



Water and Sewerage Authority Trinidad and Tobago Replacement of Navet Trunk Main

The Navet trunk main was originally installed between 1958 and 1962 to transmit water from Navet Waterworks to southwest Trinidad and terminates at the Marryat Street Reservoir in San Fernando. The trunk main is approximately 35 km long, and is constructed within a 9 m wide right-of-way for most of its route. The trunk main comprises steel pipes with a bituminous coating in diameters of 900 mm, 825 mm, 750 mm and 675 mm. There are two in-line booster pumping stations with thirteen off-takes on the main between Tabaquite and San Fernando.

WASA retained MAAK Technologies to determine the most feasible route for the replacement of the Navet Trunk Main, and to produce preliminary designs and tender documents for a design/build contract.

To complete this project, our project team reviewed the existing information; completed surveys for route selection; identified land for acquisition; performed geotechnical studies (including soil resistivity tests to provide ground and groundwater information and design parameters for proposed pipeline); prepared an environmental impact assessment; determined the pipe and valve materials selection; and prepared the preliminary design of the pipeline with full integration to existing off-takes and on-line boosters.



Total Project Cost (CDN): \$80 Million

Cost of Assignment (CDN): \$900,000

Date of Commencement: October 2007

Date of Completion: September 2008

Fast Facts:

- 35 km long trunk main, 900 – 675 mm in diameter
- Steel pipes with bituminous coating
- 9 m wide right-of-way
- Two in-line booster stations

To achieve our goals for this project, a work plan divided into six major phases was developed:

Phase 1 - Evaluating the Existing Water Supply System: This phase included data collection, existing trunk main associated works evaluation, and a hazardous materials survey. All planning data, census data, land information and other related documents from the agencies were collected to produce water demand and population projections. The information was then summarized in a Data Collection Report and, as new information was made available, the report was updated.

Phase 2 - Site Investigations: Site investigations included all structural, mechanical and electrical site reviews, as well as the existing booster pumping stations, a geotechnical assessment, a hydro-geological assessment, and a detailed topographic survey.

Phase 3 - Formulating Alternative Routes: This included preparation of the design criteria and hydraulic analysis, development and evaluation of alternatives, identification of additional land to be acquired and rights-of-way, and determination of the most suitable material for the application, including costs.

Phase 4 - Selection of the Preferred Alternative: This process included the evaluation of the alternatives, the selection of the preferred alternative (including a workshop), and EIA (Environmental Impact Assessment).

Phase 5 - Preliminary Design: This phase of the project included preparation of the preliminary design as well as a construction sequence, taking into account the new Navet Trunk Main was to be constructed while operating the existing trunk main.

Phase 6 - Preparation of Design Build Documents: In addition to the preparation of design build documents, the bill of quantities and a cost estimate were developed.

- Engineering Services
- Concept Development and Studies
- Optimization and Modeling
- Automation and SCADA Development
- Data Management
- Testing and Validation

