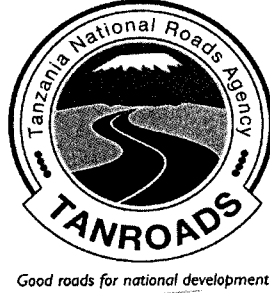


TANZANIA NATIONAL ROADS AGENCY



P.O. Box 11364
3rd Floor
Airtel House
Ali Hassan Mwinyi / Kawawa Roads
Junction
Dar es Salaam

Date: 7th November 2017

Our Ref: TRD/HQ/GEN/999/01

To: All Prospective Tenderers

RE: REHABILITATION AND UPGRADING OF IRINGA AIRPORT, TENDER No. AE/001/2017-18/HQ/W/47

Sub: Clarification No. 1 and Addendum No. 2 to the Tender Documents

Please refer to the above subject.

Pursuant to Sub-Clause 8.1 and 9.1 of the Instructions to Tenderers (ITT) of the Tender Documents, TANROADS issues the attached **Clarification No. 1** and **Addendum No. 2** to the Tender Documents.

Eng. Chrispianus B. Ako
ACTING CHIEF EXECUTIVE

Encl: As stated

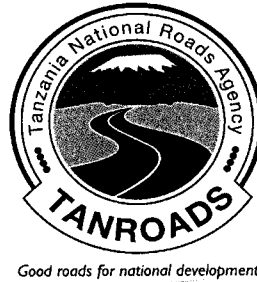
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TANROADS is an Executive Agency of the Ministry of Works, Transport and Communication, Tanzania, established under the Executive Agencies Act, 1997

THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF WORKS, TRANSPORT AND COMMUNICATION



TENDER No. AE/001/2017-18/HQ/W/47

FOR

REHABILITATION AND UPGRADING OF IRINGA AIRPORT

Clarification No. 1 to the Tender Documents

Date: **7th November, 2017**

Clarification No. 1 to the Tender Documents is issued in accordance with Instructions to Bidders, Clause 8.1 to effect the following amendments to the Tender Documents:

QUESTION NO. 1

In BoQ Earthworks – Item 2.05 (c) Fill as specified in the drawings to require minimum G3 quality (i) using materials from borrow areas 1,657,500 cubic metres.

In the material report, 3.2.1 Mgongo Gravel Source the approximate material quantity is only 240,000 cubic metres. Please clarify.

Response to Question No. 1:

The quantities for G3 indicated in the Materials Report may not be sufficient to execute the quantities provided in Item 2.05 (c) of the Bill of Quantities. The Employer would like to clarify that it's the Contractor's obligations to search all sources of materials including fill required to execute the works to completion.

QUESTION NO. 2

Taking into account the short time available, especially to have the best and most competitive equipment's offers from our suppliers; we kindly request an extension of three weeks for the bid submission.

Response to Question No. 2:

*The Deadline for bids submission has been extended for three weeks from 7th November 2017 to 30th November 2017 has been granted. Please refer **Addendum No. 1 dated 26th November 2017.***

QUESTION NO. 3

We hereby request your kind extension of three weeks up to 28th November 2017 for site & market investigation and scrutiny the tender to ensure submission of a reasonable and competitive tender.

Response to Question No. 3:

Refer response to Qn. 2.

QUESTION NO. 4

Following the site visit in the airports at the above mentioned locations it was clear that there are changes to the designs anticipated and accordingly, change to the scope of work and the Bill of Quantities would be effected.

We would be grateful if an extension of time of three weeks is granted.

Response to Question No. 4:

Refer response to Qn. 2.

THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF WORKS, TRANSPORT AND COMMUNICATION



TENDER No. AE/001/2017-18/HQ/W/47

FOR

REHABILITATION AND UPGRADING OF IRINGA AIRPORT

Addendum No. 2 to the Tender Documents

Date: **7th November, 2017**

Addendum No. 2 to the Tender Documents is issued in accordance with Instructions to Bidders, Clause 9.1 to effect the following amendments to the Tender Documents:

Item No. 1

SECTION VII – Drawings

Amend the Section VII: Drawings by adding Energy Centre – Light Layout for the proposed Substation Building attached as **Appendix 1**.

Item No. 2

SECTION VIII– BILL OF QUANTITIES

- i. Amend the Section VIII: Bill of Quantities (BoQ) by adding Bill items for the proposed Substation Building attached as **Appendix 2**.
- ii. Page 25

Insert the following Item 7.2 and 7.3.

7.2	Supply installation and commissioning of DVOR,DME,Localiser,and other accessories as approved by TCCA	PS		2,000,000,000.00
7.3	Allow for the Contractor's Overheads and Profits as a percentage of sub item 7.2.	%		

Refer Appendix 3 for the revised page 25.

iii. Table 2: Summary of Specified Provisional Sums

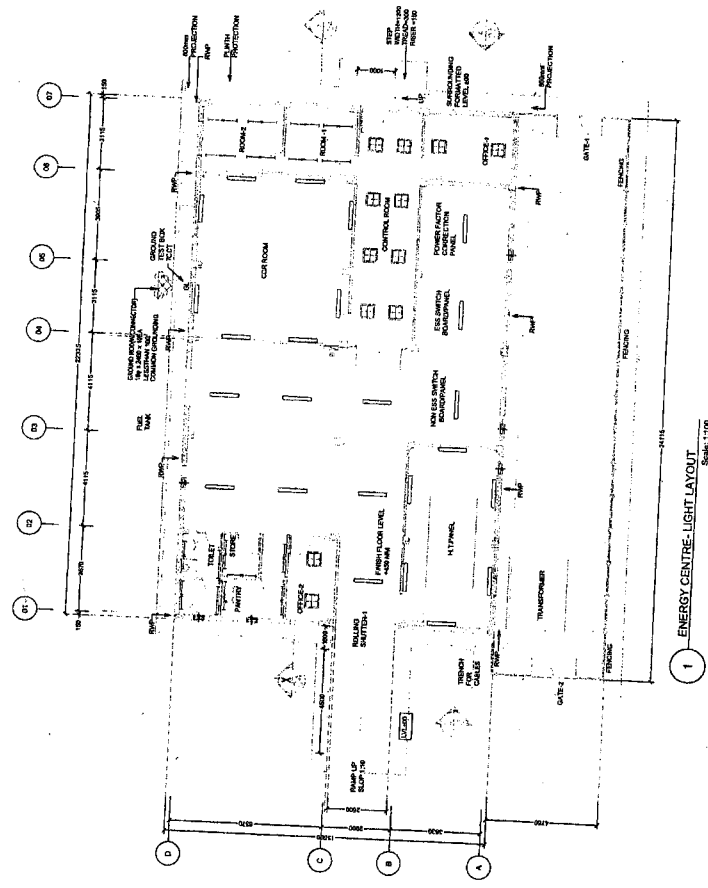
Replace Table 2: Summary of Specified Provisional Sums with the revised Summary of Specified Provisional Sums attached as **Appendix 4**.

iv. Page 31

Replace Grand Summary of Bill of Quantities with the revised Grand Summary of Bill of Quantities attached as **Appendix 5**.

