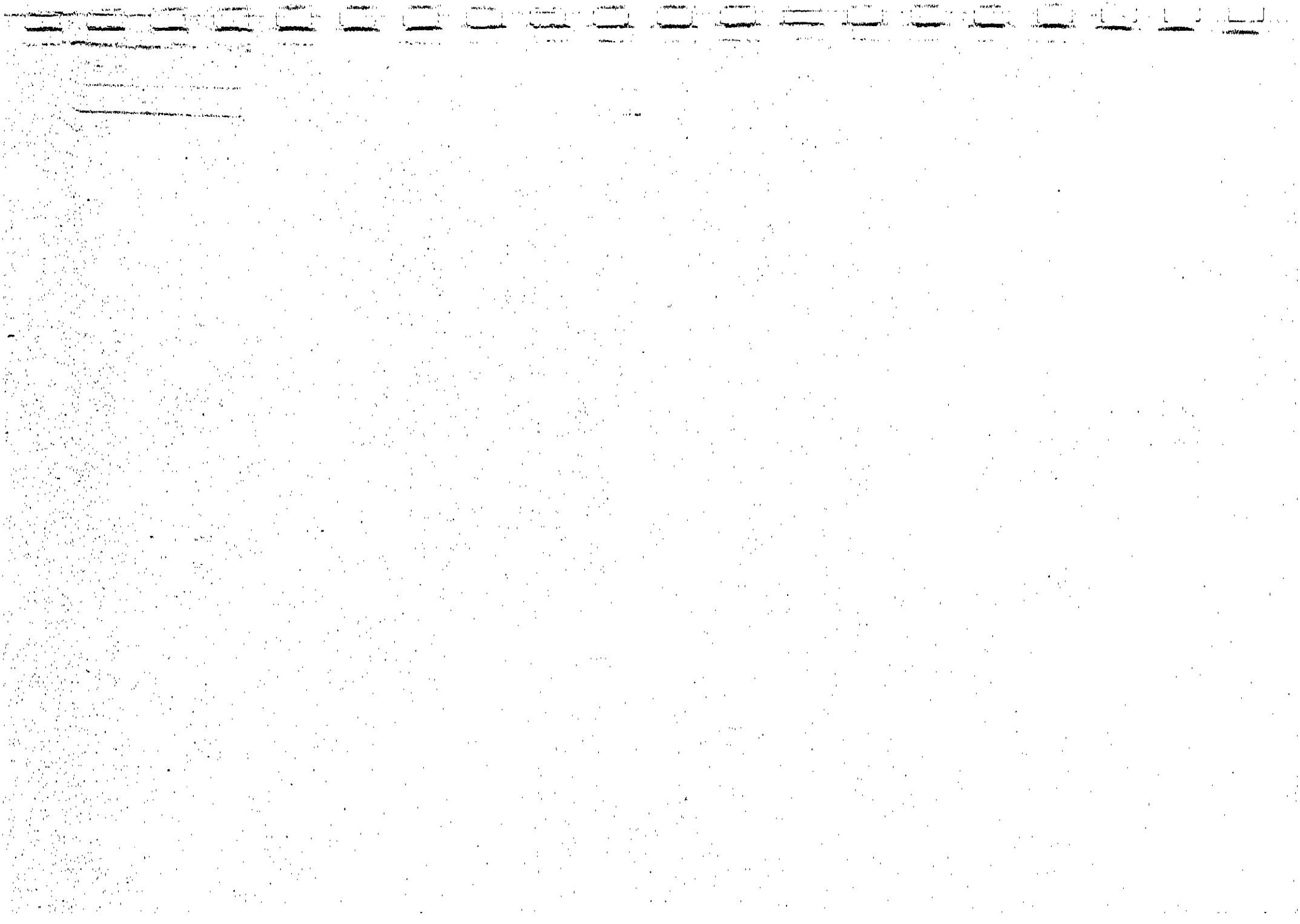
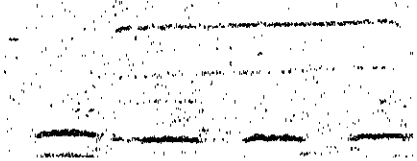
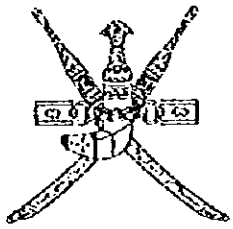




SULTANATE OF OMAN

MINISTRY OF COMMUNICATIONS
DIRECTORATE GENERAL OF ROADS



CONSTRUCTION OF FLYOVER AT SAHAM ROUNDABOUT BATINAH HIGHWAY

TENDER DOCUMENTS

VOLUME1

SPECIFICATION AND BILL OF QUANTITIES

PACIFIC CONSULTANTS INTERNATIONAL
FUKUYAMA CONSULTANTS INTERNATIONAL

March, 1997

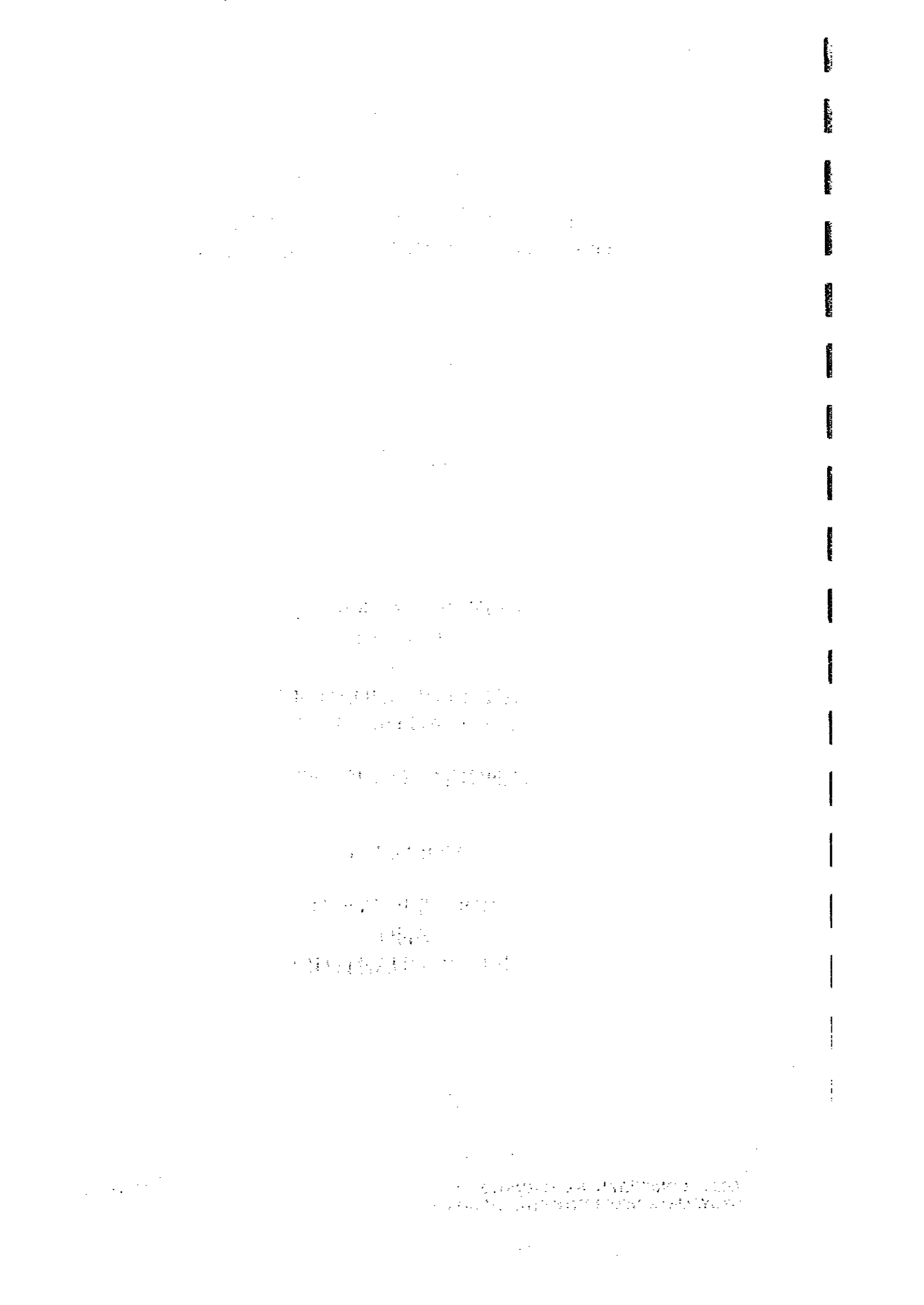


TABLE OF CONTENTS

SPECIAL SPECIFICATION

The Special Specification stipulated in these Tender Documents defines, modifies, extends, substitutes or deletes the relevant portions of the Sultanate of Oman General Specification for Roads, April 1994 and Highway Design Manual February 1994, referred to in the Prime Document.

The General Specification and Special Specification constitute the applicable specification referred to in this Tender.

Section and clause numbers in the Special Specification are related to those stipulated in the General Specification for Roads.

BRIEF DESCRIPTION OF WORKS

The Project comprises of undertaking all works and services in connection with the Construction, Completion and Maintenance of Flyovers at Saham Roundabout the Batinah Highway. The Contractor is required to carry out all works, including surveying, setting out, excavations, temporary works, permanent works, erections, finishing, installation of ancillary facilities and maintenance for 1 year from the date of issue of the Certificate of Completion.

The Project includes construction of flyover bridges and embankment to bridge approaches and rampways, reconstruction of some affected service roads, removal and relocation of the facilities and some ancillary works.

