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19/09/05  
(UNITED SUPERVISOR)

*Alcany (DG, SON)*  
19/09/05

**FINAL REPORT FOR REHABILITATION OF FOOD AND  
CHEMICAL LABORATORY FACILITY AT STANDARDS  
ORGANISATION OF NIGERIA LEKKI LAGOS.**

Submitted by  
**HELICON NIGERIA LIMITED**  
Suite 17B-19B East Pavilion  
Tafawa Balewa Square Complex  
Lagos.

September 2005

Table of Contents	...	...	...	...	...	...	...	...	...	1
Executive Summary	...	...	...	...	...	...	...	...	...	2
Introduction	...	...	...	...	...	...	...	...	...	3
Body of the Report...	...	...	...	...	...	...	...	...	...	4
Conclusion	...	...	...	...	...	...	...	...	...	7
Annexes	---	---	---	---	---	---	---	---	---	8

## **EXECUTIVE SUMMARY**

The project which formally commenced on March 14 2005 after the foundation laying ceremony had an initial contract period of 12 (Twelve) weeks. However, the delivery time of 12 weeks could not be achieved as a result of delays in the signing of contract agreement, bank guarantee and the receipt of advance payment. We were forced to demobilize from site twice during which a total of 30 (thirty) working days were lost.

We also experienced some delays during the supply and installation of the laboratory furniture in order to get correct specifications and requirements of Standards Organization of Nigeria (SON). Nevertheless, all works - Substructure, Concrete works, Blockwork, Roofing, Doors and Windows, Electrical installations, Mechanical installations, Floor, Wall and Ceiling finishes, Painting and Decorating and Laboratory furniture have been fully completed in accordance with the specifications in the working drawings.

A joint inspection of the facility by the contractor (Helicon), UNIDO consultant/supervisor, Engr Kabiru Muazu, UNIDO representative, Mr Ajani and SON representatives was carried out on Monday August 29, 2005.

The facility was formally handed over on Thursday, September 8, 2005.

## INTRODUCTION

This final report covers essentially workdone on electrical installations, mechanical installations, floor, wall and ceiling finishes, painting and decorating, laboratory furniture and final inspection.

Also included is a comprehensive financial statement reflecting a summary of all the work items in the Bill of Quantities.

## **BODY OF THE REPORT**

Upon the completion of the roof structure as indicated in our second progress report, work progress was accelerated on the following items of work for the successful completion of the project.

- **ELECTRICAL INSTALLATION**

All electrical installation works consisting of piping, wiring points, wiring accessories, fire alarm system, armoured cabling, distribution board and the telephone system had been fully completed.

Armoured cables of 35mm and 50mm approved by the supervisor were used as against the 25mm provided for in the Bill of Quantities as the 35mm cable could not carry electrical load in the laboratory. Also the airconditioner (AC) socket was isolated from the lighting socket to enable the 50KVA voltage stabilizer installed to carry the remaining load.

- **MECHANICAL INSTALLATION**

Mechanical works has been carried out in accordance with the specifications in the mechanical engineering drawing. Workdone on mechanical services are air conditioning trunking, plumbing installations, cold water supply pipes and fittings, overhead water tanks, gas supply, fume cupboard chimney, fire fighting equipment, roof space extractor fan and the installation of air conditioning splits units with temperature and humidity controls.

- **FLOOR WALL AND CEILING FINISHES**

Works on floor, wall and ceiling finishes has been fully completed. This includes general washing, polishing and making good of existing terrazzo, internal and external rendering of block and concrete walls. 600 x 600 x 15mm thick suspended ceiling tiles in exposed grids with approved suspension wire were fixed internally while aluminium ceiling was fixed externally to guard against harsh weather and water effect.

We note that this (aluminium ceiling) falls outside the provision made for ceiling finishes in the Bill of Quantities.

- **PAINTING AND DECORATING**

Three coats of approved gloss paint were applied on rendered walls internally while two coats of approved texcote paint were applied on the external walls.

All metal works general surfaces were given one finishing coat of gloss oil paint.

- **LABORATORY FURNITURE**

Laboratory furniture had been delivered and installed as specified.