Appendix 1: Energy Centre – Light Layout for the proposed Substation Building

Original Drawing Size A1



1 ENERGY CENTRE- LIGHT LAYOUT Scale: 1:100

SL NO	TYPE	DESCRIPTION
1	□	HWELLSY WANA 300/500 PANEL LED 200 WATT (200)
2	○	HWELLSY WANA 300/500 3X 1 LIGHTER 150 LED 150 WATT
3	□	HWELLSY WANA 300/500 3X 1 LIGHTER 150 LED 150 WATT
4	○	HWELLSY WANA 300/500 3X 1 LIGHTER 150 LED 150 WATT
5	○	HWELLSY WANA 300/500 3X 1 LIGHTER 150 LED 150 WATT
6	○	HWELLSY WANA 300/500 3X 1 LIGHTER 150 LED 150 WATT
7	○	HWELLSY WANA 300/500 3X 1 LIGHTER 150 LED 150 WATT
8	○	HWELLSY WANA 300/500 3X 1 LIGHTER 150 LED 150 WATT
9	○	HWELLSY WANA 300/500 3X 1 LIGHTER 150 LED 150 WATT
10	△	13 A SWITCH SOCKET 150 WATT AT 1.2M FROM FLOOR
11	△	13 A SWITCH SOCKET OUTLET 11.2M FROM FLOOR
12	△	13 A SWITCH SOCKET OUTLET FOR ONLY MACHINE & AC
13	△	HWELLSY WANA 300/700 700 3X 1 LIGHTER 175 SOURCE LED 175 WATT
14	△	HWELLSY WANA 300/700 700 3X 1 LIGHTER 175 SOURCE LED 175 WATT
15	△	DISTRIBUTION BOARD
16	△	SWITCH BOARD PANEL

NOTES: (1) △ - FOR BLOWER ROOM TO AWAY FROM BLOWER (2) △ - FOR ADVERTISEMENT BOARD 3.2M UNDER FALSE CEILING (3) △ - 13 A SWITCH SOCKET 150 WATT AT 1.2M FROM FLOOR (4) △ - 13 A SWITCH SOCKET OUTLET 11.2M FROM FLOOR (5) △ - 13 A SWITCH SOCKET OUTLET FOR ONLY MACHINE & AC (6) △ - HWELLSY WANA 300/700 700 3X 1 LIGHTER 175 SOURCE LED 175 WATT (7) △ - HWELLSY WANA 300/700 700 3X 1 LIGHTER 175 SOURCE LED 175 WATT (8) △ - DISTRIBUTION BOARD (9) △ - SWITCH BOARD PANEL

NOTE: (1) △ - FOR BLOWER ROOM TO AWAY FROM BLOWER (2) △ - FOR ADVERTISEMENT BOARD 3.2M UNDER FALSE CEILING

NOTE: (1) △ - 13 A SWITCH SOCKET 150 WATT AT 1.2M FROM FLOOR (2) △ - 13 A SWITCH SOCKET OUTLET 11.2M FROM FLOOR (3) △ - 13 A SWITCH SOCKET OUTLET FOR ONLY MACHINE & AC (4) △ - HWELLSY WANA 300/700 700 3X 1 LIGHTER 175 SOURCE LED 175 WATT (5) △ - HWELLSY WANA 300/700 700 3X 1 LIGHTER 175 SOURCE LED 175 WATT (6) △ - DISTRIBUTION BOARD (7) △ - SWITCH BOARD PANEL

REFERENCE DRAWINGS DRAWING No. DATE

GENERAL NOTES: ALL DIMENSIONS ARE TO FACE UNLESS SPECIFIED OTHERWISE. ALL DIMENSIONS ARE TO FACE UNLESS SPECIFIED OTHERWISE. ALL DIMENSIONS ARE TO FACE UNLESS SPECIFIED OTHERWISE.

PROJECT: PRINGA AIRPORT ENERGY CENTER LIGHT LAYOUT

DESIGNED BY: R. SHARMA


CHECKED BY: R. SHARMA

APPROVED BY: DATE

SCALE: AS SHOWN

SHEET NO. 4 OF 4

United Republic of Tanzania
Tanzania Airport Authority



OWNER: PRINGA AIRPORT ENERGY CENTER LIGHT LAYOUT

DESIGNED BY: R. SHARMA

CHECKED BY: R. SHARMA

APPROVED BY: DATE

SCALE: AS SHOWN

SHEET NO. 4 OF 4

CONSULTANT: YOSHIN Engineering Corporation
 INTERCONTINENTAL CONSULTANTS and Technocrats Pvt. Ltd.
 ARCHITECTS & ASSOCIATES Co. Ltd.

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Feasibility Study and Detailed Engineering Design and Tender Documents for Eleven (11) Airport, Tanzania

PROJECT: PRINGA AIRPORT ENERGY CENTER LIGHT LAYOUT

DESIGNED BY: R. SHARMA

CHECKED BY: R. SHARMA

APPROVED BY: DATE

SCALE: AS SHOWN

SHEET NO. 4 OF 4

GENERAL NOTES: ALL DIMENSIONS ARE TO FACE UNLESS SPECIFIED OTHERWISE. ALL DIMENSIONS ARE TO FACE UNLESS SPECIFIED OTHERWISE. ALL DIMENSIONS ARE TO FACE UNLESS SPECIFIED OTHERWISE.

PRINGA AIRPORT ENERGY CENTER LIGHT LAYOUT

AR-4301

Appendix 2: Bill of Quantities (BoQ) for the proposed Substation Building- Energy Centre

BILL OF QUANTITIES

REHABILITATION AND UPGRADING WORK AT IRINGA AIRPORT

SUMMARY OF ENERGY CENTRE ROOM

Item No	Description	Amount (TShs)
A	CIVIL WORKS	
B	PLUMBING & SANITARY WORKS	
C	ELECTRICAL WORKS	
	TOTAL OF ENERGY CENTRE ROOM WORKS (Carried Forward to Table 3 : Grand Summary)	