The salient feature of this project is the construction of the proposed facilities over the existing highway. Special attentions are therefore required to minimize the interference with the operation of the highway and other human activities around the site(s). Contractor shall pay particular attentions to safety on site; such as during erection of structural members, traffic control or diversion, warnings during night work, and other traffic safety measures to avoid any accidental hazards as a result of the construction activities.

SECTION 100 GENERAL

104 ENGINEER'S OFFICE

104.1 ENGINEER'S OFFICE

Specification

This item shall consist of the provision, erection, furnishing, maintenance, including consumable items for prefabricated unit(s) or rented building for Engineer's Office as approved by the Engineer for the sole use of the Engineer and his staff together with the provision of installation and maintenance of services, including 2 local telephone lines and fax machine. It also includes replacement of any item provided in this section.

The Engineer's facilities shall consist of:

Engineer's office, 96 sq.m (Type A)	1 No.
Store for Survey Equipment, 9 sq.m	1 No.
Shaded Carport for 6 vehicles	1 No.
Fire Extinguisher	1 No.

The prefabricated unit's or rented building, furniture, equipment and service shall be made available in full working order within the time period stipulated in 'Appendix to Form of Tender' and shall continue to be so available during the progress of the work until the Certificate of Completion for the whole of the works has been issued or as directed by the Engineer.

Description

The office shall be air conditioned, furnished and with all the necessary utilities, i.e. power, water, sewerage, lighting and gas and waste disposal facilities and completely maintained during the contract period as approved by the Engineer.

The Contractor shall provide office for occupancy before start of construction, for the sole use of the Engineer. The office will have a minimum of 5 rooms and store and a floor area of not less than 96 square metres. Typical plan is attached as Figure 1. The Contractor shall provide adequate office furniture including filing cabinets, storage cupboards, bookshelves, adequate supplies of pencils, pens, drawing paper, writing pads, stationery and similar expendable materials etc.

The Contractor shall provide office furnishings equipment at least equal to the following list and as per approval of the Engineer. All furnishings and equipment are for the exclusive use of the Engineer.

(i) Resident Engineer's Office

Desk 150 cm x 80 cm with swivel chair.	1 Set.
Visitors chairs	2 Nos.
Conference Table, 240 cm x 120 cm with 8 chairs	1 Set.
Filing cabinet, 4 drawers	1 No.
Bookcase with 4 shelves	1 No.
Air Conditioner, 18000 B.T.U.	1 No.

(ii) Typist/Record Keeper

Ordinary Desk, 137 cm x 60 cm.	2 No.
Chair	2 Nos.
Filing Cabinets, 4 drawers	1 No.
Bookcase with 4 shelves	1 No.
Air conditioner, 18000 B.T.U.	1 No.

(iii) Supervisory Staff Office (3 rooms)

Engineer's Desk, 137 cm x 60 cm with chair	1 set each
Utility tables, 100 cm x 150 cm	1 set each
Visitors chair	2 No. each
Filing cabinet, 4 drawers	1 No. each
Plan file with 5 drawers	1 No. each
Plan stick file	1 No. each
Air Conditioner, 18000 B.T.U.	1 No. each
Word Processor (Computer)	1 No.
Printer	1 No.
Scientific Calculators	3 Nos.
A3 size paper copier	1 No.

The Contractor shall also provide kitchen/pantry and toilet facilities with Engineer's office, for the sole use of the Engineer's Staff, the following:

(i) Kitchen/Pantry Utilities

Refrigerator, 350 litres.	1 No.
Utility table, 100 cm x 150 cm.	1 No.
Cupboards	1 No.
Electric Kettle	1 No.
Drinking Water	as required.
Cups, Saucers, Tea Spoons (12 pcs.)	1 set.
Cutlery (12 pcs).	1 set.
Drinking glasses (12 PCs).	1 No.
Chair/stall	1 No.
Exhaust Fan	1 No.

Air Conditioner, 12000 B.T.U.	1 No.
Sink with hot and cold water supply	1 No.
Tea Towels	1 0 Nos.
Waste Baskets	2 Nos.
Exhaust Fan	1 No.

(ii) Toilet Facilities (Type A)

European WC Suite	1 No.
Wash basin with cold and hot water supply	1 No.
Roller Towel Fitting	1 No.
Toilet paper roller fitting	1 No.
Mirror	1 No.
Exhaust fan	1 No.

In addition, the following manuals (latest edition) are to be supplied.

- ASTM Volume relevant to the project.
- AASHTO volumes relevant to the project.
- ACI volumes relevant to the project.
- BS Specification relevant to the project.
- Standard documents for Building and Civil Engineering Works, third edition July 1981, prepared by the Ministry of Finance and Economy, Financial Affairs, Sultanate of Oman.

Upon completion of project, the above documents/standard specification shall revert to the Contractor.

Plans, Specification and Availability of Office

In case of prefabricated unit(s), it shall be constructed of such materials and furnishings which shall be approved by the Engineer. The foundation shall be taken down to solid bottom and the finished floor level shall be at least 60 cms. above natural ground level. All floors shall have PVC tiles laid wall to wall as approved by the Engineer.

The Contractor shall furnish his plans and specification for these prefabricated units not later than (one) 1 week after the signing of the Contract and shall complete and make ready for occupation all these structures within (three) 3 weeks after receipt of Engineer's written acceptance of such plans and specification. If the completion is not effected within the specified time, the Contractor shall provide at his own expense adequate accommodation as approved by the Engineer until occupancy is possible.

No separate payment will be made for providing the Engineer and his staff with temporary offices as specified above, the cost of which will be deemed to be included in the items of mobilisation.

The Contractor shall provide adequate vehicular access to the offices.

Upon completion of the contract or at such time as the Engineer deems that it is no longer required the ownership of the prefabricated unit(s), furnishings and equipment shall return to the Contractor whose responsibility will be to remove them from the site in accordance with Clause 33 of Conditions of Contract.

104.3 SURVEYING INSTRUMENTS

The surveying instruments to be supplied and maintained for the use of the Engineer include the following:

Sr. No.		Qntty
1	Suitable Theodolite centesimal system, with 4 decimal partition complete with adequate tripod	1
2	Suitable high precision automatic level complete with tripod	1
3	EDM measuring equipment, 2000 m minimum systems, complete with battery, battery charger, cabling, three (3) reflectors, related tripods and accessories to the satisfaction of the Engineer	1
4	Levelling staves 4 m with levelling plates, levelling bubbles	2
5	Fiber tapes 30 m in case	2
6	50 m steel tape	2
7	Steel pocket tapes, 5 m long	4
8	Surveying umbrella	1
9	Ranging rods, 2.5 m long	4
10	Printed level books	0

11 Field books
5

12 Water Cooler jug
1

13 String lines, 50 m long
2

104.7 LABORATORY AND ITS FURNISHINGS

Laboratory

The following clauses describes the type of Site Laboratory to be provided by the Contractor together with defining the responsibilities of the Contractor for such laboratory.

Whenever the term "Laboratory" is used, it shall include the building, utilities, sampling and testing equipment hereinafter detailed.

Type of Laboratory

Laboratory shall be stationary or mobile and located within the vicinity of Engineer's office. It shall be constructed of weather-proof prefabricated construction may be rented subject to the approval of the Engineer and have a floor area of not less than 100 square metres.

On completion of the project, or at such time as the Engineer deems that it is no longer required, the Laboratory and furnishing and equipment shall be reverted to the Contractor.

Use of Laboratory

The Engineer shall have exclusive use of the Laboratory at all times during the Contract period. When so ordered by the Engineer, the Contractor shall, at his own expense, provide one (1) technician and three (3) skilled labourers to perform sampling, testing and related duties under the direct supervision of the Engineer. The Laboratory provided shall not be used for other Contracts without written permission of the Engineer.

Details of Laboratory

The Contractor shall provide the field laboratory by the end of the mobilisation prior and to be approved and accepted by the Engineer.

The laboratory building shall have a net area of approximately 100 sq.m. divided into

rooms with net areas as follows:

a)	Office	15 sq.m.
b)	Asphalt Laboratory	25 sq.m.
c)	Soils and Concrete Laboratory	25 sq.m.
d)	Washroom with Shower, Wash Basin and Mirror	7.5 sq.m.
e)	Store room with shelving	20 sq.m.

Concrete floors of approved quality shall be provided in the laboratory.

Services

All rooms except the store room, washroom and toilet shall be air conditioned to maintain a temperature as specified and or approved by the Engineer.

The Contractor shall provide sufficient power supply for laboratory requirements. The power supply shall be 220 volts 50 cycles, unless otherwise necessary to fit the equipment. Sufficient outlets shall be provided in the laboratory rooms.

The Contractor shall supply fuel-gas (natural or artificial) for ovens, burners etc. where required. All rooms shall be provided with standard office lighting of the fluorescent tube as approved by the Engineer.

Concrete pedestals for special equipment will be constructed as specified by the Engineer. All rooms shall have doors fitted with locks and keys. The water supply shall be maintained by an elevated or pressure tank with a capacity of 4500 litres. Water taps shall be provided in the aggregate testing room.

The toilet shall be connected to a septic tank of adequate capacity for 10 people with a 10 cm sanitary pipe and ventilation stack. A telephone shall be installed in the office.

Furnishings

The Contractor shall provide office furnishings at least equal to the following list. Substitution of type may be made only upon approval of the Engineer. All furnishings and equipment shall be for the exclusive use of the Engineer.

a) Laboratory Office

Filing cabinet 4 drawers	1 No.
Bookcase with 4 shelves	1 No.
Visitors chairs	2 Nos.
Air conditioner, 1800 B.T.U.	1 No.
Engineer's desk, 135 cm x 60 cm. with chair.	1 No.
Work tables, heavy duty, 1.5 x 2.5 m or as directed by the Engineer	2 Nos.