## **COST OF WORK INCURRED OUTSIDE BILL OF QUANTITIES**

The following works and the associated cost as approved by the supervisor were carried out during the construction period

(a)	Steel work for roof cladding	N90,000
(b)	Aluminium cladding to a height of 800mm to cover steel as timber fascia cannot be used because of the height and water effect	N56,250
(c)	External perimeter aluminium ceiling installed due to harsh Weather	N117,500
(d)	Procurement of 35mm and 50mm armoured cable to isolate AC and lighting socket	N325,000

Total Cost amounts to N588,750.00 (Five Hundred and Eighty Eight Thousand, Seven Hundred and Fifty Naira).

## **COST SAVINGS**

It is significant to note that some cost savings were, however, made in the roof structure as follows:

- (a) Roof Beam - Roof beams were not constructed as we have bottom steel beam in the roof structure. This comes to N240,000 (Two Hundred and Forty Thousand Naira).
- (b) Fabrication and Erection of Steel Roof Trusses - 25% of the existing roof steel members certified good by the supervisor were retained which results to a cost savings of N360,450.00 (Three Hundred and Sixty Thousand, Four Hundred and Fifty Naira)

The resultant effect of the additional cost incurred on the project and cost savings made on the above work items is a net project cost savings of N11,700. The details of the financial statement are shown in the accompanying table 'Y'.



TABLE 'Y'

ITEM	% OF COMPLETION	AMOUNT DUE (N)
SUBSTRUCTURE	100	346,540.00
CONCRETE WORK AND BLOCK WORK (less roof beam Concrete)	100	3,600,420.00
ROOFING - Less 25% saving in roof trusses	100	2,835,100.00
DOORS AND WINDOWS	100	2,155,100.00
ELECTRICAL INSTALLATIONS	100	3,224,900.00
MECHANICAL INSTALLATIONS	100	4,523,000.00
FLOOR WALL AND CEILING FINISHES Including steel works for roof cladding, aluminium cladding and external aluminium ceiling.	100	2,510,155.00
PAINTING AND DECORATING	100	1,113,360.00
LABORATORY FURNITURE	100	3,000,000.00
TOTAL		23,308,575.00
Less 5% for WHT		1,195,472.55
		22,113,102.45
Add additional procurement for 35mm and 50mm cables for electrical installation		588,750.00
		22,701,852.45
Less Previous Payments		15,899,502.00
<b>AMOUNT NOW DUE</b>		<b>N6,802,350.45</b>

## CONCLUSION

As indicated in the condition of contract, we hereby request for the payment of a sum of **N6,802,350.45** (Six Million, Eight Hundred and Two Thousand, Three Hundred and Fifty Naira Forty Kobo) being amount due at completion of works.

**CONCLUSION**

As indicated in the condition of contract, we hereby request for the payment of a sum of **N6,802,350.45** (Six Million, Eight Hundred and Two Thousand, Three Hundred and Fifty Naira Forty- Five Kobo) being amount due at completion of works.

**BILL OF QUANTITIES FOR CHEMISTRY / FOOD LABORATORY**(All Prices are in NAIRA /Total Contract Price is excl. 5% VAT)**SUBSTRUCTURE**Demolition works generally

A Carefully break and pull down existing partitions, blockwalls including hacking of floors for preparation works to new works and dispose all debris arising as may be directed. (approx 15m2)

1	Item	<u>75,000.00</u>	<u>75,000.00</u> ✓
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Reinforced in-situ concrete 1:2:4/20mm aggregate in

B 150mm Floor

26	m2	<u>2,250.00</u>	<u>58,500.00</u> ✓
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High yield bar reinforcement in concrete

C 12mm diameter

254	kg	<u>120.00</u>	<u>30,480.00</u> ✓
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D 10mm diameter

188	kg	<u>120.00</u>	<u>22,560.00</u> ✓
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E Allow a provisional sum for other necessary substructural works including demolition and disposal of debris

1	PS	<u>100,000.00</u>	<u>100,000.00</u>
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F Labour Costs

			<u>60,000.00</u>
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**SUBSTRUCTURE**

Carried to Summary

(incl.  
5% VAT)

<u>346,540.00</u>
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# CONCRETE WORK AND BLOCKWORK

## Concrete Work

Reinforced in-situ concrete 1:2:4/20mm aggregate in :