BILL OF QUANTITIES

REHABILITATION AND UPGRADING WORK AT IRINGA AIRPORT

ENERGY CENTRE / DG ROOM

Sl.No.	Item Description	Unit	Quantity	Rate	Amount
A	CIVIL WORKS				
	SECTION-I : EARTH WORK:				
1.01	Earthwork in excavation by mechanical means (Hydraulic excavator) / manual means in foundation trenches or drains,pits etc and disposal of surplus excavated soil as directed with in a lead of 50m in all types of Soil. Commencing from existing ground surface etc complete as per drawings & Technical Specifications				
a)	In all kinds of soil				
i)	Up to 1.5m depth	m ³	284		
ii)	Up to 1.5 to 3m depth	m ³	58		
b)	In soft rock : Commencing from under side of Top Soil: From 1.5m to 3m.	m ³	17		
1.02	Filling from available excavated earth (Excluding rock) in trenches, plinth, sides of foundation etc. in layers not exceeding 20cm in depth etc complete as per drawings & Technical Specifications	m ³	292		
a)					
b)	Backfilling behind structures with borrow earth etc complete as per drawings & Technical Specifications	m ³	62		
1.03	Providing and filling in plinth with sand/ Crusher dust under floor in layers not exceeding 20cm in depth consolidating no deposited layer by ramming and watering, including dressing etc complete as per drawings & Technical Specifications				
a)	Sand Filling:	m ³	41		
1.04	Providing, injecting and spraying chemical emulsion for pre-constructional anti-termite treatment around the column pit, wall trenches, top surface of plinth filling, below the foundation , plinth protection and ground floor etc. complete with Chlorpyrifos/ Lindane E.C. 20% with 1% concentration etc complete as per drawings & Technical Specifications	m ²	274		
1.05	Brick bats filling with common burnt bricks under foundation and plinth etc complete as per drawings & Technical Specifications	m ³	5		
	Section-II : PLAIN CEMENT CONCRETE				
2.01	Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering-all work up to plinth level etc complete as per drawings & Technical Specifications				
a)					
i)	Grade C-15	m ³	68		
Total : Items on this page (Carried Forward)					

BILL OF QUANTITIES
REHABILITATION AND UPGRADING WORK AT IRINGA AIRPORT
ENERGY CENTRE / DG ROOM

Sl.No.	Item Description	Unit	Quantity	Rate	Amount
	Brought Forward				
	<u>Section-III : REINFORCED CEMENT CONCRETE</u>				
3.01	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level etc complete as per drawings & Technical Specifications				
a)	In situ concrete : Grade C-25	m ³	117		
3.02	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work above Plinth Level upto floor five level etc complete as per drawings & Technical Specifications				
a)	In situ concrete : Grade C- 25	m ³	103		
3.03	Providing and fixing formwork including centering, shuttering ,strutting, staging, propping bracing etc. complete and including its removal at all levels for etc complete as per drawings & Technical Specifications:				
a)	Foundations, footings, base of columns and plinth beam in any shape and size.	m ²	663		
3.04	Providing and fixing of prefabricated type of form work for all heights suspended floors, roof ,etc complete as per drawings & Technical Specifications	m ²	937		
3.05	Steel reinforcement for R.C.C. work with Characteristic strength of 460 Mpa class B shall conform to Standards including straightening, cutting, bending, placing in position and binding all complete upto plinth level etc complete as per drawings & Technical Specifications				
(a)	Reinforcement complete up to plinth	Tonne	12		
(b)	Reinforcement complete above plinth level	Tonne	12		
	<u>Section-IV : WATER PROOFING WORK:</u>				
4.01	Providing and laying APP (Atactic Polypropylene Polymer) modified prefabricated five layer 3 mm thick water proofing membrane, black finished reinforced with non-woven polyester matt etc complete as per drawings & Technical Specifications	m ²	302		
4.02	Providing and laying water proofing treatment in sunken portion of WCs, bathroom etc., by applying cement slurry mixed with water proofing cement compound etc complete as per drawings & Technical Specifications				
a)	Waterproofing in toilet area	m ²	7		
4.03	Providing and laying damp proof course (upto 50mm thick) with plain cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded crushed stone aggregate 20mm nominal size) including formwork etc complete as per drawings & Technical Specifications	m ²	55		
Total : Items on this page (Carried Forward)					

BILL OF QUANTITIES

REHABILITATION AND UPGRADING WORK AT IRINGA AIRPORT

ENERGY CENTRE / DG ROOM

Sl.No.	Item Description	Unit	Quantity	Rate	Amount
	Brought Forward				
	Section-V : STONE/BRICK MASONRY WORKS				
5.01	Selected and approved masonry walls :Concrete block as per BS 6073-1982 walling : bedded, jointed and pointed in cement and sand mortar etc complete as per drawings & Technical Specifications				
a)	200 mm thick - Solid Block masonry 1:4 cement mortar - in superstructure	m ²	801		
5.02	Brick work with common burnt clay modular bricks of class designation 7.5 in foundation and plinth in etc complete as per drawings & Technical Specifications				
(i)	Cement mortar 1:4 (1 cement : 4 coarse sand)	m ³	1		
	WALL FINISHES				
5.03	Cement plaster of mix (1 cement : 3 fine sand) as per BS-8212 etc complete as per drawings & Technical Specifications				
a)	On Internal Horizontal Surfaces: Ceiling Plaster 6 mm thk. with CM 1:3	m ²	332		
b)	Internal Plaster up to 12 mm thk. with CM 1:3	m ²	763		
c)	External Plaster up to 20mm Thick in Two Layer with CM 1:3	m ²	769		
	Section -VI : PAINTING & FINISHING				
6.02	Applying priming coats with primer of approved brand and manufacture, having low VOC (Volatile Organic Compound) content etc complete as per drawings & Technical Specifications				
a)	With water thinnable cement primer on wall surface having VOC content less than 50 grams/litre.	m ²	1,095		
6.03	Wall painting with acrylic emulsion paint of approved brand and manufacture to give an even shade . Two or more coats on new work etc complete as per drawings & Technical Specifications	m ²	1,095		
6.04	Finishing walls with water proofing cement paint of required shade etc complete as per drawings & Technical Specifications				
	New work (Two or more coats applied @ 3.84 kg/10 sq m)	m ²	769		
	Section-VII : FLOORING:				
7.01	52 mm thick cement concrete flooring with concrete with hardener topping, under layer 40 mm thick cement concrete 1:2:4. (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) and top layer 12 mm thick cement hardener consisting of mix 1:2 (1 cement hardener mix : 2 graded stone aggregate 6 mm nominal size) by volume etc complete as per drawings & Technical Specifications	m ²	349		
Total : Items on this page (Carried Forward)					