Chairs	2 Nos.
Plan file, 3 drawers	1 No.
Scientific calculator, programmable	1 No.
Air-conditioner, 24000 B.T.U. each.	2 Nos.
Fire extinguisher.	1 No.

Work counters at least 10 metres long along the walls with one stainless steel basin and water tap. Cabinets with shelves shall be under the counters. Location will be as directed by the Engineer.

b) Storage

Shelving as directed by the Engineer.

Approval of Laboratory

Prior to the start of work, the Engineer shall inspect the proposed laboratory to ensure its compliance with these specification. Should the Contractor fail to comply with these specification at any time during the Contract period, the Engineer may order any or all of the following:

1. Stoppage of all work until the specification have been complied with.

2. Stoppage of any portion or phase of the work until the specification have been complied with.

3. Sampling and testing to be performed at any other laboratory designated by the Engineer with such fees and charges to be deducted from any amounts due to the Contractor.

Testing Equipment, Test and Specification

The Contractor shall furnish and maintain the laboratory equipment, apparatus and supplies necessary to permit execution of all standard tests required by the Specification for the quality control of the executed works. The Contractor shall submit to the Engineer for his approval within (15) days after signing of Contract a complete listing of the equipment, apparatus and suppliers he proposes to furnish for the laboratory. The list shall include the manufacturer's name and descriptive literature.

The equipment apparatus and supply of materials for the laboratory shall permit the execution of all AASHTO and / or ASTM standard tests for soils, aggregates, bituminous materials and concrete as required by General and Special Specification.

Maintenance of Laboratory

The Contractor shall maintain the laboratory building, utilities, laboratory testing

equipment and testing equipment for Field Control in the satisfactory working condition at all times to enable the Engineer for testing the material and workmanship of the works during the construction time. Whenever required, damaged testing equipment shall be replaced by the Contractor and consumable goods such as filter paper, trichlorethylene, speedy moisture reagent, S.E. stock solution etc. shall be supplied in sufficient quantities when ordered by the Engineer for the sole use of testing the construction works. All operational expenses shall be met by the Contractor.

Sampling and Testing

It shall be the responsibility of the Contractor to perform sampling and testing under the direct supervision of the Engineer, as and when required. The samples shall be collected/transported to the laboratory by the Contractor at his own cost.

Upon the completion of the project, laboratory and its furnishings shall become the property of the Contractor.

106 CONTRACTOR'S COMPOUND

106.1 MOBILISATION AND DEMOBILISATION

The Contractor shall mobilise all the necessary equipment, plant, material and personnel to the location approved by the Engineer to be used as the Contractor's site compound and shall substantially complete the construction of the site offices, stores, sheds, workshops, accommodation etc. by the end of the specified mobilisation period.

At the end of the construction period, the Contractor shall, with the agreement of the Engineer, remove all equipment, plant, site camp surplus material and personnel off the site compound, clean and restore the ground to its original character all to the satisfaction of the Engineer and the Employer. Unless otherwise stipulated any permanent buildings that the Contractor may build for his camp(s) on government land shall if desired by the Engineer and upon the completion of the works, become the property of the employer and shall be handed over in good condition unfurnished with all utility installations complete in place.

CONTRACTOR'S CAMP FACILITIES

The Contractor shall provide a temporary, weather tight site office for his own use complete with facilities for filing, drawings, specification, correspondence etc. and other appurtenances necessary for proper execution of the work. He shall also make his own provision for suitable accommodation and transportation of his personnel his workshop and all other elements of his camp(s) and shall provide all necessary power, water, sewerage, lighting and all other facilities necessary for his personnel, equipment, material and all other operations of his camp(s).

The Contractor's camp shall include an air conditioned clinic adequately furnished (including a refrigerator), provided with first aid and other medicines normally required on camp sites and operated by a qualified person approved by the Ministry of Health and the Engineer.

The location of the Contractor's camp(s) shall be at location(s) designated and approved by the Engineer. The Contractor shall be responsible for making all arrangements and payments in respect of any land required for the sitting of his camp(s).

The Contractor shall be paid a monthly payment for his camp as quoted by him for the corresponding rate in the Bill of Quantities (item 106.2, Maintenance of Contractor's compound) till the completion of whole of the works inclusive of works instructed as variation order and Additional works, if any. This payment shall be deemed to cover all costs related to the provision, running and maintenance of the Contractor's camp.

107 MAINTENANCE AND PROTECTION OF TRAFFIC

Considering importance of maintaining the traffic on the Batinah Highway, temporally carriageway during construction works for public use shall be maintained properly. This temporally carriageway principally shall be constructed out side of bridge and retaining wall construction site.

The Contractor shall prepare a plan for the maintenance and protection of traffic in accordance with the Standards and regulations of Royal Oman Police (ROP), concerned authorities (if required) and Ministry of Communications, showing details of detours, locations of different types of signs and flashing signals, lights by night, flagmen, barricades, torches etc. and get the plan approved from the R.O.P. and concerned authorities (if required) and shall provide, erect and maintain all the facilities in accordance with the approved plan. He will remove all the above facilities after they are no longer required subject to the approval from the Engineer, R.O.P. and the concerned authorities at no additional cost.

The payment shall be full compensation for detours, handling of traffic during construction, for the provision and maintenance of barricades, signs, flares, torches, flagman, flashing signals and all other items necessary for proper completion of the works to the satisfaction of the concerned authorities. This item shall be paid as lump sum against BOQ item 107.1 over the construction period.

108 PROGRESS PHOTOGRAPHS

The Contractor shall supply colour photographs of size 15 cm x 10 cm, glued on an A-4 size paper with its corresponding caption, 6 photographs per set, complete with negative, for each month throughout the Contract period. These shall record the progress of the work during the month.

The name of the Project
Chainage or other location data
Type of work
Serial number of the photographs
Date of photography

109 SIGN BOARDS

Further to the General Specification, the Contractor shall provide Two (2) wooden sign boards, details of Contract Sign - Boards are included in Figure - 5, Page 27.

110 COMMEMORATIVE PLAQUE AND OPENING CEREMONY

110.1 SUPPLY AND ERECTION OF COMMEMORATE PLAQUE

Delete this Claus entirely in the General Specification for Roads, Sultanate of Oman, April 1994, and substitute with:

The Contractor shall erect one (1) Commemorative Plaque with a platform, detail as shown in Figure - .6, page 28. The size of the Carrara Marble Plaque with Arabic inscription and Khanjar Emblem as shown in the drawing shall be 1.45 m. x 1.5m. x 30 mm. thickness. The location shall be at place designated by the Engineer and agreed with the Employer and Wali of the Wilayat.

The cost of the Commemorative Plaque shall deemed to include the platform erection, materials, and all related items necessary for the completion of the works, accepted and approved by the Engineer.

110.2 OPENING CEREMONY

In addition to Clause 110.2 of the General Specification for Roads, Sultanate of Oman, April 1994, the Contractor shall provide, supply and erect a canvass tent, complete with accessories and posts, enough to cover the area of the designated ceremonial ground. All the works completed will be to the satisfaction and approved by the Engineer.

The cost of the Tent shall deemed to be included at the Opening Ceremony Lump Sum in the Bill of Quantities.

113 AS BUILT DRAWINGS

Further to Clause 113.1 of the General Specification, the Contractor shall keep accurate records of executed work during the Contract period. The Engineer shall, at any time during the Contract, have the right to inspect these records and check that they are

correct and up to date. Service drawings shall be colour coded.

The Contractor shall produce a sample of a finished drawings for the approval of the Engineer, and the approved drawings will be submitted with the Final Accounts within three(3) months from the last date of the construction period.

No separate payment shall be made for preparation and producing "As Built Drawings". The cost shall be considered subsidiary to other items of B.O.Q.

SECTION 200 EARTHWORKS

201 CLEARING AND GRUBBING

In addition to Clauses of the General Specification for Roads, Sultanate of Oman, April 1994, regarding removal of trees which have trunk diameter 300 mm or greater inside the construction limits, the Contractor shall remove and trans-plant the trees which have trunk diameter less than 300 mm, in case they were planted previously along the highway as landscaping works.

Also the Contractor shall remove and store the existing steel safety barriers along median side of the carriageway in the construction limits, and shall place along median side of the proposed flyover carriageway in embankment sections after completion of the said section.

SECTION 500 CONCRETE AND CONCRETE STRUCTURE

502 CONCRETE MIXES

In addition to the concrete class prescribed in Table 5.3: Concrete Classes of the General Specification of Roads, Sultanate of Oman April 1994, the Class 40 Concrete which is prescribed in the following table shall be added.

Class	Maximum Water Cement Ratio	Characteristic strength (N/mm^2) cylinder (mm)	cube	Normal Maximum size of Aggregate	Minimum Cement Contents (kg/m^3)
40	0.45	40	50	20	450

The Contractor shall test the concrete of the said class prior to the actual applications and shall get an approval of the Engineer.

Each concrete class shall be properly applied to the structure types as follows:

Class 16/20 concrete shall be used for blinding and masonry works.
Class 24/20 concrete shall be used substructure, retaining wall, box culvert
Class 32/30 concrete shall be used floor slab, cross beam, ferro guard & parapet cast in place concrete pile
Class 40/20 concrete shall be used only for prestressed concrete girder.

