment
- Experience in Rail tunneling
- Experience in complex underground structures

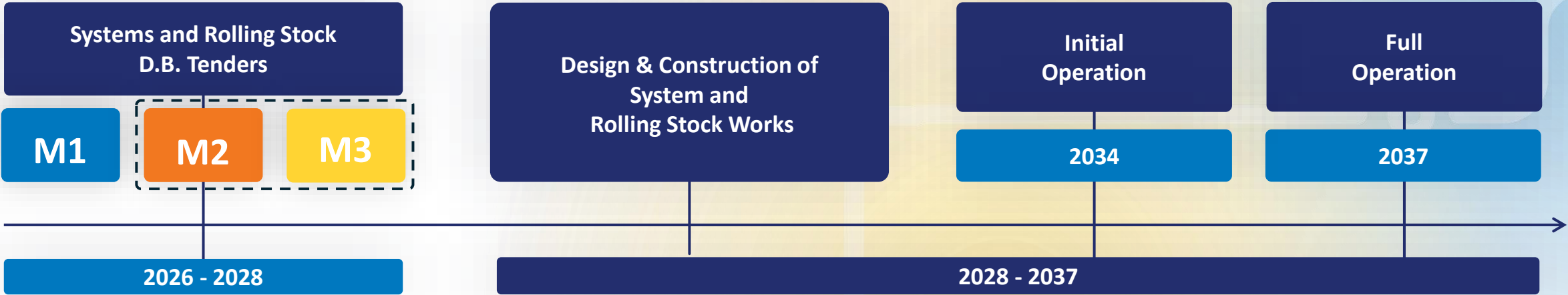


# Opportunities

Let's discuss...

## What are we looking for?

- Experience in mega D.B. Infra projects
- Experience in delivery of projects in urban environment
- Experience in delivery of Metro projects
- Experience in integration of Rail projects



# ISRAEL

# Metro Project

**Helen Maor**

Head of procurement - Metro  
Barak Kirschner, BLK - Partner

# Typical Tender Document Structure

## Tender Document Structure

All Documents Are in English

### Vol 1 Invitation to Bid

- Tender Process and Anticipated Schedule
- General provisions relating to the participation of bidders in the tender process
- The contents of the bid
- Method of submission
- Evaluation and selection of the Preferred Bidder and Second Ranked Bidder (if any)

### Vol 2 Agreement

- Agreement Documents, Order of Priority and Precedence
- Commencement and Term of the Agreement
- Representations and Warranties
- Consideration and Terms of Payment
- Option to Expand the Services
- Resolution of Disputes

### Vol 3 General Technical Requirement

- General Technical Requirements (Design Management, Safety Management, Permits and Consents)
- Interface Management
- Handover Process

### Vol 4 Technical Specification

- Drawings and Reference Design Documents
- Surveys
- Geo-Technical Ground Conditions
- Functional Specifications