A	Lintels	17	m3	<u>15,000.00</u>	<u>255,000.00</u> ✓
B	Roof beam	16	m3	<u>15,000.00</u>	<u>240,000.00</u> ✗
C	Ring beam	25	m3	<u>15,000.00</u>	<u>375,000.00</u>
<u>High yield bar reinforcement in concrete</u>					
D	12mm diameter	3944	kg	<u>120.00</u>	<u>473,280.00</u>
E	10mm diameter	2472	kg	<u>120.00</u>	<u>296,640.00</u>
<u>Sawn formwork as described</u>					
F	Sides and soffit of beams	208	m2	<u>750.00</u>	<u>156,000.00</u>
G	Ditto Ring beam	265	m2	<u>750.00</u>	<u>198,750.00</u>
H	Ditto lintel	221	m2	<u>750.00</u>	<u>165,750.00</u>

## **Blockwork**

Sandcrete hollow blocks in plasticised cement mortar (1:6) as describd

J	230mm walls internal walls	240	m2	<u>1550.00</u>	<u>372,000.00</u>
K	Ditto external walls	360	m2	<u>1550.00</u>	<u>558,000.00</u>
L	Labour Costs				<u>750,000.00</u>

# CONCRETE WORK AND BLOCKWORK

Carried to Summary

(incl. 5% VAT)

3,840,420.00

**ROOFING****Structural Steelwork**

A	Dismantle completely tongue and groove hardwood ceiling and Part of steel roof trusses as directed by the Engineer	1	Item	<u>100,000.00</u>	<u>100,000.00</u>
B	Supply, fabricate and erect new steel roof structure in accordance with Engineer's drawings	2403	Kg	<u>600.00</u>	<u>1,441,800.00</u>
<b>ROOFING</b>					
C	.7mm longspan aluminium roof covering fixed with appropriate side and end laps in accordance with manufacturer's Roofing	418	m2	<u>2,500.00</u>	<u>1,045,000.00</u>
D	Ditto flashing 600mm girth	78	m	<u>1,250.00</u>	<u>97,500.00</u>
E	Ditto ridge cap	89	m	<u>1,250.00</u>	<u>111,250.00</u>
F	Labour Costs				<u>400,000.00</u>

**ROOFING**

Carried to Summary

(incl. 5% VAT)

3,195,550.00

**DOORS AND WINDOWS****Aluminium Windows**

A	UTAL anodised aluminium double leave swing door size 1200x2400mm high overall	8	No	<u>120,000.00</u>	<u>960,000.00</u>
B	Ditto but composite projected window size 3600 x 1200mm comprising 6No projected windows with top fixed light	1	No	<u>83,100.00</u>	<u>83,100.00</u>
C	Ditto but overall size 2400x1200mm	2	No	<u>56,000.00</u>	<u>112,000.00</u>
D	Ditto but overall size 1800 x1200mm	10	No	<u>41,500.00</u>	<u>415,000.00</u>
E	Ditto but overall size 1200 x1200mm	1	No	<u>28,000.00</u>	<u>28,000.00</u>
F	Ditto but overall size 1200x 600	2	No	<u>18,500.00</u>	<u>37,000.00</u>
G	Aluminium sliding window size 900 x 600mm	2	No	<u>15,000.00</u>	<u>30,000.00</u>

**Burglary Proofing**

H	Allow a sum for fabrication and installation of burglary proofing bars comprising 25x 25mm square bars in accordance with Architect's drawings	Item		<u>150,000.00</u>	<u>150,000.00</u>
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**HARDWOOD DOORS**

44mm thick semi-solid core Mahogany flush doors complete with fadex mortice locks and set and all other ironmongery and fixed to position to suit opening size:

J	900 x 2100mm high	4	No	<u>25,000.00</u>	<u>100,000.00</u>
K	Ditto size 750 x 2100mm high	2	No	<u>20,000.00</u>	<u>40,000.00</u>
L	Labour Costs				<u>200,000.00</u>

**DOORS AND WINDOWS****Carried to Summary**

(incl. 5% VAT)

2,155,100.00

**ELECTRICAL INSTALLATIONS**

Annex E

Bidders are advised to consult Electrical Engineer's drawings for further specifications