BILL OF QUANTITIES

REHABILITATION AND UPGRADING WORK AT IRINGA AIRPORT

ENERGY CENTRE / DG ROOM

Sl.No.	Item Description	Unit	Quantity	Rate	Amount
	Brought Forward				
7.02	Providing and laying ceramic glazed floor tiles 300 x 300 mm (thickness to be specified by the manufacturer) of 1st quality etc complete as per drawings & Technical Specifications				
a)	Anti Skid Tile Flooring	m ²	7		
7.03	Providing and laying Vitrified tiles in different sizes (thickness to be specified by manufacturer), over 12 mm thick bed of cement mortar 1:3 (1 cement: 3 coarse sand) etc complete as per drawings & Technical Specifications				
a)	Size of Tile 600x600 mm	m ²	21		
7.05	Providing and fixing 1st quality ceramic glazed wall tiles (thickness to be specified by the manufacturer) of approved make over 12 mm thick bed of cement Mortar 1:3 (1 cement : 3 coarse sand) etc complete as per drawings & Technical Specifications	m ²	12		
7.07	Providing and fixing 32 mm thick Jet black mirror polished bull nosed , premoulded and prepolished, machine cut for kitchen platforms, vanity counters, window sills , facias and similar locations of required size, approved shade, colour and texture laid over 20 mm thick base cement mortar 1:4 (1 cement : 4 coarse sand), joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edges to give high gloss finish etc. complete at all levels etc complete as per drawings & Technical Specifications	m ²	3		
	<u>Section-VIII : DOORS / WINDOWS/ PARTITION WALLS</u>				
8.03	Providing and fixing flush hollow metal type doors , with or without view panels etc including transomes,presed cills to suit ,including all necessary ironmongery, accessories, hardware , gaskets, anchors and protective coatings etc complete unit as per drawings & Technical Specifications.				
(a)	Single Leaf Doors, Size 750 x 2100	No.	2		
(d)	Single Leaf Doors, Size 1000 x 2100	No.	6		
(f)	Single Leaf Doors, Size 1200 x 2100	No.	3		
(h)	Single Leaf Doors, Size 2000 x 2100	No.	1		
8.05	Providing and fixing doors,Windows, Ventilators, view panels etc in proprietary powder coated aluminium / MS tubular frames ,subframe, ,Glass panels/ glazed shutters including transomes,presed aluminium cills to suit ,including all necessary ironmongery, accessories, hardware , gaskets, anchors and protective coatings etc complete unit as per drawings & Technical Specifications.				
(d)	Windows, Size 1200 x 1800	No.	13		
(e)	Windows, Size 1200 x 1650	No.	1		
(f)	Windows, Size 1500 x 1800	No.	3		
(i)	Ventilators, Size 600 x 600	No.	1		
Total : Items on this page (Carried Forward)					

BILL OF QUANTITIES

REHABILITATION AND UPGRADING WORK AT IRINGA AIRPORT

ENERGY CENTRE / DG ROOM

SI.No.	Item Description	Unit	Quantity	Rate	Amount
	Brought Forward				
	<u>Section-IX: STEEL WORKS / SHUTTERS :</u>				
9.01	Providing and fixing stainless steel (Grade 304) railing made of Hollow tubes, channels, plates etc., including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners , stainless steel bolts etc., of required size, on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer-in-charge,(for payment purpose only weight of stainless steel members shall be considered excluding fixing accessories such as nuts, bolts, fasteners etc.) etc complete as per drawings & Technical Specifications	Kgs	274		
9.02	Supplying and fixing rolling shutters of approved make, made of required size M.S. laths, interlocked together through their entire length and jointed together at the end by end locks, mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation complete, including the cost of providing and fixing necessary 27.5 cm long wire springs manufactured from high tensile steel wire of adequate strength and M.S. top cover of required thickness for rolling shutters etc complete as per drawings & Technical Specifications				
(a)	80x1.25 mm M.S. laths with 1.25 mm thick top cover	m ²	15		
	<u>Section-X : ROOFING & CEILING:</u>				
10.01	Making Depressed portion 45x45 cm with average minimum thickness of 5 cm cement concrete 1:2:4 (1 cement : 2 sand : 4 graded stone aggregate of 20 mm nominal size) over P.V.C. Sheet 1mx1mx400micron, finished with 12mm cement plaster 1:3 (1 cement: 3 sand) and a coat of neat cement rounding the edge sand: making and finishing the outlet etc complete as per drawings & Technical Specifications	No.	10		
10.02	Providing and fixing false ceiling at all height including providing and fixing of frame work made of special sectionsetc complete as per drawings & Technical Specifications				
i)	12.5 mm thick tapered edge gypsum moisture resistant board	m ²	21		
	<u>Section-XI : MISCELLANEOUS</u>				
	SIGNAGE				
11.02	Allow the Provisional Sum for the supplying and fixing for provision of all illuminated Wall mounted/Hanging signages with or without directions, notices, Fixings and the like to TAA requirements to be installed within the Building including all leads and lifts etc. complete as per drawing . specification and direction of Engineer—in-charge.	Lump Sum			
TOTAL FOR ENERGY CENTRE ROOM CIVIL WORKS (Carried Forward to Summary of Energy Centre Room)					

BILL OF QUANTITIES
REHABILITATION AND UPGRADING WORK AT IRINGA AIRPORT
ENERGY CENTRE / DG ROOM

Sl.No.	Item Description	Unit	Quantity	Rate	Amount
B	PLUMBING & SANITARY WORKS				
(i)	WATER SUPPLY WORKS (INTERNAL)				
1	<p>Providing and fixing 3 layer PP-R (Poly propylene Random copolymer) pipes SDR 7.4, U V stabilized & anti - microbial fusion welded, having thermal stability for hot & cold water supply, including all PP - R plain & brass threaded polypropylene random fittings, i/c fixing the pipe with clamps at 1.00 m spacing. This includes testing of joints complete as per direction of Engineer in Charge.</p> <p>Internal work - Exposed on wall</p> <p>a) PN - 16 Pipe, 16 mm OD</p> <p>b) PN - 16 Pipe, 20 mm OD</p>	m	8		
2	<p>Providing and fixing 3 layer PP-R (Poly propylene Random copolymer) pipes SDR 7.4, U V stabilized & anti - microbial fusion welded, having thermal stability for hot & cold water supply, including all PP - R plain & brass threaded polypropylene random fittings, i/c fixing the pipe with clamps at 1.00 m spacing. This includes the cost of cutting chases and making good the same including testing of joints complete as per direction of engineer in Charge.</p> <p>Concealed work, including cutting chases and making good the walls etc.</p> <p>a) PN - 16 Pipe, 16 mm OD</p> <p>b) PN - 16 Pipe, 20 mm OD</p>	m	8		
3	<p>Providing and fixing C.P. brass bib cock of approved quality</p> <p>a) 15 mm nominal bore</p>	No.	3		
4	<p>Providing and fixing brass stop cock of approved quality :</p> <p>a) 15 mm nominal bore</p>	No.	3		
5	<p>Sanitary Installation and Drainage</p> <p>Providing and fixing uPVC pipes for Soil waste and rain water and including all fittings e.g. bends junctions, cows, offsets, Pvc clips, etc jointing with solvent cement including cutting holes in walls, floors excavation, refilling and disposal of surplus earth wherever required and making good the walls.</p> <p>a) 40 mm dia</p> <p>b) 50 mm dia</p> <p>c) 63 mm dia</p> <p>d) 110 mm dia</p> <p>e) 160 mm dia</p>	m	11		
6	<p>Making depressed floors 45x45 cm with average minimum thickness of 5 cm cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate of 20 mm nominal size) over PVC. sheet 1 m x1 m x 400 micron, finished with 12 mm cement plaster 1:3 (1 cement : 3 coarse sand) and a coat of neat cement, rounding the edges and making and finishing the outlet complete.</p>	No.	6		
Total : Items on this page (Carried Forward)					

