Mussafah Channel Relocation
Project Summary and Achievements
Project Objectives

- To provide a safe navigation channel with unrestricted air draft for vessels between the Mussafah Industrial Port and the Arabian Gulf
- To minimize the environmental impacts on the marine protected area arising from the construction works
- To provide an increased depth of 9m allowing the Mussafah Industries to expand their commercial operations
Channel Location & Alignment

Mussafah Channel

Location Plan
Project Details

- Employer: Abu Dhabi Urban Planning Council
- Engineer: AECOM
- Contractor: National Marine Dredging Company

- Date of Commencement: 8th June 2008
- Date of Completion: 25th January 2011
- Project Duration: 962 days
- Hours of Operation: 24 hours per day
Channel Dimensions

- Total Channel Length: 53 km
- Channel Width: Min. 200 m / Max. 868 m
- Channel Depth: -9.00 m ACD
- Unrestricted Air Draft
Project Statistics

- Total Dredged Volume: 65 million cu.m
- Average Dredged Volume: 2.2 million cu.m / month
- Peak Dredged Volume: 4.2 million cu.m / month
- 65 million cu.m represents the volume required to fill a football pitch (100m by 50m) that is 13km tall, or nearly 16 times taller than the Burj Khalifa
The channel passes through the Bul Sayeef Marine Protected Area with its varied marine life including sea grass, dolphins, turtles, corals and dugongs.

- An Environmental Impact Assessment was undertaken by UPC and approved by the Environmental Agency Abu Dhabi (EAD).
- This area has a significant flamingo habitat, and was a breeding ground in 2009 for the first time since 1998/99.
Project Challenges

• Time constraint to operate the new channel prior to the air draft restriction in the existing channel
• Large volume of material to dredge within the timeframe
• Heavy construction works in a sensitive marine protected area
• Undertaking dredging works in an operational shipping channel
• Dredging works in an offshore environment
Stakeholders and Coordination

- **Abu Dhabi Ports Company (ADPC)**
  - Close coordination of all works to ensure ADPC requirements were addressed
  - Design and Ship Simulation validation
  - Construction and Navigation Interface works
  - Handing over the Channel for operations

- **Environmental Agency Abu Dhabi (EAD)**
  - Close coordination with EAD to develop the Environmental Impact Assessment and obtain all necessary approvals
Construction Details

- Contract Value: AED 1.5 Billion
- Max no. of dredges working: 7 HDCSD / 2 TSHD
- Maximum Pumping Distance: 6 km
- Km of pipeline: 30 km
- Man Hours: 3,550,000
- Construction Personnel: 650 people
Other Works

- Channel Entrance Study
- Ship Simulation Study
- Ground investigation works
- Removal of Obstructions
- Navigation Buoys
- Vessel Traffic System (radar)
- Subsea utilities relocation works
Reclamation Areas

- Fill Area 1 (Habitat Island) 942,000m²
- Fill Area 2 913,000m²
- Fill Area 3 1,922,000m²
- Fill Area 4 not used due to environmental sensitivity
- Fill Area 5 3,539,000m²
- Fill Area 6 (ICAD VI) 2,238,000m²
- Fill Area 7 1,631,000m²
Comparison between the channel and similar projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Country</th>
<th>Project Duration</th>
<th>Average Depth (m)</th>
<th>Size (m³)</th>
<th>Implementation Period (month)</th>
<th>Average Dredging per Month (m³)</th>
<th>Costs (dollar)</th>
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</thead>
<tbody>
<tr>
<td>Musaffah Water Channel</td>
<td>UAE</td>
<td>2008-2010</td>
<td>6.2</td>
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<td>Melbourne Port</td>
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<td>2010-2012</td>
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<td>Panama Channel (expansion)</td>
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<td>Yangtze River</td>
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Thank You