**Wiring Points**

A	Lighting fittings	62	No	<u>1000.00</u>	<u>62,000.00</u>
B	13A SSO in PVC	11	No	<u>1000.00</u>	<u>11,000.00</u>
C	Ditto in PVC trunking	32	No	<u>1200.00</u>	<u>38,400.00</u>
D	20A DP switch for AC units	15	No	<u>1200.00</u>	<u>18,000.00</u>
E	Telephone outlets	8	No	<u>1200.00</u>	<u>9,600.00</u>
<b>Wiring Points to Collection</b>					<u>139,000.00</u>

**Lighting Fittings**

F	4x 20W 600mm floor fitting with prismatic diffuser	34	No	<u>10,000.00</u>	<u>340,000.00</u>
G	1x40W, 1200mm floor fitting with opal diffuser	9	No	<u>2,500.00</u>	<u>22,500.00</u>
H	1 x 18W non-maintained exit light fitting	9	No	<u>8,250.00</u>	<u>74,250.00</u>
J	100W extractor fans	9	No	<u>25,200.00</u>	<u>226,800.00</u>
K	60W ceiling mounted incandescent fitting	2	No	<u>2,500.00</u>	<u>5,000.00</u>
<b>Lighting Fittings to Collection</b>					<u>668,550.00</u>

**Wiring Accessories**

L	20A DP switch for AC units	15	No	<u>1,500.00</u>	<u>22,500.00</u>
M	13A single socket	26	No	<u>600.00</u>	<u>15,600.00</u>
N	13A double socket	17	No	<u>1,000.00</u>	<u>17,000.00</u>
P	1 gang 1 way switch	6	No	<u>250.00</u>	<u>1,500.00</u>
Q	1 gang 2 way switch	2	No	<u>300.00</u>	<u>600.00</u>
R	2 gang 1 way switch	4	No	<u>350.00</u>	<u>1,400.00</u>
S	3 gang 1 way switch	2	No	<u>500.00</u>	<u>1,000.00</u>
T	13A SSO with cover	4	No	<u>500.00</u>	<u>2,000.00</u>
U	Telephone outlet	8	No	<u>500.00</u>	<u>4,000.00</u>

**Labour Costs****Wiring Accessories to Collection**

(incl. 5% VAT)

65,600.00



**ELECTRICAL INSTALLATIONS (Cont'd)****Fire Alarm System**

	Smoke detector	10	No	<u>5250.00</u>	<u>52500.00</u>
B	Alarm initiating points	2	No	<u>3000.00</u>	<u>6000.00</u>
C	Alarm bell	2	No	<u>6,000.00</u>	<u>12,000.00</u>
D	Allow a Provisional sum of N180,000.00 for fire alarm system panel			<u>180,000.00</u>	<u>180,000.00</u>
	<b>Fire Alarm System to Collection</b>				<u>250,500.00</u>

**Cables and Distribution Boards**

E	25mm 4-core PVC/SWAPVC cable	PC	Sum	<u>100,000.00</u>	<u>100,000.00</u>
	25mm <sup>2</sup> single core PVC/PC Cable	50	Lin.m	<u>500.00</u>	<u>25,000.00</u>
G	6way TPN distribution board complete with ELCB and RCCB as per drawings	2	No	<u>25,000.00</u>	<u>50,000.00</u>
H	Ditto but with phase failure relay	1	No	<u>120,000.00</u>	<u>120,000.00</u>
	<b>Cables and Distribution Boards to collection</b>				<u>295,000.00</u>

**Earthing System**

J	Allow a provisional sum for earthing system complete				<u>20,000.00</u>
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**Voltage Stabiliser**

K	The installation of the 50 kVA Voltage Stabilizer( 50KVA 3phase ) will be done by SON: One three phase; 5 wire socket is to be installed as per attached drawings.	PC			<u>1500,000.00</u>
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**Telephone System**

	Allow a Prime Cost Sum for Telephone System				<u>100,000.00</u>
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**Lightning Protection**

M	Allow a Prime Cost Sum for Lightning protection of the laboratory				<u>50,000.00</u>
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**Labour Costs**

N	Labour Costs				<u>—</u>
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**ELECTRICAL INSTALLATIONS (Cont'd)****COLLECTION**