BILL OF QUANTITIES
REHABILITATION AND UPGRADING WORK AT IRINGA AIRPORT

ENERGY CENTRE / DG ROOM

Sl.No.	Item Description	Unit	Quantity	Rate	Amount
	Brought Forward				
7	Providing and fixing trap of self cleansing design with screwed down or hinged grating with or without vent arm complete, including cost of cutting and making good the walls and floors :				
a)	100 mm inlet and 100 mm outlet	No.	3		
8	Providing and fixing in position 125 mm dia 3 mm thick stainless steel grating with frame for uPVC floor traps or drain of required pattern including cutting and making good the floor complete				
a)	125 mm dia over floor trap / drain	No.	3		
9	Providing and fixing in position 125 x 125 mm square stainless steel cockroach trap consisting of 0.45 mm thick inner and outer cups and 1.00 mm thick trap grating with ring to be fixed inside uPVC P traps with cement concrete (Kitchen and Pantry).	No.	1		
10	Providing and fixing stone slab table rubbed, edges rounded and polished of size 75 x 50 cm deep and 1.8 cm thick fixed in urinal partitions by cutting a chase of appropriate width with chase cutter and embedding the stone in the chase with epoxy grout or with epoxy grout or with cement concrete 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate 6 mm nominal size) as per direction of Engineer and finished smooth:				
a)	Granite stone of approved shade.	m ²	2		
11	Providing and fixing wash basin with C.I. brackets, 15 mm C.P. brass pillar taps, 32 mm C.P. brass waste of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever required :				
a)	White vitreous China flat back wash basin size 550 x 400 mm with single 15 mm C.P. brass pillar tap.	No.	1		
12	Providing and fixing PTMT Bottle Trap for Wash basin, sink & Urinals.				
	Bottle trap 31 mm single piece moulded with height of 270 mm, effective length of tail pipe 260 mm from the centre of the waste coupling 77 mm breadth with 25 mm minimum water seal, weighing not less than 260 gms.	No.	1		
13	Providing and fixing mirror of superior glass (of approved quality) and of required shape and size with plastic moulded frame of approved make and shade with 6 mm thick hard board backing :				
a)	Rectangular shape 1500 x 450 mm	m ²	1		
14	Providing and fixing toilet paper holder				
a)	C.P. brass	No.	1		
Total : Items on this page (Carried Forward)					

BILL OF QUANTITIES
REHABILITATION AND UPGRADING WORK AT IRINGA AIRPORT
ENERGY CENTRE / DG ROOM

Sl.No.	Item Description	Unit	Quantity	Rate	Amount
	Brought Forward				
15	Providing and fixing PTMT liquid soap container 109 mm wide, 125 mm high and 112 mm distance from wall of standard shape with bracket of the same materials with snap fittings of approved quality and colour, weighing not less than 105 gms.	No.	1		
16	Providing and fixing white / off-white color European type water closet with concealed 'P' or 'S' trap, automatic flushing cistern & fittings Standard size C.P. bolts, nuts, C.I. chair or other hanging / fixing arrangements with multiconnector to mains, solid plastic seat with lid, C.P. brass hinges and rubber buffers:				
a)	Wall mounted sanitary porcelain W.C and activating plate	No.	1		
17	Providing and fixing C.P. brass ablution health faucet assembly with 1.2 m long braided PVC hose with mounting bracket fixed on wall complete.	No.	1		
18	Providing and fixing white color urinal with manually flushing cistern & fittings Standard size C.P. brass flush pipe, spreaders with unions & clamps(all in C.P.brass) with waste fitting, outlet grating and other couplings in C.P. brass including painting and fitting etc.				
a)	White sanitary porcelain Urinal	No.	1		
19	Providing and fixing 15 mm dia C.P. swan neck sink Mixer	No.	1		
20	Providing and fixing junction trap approved quality and with all fittings complete.	No.	2		
21	Providing and fixing hand dryer with approved quality and with all fittings complete.	No.	1		
22	Providing and fixing C.P. brass long body bib cock of approved quality conforming to IS standards and weighing not less than 690 gms. 15 mm nominal bore	No.	1		
23	Providing and fixing SS Coat Hanger	No.	2		
TOTAL FOR ENERGY CENTR ROOM - PLUMBING & SANITARY WORKS (Carried Forward to Summary of Energy Centre Room)					

BILL OF QUANTITIES
REHABILITATION AND UPGRADING WORK AT IRINGA AIRPORT
ENERGY CENTRE / DG ROOM

SI.No.	Item Description	Unit	Quantity	Rate	Amount
C	ELECTRICAL WORKS				
E 01	SWITCHGEAR, DG SET & LV MAIN SWITCHBOARDS				
1	LV MAIN SWITCHBOARDS, SUB-MAIN SWITCHBOARDS AND LOCAL ELECTRICAL PANELS, SWITCH GEAR, DG SETS				
1.01	Supply, installation, testing and commissioning of front operated, front access Non Essential Switch Board / Panel in Buildings complete with following items i.e. Incomer, Metering, Bus Bars, Outgoing etc. as per drawingS conforming to Standards specified in Relevant specifications and as required:				
(c)	Copper Armoured cable at Energy Centre Building as per Drawing AR-4304 Incomer 1600 Amps, 4 Pole, 50 KA ACB. - 1 No. LED indication lamp for ON, OFF, TRIP LED phase indication lamp for R-Y-B. Metering 1 No Digital Integrated Protection Meter with RS 485 Port and 2 DO. 3 Nos PTs with fuses. 3 Nos. CTs 1600 / 800 / 5 / 5 A, 10 VA. Bus Bars 2000 Amps with symmetrical fault level of 50 KA. Outgoing a) 400A, 50 KA, 4P MCCB having Electronic Trip Unit with protection against Overload and Short Circuit - 2 Nos. b) 200 / 200A, 50 KA, 4P MCCB having Electronic Trip Unit with protection against Overload and Short Circuit - 2 Nos. c) 250 A, 50 KA, 4P MCCB having Electronic Trip Unit with protection against Overload and Short Circuit - 1 No. d) 100A, 50 KA, 4P MCCB having Electronic Trip Unit with protection against Overload and Short Circuit - 1 No. e) 100 / 60 A, 50 KA, 4P MCCB having Electronic Trip Unit with protection against Overload and Short Circuit - 2 No. f) 100 / 60 A, 35 KA, 4P MCCB having Electronic Trip Unit with protection against Overload and Short Circuit - 1 No. g) 600 A, 50 KA, 4P ACB having Electronic Trip Unit with protection against Overload and Short Circuit complete with LED indication lamps for RYB phases, ON, OFF, TRIP and DIPM with RS, 485 Port and 2 DO, CT's, PT's etc. as per drawing. - 1 No. h) 300 / 300 A, 50 KA, 4P ACB having Electronic Trip Unit with protection against Overload and Short Circuit complete with LED indication lamps for RYB phases, ON, OFF, TRIP and DIPM with RS 485 Port and 2 DO, CT's, PT's etc. as per drawing. - 1 No.	No.	1		
Total : Items on this page (Carried Forward)					