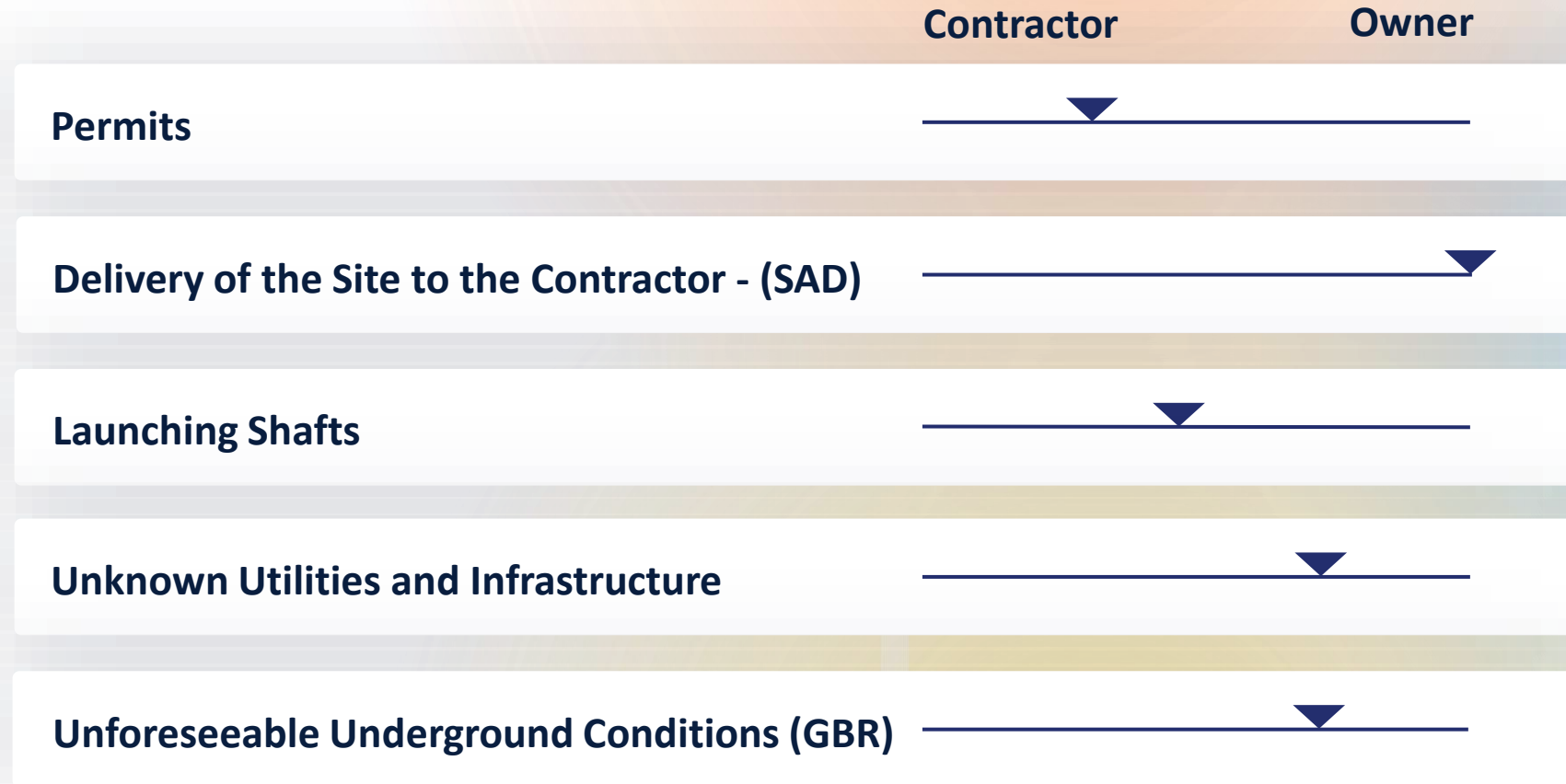
# Risk Allocation

## Basic Principals

	Contractor	Owner
Utility Diversion	_____	_____▼
Acoustic Protection	_____	_____▼
Depot Early Works	_____	_____▼
Reference Design	_____	_____▼
Detailed Design	_____▼	_____

# Risk Allocation

## Basic Principals



# Risk Allocation

## Basic Principals

	Contractor	Owner
Connection to the Grid (IEC)	_____	_____▼
Betterment Tax	_____	_____▼
Expropriation Costs	_____	_____▼
Payments During Construction	_____	_____▼

# Risk Allocation

## Basic Principals

	Contractor	Owner
Indexation	_____	_____▼
Foreign Exchange Rates (EUR/USD)	_____	_____▼
Base Interest Rates (for PPP Schemes)	_____	_____▼
Taxation (ruling)	_____	_____▼

# Typical Tender Process – Israeli Market

## Typical Tender Process Includes the Following Stages

### 4-6 Months PQ (RFQ)

- Pre-Qualification Requirements
- Pass/Fail Requirements (no scoring)
- Identification of Qualified Bidders

### 6-8 Months ITB (RFP)

- Invitation to Bid
- Tender documents include the form of the Agreement and technical specifications
- Ability to Submit RFC (Request For Clarification)

### 3-6 Months Bid Evaluation

- Legal Compliance
- Technical Evaluation
- Business Plan and Financial Evaluation (for PPP scheme only)
- Price Proposal Evaluation
- Final Scoring

### 1-2 Months Preferred Bidder

- Selection of Preferred Bidder
- Second Rank Bidder (optional)
- Executing the Agreement

### 12 Months Financial Close (for PPP scheme only)

- Preferred Bidder (by that time, the counterparty to the Agreement) to raise finance
- Execution of Finance Agreements
- Execution of Project's Main Agreement (EPC, O&M, Interface, other)
- Promoting Design and Permitting processes

# Thank You & Shalom

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