


TITLE - SUBJET	Qaisamany Dam
LOCATION	Lebanon
PERIOD	
CUSTOMER	 <p>CET Consolidated Engineering & Trading Co. Sin El Fil – Hayek Roudabout Charles Helou Boulevard- Bellal Building P.O.Box: 55129 - Sin El Fil - Beirut - Lebanon</p>
OFFER CODEX	6/2012
REFERENCE	Your mails of the 24/02/2012
NOTES	Technical and commercial proposal

TECHNICAL PROPOSAL

INTRODUCTION

This offer relates to a technical-economic evaluation of the works of construction of the asphalt coating of the Qaissamay Dam in the region of Baabda in Lebanon.

The coating of asphalt in the upstream slope presents a method proven over the years with many applications.



In fact, in dams made of non-zoned land the seal is ensured by a specially designed package of bituminous concrete (mix design).



The construction of the embankment, whose phases are similar to the normal development of a containment dike, follows the phase of the coating bituminous concrete.

The Qaissamani dam has a horizontal bottom and sides with of 2,5 V/1,0 H..

The waterproofing system, hanging on the upstream of the dam and on the sides and bottom of the basin, consists of:

- binder: thick 10 cm;
- waterproof layer: thick 6 cm;
- laying of mastic asphalt seal

The surface to be waterproofed, is divided into:

- horizontal area at the lake bottom of 82.700 m²;
- sloped area of the lake (angle of about 22°) of 50.000 m²

The total area to be covered is 132.700 m²

TECHNICAL REFERENCE STANDARDS

For carrying out the work will be referred to:

- local laws and regulations;
- standard ASTM;
- direction to Van Asbeck;
- ICOLD Bulletin n. 14: Asphalt facing

OFFER DESCRIPTION

The implementation of this solution involves the following steps:

1. leveling and compacting the surface to be waterproofed;
2. stretch of emulsion layer;
3. paving of the binder from 10 cm;
4. spread a layer of emulsion layer between the base / binder layer and waterproof;
5. paving the waterproof layer 6 cm;
6. laying of mastic asphalt seal;
7. joints.

ECONOMIC PROPOSAL

PRICES

The prices listed, RESERVED FOR YOU, below refer **only to the installation of materials**:

Series No.4 - Waterproofing					
Item No	Designation	Unit	Quantity	Unit Price (USD)	Total Price (USD)
4.01	Supply, installation and compaction by appropriate equipment ad approved by the Engineer of two bituminous concrete layers, 10 cm ad 6 cm thicknesses, including emulsion coats and surface protection, as per drawings, specifications and/or as directed by the Engineer.				
4.01.1	Horizontal area at the lake bottom	m2	82.700		
4.01.2	Sloped area of the lake – 2,5:1	m2	50.000		
TOTAL					

The price of installation of the binder course includes the preparation and rolling of the layer of stone on which the package sealing.

All materials (aggregate, asphalt, etc.) as well as consumer (fuel, lubricants, emulsion, gas, etc..) are supplied by the Contractor. In particular, are borne by the Contractor:

1. transfer to Lebanon of all necessary equipment (12 containers);
2. provision of adequate site area for the storage of machinery and equipment of the Sarti;
3. security services in the construction Sarti's machinery and equipment;
4. **supplies all materials** needed for the implementation of the various layers. The materials must meet the requirements of the Technical Specification. In particular, aggregates of limestone will not be acidic.
5. all relations with the local authorities and the Directorate of Works;

Company is committed to providing in addition to specific equipment for the laying of bituminous, a mobile laboratory and a technician dedicated to the preparation of the mix design. In particular to provide and maintain:

- a) examination and updating of the specifications of the tender related to the various layers of different types of bituminous concrete that make up the sealing surface of the reservoir;
- b) laboratory tests aimed at identifying the most suitable raw materials for carrying out tasks;

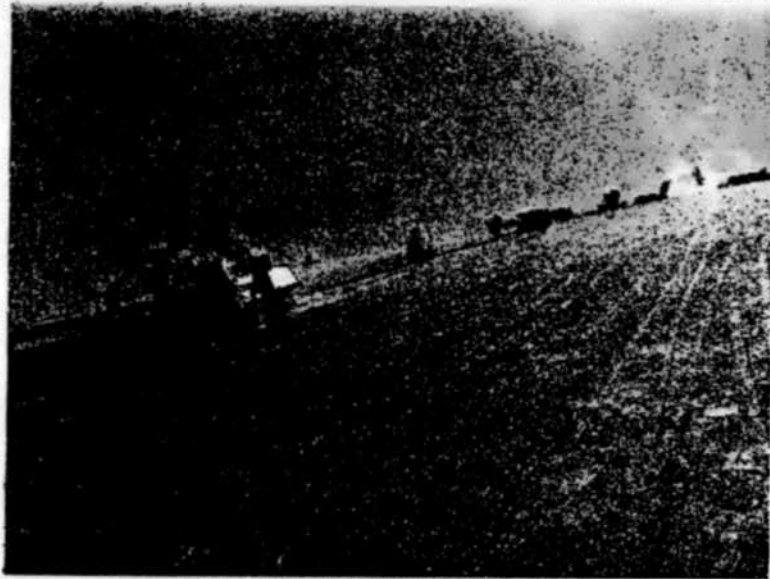
- c) examination and evidence relating to the mode of assembly in the field of asphalt plants in third;
- d) drafting of the plan concerning the works to be executed;
- e) guidance on operational and development of the site with regard to machinery and equipment made available;
- f) Study and design of mix-design including the quality control during construction in respect of compliance with technical requirements accepted;
- g) quality control plan, configuring that service at the project level of control of the entire production process [ISO 9001 compliant];
- h) quality control throughout the production process;
- i) study and elaboration of technical solutions for variant construction details (joints, etc.);
- j) assistance to the technical management of the site in respect of all the possible problems that you experience during construction by providing adequate technical support to the scientific arguments may be in discussion with the prime contractor of the work;