BILL OF QUANTITIES
REHABILITATION AND UPGRADING WORK AT IRINGA AIRPORT
ENERGY CENTRE / DG ROOM

Sl.No.	Item Description	Unit	Quantity	Rate	Amount
	Brought Forward				
1.02	Supply, installation, testing and commissioning of front operated, front access Essential Switch Board / Panel in Buildings complete with following items i.e. Incomer, Metering, Bus Bars, Outgoing etc. as per drawings conforming to Standards specified in Relevent specifications and as required:				
(c)	<p>Copper Armoured cable at Ground Floor of Energy Centre Building as per Drawing AR-4304</p> <p>Incomer 600 Amps, 4 Pole, 50 KA ACB. - 1 No. LED indication lamp for ON, OFF, TRIP LED phase indication lamp for R-Y-B.</p> <p>Metering 1 No Digital Integrated Protection Meter with RS 485 Port and 2 DO. 3 Nos PTs with fuses. 3 Nos. CTs 600 / 300 / 5 / 5 A, 10 VA.</p> <p>Bus Bars 800 Amps with symmetrical fault level of 50 KA.</p> <p>Outgoing</p> <p>a) 200A, 50 KA, 4P MCCB having Electronic Trip Unit with protection against Overload and Short Circuit - 1 No.</p> <p>b) 200 / 160A, 50 KA, 4P MCCB having Electronic Trip Unit with protection against Overload and Short Circuit - 2 Nos.</p> <p>c) 200 / 140A, 50 KA, 4P MCCB having Electronic Trip Unit with protection against Overload and Short Circuit - 1 No.</p> <p>d) 100A, 50 KA, 4P MCCB having Electronic Trip Unit with protection against Overload and Short Circuit - 2 Nos.</p> <p>e) 100 / 100 A, 35 KA, 4P MCCB having Electronic Trip Unit with protection against Overload and Short Circuit. - 1 No.</p> <p>f) 100 / 60A, 35 KA, 4P MCCB having Electronic Trip Unit with protection against Overload and Short Circuit. - 1 No.</p> <p>f) 100 / 60A, 25 KA, 2P MCCB having Electronic Trip Unit with protection against Overload and Short Circuit. - 1 No.</p> <p>g) 100 / 30A, 35 KA, 4P MCCB having Electronic Trip Unit with protection against Overload and Short Circuit. - 1 No.</p>	No.	1		
1.06	<p>HT Panels</p> <p>Supply, Installation, Testing & Commissioning of 11 kV, SF-6 switch board panel complete with all accessories, interconnection, earthing etc. and DIPM with RS 485 Port and 2 DO, as per drawings and as specified comprising of VCBs of following ampere rating and CT ratio:</p> <p>a) Incoming : 630 Amps SF-6 with CT ratio 100/50/5/5 Amps with metering and protection. - 1 no.</p> <p>b) Outgoing : 630 Amps VCB with CT ratio 100/50/5/5 Amps with metering and protection. - 1 nos.</p>	No.	1		
Total : Items on this page (Carried Forward)					

BILL OF QUANTITIES
REHABILITATION AND UPGRADING WORK AT IRINGA AIRPORT
ENERGY CENTRE / DG ROOM

Sl.No.	Item Description	Unit	Quantity	Rate	Amount
	Brought Forward				
	Transformer				
1.07	Supply, Installation, Testing & Commissioning of 800 KVA, 11KV/415V Power Transformer c/w other standard accessories etc. all as required and as specified.	No.	1		
	DG Set				
1.08	Supply, installation, testing and commissioning of Diesel Engine operated Electric Generating Set of 400 KVA capacity complete with ATS and / AMF Panel, MS class-C exhaust pipe with accessories and insulation, Battery Charger, concrete foundation etc. all conforming to IEC / BS standard, as per specifications and as required.	No.	1		
1.09	Supply, installation, testing and commissioning of front operated, front access Power Factor Correction Panel of 250KVAR (PFC switchboard / panel) complete with following items i.e. Incomer, Metering, Bus Bars, Outgoing etc. as per drawing AR-4304 conforming to Standards specified in relevant specifications and as required.	No.	1		
	INCOMER 400 Amps, 4 Pole, 50 KA MCCB. - 1 No. LED indication lamp for ON, OFF, TRIP LED phase indication lamp for R-Y-B. 8 Step APFCR relay.				
	Metering 1 No Digital Integrated Meter with RS 485 Port and 2 DO. 3 Nos PTs with fuses. 3 Nos. CTs 400 / 5 A, 10 VA.				
	BUS-BARS 600 Amps with symmetrical fault level of 50 KA.				
	OUTGOINGS a) 6 Nos. feeders as per the following- i) 4 Nos.100A ,35 KA, 4P MCCB having Electronic Trip Unit with protection against Overload and Short Circuit. ii) 2 Nos. 63A, 35 KA, 4P MCCB having Electronic Trip Unit with protection against Overload and Short Circuit. b) 4 No. 100A, 3ph, 415 volts capacitor duty contactors with 3 main contacts and 2 NO+2NC ancillary contacts. c) 2 No. 50A, 3ph, 415 volts capacitor duty contactors with 3 main contacts and 2 NO+2NC ancillary contacts. d) Each outgoing feeder switch gear comprising 2 Nos Push Button for ON & OFF. e) 4 No. 50 KVAR, 3 - phase, 415V, hermetically sealed metalized polypropylene capacitor (heavy-duty) with 7% harmonic D-tuned filters. f) 2 No. 25 KVAR, 3 - phase, 415V, hermetically sealed metalized polypropylene capacitor (heavy-duty) with 7% harmonic D-tuned filters.				
1.10	Allow provisional sum to cover service connection charges from TANESCO for the Airport.	Provisional Sum			
Total : Items on this page (Carried Forward)					

