

CONTRACT A4

Overall Project Description

The Al Amerat Waste Water Project is a component part of the Muscat Wastewater Master Plan. Population growth in parts of Al Amerat and Al Hajir has been considerable over the past 10 years. The completion of the Amerat – Quriyat highway as well as the Amerat - Bausher highway, and the structure plans for the area are constantly being updated. It is envisaged that the construction of these two highways will help ensure that the project area will be among the fastest growing regions within the Muscat Governorate. As of December 2008 there were approximately 6,800 developed properties out of a potential of more than 67,000 proposed within the Al Amerat, Nahda and Al Hajir areas.

Phasing of the installation of the sewerage infrastructure will take place so that networks are constructed only where sufficient plots currently exist, or will be developed, within a predefined period. Phase 1 consists of the provision of sewerage and associated infrastructure for some 18,000 plots for which sewerage networks are intended to be constructed prior by 2015. It is estimated that this will include in excess of 80% of the population of Al Amerat and Al Hajir. The area included in Phase 1 of the Project is divided into two Catchments, the Al Amerat Catchment and the Hajir Catchment. Both of these catchments are further divided in to areas serving a particular pumping station. The Al Amerat catchment has two pump stations. Al Amerat PS1 receives flow from the northern end of Al Amerat. Al Amerat PS2 receives flow from Al Amerat PS1 plus the west and south of Al Amerat catchment, and a small percentage of flows from some of the southern Al Nahda subcatchments. Flows from PS 2 are pumped to Al Amerat STP.

Following are the six contracts of the Al Amerat Waste Water Project

Contract A1 – Design, Build, Operation and Maintenance of the Al Amerat Wastewater Treatment Plant, Pumping Stations, Rising Mains and Treated Effluent Works

Contract A2 – Sewer and Treated Effluent Pipelines al Amerat Western Area

Contract A3 – Sewer and Treated Effluent Pipelines Al Amerat Northern Area

Contract A4 – Sewer and Treated Effluent Pipelines Al Amerat Eastern Area

Contract A5 – Design, Build, Operation and Maintenance of Al Hajir Wastewater Treatment Plant, Pumping Stations, Rising Mains and Treated Effluent Works

Contract A6 – Sewer and Treated Effluent Pipelines Al Hajir Area

At all stages of the works the Contractor will need to liaise with other contractors carrying out works on the above contracts. This will be of particular importance when the House Connections are to be made 'live' when Contract No.A1 – Design, Build, Operation and Maintenance of the Al Amerat Wastewater Treatment Plant, Pumping Stations, Rising Mains and Treated Effluent Works are about to become

operational. The requirement for close liaison with other contractors working on the project is of extreme importance to the overall success of the project and the Contractor should not underestimate this.

Description of Works Included in this Contract

The works included within this Contract include the installation of a sewerage system comprising trunk gravity sewers, lateral sewers, rider pipework and house connections; treated effluent (TE) pressurised delivery mains; and Fibre Optic Cable (FOC) ducts together with all ancillary structures and appurtenances.

The following is a list of approximate quantities:

Trunk Sewers

600 mm nominal internal diameter	2,200 m
450 mm nominal internal diameter	600 m
400 mm nominal internal diameter	3,000 m
350 mm nominal internal diameter	300 m
300 mm nominal internal diameter	1,250 m
250 mm nominal internal diameter	1,550 m

Lateral Sewers

300 mm nominal internal diameter	850 m
250 mm nominal internal diameter	1,350 m
200 mm nominal internal diameter	54,600 m

Rider Sewers

150 mm nominal internal diameter	24,050 m
150 mm nominal internal diameter – Future (Estimate)	5,650 m

House Connection Sewers

150 mm nominal internal diameter - Existing	26,300 m
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The Contractor shall ascertain all local conditions relevant to the Works and shall be completely responsible for the Revised Detailed Design (with specific relevance to the most updated structure plan, chosen pipe material and service identification works), Supply, Construction, Erection, Testing and Commissioning of the complete working Gravity Sewage Network and other pipeline works.

Scope of Work

The scope of the works included in this Contract includes, but is not limited to, the following:-

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1. Supply, installation and commissioning of a complete gravity sewer network from property connections up to but not including Manhole BBBZ004 to be located outside the northern boundary of Al Amerat Pump Station 2 (Manhole BBBZ004 and Al Amerat Pumping Station 2 to be constructed under Contract A 1).
2. CCTV survey and reporting of completed sewer network construction. Minimum of 10 % of completed sewer network to be surveyed.
3. Supply, installation and commissioning of complete Treated Effluent (TE) distribution systems in the Contract area.
4. Supply and installation of 25 mm and 110 mm ducts and chambers along all sewers and certain TE pipelines, to act as routing for the fibre optic cable to be laid by others.
5. Reviewing the proposed design of house connections to serve all existing properties throughout the project area. The detailed design for the house connections has been carried out and is included in the documentation as A4 sheets but this will need to be reviewed to ensure that any changes since the preparation of the plans are given due consideration.
6. Preparing detailed designs of house connections for all properties in the Contract area constructed subsequent to the preparation of the drawings as included in 4. above. All designs are to be in a similar format and contain all information as that supplied to the Contractor. The preparation of these designs will require a detailed survey of the areas of the property affected by the need to provide a suitable and sufficient connection. The design shall cover all elements of the house connection works from the existing property drainage to entry into the main sewerage network and shall have the objective of minimizing cost and inconvenience to the property owner. All house and property connection designs shall be subject to the approval of the Engineer.
7. Giving due consideration to subsequent changes/revisions to the Ministry of Housing structure plan as the works commence. All such changes/revisions are to be brought to the attention of the Engineer together with an assessment of the implications of such changes/revisions on the Works.

8. Site surveys to locate all buried utility services crossing and adjacent to the routes of the pipelines and make any necessary adjustments to the sewer shop drawings to accommodate such services.
9. Obtain and renew all necessary NOC's and permits to allow construction to proceed all in accordance with the procedures outlined in the Standard Specifications.
10. Any additional Topographic and Geotechnical survey required to construct the Project works including all changes made by others to salient conditions that may affect the construction or pricing of the Works.
11. Coordinating with the Customer Service Representative Section of the Employer for attending Public Complaints and timely responding to their system of reporting and updating Complaint logs.
12. Abandonment of the local and/or existing sewerage network after the new network is installed and put into service.
13. Carrying out dry connections to existing properties prior to commissioning, moving off site and reinstating, then returning after commissioning to complete the wet connections. Excavation may only be carried out once at any property during the above operations.
14. Decommissioning of the existing septic tanks for properties where the house connection chambers must be located within the septic tanks.
15. Progress Reports and Updates of information are to be submitted through GIS module. In addition to this the Contractor shall use other tools such as Primavera, Microsoft software etc.
16. Stage completion of works shall be recorded and As Built Drawings submitted zone-wise to the Engineer, in both GIS and Auto CAD module. Completion Certificates will not be issued until the relevant as-built drawings for the section(s) under application for completion have been submitted by the Contractor and approved by the Engineer. All "as built" documentation submitted by the Contractor shall comply in all respects with the requirements of the Employer
17. The Contractor will be required to supply good and sufficient information to allow update of the Mike Urban hydraulic and H2S models to reflect the actual as constructed sewerage network as shown on the record or 'As built' record drawings.