CONSTRUCTION OF BULK BERTH No. 2 (512 m) & LOADING BERTH (196m) in Misurata
Misurata City is one of the trade centers that the Phoenicians started building in the tenth century BC on the northwestern part of the Libyan coast. Thus it is now three thousand years old.

The city was known in the old ages by the name of Cephale Tobactus, which means cape Misurata. It derived its importance from being on the crossroads of vital routes.

Besides its distinguished location, connecting Tripoli to Benghazi which makes it a starting point for the exchange of commodities and materials with the rest of the cities of the country, Misurata enjoys a new infrastructure in the field of services such as roads, electricity and communications and holds industrial facilities like textile, dairy products and steel complex.
About CLIENT

The Libyan Iron and Steel Company is one of the largest companies in the great Jamahiriya with an annual designed capacity of 1,324,000 ton of liquid steel.

The company is situated near the coastal city of Misurata, about 210km east of Tripoli covering an area of 1,200 hectares.

About PROJECT

Within the overall development scenario, the unloading capacity of the LISCO Port was decided to be increased by constructing a 2nd Bulk Berth and a Loading Berth along the North Breakwater of the company Port.

TML was chosen by LIBYAN IRON AND STEEL COMPANY as the Main Contractor to execute Construction of Bulk Berth no. 2 (512 m) & Loading Berth (196m) in 900 days.

The scope of works included execution, supply, erection and detailed design of stated following items:

1. Slope Protection
2. Berth Structures (Bill No.2)
3. Marine Fittings
4. Fendering Systems
5. Corrosion Mitigation
6. Aids to Navigation
7. Land Works
8. Mechanical Works
9. Electrical Work
10. Spare Parts

The Contract was signed on 11 October 2007
started on 10 March 2008
scheduled to 27 August 2010
completed on 18 May 2010
Guarantee period 18 May 2011
Eser Tümen’s Method of Construction & Execution

At the planning stage the key activity of piling works was decided to be executed without having been effected by adverse sea conditions. Based on this philosophy the piling over driven piles method was developed. Heavy lifting plans and equipment selections, team locations, piling, stone removal-placement shifts, contract duration based on 800 days was determined and followed during the execution period.
Quality management system was established at site and was audited by TÜV Rheinland Germany according to ISO 9001:2008.
### MAJOR QUANTITIES

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>48&quot; OD STEEL PILES-17,000 M TOTAL LENGTH</td>
<td>546 NOS</td>
</tr>
<tr>
<td>REINFORCED CONCRETE</td>
<td>24,000 M3</td>
</tr>
<tr>
<td>ROCK ARMOR HANDLING</td>
<td>280,000 M3</td>
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<tr>
<td>A120 TYPE DRAIN RAIL</td>
<td>1,650 M</td>
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<tr>
<td>2000 MM CYLINDRICAL FENDERS</td>
<td>52 NOS</td>
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<tr>
<td>1150 MM CYLINDRICAL FENDERS</td>
<td>12 NOS</td>
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<tr>
<td>CAST IRON BOLLARDS</td>
<td>31 NOS</td>
</tr>
<tr>
<td>LASER GUIDED VESSEL DOCKING SYSTEM</td>
<td>4 NOS</td>
</tr>
<tr>
<td>CATHODIC PROTECTION RECTIFIERS</td>
<td>22 NOS</td>
</tr>
<tr>
<td>HIGH MAST FLOOD LIGHTING ELECTRICALLY LOWERING</td>
<td>8 NOS</td>
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<tr>
<td>GRE FIRE WATER LINE</td>
<td>2,700 M</td>
</tr>
<tr>
<td>FIRE HYDRANT AND CABINET</td>
<td>22 NOS</td>
</tr>
<tr>
<td>FIRE WATER PUMP</td>
<td>3 NOS</td>
</tr>
</tbody>
</table>
The Project was Completed 101 Days Ahead of Construction Schedule

Environmental and occupational health safety management systems were utilized. Site was audited by TUV Rheinland Germany according to ISO 14001: 2004 & BS OSHAS 18001: 2007

Safety Statistics as of Provisional Acceptance Date of 18th May 2010

1,786,229 Manhours Utilized
- 23 incidents, 1 incident with loss time (16.05.2010)
- 78 near misses