BILL OF QUANTITIES
REHABILITATION AND UPGRADING WORK AT IRINGA AIRPORT
ENERGY CENTRE / DG ROOM

SI.No.	Item Description	Unit	Quantity	Rate	Amount
	Brought Forward				
2	CABLES, CABLE TRAYS, STEELWORK & BUS DUCT				
2.01	Supply and laying in duct / ground / pipe etc at the site of work, 1.1 KV grade, Copper Conductor, XLPE Insulated, FRLS (Fire Retardant Low Smoke), armoured cables conforming to BS 6724, BS 7655 and Technical Specifications of the following sizes complete with cable end terminations with double compression gland as specified and as required:				
a)	4 x 16 Sq.mm	m	625		
b)	4 x 10 Sq.mm	m	310		
d)	4 x 25 Sq.mm	m	310		
j)	1 x 400 Sq.mm	m	550		
k)	4 x 240 Sq.mm	m	15		
l)	4 x 185 Sq.mm	m	100		
m)	4 x 120 Sq.mm	m	650		
n)	4 x 95 Sq.mm	m	250		
o)	4 x 70 Sq.mm	m	20		
p)	4 x 50 Sq.mm	m	80		
q)	3 x 10 Sq.mm	m	20		
r)	4 x 6 Sq.mm	m	150		
2.02	Supply and laying in cable duct at the site of work 11 KV grade, Copper Conductor, XLPE Insulated, armoured cables conforming to BS Standards and Technical Specifications of 3x70 sq. mm. sizes complete with out door cable end terminations with heat shrinkable jointing kit with all accessories, marking tape, cover bend, route markers etc. as specified and as required.	m	55		
2.03	Supply and installation of Prefabricated perforated GI (Galvanized Iron) cable trays made of GI sheets continuously connected including bends, reducers etc. as required complete at site of work.				
b)	300 mm wide x 50 mm deep x 1.6mm thick	m	25		
2.04	Supply and installation of GI steel work for suspension / supporting cable trays complete with fasteners and masonry works as required.	kg	10		
2.05	Supply and laying of following dia DWC HDPE (Double Wall Corrugated High-density polyethylene) pipe in position of for crossing of cables under the track between Energy Centre and Terminal Building ground floor switch room, complete with manholes including sealing of ends with water proof sealant.				
ii)	100 mm dia	m	600		
3	WIRING & ACCESSORIES				
3.01	Supply, Installation, Testing and Commissioning of conduiting & wiring for following Light Point with 1.5 sq. mm single core, copper FRLS (Fire retardant low smoke) wires along with 1.5 sq. mm copper earth wire including supply & fixing suitable size MS electro galvanised with modular type cover plate, 13 A switch, connections, earthing etc. as required.				
a)	From DB (5/10A SP MCB) direct to or to switchboard & switch to first point (light / exhaust fan etc.)	No.	17		
c)	From first point to subsequent light / Exhaust Fan etc.	No.	42		
Total : Items on this page (Carried Forward)					

BILL OF QUANTITIES
REHABILITATION AND UPGRADING WORK AT IRINGA AIRPORT
ENERGY CENTRE / DG ROOM

SI.No.	Item Description	Unit	Quantity	Rate	Amount
	Brought Forward				
3.02	Supply, Installation, Testing and Commissioning of conducting & wiring of following Power Point with 2.5 sq. mm single core, copper FRLS (Fire retardant low smoke) wires along with 2.5 sq. mm earth copper wire including supply & fixing suitable size MS electro galvanised with modular type cover plate, 13 A shrouded socket outlet (shuttered) with 13 A switch including connections, earthing, testing & commissioning etc. Complete, as required.				
a)	From DB (20 / 30A SP MCB) to first power point.	No.	4		
b)	From first power point to subsequent power point.	No.	5		
3.03	Supply, Installation, Testing and Commissioning of conducting & wiring for the power point from DB with 4 sq. mm single core, copper FRLS (Fire retardant low smoke) wires along with 4 sq. mm earth copper wire including, including supply & fixing of 20 A, 3 pin shuttered type socket outlet, indication lamp, MCB in GI Box with cover etc. as required.	No.	3		
3.04	Supplying & fixing of rectangular uPVC Cable trunking of following sizes including pull boxes as required at site complete with cover having locking arrangement, earthing strips including at joints etc. as required.				
b)	100 mm (Depth) x 100 mm (Width) x 1.6 mm (Thick)	m	25		
c)	50 mm (Depth) x 50 mm (Width) x 1.6 mm (Thick)	m	20		
3.06	Supply and installation of following sizes of GI conduit in surface / recess with junction boxes, pull box, saddles including cutting, chasing and refilling etc. complete as required.				
a)	25mm dia conduit	m	10		
b)	32mm dia conduit	m	25		
3.08	LIGHTING & POWER DISTRIBUTION BOARDS				
f)	Supply, installation, testing & commissioning of 14 way SPN (Single Pole and Neutral) Light & Power DB's equipped with the following - Incomer - 1 No. 63 A, 2 Pole MCB and RCCB (30 mA Sensitivity) Outgoing - 14 Nos. of 5/20/30A SP MCB	No.	1		
4	INDOOR LIGHTING				
4.01	Supply, installation, testing and commissioning of following LED light fixtures or Equivalent as per approved list and as per drawing and as required.				
a)	HAVELLS SYLVANIA 0047460 Panel LED 2600 NW, 34W.	No.	12		
d)	HAVELLS SYLVANIA 0045124 BATTEN LED 24W 1200 840 IP67 - UK (1.000)	No.	17		
g)	HAVELLS SYLVANIA 0047883 Syl-proof 44W, 2x36 4000K	No.	24		
4.02	Supply, installation, testing and commissioning of 230 mm sweep, 700 CFM and 1400 RPM exhaust fan (Similar to Havells make Ventilator DS or equivalent) in the existing opening with mounting brackets including making holes of suitable size etc. complete as required.	No.	6		
Total : Items on this page (Carried Forward)					