SECTION 1700 UTILITIES

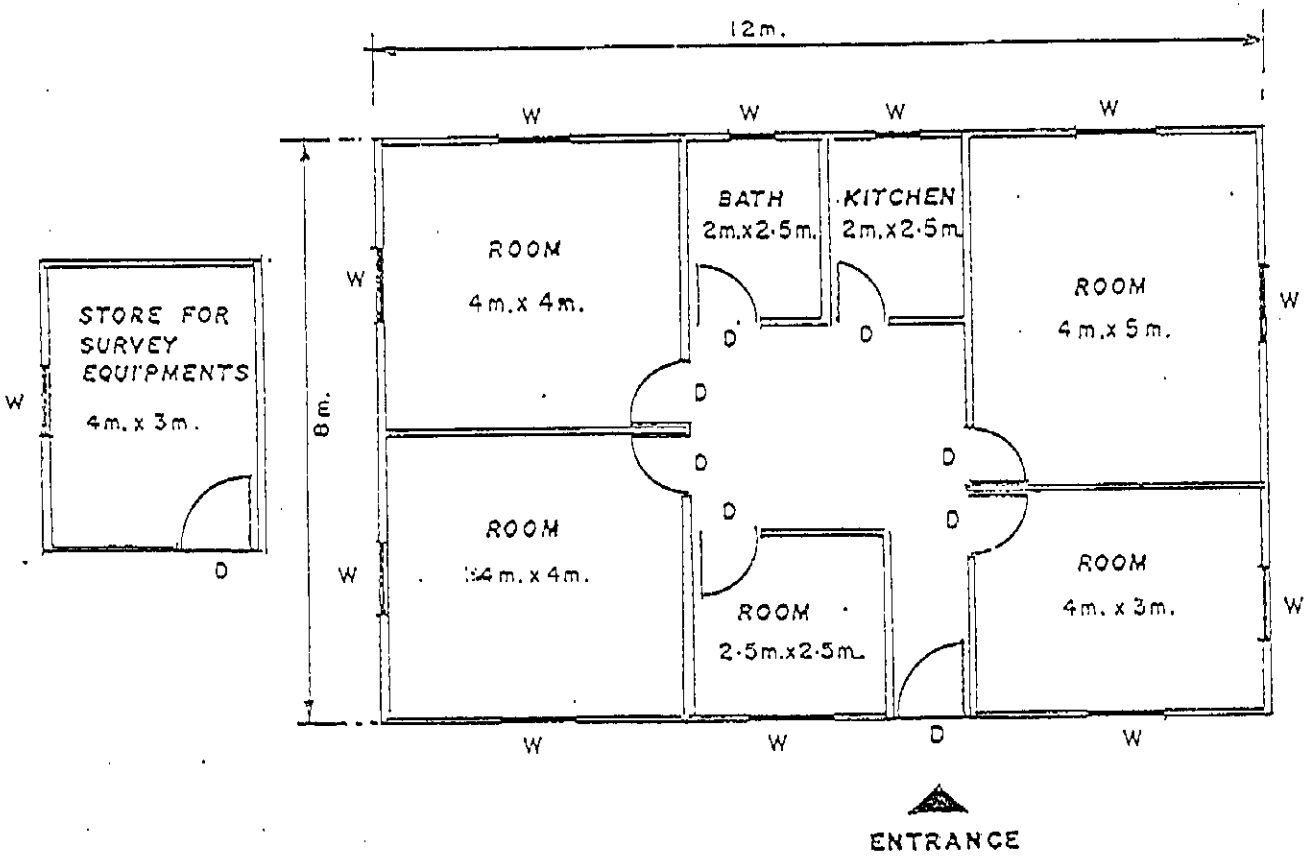
1701 UTILITIES

In addition to clauses of the General Specification for Roads, Sultanate of Oman April 1994, the Contractor shall locate, protect, uphold, temporarily divert if necessary, and maintain all pipes, ducts, drains, sewers, service mains, overhead or underground electrical/telephone cables, etc., during execution of the works. The Contractor shall make good any damage to existing service and/or property, and to reinstate the same at his own expense to the satisfaction of the Engineer.

Existing services may not be fully shown on the drawing and the Contractor shall liaise with the relevant authorities to determine the exact nature and full extent to such services which require protection and maintenance.

Approval shall be obtained a minimum of two weeks in advance of any planned interruption of service.

Ministry of Electricity & Water and GTO regulations require certain works to be carried out by specialist Contractors approved by them and it its the responsibility of Contractor to establish the extent of such work. Contractor will be deemed to have allowed in their rates against the various items of work for employing with MEW and GTO regulations and where necessary, for employing MEW and GTO approved Contractors for such specialist works.



NOTE :

1. THIS SKETCH IS INDICATIVE ARRANGEMENT, ONLY DETAIL DRAWINGS TO BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO ORDERING OF UNITS.
2. ALL DOORS (D) AND WINDOWS (W) SHALL BE OF SIZES APPROVED BY THE ENGINEER.

Figure 1

Typical Plan Engineer's Office (Type A)

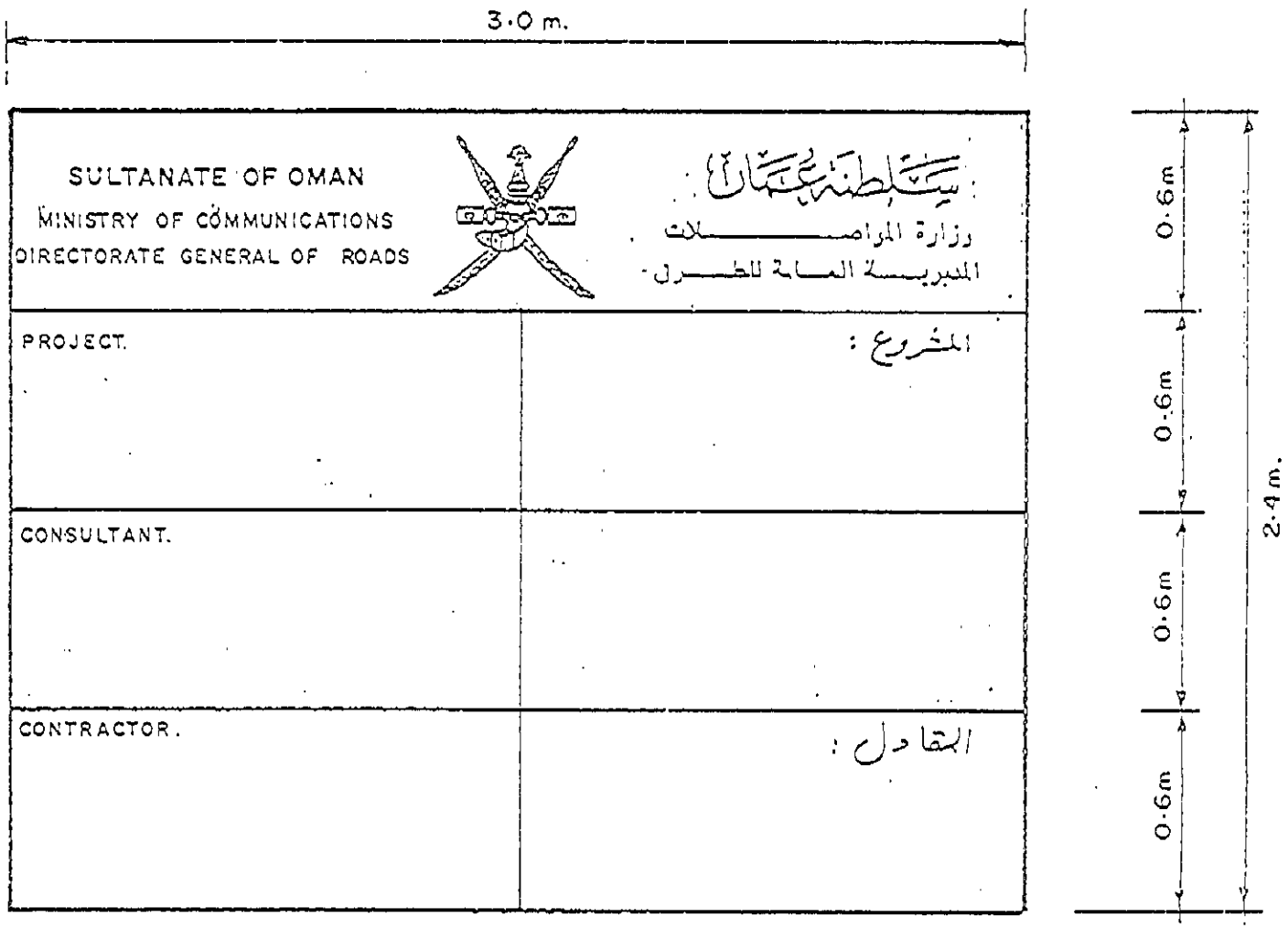
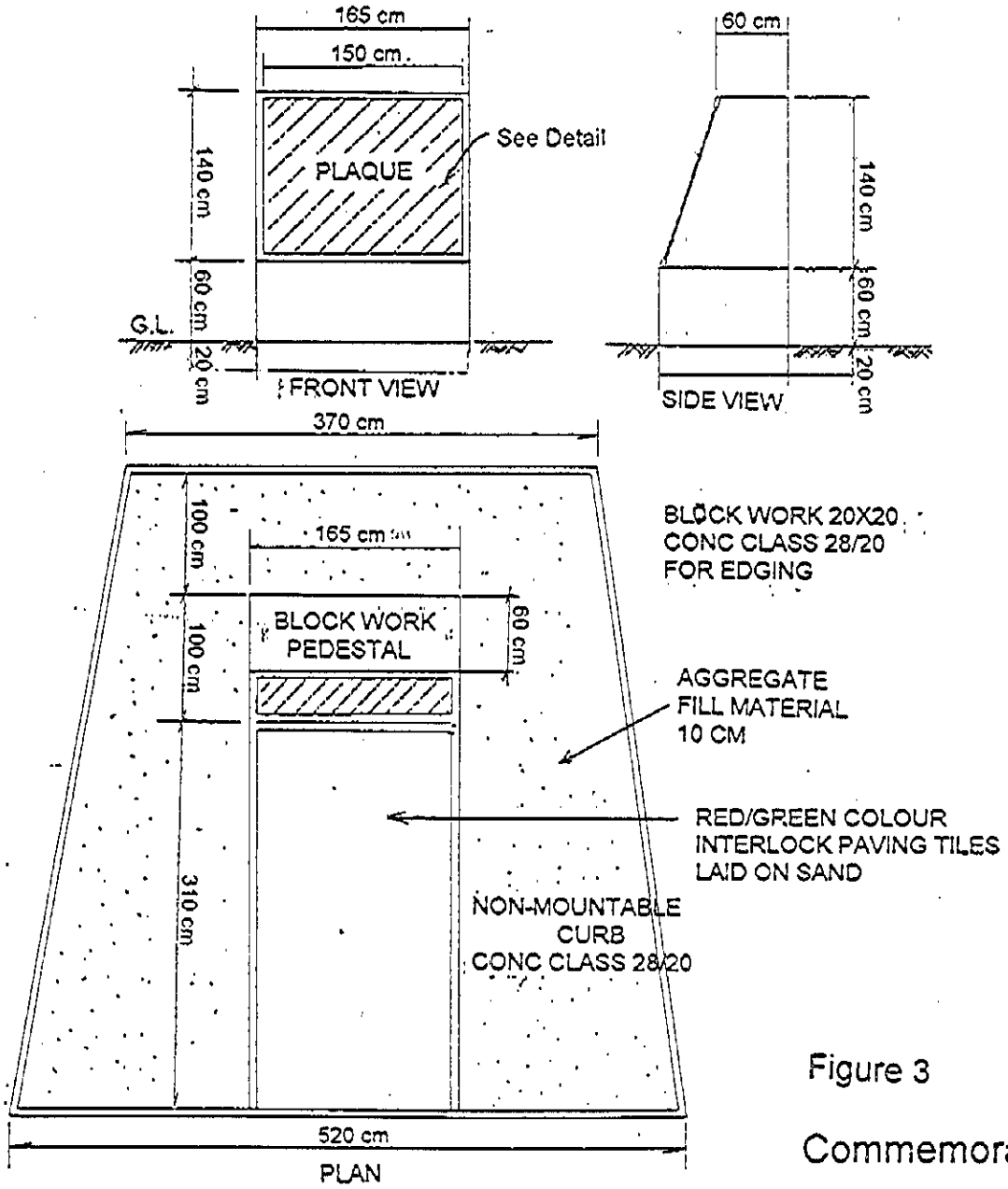
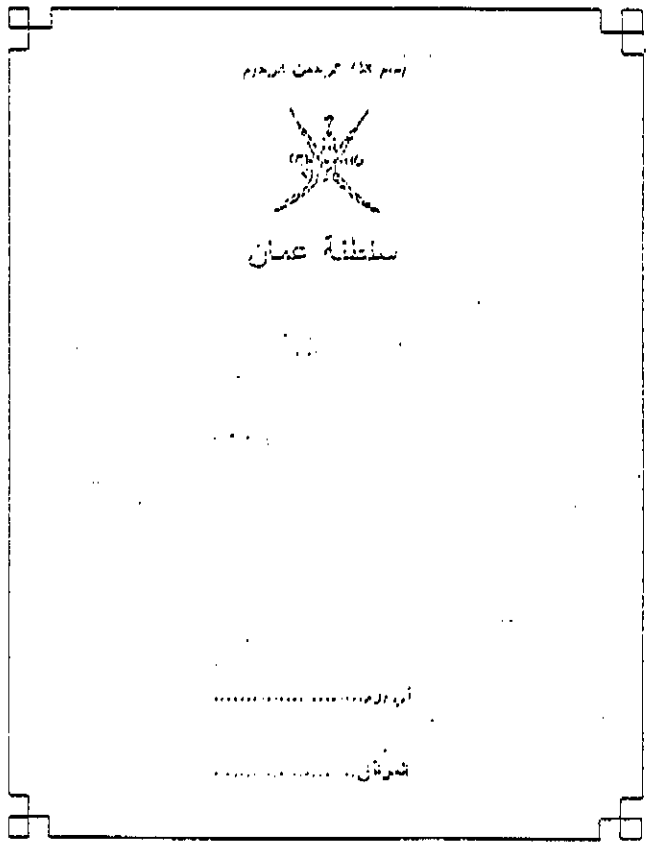


