



BOTLEK TANK TERMINAL

Botlek Tank Terminal B.V.

Montrealweg 151
3197 KH Rotterdam
P.O. Box 645
3190 AN Hoogvliet
The Netherlands
Phone: + 31 (0)10 231 03 33
Fax: + 31 (0)10 231 03 90
Chamber of Commerce Rotterdam 24294790
Internet: www.btt-rotterdam.nl
E-mail: info@btt-rotterdam.nl
Harbournr.: 4260

**Polimex Mostostal
Naftobudowa Division
66 Powstancow St.
31-670 Cracow, Poland**

TO WHOM IT MAY CONCERN

Reference is made to the Botlek Tank Terminal BV Dalia Project, which was executed by Polimex-Mostostal S.A. Naftobudowa Division acting as an EPC Contractor. The Project was executed between 15.03.2010 – 15.11.2011, whereas the site construction works started on 06.05.2010.

On behalf of Botlek Tank Terminal BV, I hereby confirm that Polimex-Mostostal S.A. Naftobudowa Division, executed the following works:

1. Detail design and mechanical works:

A) Process engineering

Checking and updating of process schemes:

- Updating of process flow schemes
- Updating of process engineering flow schemes
- Updating of utility engineering flow schemes
- Preparation of Process Control Narrative
- Preparation of Process Safeguarding Memorandum

Assistance activities:

- Preparation of terminal procedures
- Updating of equipment list
- Updating of line list
- Assistance process conditions of instrument data sheets
- Assistance conditions/specifications of valves and other pipe systems facilities
- Thermal relief valve - study and implementation
- HAZOP, chairman and secretary (preparation, meeting and documentation)
- Updating of pre-HAZOP at construction drawings
- SIL, chairman and secretary (meeting and documentation)
- Updating of SIL at construction drawings



BOTLEK **TANK TERMINAL**

B) Process calculations

- Finalizing the general line sizing (main process, utilities)
- Finalizing the hydraulic calculation and NPSH pumps
- Safety valves scenarios and capacities
- Water hammer calculations for main process lines (2 cases per line)

C) Piping and mechanical engineering

- Finalizing the process related items:
- Process flow of schemes
- Process engineering of flow schemes
- Utility engineering of flow schemes
- Equipment lists for the new equipment
- Line lists for the new pipelines

D) Preparation of detailed piping drawings:

- Tank pit including sections and details
- Interconnection lines including sections and details
- Jetty including sections and details
- Connections to loading facility including sections and details
- Utilities including sections and details

E) Preparation of detailed drawings:

- Isometrics of lines diameter 2" and above incl. MTO
- Special pipe supports

F) Finalizing of specifications for:

- Tanks
- Pumps
- Steam facilities
- Fire water facilities
- Piping related items
- Drain vessels
- Pipe stress calculations for lines 8" and up

G) Civil Engineering

- Site survey
- Site preparation, including sand fill were required
- Piling
- Drawing of crossover platforms



BOTLEK TANK TERMINAL

- Static calculation of foundations for crossover platforms
- Drawing for temporary safety fence
- Drawing tank truck loading facility (liquid tight)
- Drawing safety provisions above tank truck for safe access to top of tank truck

- Design drawing (lay out and front elevations) for shelter prefabrication (detail engineering by supplier)
- Lay out drawing of roads and parking's
- Drawing of road- and parking lay out with road markings, signs and crash barriers
- Drawing drip facilities for hose rack
- Detail calculations of sewer systems
- Drawing of sewer lay out
- Drawings of (pump) pits, oil separator(s), shut-off valves etc.
- Table of sewer pits
- Specification of oil separators
- Specification of sewer pits
- Specification of civil related items

H) Instrument Engineering and Automation

- Detailed overview and lay out drawings for control and safe guarding system
- Cable block diagram showing all external connections
- Data sheets
- Specifications for instrument materials
- Approval of manufacturer drawings
- Wiring and connection of diagrams for hardwired systems
- Lay-out of control desk(s) showing locations of various systems
- Design local control panel
- Lay-out of tank pit
- Hook-ups and wiring details for installation of instruments
- Hook-ups for instrument air
- Instrument and Junction boxes lay-out
- Instrument Cable lay-out drawings
- Update Instrument index
- Instrument Loop diagrams
- Development and implementation of all software

2. Construction of tank terminal comprising 4 tank pits, with total capacity of $V = 185\,000\text{m}^3$, consisting of 34 tanks (5x $V=9400\text{m}^3$, 4x $V=12\,450\text{m}^3$, 2x $V=1000\text{m}^3$, 12x $V=3350\text{m}^3$, 4x $V=5550\text{m}^3$, 1x $V=1800\text{m}^3$; 3x $V=2450\text{m}^3$, 1x $V=550\text{m}^3$, 2x $V=17\,150\text{m}^3$) for storage of mineral oils, vegetable oils and liquid fuels; material supply, prefabrication and erection of 3644 tons (material grade S355/235J2)