BILL OF QUANTITIES
REHABILITATION AND UPGRADING WORK AT IRINGA AIRPORT
ENERGY CENTRE / DG ROOM

Sl.No.	Item Description	Unit	Quantity	Rate	Amount
	Brought Forward				
5	PROTECTIVE, CLEAN EARTH SYSTEM				
5.01	Supply and laying of Copper strip in pipes / surface / wall / trays etc. with spacers and saddles etc. as specified and as required.				
(b)	32mm x 6mm Strip	m	100		
(c)	40mm x 6mm Strip	m	40		
5.02	Supply and laying of unarmoured, stranded copper conductor, FRLS, green coloured cable on wall / cable tray as per BS 7211 and for earthing complete with copper lugs at both ends.				
(a)	1 x 16 sq. mm	m	25		
5.03	Supply and installation of earthing station with copper plate earth electrode as specified and as required.	m	12		
5.04	Supply and laying of 50 mm dia DWG HDPE (Double Wall Corrugated High-density polyethylene) pipe in position for crossing of cables under the track from switch room to earth station, including sealing of ends with water proof sealant.	m	140		
7	LIGHTNING PROTECTION SYSTEM				
7.01	Supply, Installation, Testing & Commissioning of TerceI Model Tz20, Protection Radius 37 meters in Level 1 and upto 58 meters in Level III, Gain in Triggering Time 20µ Early Streamer Emission (ESE) Lightning Conductor with collect ambient energy through a lower series of electrodes. Timing of the streamer emission controlled with an electronic device that detects the lightning and triggers a streamer. Test meter must be available as per drawing.	No.	1		
(b)					
7.02	Supply & Installation of 5 meter elevation Pole of 50mm dia complete with reducer at the top to fix the unit along with Base plate, guying kit, clamps and other hardware and fittings as required.	No.	1		
7.03	Supply and laying of 70 sq. mm copper flexible wire for down conductor including all accessories from air terminal to the earth pit.	m	50		
7.04	Supply & Installation of transient event counter as required.	No.	1		
7.05	Supply and installation of Maintenance free earth pit using 3 nos. of 5/8" dia. Copper-bonded (250 microns) Earthing Electrode of 3 mts. long and shall be interconnected with copper bonded flanges (03 Nos.),bi-metallic u- clamp (01 No.) for taking the earth connection, Earth enhancing compound 50 Kgs and inspection chamber including excavation and refilling etc as required.	No.	2		
7.06	Supply and installation of Test Clamp to connect the down conductor to the earth termination and disconnect the down conductor from the earth termination.	No.	2		
7.07	Supply and installation of Desk top Computer - 6th Generation Intel core i7 with graphic 530 (3.4 Ghz upto 4 Ghz,8 MB cache, 4 cores), 4 GB DDR3 RAM, 1TB HDD, 2 GB DDR3 Graphic Card, Super multi DVD Burner, 4 USB PORT with 21" LED Monitor, 101 Keyboard and Mouse.	No.	1		
Total : Items on this page (Carried Forward)					

BILL OF QUANTITIES
REHABILITATION AND UPGRADING WORK AT IRINGA AIRPORT
ENERGY CENTRE / DG ROOM

Sl.No.	Item Description	Unit	Quantity	Rate	Amount
	Brought Forward				
7.08	Supply, installation and commissioning Load Management Software including Training.	No.	1		
7.09	Supply and installation of 1000 VA On line UPS with half an hour backup.	No.	1		
7.10	Supply and installation EInet Pro 25 for communicating with Digital Meters.	No.	1		
7.11	Supply and installation Ethernet Gateway	No.	5		
7.12	Supply and installation Lan Switch having 8 Port	No.	1		
7.13	Supply and laying CAT6 Cable in cable tray / pipe duct / conduit etc. as required.	m	650		
TOTAL FOR ENERGY CENTRE ROOM - ELECTRICAL WORKS (Carried Forward to Summary of Energy Centre Room)					

Appendix 3: Revised page 25

BILL OF QUANTITIES

REHABILITATION AND UPGRADING WORK AT IRINGA AIRPORT
NAVIGATIONAL AIDS

Item No	Description	Unit	Quantity	Rate (Tshs)	Amount (Tshs)
	Brought Forward				
6.3	Signalling Lamp	No.	2		
7	Sub-Head 7 : Optic Fibre Cable (OFC)				
7.1	Supply of optic fibre cable of required length for indications for MOS at remote site. Approx. length will be 1 km. Required interfaces & terminations, including commissioning of OFC.	No.	1		
7.2	Supply installation and commissioning of DVOR,DME,Localiser,and other accessories as approved by TCCA	PS			2,000,000,000
7.3	Allow for the Contractor's Overheads and Profits as a percentage of sub item 7.2.		%		
TOTAL : NAVIGATIONAL AIDS (Carried Forward to Table 3 : Grand Summary)					

Appendix 4: revised Summary of Specified Provisional Sums

BILL OF QUANTITIES

REHABILITATION AND UPGRADING WORK AT IRINGA AIRPORT

TABLE 2 : SUMMARY OF SPECIFIED PROVISIONAL SUMS

Item No	Description	Amount (TShs)
(I) 1	Preliminaries and General Relocation of Services:	
(a)	Arrange and pay for removal and / or alteration to services provided by agencies for Electricity Supply, Water Supply or Telecommunication Services	2,000,000
16	Environmental Protection And Waste Disposal	
(a)	Environmental & Social Mitigation & Monitoring Works to be carried out in accordance with approved ESIA report	123,800,000
(II) (i)	Civil Works Airside Civil Works	
	BILL -5 : TOLERANCES, TESTING AND QUALITY CONTROL Testing Of Materials And Workmanship	
5.01	Special tests requested by the Engineer (state material and test method):	11,000,000
7.2	Supply installation and commissioning of DVOR,DME,Localiser,and other accessories as approved by TCCA	2,000,000,000
	TOTAL OF SPECIFIED PROVISIONAL SUMS (Carried Forward to Table 3 : Grand Summary)	2,136,800,000

Appendix 5: Revised Grand Summary of Bill of Quantities (BoQ)

**TABLE 3 : GRAND SUMMARY OF BILL OF QUANTITIES
REHABILITATION AND UPGRADING WORK AT IRINGA AIRPORT**

Item	Description	Amount (Tshs)
1	Preliminaries and General	
2	Civil Works	
(i)	Airside Civil Works	
(ii)	Perimeter Fencing Works	
3	Aeronautical Ground Lighting System (AGL)	
4	Navigational Aids	
5	Dayworks (Provisional)	
6	Total of Energy centre room works	
A	TOTAL OF BILLS	
B	Less: Specified Provisional Sums included in Total Bills (From Table 2)	2,136,800,000
C	SUB TOTAL {(A) - (B)}	
D	ADD: Provisional Sum for Physical Contingency (7.5% of C)	
E	SUB TOTAL {(C) + (D)}	
F	ADD: Provisional Sum for Variation of Price {(VOP) [7.5% of (C)]}	
G	SUB TOTAL {(E) + (F)}	
H	ADD: Provisional Sum for Value Added Tax {(VAT) [18% of (G)]}	
I	Tender Price [(A)+(D)+(F)+(H)]	
J	DISCOUNT (if any)	
K	Net Tender Price [(I)+(J)] (Carried to Form of Tender)	