Figure 2

Contract Sign Board



NOTE:
ARABIC WORD INSCRIPTION IN GOLD CLOUR
KHANJAR EMBLEM IN RED COLOUR
BORDER EDGE IN GOLD COLOUR



PLAQUE DETAIL

Figure 3

Commemorate Plaque

PREAMBLE TO THE BILL OF QUANTITIES

1. General directions and descriptions of items of work given elsewhere in the Tender Documents are not generally repeated in the Bill of Quantities. Reference must be made to the Drawings, Specification and Conditions of Contract for this information.

2. The items of work given in the Bill of Quantities shall comply with the relevant sections of the Specification and with the instructions of the Engineer.

3. The initial part of the item numbers used in the Bill of Quantities correspond to the clause numbers used in the Specification, and the second part is consecutive within each clause reference.

4. In the Preliminaries Bill the Tenderer shall insert a lump sum or rate to each item which he considers has a financial value. Where the Tenderer considers that an item has no financial value he shall insert 'nil'. Lump sums shall not be inserted covering more than one item.

5. The value of services and obligations involved in the Preliminaries shall not be included in rates in other parts of the Bill of Quantities but shall be completely priced against the particular item in the Preliminaries.

6. Quantities of work and materials in the Bill of Quantities are estimated only and are not to be considered as limiting or extending the amount of work to be done and material to be supplied by the Contractor. The Contractor shall not use the quantities as an ordering schedule.

7. Each item in the Bill of Quantities shall be priced as indicated. No Tender will be considered complete unless this requirement has been fulfilled.

8. Unit rates shall be written in ink in the space specified in the Bill of Quantities.

9. The unit rate interested by the Tenderer in the Bill of Quantities for any item of work shall apply to completed work conforming to the Contract Documents covering all expenses of tabour, materials and equipment required for executing that item of work as well as covering the share of that item for the other general expenses to be incurred by the Contractor during the execution of the Works. These general expenses shall include but are not restricted to, the following, unless entered as a separate pay item in the Bill of Quantities.

   i) Preparation and submission of bids including the Site Inspection.

   ii) Employment and accommodation of the Contractor's staff - local and expatriate - including official holidays, annual leave, sick leave, compensation, bonuses, insurances etc.

iii) Costs related to the Contractor's site Camp(s) including the provision of all utility facilities..

iv) Provision for wastage of materials and for consumable materials.

v) Costs of laboratory testing, survey work and assistance to the Engineer as required in the Contract.

vi) For electrical installation, costs shall also include providing, testing and commissioning of the complete installation.

vii) Royalties, duties, customs, taxes, insurance and all other related costs.

viii) Cost of bank guarantees.

ix) Costs for permission to use private or public land.

x) Cost of temporary works.

xi) Cost of work items for which there are no direct payments and which are considered in the Specification and other Contract Documents as subsidiary to other items in the Bill of Quantities.

xii) Overheads and Profit.

xiii) All other expenses the Contractor may encounter in the proper execution of the Contract.

Compliance with the Tender Documents

10. The Tenderer/Contractor shall allow in the Bill of Quantities a lump sum for complying with the conditions and requirements stipulated in the Tender Documents and which are not covered separately in the various pay items of the Bill of Quantities.

11. The tendered lump sum for this item is deemed to cover the whole of the Contract period. Monthly payments against this item shall be made in instalments proportional to the time for completion as stated under Item 5 in the Appendix to the Form of Tender.

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 1 - PRELIMINARIES

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O.	Unit Rate Bz	Amount R.O.	Amount Bz
	SECTION 100 PRELIMINARIES						
	101 Bonds and Insurance						
101.1	Performance Bond (Clause 10 of Standard Conditions of Contract)	lump sum					
101.2	Insurance of the Works (Clause 21 of Standard Conditions of Contract)	lump sum					
101.3	Damage to Persons and Property (Clause 22 of Standard Condition of Contract)	lump sum					
101.4	Third Party Insurance (Clause 23 of Standard Conditions of Contract)	lump sum					
101.5	Accident or injury to Workmen (Clause 24 of Standard Condition of Contract)	lump sum					
		1-1		Carried to summary			

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 1 - PRELIMINARIES

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	104 Facilities for the Engineer				
104.1	Provision of Engineer's office (Type A, 1 unit x 24)	month	20		
104.2	Maintenance of Engineer's office (Type A, 1 unit x 24)	month	20		
104.3	Provision of surveying instruments	month	18		
104.4	Maintenance of surveying instruments	month	18		
104.5	Provision of Engineer's accommodation				
	(i) Resident Engineer's accommodation (Type B, 1 unit x 24)	month	N/A		
	(ii) Engineer's accommodation (Type C, 5 units x 24)	month	N/A		
	(iii) Engineer's accommodation (Type B, 1 unit x 24)	month	N/A		
	(iv) Dining/Kitchen (Type D, 1 unit x 24)	month	N/A		
		1-2		Carried to summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 1 - PRELIMINARIES

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
104.6	Maintenance of Engineer's accommodation				
	(i) Resident Engineer's accommodation (Type B, 1 unit x 24)	month	N/A		
	(ii) Engineer's accommodation (Type C, 5 unit x 24)	month	N/A		
	(iii) Engineer's accommodation (Type B, 1 unit x 24)	month	N/A		
	(iv) Dining/Kitchen (Type D, 1 unit x 24)	month	N/A		
104.7	Provision of laboratory	month	20		
104.8	Maintenance of laboratory	month	18		
104.10	In situ soil bearing capacity tests	n.r.	20		
104.11	Sub-soil investigation by specialist Contractor	prov. sum			
		1-3		Carried to summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 1 - PRELIMINARIES