LIST SPECIAL EQUIPMENT

- ❖ N. 1 flatbed paving consisting of a self-propelled straddle stabilized, with a slope for accommodation paver, winches, tow paver, dump trucks, full-hydraulic power units, cabinets and any other part of operation and service.
- ❖ N. 1 pavers crawler type BITELLI BB 651, as amended by lying on the slopes, with iron extendable by 2 m, 4 am 5, 65, heated gas, full plate R.I. for the heating of the joints.
- ❖ N. 1 vibrating roller pulled by six tons.
- ❖ N. 1 truck to feed the paver from the bottom or top of the dam, with a slate dump capacity of 3 cubic meters and independent steering on both axes.
- ❖ N. 2 roller type BITELLI NIBBIO 75 DTV vibration hydrostatic drive on both drums, drum width 1.5 m, weight 5 t static.
- ❖ N. 1 Tracked door wagon with a diesel winches for hauling various equipment..
- ❖ N. 1 tanks for applying bitumen emulsion.
- ❖ N. 1 Self-drawn carriages for riveting of the joints, complete with engines, hydraulic systems, all adjustable, vibrating plate and the batter infrared.
- ❖ N. 1 equipment for the execution of the cold seal surface
- ❖ N. 1 mastic asphalt tank, insulated and heated, with stirring, with a capacity of 2 cubic meters, 5, full-functioning.
- ❖ N. 1 laboratory container (8 x 2, 5) fully equipped and furnished for the execution of all tests and necessary for the work in question.
- ❖ N. 1 container equipped workshop and spare parts for minor repairs.
- ❖ N. 1 Air Compressor
- ❖ N. 3 electricity-generating set from 15 to 125 kwh.
- ❖ N. 1 bins for the containment of the conglomerate.
- ❖ anything else necessary to develop the work

PICTURES OF SIGNIFICANT EQUIPMENT AND SOME PROJECTS EXECUTED

WORKS

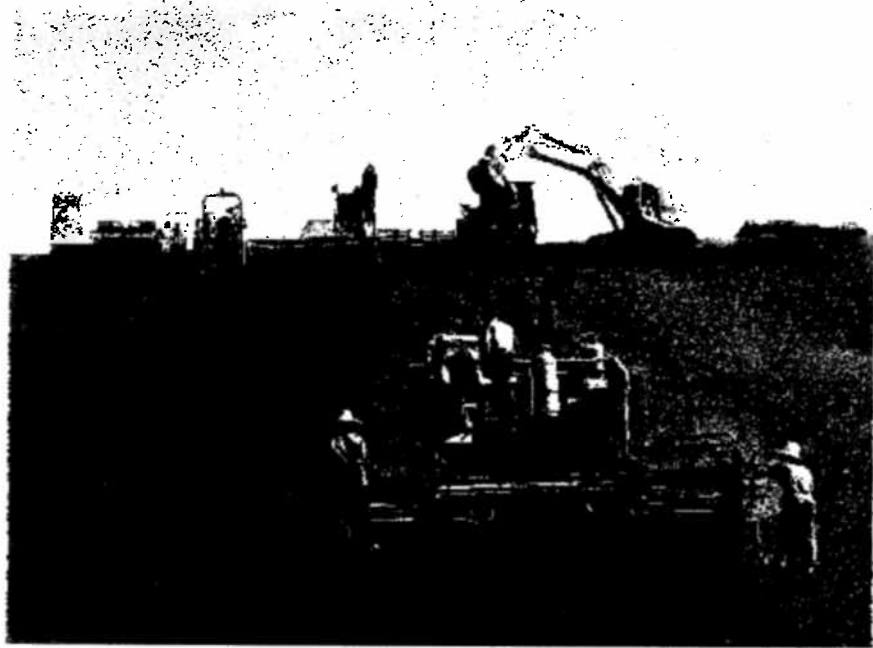


CHABROUH DAM- LIBANO - 2007

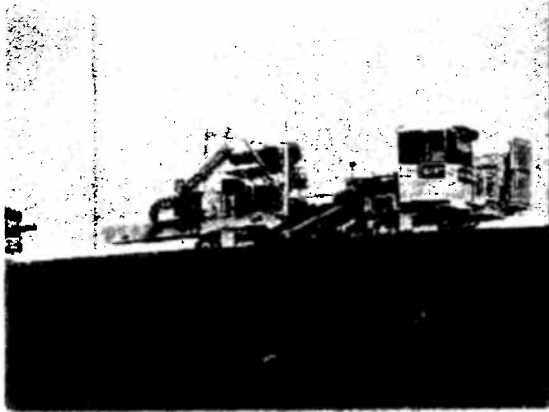




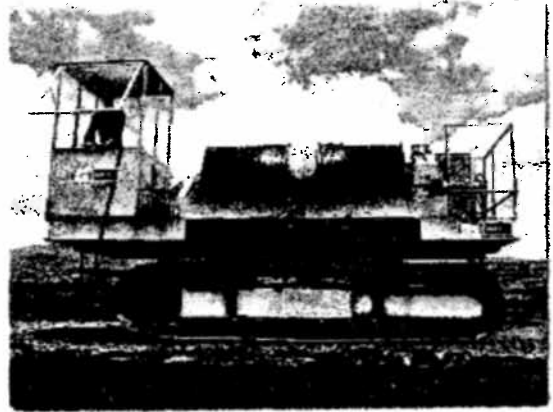
Paving of binder (pictured above) and barrier layer (below)



MACHINERY



main winch mobile



winch mobile secondary



during the roller compaction



beat machine joints