3. Material supply, prefabrication and erection of steel structures:

| | |
|------------------------------------|----------|
| - platforms, stairs, tanks ladders | 261 tons |
| - pipe racks | 204 tons |
| - secondary pipe supports | 96 tons |



BOTLEK **TANK TERMINAL**

| | |
|--------------------------|----------|
| - driving ramps | 95 tons |
| - equipment construction | 178 tons |
| - operating platforms | 54 tons |
| - jetty bolder | 10 tons |

4. Material supply, prefabrication and erection of pipelines – 500 tons, material grades: A333 Gr6, TP 316L, A106 GrB

- Supply, erection of all piping systems to operated the tank terminal
- Conservation of all piping in accordance with the paint specification
- Internal cleaning of all piping (removal of all debris)
- Supply and installation of all valves, safety valves, MOV,s, AOV,s, filters and the like
- All hot dip galvanized pipe supports
- Grouted (25mm between concrete and the base plate) of pipe supports
- Delivery and installation of all hose connections for product lines and utilities
- Supply and installation of a hose lifting frame and lifting device to handle the hoses
- NDT examination and administration of all of the welding as specified, and required
- Administration of all piping materials
- Hydro test, high speed flushing and drying of all piping
- Pre-commissioning and commissioning of all systems

5. Civil works:

- Site preparation, including landfill with imported clean sand
- Removal of surplus materials from site preparation
- Removal of indicated underground obstacles
- Supply, installation and testing of the underground sewer systems
- Supply, installation and testing of the u/g firewater systems
- Execution of all excavation and backfill
- Disposal of site of all surplus materials resulting from excavations
- Supply and execution of all civil foundations, bound wall, pits, culverts, pump foundations etc.

- Supply and installation of concrete tank foundations
- Supply and installation of concrete bound walls
- Supply and installation of all required piling
- Provision of certification for liquid tight floors in the tank, pump pits and truck loading areas

- Supply, coordination and installation of the prefab concrete utilities building, including all utilities and HVAC systems
- Provision of the building authorities approval for the utilities building
- Supply and installation of the final site paving and grading including the roads, gullies, crash barriers, road signs and the like
- Grouting of all pumps equipment and supports
- Supply, fabrication, erection and provision of all protective coating for the pipe racks, platforms, steps, steel structures and the like, on the main land and on the Jetty

- Supply, fabrication, erection and provision of all protective coating for the truck loading and unloading platform on TP-30

6. Electrical works:

- Excavation, cable laying, protection, and backfilling of all U/G cables
- Supply and installation of all required Cable tray's, Main for E&I and secondary for E only
- Supply and installation of are required cables, markers and connection of both ends
- Earth all cable tray systems, indoor and outdoor
- Installation of all required cable tray supporting in hot dip galvanized materials
- Supply , installation, connection of test pre-commissioning and commissioning the complete MCC system, including variable speed drives, Medium voltage installation, comprising of the transformers, switchgear, and the like, all as per specifications, and approval from the authorities
- Installation and connection of all local control switches
- Connection of all motors and field users
- Dry run test (2Hrs) for all motors
- Supply and erection of a complete grounding and lightning protection system, for all equipment, structural steel and buildings. Supply inspection certification of the systems
- Supply and erection of a complete lighting system for outdoor and indoor, including all required emergency lighting
- Supply and installation of a complete CCTV system
- Supply, installation of testing and commissioning of a complete electrical pipe tracing system
- Installation of all inline and on equipment instruments
- Supply, installation, pre-commissioning and commissioning of a complete CCTV system
- Supply, installation / pre-commissioning and commissioning of the UPS system

7. Instrumentation works:

- Supply, installation, pre-commissioning and commissioning of all field instrumentation to run the Tank terminal as per PID,s
- Supply and installation of all secondary cable tray's and the grounding of them
- Supply and installation of Junction Boxes
- Supply and installation of all instrument cables, multicourse and singles
- Supply and installation and cable reels for high level alarm from ships and for emergency stop from ship pump
- Each wire to carry an identification tag in relation to the loop sheet / tag number
- Supply , installation and commissioning of an intercom system
- Installation, pre-commissioning, calibration and approval by NMI of the free issue tank gauging system



BOTLEK TANK TERMINAL

- Full functional loop testing
- Commissioning activities in conjunction with BTT operational department
- Supply and installation of the remote SS I/O cabinets

8. Safety and fire protection systems.
9. Commissioning and start-up activities for the whole tank terminal

Company has shown efficient organization with good practice of work, fulfilling the highest quality and safety behavior.

We would, therefore, recommend Polimex-Mostostal S.A. Naftobudowa Division as a reliable and professional manufacturer and contractor for performing similar projects.

Thanking for good cooperation and hoping to meet for future projects.

Kind Regards,

Botlek Tank Terminal B.V.

Charles M. Smussaert
General Manager