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	105 Assistance for Engineer				
105.1	Laborers to assist the Engineer (no x months)	man month	N/A		
	106 Contractor's Compound				
106.1	Mobilization and demobilization of Contractor's facility	lump sum			
106.2	Maintenance of Contractor's facility	month	18		
	107 Maintenance and Protection of Traffic				
107.1	Maintenance and protection of traffic	lump sum			
107.2	Extra over item 107.1 for supply and compaction of subbase on diversions where ordered by the Engineer (10 cm. thick)	cu. m.			
107.3	Extra over item 107.1 for supply and compaction of bituminous basecourse on diversions where ordered by the Engineer (8 cm. thick)	cu. m.			
		1-4		Carried to summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 1 - PRELIMINARIES

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	108 Progress Photographs				
108.1	Provision of negatives and 5 sets of photographs (14 photos max.) (Mountable-Size 100 x 150 mm.)	month	20		
	109 Sign Boards				
109.1	Provision, erection, moving and maintenance of signboard (Wooden Type)	n.r.	2		
	110 Commemoration Plaque and Opening Ceremony				
110.1	Supply and erection of commemoration plaque (Optional)	n.r.	1	Option	
110.2	Opening ceremony (Optional)	lump sum			
		1-5		Carried to summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 1 - PRELIMINARIES

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	115 Compliance with the Tender Documents				
115.1	Allow for all costs and expense for complying with all the conditions and requirements stipulated in the Tender Documents, including all Clause of the Standard Conditions of Contract, which the Tenderer considers have financial implications on his tender and which are not covered separately in the various pay items of the Bill of Quantities				
	Clause No ----------	lump sum			
	Clause No ----------	lump sum			
	Clause No ----------	lump sum			
	Clause No ----------	lump sum			
	Clause No ----------	lump sum			
	Clause No ----------	lump sum			
	Clause No ----------	lump sum			
	Clause No ----------	lump sum			
		1-6		Carried to summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 1 - PRELIMINARIES

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	SUMMARY				
	Page 1-1				
	Page 1-2				
	Page 1-3				
	Page 1-4				
	Page 1-5				
	Page 1-6				
		1-7		To Ground Summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 2 - EARTHWORKS

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	200 EARTHWORKS				
	201 Clearing and Grubbing				
201.1	Removal and delivery of trees of 300mm trunk diameter or greater	n.r.	58		
	202 Removal of Structures and Obstructions				
202.1	Removal of existing building (Shop, etc)	n.r.	3		
202.2	Removal of misc. reinforced concrete structures	cu. m.	28		
202.3	Removal of pipe culvert (D=0.6,0.75,0.9)	lin.m.	191		
202.4	Removal of asphaltic concrete pavement (100 mm thick)	cu. m.	4562		
202.5	Removal of damaged steel safety barrier (Girdrail)	lin.m.	3278		
		2-1		Carried to summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 2 - EARTHWORKS

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
202.6	Remove carefully and relocate sign boards and road signs (size)	n.r.	74		
202.7	Removal of damaged Irish crossing marker posts	n.r.	N/A		
202.8	Removal of damaged drainage protection works (gabions, conc. tiles, mortared riprap, dry rip rap)	cu. m.	N/A		
202.9	Removal of existing fences (wire mesh, chicken wire)	lin.m.	N/A		
202.10	Removal of existing fences (block or masonry wall)	lin.m.	N/A		
202.11	Removal of existing box culvert (2 x 1 m)	lin.m.	N/A		
202.12	Removal of existing interlocking tiles	sq. m	1822		
202.13	Removal of existing crush stone	lin.m.	N/A		
202.14	Removal of existing plain concrete	cu. m.	640		
202.15	Removal of Curb Stone	m	4221		
		2-2		Carried to summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 2 - EARTHWORKS

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	203 Earthworks Excavation				
203.1	Suitable excavation to embankment	cu. m.	33500		
203.2	Suitable excavation to waste	cu. m.	7886		
203.3	Unsuitable excavation to waste	cu. m.	N/A		
203.4	Borrow excavation to embankment	cu. m.	62798		
203.5	Extra over item 203.1 ,2, 3 for excavation under water	cu. m.	N/A		
	206 Excavation and Backfilling for Structures				
206.1	Structure excavation in soils to a depth of 2m	cu. m.	424		
206.2	Structure excavation in soils to a depth more than 2m	cu. m.	N/A		
		2-3		Carried to summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 2 - EARTHWORKS

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O.	Unit Rate Bz	Amount R.O.	Amount Bz
206.3	Structural excavation in rock to a depth of 2m	cu. m.	N/A				
206.4	Structural excavation in rock to a depth more than 2m	cu. m.	N/A				
206.5	Extra over 206.1,2,3,4 for excavation under water	cu. m.	N/A				
		2-4		Carried to summary			

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 2 - EARTHWORKS

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	SUMMARY				
	Page 2-1				
	Page 2-2				
	Page 2-3				
	Page 2-4				
		2-5		To Grand Summary	

CONSTRUCTION OF FLYOVER AT SAHAM

BILL OF QUANTITIES

BILL 3 - GRANULAR AND STABILIZED SUBBASE, BASE COURSE, STABILIZED SUBGRADE

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	300 GRANULAR AND STABILIZED SUBBASE, BASECOURSE AND STABILIZED SUBGRADE				
	302 Granular Subbase				
302.1	Granular subbase (class B) (150 mm thick)	cu. m.	5318		
	303 Aggregate Basecourse				
303.1	Aggregate basecourse (class B) (300 mm thick)	cu. m.	N/A		
303.2	Aggregate basecourse (class B) (250 mm thick)	cu. m.	5194		
303.3	Aggregate basecourse (class B) (200 mm thick)	cu. m.	5775		
303.4	Aggregate basecourse (class B) (150 mm thick)	cu. m.	1317		
		3-1		Carried to summary	

CONSTRUCTION OF FLYOVER AT
SAHAM
BILL OF QUANTITIES
BILL 3 - GRANULAR AND STABILIZED SUBBASE, BASE COURSE, STABILIZED SUBGRADE

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	SUMMARY Page 3-1				
		3-2		Carried to summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 4 - BITUMINOUS PAVEMENT

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	400 BITUMINOUS PAVEMENT				
	401 Bituminous Prime Coat and Tack Coat				
401.1	Bituminous prime coat (MC 70)	kg	46746		
401.2	Bituminous tack coat (RC 250)	kg	9930		
	402 Bituminous Basecourse				
402.1	Bituminous basecourse (class B) 50 mm.thick	cu. m.	2630		
402.2	Bituminous basecourse (class B) 100 mm.thick	cu.m.	4965		
402.4	Increse or decrese in bituminous content from nominal rate	kg	rate only		
		4-1		Carried to summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 4 - BITUMINOUS PAVEMENT

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	405 Bituminous Wearing Course				
405.1	Bituminous wearing course (class B) (50 mm thick)	cu. m.	3260		
405.2	Increase or decrease in bitumen content from nominal rate	kg	rate only		
		4-2		Carried to summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 4 - BITUMINOUS PAVEMENT

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	SUMMARY				
	Page 4-1				
	Page 4-2				
		4-3		Carried to summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 5 - CONCRETE AND CONCRETE STRUCTURE

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O.	Unit Rate Bz	Amount R.O.	Amount Bz
	500 CONCRETE AND CONCRETE STRUCTURE						
	504 Concrete for Structure						
504.1	Concrete Class 16/20 (OPC cement) Blinding, Gravity Wall	cu. m.	4143				
504.2	Concrete Class A 24/20 for retaining wall, abutment and piers (OPC)	cu.m	10570				
504.3	Concrete Class 32/20 for bridge deck. cross beam and joint	cu.m	353				
504.4	Cast-in-Situ Concrete Class 24/20 for bridge deck for cantilever	cu.m	1003				
		5-1		Carried to summary			

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 5 - CONCRETE AND CONCRETE STRUCTURE

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	506 Prestressed Concrete for Bridge				
506.1	Precast, pre-stressed, bridge beam, reinforced concrete class AA40 including all reinforcement, tendons, tension cable strands, approved anchorage points "Freyssinet" system or equal and approved, sheaths, de-watering, pipes grouting in accordance with manufacturers recommendations, all complete and as detailed on tender drawings				
	a) PS Box girders (Internal) 26 m long	n.r..	198		
	b) PS Box girders (External) 26 m long	n.r..	44		
		5-2		Carried to summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 5 - CONCRETE AND CONCRETE STRUCTURE

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O.	Unit Rate Bz	Amount R.O.	Amount Bz
	509 Reinforcing Steel						
509.1	High yield steel bar reinforcement of any diameter	tone	907				
509.2	Mild steel bar reinforcement of any diameter	tone	N/A				
509.3	Mesh reinforcement of any size	tone	N/A				
		5-3		Carried to summary			

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 5 - CONCRETE AND CONCRETE STRUCTURE

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	SUMMARY				
	Page 5-1				
	Page 5-2				
	Page 5-3				
		5-4		Carried to summary	

CONSTRUCTION OF FLYOVER AT
SAHAM
BILL OF QUANTITIES
BILL 6 - STRUCTURAL STEEL AND OTHER METALWORK

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	600 STRUCTURAL STEEL AND OTHER METALWORK				
	603 Bridge Parapets				
603.1	Bridge Handrails (Aluminum) (H=500 mm)	lin.m.	2163		
		6-1		Carried to summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 6 - STRUCTURAL STEEL AND OTHER METALWORK

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O.	Unit Rate Bz	Amount R.O.	Amount Bz
	SUMMARY						
	Page 6-1						
		6-2		Carried to summary			

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 8 - DRAINAGE AND SERVICE DUCTE

