

DUBAI METRO PROJECT

RED LINE

VIADUCT SUPERSTRUCTURE



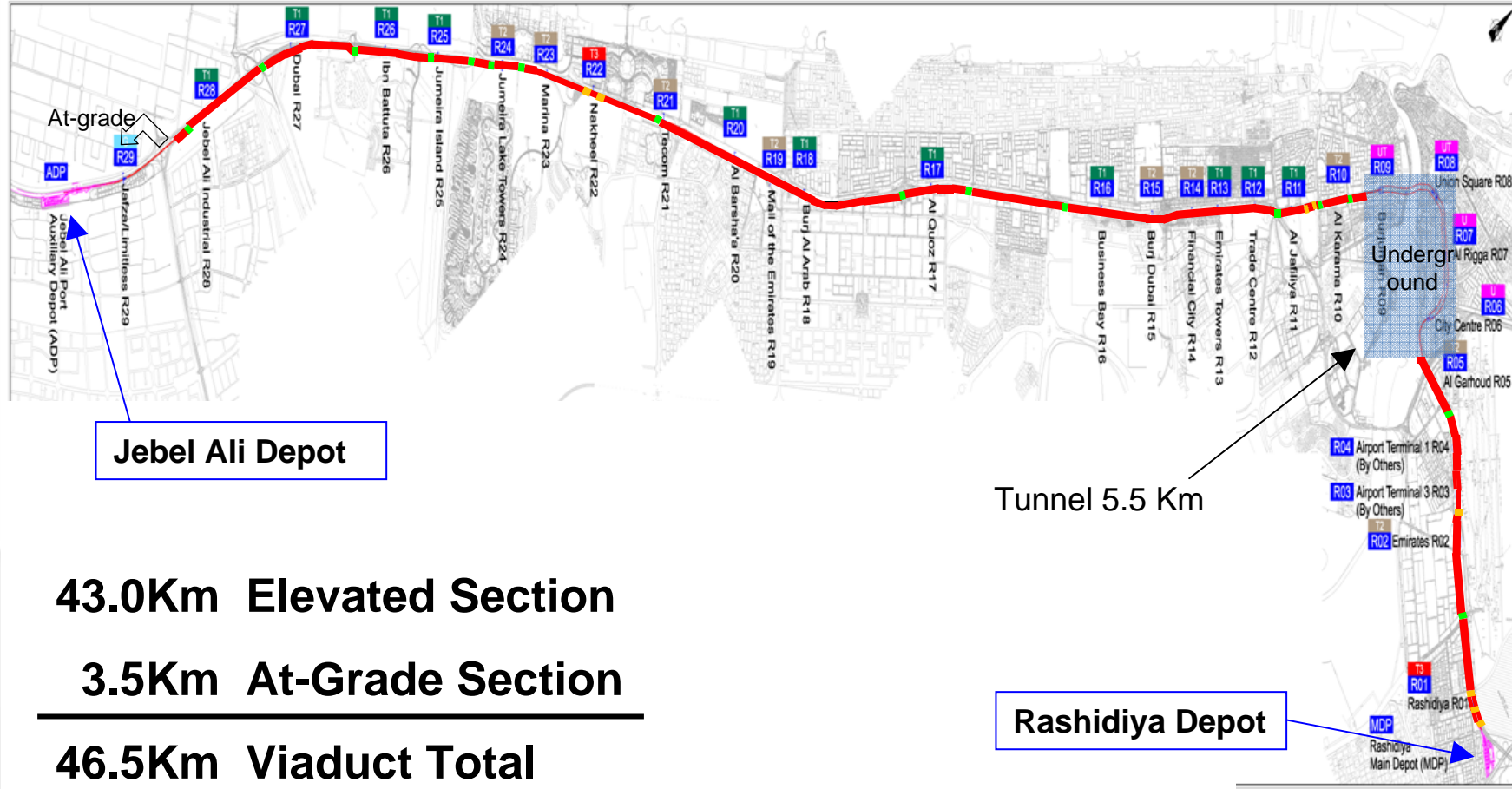
17 August 2008

RED LINE VIADUCT 46.5 KM



Erection Work
Completed

11 AUGUST 2008



Jebel Ali Depot

Tunnel 5.5 Km

Rashidiya Depot

43.0Km Elevated Section
3.5Km At-Grade Section

46.5Km Viaduct Total



RTA - Rail Agency
The CLIENT

Systra-Parsons
CONSULTANT



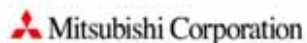
CONTRACTOR

Dubai Rapid Link (DURL) Consortium

Rail Group

Civil Group

Japan-Turkey Metro JV



Principal Works Contractors (JT Metro Subcontractors)

VFR (VSL – Freyssinet – Rizzani JV)

Precast Concrete Segment Erection
on elevated section



ASCON with Structcon

Cast In-situ Concrete Construction
on elevated and at-grade sections



Construction Technology

Precast Concrete Segment Erection

- Precasting the concrete segments
- Erecting the precast segments on site by:
 1. Launching Girders
 2. Lifting Frames
 3. Heavy Cranes

Cast In-Situ Concrete Construction

- Casting concrete directly on the ground (At-Grade Section)
- Casting concrete on falsework (Elevated Section)

Precast Segment Production



Precasting Yard in Jebel Ali Area

540,000m²

January 2006



Precast Segment Production



Casting Mould 55 no.

Red Line segments 11,730 pcs.

31 Oct 2006 ~ 10 July 2008 (1Y 8M 11D)

Maximum 44 pcs. per day

Concrete 250,000 m³

Rebar 54,000 ton



Segment Storage and Delivery

Storage capacity 2,500 segments

44 Segment Transport Trailers



9 Tower Cranes
11 Gantry Cranes



Segment Erection by Launching Girders (LGs)

1036 spans erected with 9 LGs

Feb 2007 ~ Aug 2008 (19 months)



Segment Erection by Launching Girders (LGs)



Direct lifting of segments



Segments on transporter

Segment Erection by Launching Girders (LGs)



Segment Erection by Lifting Frames



3-Span Bridges -- 16 locations

44m + 72m + 44m = 160m

Balanced Cantilever Method

Sep 2007 ~ Aug 2008



Segment Erection by Lifting Frames



Segment Erection by Heavy Cranes



**Cranes were used to erect
End Segments of 3-Span Bridges**



**7 out of 16
3-Span Bridges were erected
using 300ton crawler cranes**

Segment Erection by Heavy Cranes



Erecting on Falsework System
with a crane

155 spans May 2007 ~ Aug 2008



Cast In-Situ Concrete Construction

Work on At-Grade Section



Cast In-Situ Concrete Construction

Work on Elevated Section



24 Cast In-situ Bridges (85 spans)

Dec 2007 ~ Aug 2008

Challenges

Utility Diversion and Substructure Works



Etisalat cables through RPN325 Pier

Challenges

Traffic Management



Challenges

Traffic Management



Work under complete road closure at Nadd Al Hammer



Challenges

Night Work



Challenges

Obstructions



Existing road bridges at IC4.5



High voltage overhead power cables

Challenges

Interfaces with other Projects



IC 5.5



IC 1

Challenges

LG Walk-Over on BC Bridges



Challenges

Tunnel at IC 9



Manpower



Peak time labour force: 3000 workers

Total labour input: 11 Million Man-Hours
not including finishing work

May 2006 ~ Aug 2008 (27 months)





Thank you ALL for your support !