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	800 DRAINAGE AND SERVICE DUCTS				
	801 Pipe Culverts				
S01.1	Reinforced concrete pipe culvert (600 mm. dia.)	lin.m	254		
S01.2	Reinforced concrete pipe culvert (750 mm. dia.)	lin.m	N/A		
	802 Reinforced Concrete Box Culverts, Box Culverts and Pipe Culverts Headwalls, Wingwalls and Aprons (SRP cement)				
S02.1	Concrete (Class 24/20), Box Culverts, Box Culverts and Pipe Culverts Headwalls, Wingwalls, Wingwalls and Aprons (SRP Cement), all complete and as detailed on drawing				
S02.1.1	Box culvert 2 x 1 m 1 cell	lin.m	N/A		
S02.1.2	Box culvert 2 x 1 m 2 cell	lin.m	N/A		
		8-1		Carried to summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 8 - DRAINAGE AND SERVICE DUCTE

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	804 Catch Basins, Catch Pits, Manholes, Curb Inlets, Ditch Inlets and Outlets				
	Reinforced concrete catch pit comprising excavation, backfilling, disposal, 100 mm thick plain in-situ sulphate resisting concrete class (12/20) blinding concrete class (24/20) for structure, all complete and as detailed on drawing				
804.1	Catch Pits 1 x 1 x 2 m	n.r.	6		
	Reinforcwed concrete gullies comprising excavation, backfilling, disposal, 150 mm bed and walls of reinforces sulphate resisting concrete class (24/20) all complete and as detailed on drawings				
804.2	Gullies 300 x 300 mm	lin.m	1206		
		8-2		Carried to summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 8 - DRAINAGE AND SERVICE DUCTE

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	S05 Water proofing for structure				
S05.1	Waterproofing membrane	sq.m.	N/A		
S05.2	Mastic asphalt waterproofing	sq.m.	N/A		
S05.3	Bituminous paint	sq.m.	3000		
	S07 Service Ducts				
S07.1	Service duct (A.C. 150 mm dia. -1 way with concrete surround), including duct markers	lin.m.	N/A		
S07.1.1	Service duct (A.C. 150 mm dia. -2 way with concrete surround), including duct markers	lin.m.	276		
S07.2	Extra over for excavation in rock for service ducte	cu.m.	N/A		
		8-3		Carried to summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 8 - DRAINAGE AND SERVICE DUCTE

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	SUMMARY				
	Page 8-1				
	Page 8-2				
	Page 8-3				
		8-4		Carried to summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 9 - SLOPE PROTECTION AND STABILISATION

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	900 SLOPE PLOTECTION AND STABILISATION				
	901 Riprap				
901.2	Mortared stone riprap (Class A), in Irish Crossing	cu.m.	N/A		
901.2.1	Mortared stone riprap (Class A), other than Irish Crossing	cu.m.	263		
				Carried to summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 9 - SLOPE PROTECTION AND STABILISATION

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	SUMMARY				
	Page 9-1				
		9-2		Carried to summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 10 - PILING

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	1000 PILING				
	1001 Piling				
1001.1	Reverse Pilling Method or equivalent Diameter = 600 mm including setting up of piles, driving and testing, all complete and as detailed on tender drawings	lin.m	8258		
		10-1		Carried to summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 10 - PILING

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O.	Unit Rate Bz	Amount R.O.	Amount Bz
	SUMMARY						
	Page 10-1						
		10-2		Carried to summary			

CONSTRUCTION OF FLYOVER AT SAHAM

BILL OF QUANTITIES

BILL 11 - BRIDGE BEARIBGS, EXPANSION JOINT, JOINTS SEAL AND FILLERS

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	1100 BRIDGE BEARINGS, EXPANSION JOINT, JOINTS SEALS AND FILLERS				
	1101 Bridge Bearings				
1101.1	Synthetic Rubber Shoe 460 x 360 x 80 mm including anchor bar, cap, filler reinforcing bar, spiral bar and shrinkage mortar	n.r.	484		
	1102 Bridge Expansion Joints				
1102.1	Bridge expansion joint Movement Range W=50 mm	m	44		
1102.1.1	Bridge expansion joint Movement Range W=100 mm	m	222		
		11-1		To Grand Summary	

CONSTRUCTION OF FLYOVER AT SAHAM

BILL OF QUANTITIES

BILL 11 - BRIDGE BEARIBGS, EXPANSION JOINT, JOINTS SEAL AND FILLERS

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	SUMMARY Page 11-1				
		11-2		To Grand Summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 12 - SIDEWALKS, PAVED AREAS AND CURBS

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	1200 SIDE WALKS, PAVED AREAS AND CURBS				
	1201 Sidewalks				
1201.1	Interlocking Block Pavement including granular Basecourse t = 150 mm	sq. m	5318		
	1202 Curbs				
1202.1.1	Curb 100 x 200 (Mountable)	lin.m.	2232		
1202.1.2	Curb 150 x 350 (Mountable)	lin.m	80		
1202.1.3	Curb 150 x 350 (None mountable)	lin.m.	4812		
	All curbs are hydraulically pressed sulphate resisting concrete class A (45/20) beded jointed and pointed in 10 mm thick sand cement grout, including all necessary excavation, backfill, dispose, formwork and all necessary works for complete				
		12-1		Carried to summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 12 - SIDEWALKS, PAVED AREAS AND CURBS

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	SUMMARY Page 12-1				
		12-2		Carried to summary	

CONSTRUCTION OF FLYOVER AT SAHAM

BILL OF QUANTITIES

BILL 13 - SAFETY BARRIERS, DELINEATORS AND FENCES

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	1300 SAFETY BARRIERS, DELINEATORS AND FENCE				
	1301 Corrugated Steel Beam Safety Barrier				
1301.1.1	Safety barrier beam (Type-A) including posts and end anchor	lin.m.	2387		
1301.1.2	Safety barrier beam (Type-C) including posts and end anchor	lin.m	1340		
	1302 Reflectorised Markers for Safety Barriers				
1303.1	Reflectorised markers attached to guardrail	n.r.	245		
1303.2	Reflectorised markers attached to concrete	n.r.			
		13-1		Carried to summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 13 - SAFETY BARRIERS, DELINEATORS AND FENCES

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	SUMMARY Page 13-1				
		13-2		Carried to summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 14 - HIGHWAY SIGNS AND ROAD MARKING

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	1400 HIGHWAY SIGNS AND ROAD MARKING				
	1401 Highway Signs				
1401.1	Highway sign, triangular, size (900 mm)	n.r.	14		
1401.2	Highway sign, circular, diameter (900 mm)	n.r.	23		
1401.3	Highway sign, rectangular, (600 x 2400, 750 x 1400 mm)	n.r.	12		
1401.4	Highway sign, square	n.r.	14		
1401.6.1	Overhead signpost and support assembling cantilever	n.r.	4		
1401.6.2	Overhead signpost and support assembling gantry	n.r.	2		
		14-1		Carried to summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 14 - HIGHWAY SIGNS AND ROAD MARKING

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	1402 Road Markings				
1402.1	Traffic lines (Mechanically sprayed)	sq. m	2211		
1402.2	Special markings (Hand sprayed)	sq. m	628		
1402.3	Curb painting (Black and yellow)	sq. m	1684		
1402.4	Reflecting road studs type red	n.r.	1007		
		14-2		Carried to summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 14 - HIGHWAY SIGNS AND ROAD MARKING

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	SUMMARY				
	Page 14-1				
	Page 14-2				
		14-3		To Grand Summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 15 - ELECTRICAL INSTALLATION

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	1500 ELECTRICAL INSTALLATION				
	1502 Medium Voltage Switching Stations	prov sum			
1502.1	Medium Voltage Switching Stations	n.r.			
	1503 Package Sub-stations				
1503.1	Package sub-station	n.r.			
	1504 Package Medium Voltage Switching Stations				
1504.1	Packing medium voltage switching station	n.r.			
		15-1		Carried to summary	

CONSTRUCTION OF FLYOVER AT
SAHAM
BILL OF QUANTITIES
BILL 15 - ELECTRICAL INSTALLATION

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	1505 33kV and 11kV Pole Mounted Transformer Stations				
1505.1	33kV pole mounted transformer station	n.r.			
1505.2	11kV pole mounted transformer station	n.r.			
	1506 Feeder Pillars				
1506.1	Feeder pillar	n.r.			
	1507 Cables				
1507.1	Cable (type) (size)	lin.m.			
		15-2		Carried to summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 15 - ELECTRICAL INSTALLATION

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	1508 Road Lighting Masts and Column				
1508.1	High mast assembly (type) (height)	n.r.			
1508.2	Lighting columns (type) (number of arms) (Height)	n.r.			
	1509 Traffic Sign Illumination				
1509.1	Overhead sign lighting (gantry or cantilever ref no)	n.r.			
1509.2	Roadside sign lighting (sign ref no)	n.r.			
	1510 Recessed Lighting				
1510.1	Recessed lighting (type)	n.r.			
		15-3		Carried to summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 15 - ELECTRICAL INSTALLATION

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O.	Unit Rate Bz	Amount R.O.	Amount Bz
	1511 Traffic Signals						
1511.1	Traffic signal installation (location)	lump sum					
	1512 Earthing						
1512.1	Twin rod earthing installation (location)	n.r.					
1512.2	Single rod earthing installation (location)	n.r.					
		15-4		Carried to summary			

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 15 - ELECTRICAL INSTALLATION

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	SUMMARY				
	Page 15-1				
	Page 15-2				
	Page 15-3				
	Page 15-4				
	Provisional Sum	Prov Sum			
		15-5		To Grand Summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 17 - UTULITIES

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	1700 UTILITIES				
	1701 Utilities				
1701.1	Remove carefully and relocate low voltage electric poles, telephone poles, including removal of lines, excavation, backfilling amd other related works as directed by the Engineer	prov sum			
1701.1.1	Protect of existing utilities crossing the roadway as shown in Drawing, or as directed by the Engineer	lin.m.			
		17-1		Carried to summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 17 - UTULITIES

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	SUMMARY				
	Page 17-1	Prov Sum			
		17-2		To Grand Summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 19 - DAYWORKS

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	A. WAGES These include proper wages, all used allowance, medical expense and all other charges provided for by local laws				
A.1	Supervisor	hour	100		
A.2	Site Surveyor	hour	1000		
A.3	Foreman	hour	480		
A.4	1st Class Operator	hour	480		
A.5	2nd Class Operator	hour	100		
A.6	Mechanic	hour	190		
A.7	Driver	hour	480		
A.8	Skilled Labour	hour	1000		
A.9	Semi Skilled Labour	hour	1000		
		19-1		Carried to Summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 19 - DAYWORKS

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
A.10	Ordinary Labour	hour	1000		
A.11	Mason	hour	200		
A.12	Painter	hour	100		
A.13	Carpenter	hour	200		
A.14	Steel Fitter	hour	100		
A.15	Electrician	hour	20		
		19-2		Carried to Summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 19 - DAYWORKS

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	B. OPERATING EQUIPMENT ON SITE These rate include : fuel and lubricants cost, charges for depreciation interest, repairs, maintenance, spare parts, tyres, insurance, etc. Payment will not be made for mechanics or maintenance time which shall be include in and spread over the rates.				
B.1	Motorgrader from 100 hp up to 120 hp	hour	5		
B.2	Motorgrader from 120 hp up to 150 hp	hour	11		
B.3	Tractor from 60 to 100 hp	hour	5		
B.4	Bulldozer with ripper from 100 hp to 150 hp	hour	5		
B.5	Bulldozer with ripper from 150 hp to 200 hp	hour	7		
B.6	Bulldozer with ripper from 200 hp to250 hp	hour	6		
B.7	Bulldozer with ripper from 250 hp to 300 hp	hour	4		
B.8	Wheel tractor up to 50 hp	hour	10		
		19-3		Carried to Summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 19 - DAYWORKS

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
B.9	Wheel tractor over 50 hp	hour	10		
B.10	Motor scraper capacity up to 18 cu.m.	hour	10		
B.11	Motor scraper capacity from 18 to 24 cu.m.	hour	10		
B.12	Sheeps foot roller, from 5 tonnes to 10 tonnnes	hour	10		
B.13	Grid roller	hour	4		
B.14	Vibratory compactor with prime mover up to 5 tonnes	hour	4		
B.15	Vibratory compactor with prime mover from 5 to 10 tonnes	hour	4		
B.16	Pneumatic compactor with prime mover from 30 to 50 tonnes	hour	4		
B.17	Pneumatic self-propelled rollers from 15 to 20 tonnes	hour	8		
B.18	Tandem roller up to 8 tonnes	hour	24		
B.19	Tandem roller from 8 to 12 tonnes	hour	8		
		19-4		Carried to Summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 19 - DAYWORKS

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
B.20	Triaxle roller from 10 to 15 tonnes	hour	24		
B.21	Light frog- rammer 0.1 tonne	hour	20		
B.22	Heavy frog-rammer 0.5 tonne	hour	20		
B.23	Wheel loder 1.2 to 1.6 cu.m.	hour	20		
B.24	Wheel loder 1.6 to 2.0 cu.m.	hour	20		
B.25	Wheel loder 2.0 to 2.5 cu.m.	hour	20		
B.26	Excavator up to 0.8 cu.m.	hour	15		
B.27	Excavator from 0.8 to 1.2 cu.m.	hour	15		
B.28	Bituminous mixing plant with batching apparatus up to 80 t/h.	hour	5		
B.29	Bituminous mixing plant with batching apparatus from 80 to 150 t/h.	hour	5		
B.30	Finisher up to 80 t/h.	hour	10		
		19-5		Carried to Summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 19 - DAYWORKS

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
B.31	Finisher from 80 t/h to 120 t/h.	hour	10		
B.32	Bitumen sprayer up to 6 tonnes	hour	10		
B.33	Tanker truck up to 6 cu.m.	hour	15		
B.34	Dump truck up to 10 tonnes	hour	17		
B.35	Dump truck from 10 to 15 tonnes	hour	20		
B.36	Screening plant from 80 to 100 t/h.	hour	5		
B.37	Crushing plant from 40 to 60 t/h.	hour	5		
B.38	Crushing plant with primary and secondary from 60 to 100 t/h.	hour	5		
B.39	Air compressor up to 6000 l/m.	hour	15		
B.40	Air compressor over 6000 l/m.	hour	15		
B.41	Mechanical broom	hour	7		
		19-6		Carried to Summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 19 - DAYWORKS

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
B.42	Power water pump	hour	118		
B.43	Steel cutting machine	hour	5		
B.44	Steel bending machine	hour	5		
B.45	Belt conveyor	hour	5		
B.46	Concrete mixer up to 0.5 cu.m.	hour	10		
B.47	Concrete mixer over 0.5 cu.m.	hour	12		
B.48	Automatic concrete batch plant without mixing drum	hour	5		
B.49	Transmixer up to 5 cu.m.	hour	10		
B.50	Concrete vibrators	hour	59		
B.51	Crane up to 5 tonnes.	hour	9		
B.52	Crane with broom and jib 5 to 10 tonnes	hour	7		
		19-7		Carried to Summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 19 - DAYWORKS

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
B.53	Crane with boom and jib over 10 tonnes	hour	7		
B.54	Generator 60 kw	hour	5		
B.55	Generator 75 kw	hour	5		
B.56	Drilling equipment	hour	5		
B.57	Generator 100 kw	hour	5		
B.58	Generator 150 kw	hour	5		
B.59	Generator 200 kw	hour	5		
B.60	Gravel strewer	hour	5		
		19-8		Carried to Summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 19 - DAYWORKS

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	C. MATERIALS These rates include all the charges for the supply of the materials, loading, transport to site, unloading and stores as well as all the charges provided for in the General and Special Specifications and in the Contract.				
C.1	Aggregate for granular sub-base course in accordance with the General and Special Specifications, in place as specified.	cu.m.	50		
C.2	Aggregate for granular aggregate base course in accordance with the Gener Special Specifications, in place as specified.	cu.m.	25		
C.3	Aggregate for bituminous base course in accordance with the General and Special Specifications, near the asphalt plant, in bulk	cu.m.	50		
C.4	Fine aggregate for concrete, in accordance with the General and Special Specifications, in place, in bulk	cu.m.	25		
C.5	Coarse aggregates for concrete, in accordance with the General and Special specifications, in place, in bulk	cu.m.	50		
		19-9		Carried to Summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 19 - DAYWORKS

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
C.6	Stone for drainage, masonry and slope protection, in accordance with the General and Special Specifications in place	cu.m.	25		
C.7	Asphalt cement, grade 60-70 on site	ton	1		
C.8	Asphalt cement, grade 50-60 on site	ton	1		
C.9	Emulsified asphalt, grade RS-1 on site	ton	1		
C.10	Cutback asphalt, MC and RC type on site	ton	1		
C.11	Portland cement on site	ton	1		
C.12	Deformed billet steel bars, AASHTO M 31 grade 60 (High Yield) of any diameter	ton	1		
C.13	Deformed billet steel bars AASHTO M 31 grade 40 (Mild) of any diameter	ton	1		
C.14	Highway signs	sq.m.	3		
C.15	Highway sign supports - 1 post	nr.	4		
		19-10		Carried to Summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 19 - DAYWORKS

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
C.16	Highway sign supports - 2 post	nr.	2		
C.17	Timber plank, on site	cu.m.	2		
C.18	Timber props, on site	cu.m.	2		
C.19	Wire mesh gabgions, on site	ton	0.5		
C.20	Explosive, on site	kg.	5		
C.21	Gas oil, on site	litre	100		
C.22	Gasoline, on site	litre	500		
C.23	Lubricant	kg.	5		
		19-11		Carried to Summary	

CONSTRUCTION OF FLYOVER AT SAHAM
BILL OF QUANTITIES
BILL 19 - DAYWORKS

Item No	Description	Unit	Estimated Quantity	Unit Rate R.O. Bz	Amount R.O. Bz
	SUMMARY				
	Page 19-1				
	Page 19-2				
	Page 19-3				
	Page 19-4				
	Page 19-5				
	Page 19-6				
	Page 19-7				
	Page 19-8				
	Page 19-9				
	Page 19-10				
	Page 19-11				
		19-12		To Grand Summary	

BILL OF QUANTITIES

GRAND SUMMARY

Bill No	Description	Amount R.O.
1	Preliminaries	
2	Earthworks	
3	Granular and stabilized subbase, basecourse and stabilized subgrade	
4	Bituminous Pavement	
5	Concrete and concrete structure	
6	Structural steel and other metal work	
7	Paint	N/A
8	Drainage and service ducts	
9	Slope protection and stabilization	
10	Piling	
11	Bridge bearing, expansion joints, joint seals and fillers	
12	Sidewalks, paved areas and kerbs	
13	Safety barriers, delineators and fences	
14	Highway signs and road marking	
15	Electrical installations	
16	Landscape and irrigation	N/A
17	Utilities	
18	Plant and Equipment	N/A
19	Dayworks	
	Sub-total	
	Contingencies (10%)	
	TOTAL CONTRACT VALUE (R.O)	

(IN WORDS, THE TOTAL TENDER VALUE IS RIAL OMANI)

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NAME OF TENDERER DATE

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SIGNATURE OF TENDERER