Wiring Points		<u>139,000.00</u>
x Lighting Fittings		<u>668,550.00</u>
Wiring Accessories		<u>65,600.00</u>
Fire Alarm System		<u>250,500.00</u>
Cables and Distribution Boards		<u>295,000.00</u>
Earthing System		<u>20,000.00</u>
Voltage Stabiliser		<u>1500,000.00</u>
Telephone System		<u>100,000.00</u>
<del>Telephone System</del> Lightning Protection		<u>50,000.00</u>
Labour Costs		<u>400,000.00</u>
<b>ELECTRICAL INSTALLATIONS</b>		
Carried to Summary	(incl. 5% VAT)	<u>3,488,650.00</u>

**MECHANICAL INSTALLATIONS**

Bidders are advised to consult  
Mechanical Engineer's drawings for  
further specifications

<b>Air conditioning Trunking only</b>					
A	75mm diameter upvc pipe	82	m	<u>300.00</u>	<u>24,600.00</u>
B	25mm diameter ditto	82	m	<u>250.00</u>	<u>20,500.00</u>
C	UPVC Elbows	1	Lot	<u>2,500.00</u>	<u>2,500.00</u>
D	Concrete plinth	15	No	<u>8,000.00</u>	<u>120,000.00</u>
<b>Plumbing installations</b>					
E	Classic Twyford water closet complete	6	No	<u>40,000.00</u>	<u>240,000.00</u>
F	GX9 Expelair fans	1	No	<u>30,000.00</u>	<u>30,000.00</u>
G	Ditto wash hand basin	6	No	<u>10,000.00</u>	<u>60,000.00</u>
H	Toilet roll holders	6	No	<u>1,000.00</u>	<u>6,000.00</u>
J	Shower tray with necessary fittings	2	No	<u>8,000.00</u>	<u>16,000.00</u>
K	Soap dispenser	4	No	<u>2,500.00</u>	<u>10,000.00</u>
L	Automatic electric hand drier	4	No	<u>40,000.00</u>	<u>160,000.00</u>
M	610x460mm toilet mirror	6	No	<u>2,000.00</u>	<u>12,000.00</u>
<b>Cold water supply pipes and fittings</b>					
N	Supply and fix cold water supply pipes and fittings	1	Item	<u>75,000.00</u>	<u>75,000.00</u>
P	Ditto for soil and waste pipes and fittings	1		<u>60,000.00</u>	<u>60,000.00</u>
<b>Overhead water tanks</b>					
Q	Supply and fix 2000L GP water tanks including all necessary piping and fittings	2	No	<u>30,000.00</u>	<u>60,000.00</u>
<b>Gas Supply</b>					
R	50Kg gas cylinder	2	No	<u>40,000.00</u>	<u>80,000.00</u>
S	Gas top twin outlet	1	No	<u>50,000.00</u>	<u>50,000.00</u>
T	16mm diameter copper pipe	1	No	<u>25,000.00</u>	<u>25,000.00</u>
U	Ditto elbow	1	No	<u>5,000.00</u>	<u>5,000.00</u>
V	Ditto Tee	1	No	<u>6,000.00</u>	<u>6,000.00</u>
W	Labour Costs				<u>200,000.00</u>
<b>Carried to Collection</b>					
				(incl. 5% VAT)	<u>1,262,600.00</u>

**MECHANICAL SERVICES Cont,d**

A	Gas manifold	1	No	<u>16,500.00</u>	<u>16,500.00</u>
B	Gas regulator	1	No	<u>25,000.00</u>	<u>25,000.00</u>
<b>Fume Cupboard Chimney</b>					
C	Chimney constructed with 4mm metal sheet complete	40	m2	<u>5,000.00</u>	<u>200,000.00</u>
D	Extractor fan with fire proof motor	5	No	<u>50,000.00</u>	<u>250,000.00</u>
<b>Fire fighting Equipments</b>					
E	Supply and fix 9Kg carbon dioxide fire extinguisher complete with bracket	5	No	<u>25,000.00</u>	<u>125,000.00</u>
F	Ditto dry chemical powder fire extinguisher	5	No	<u>20,000.00</u>	<u>100,000.00</u>
<b>Roof space extractor</b>					
G	Air volume 3750m3/hr	2	No	<u>50,000.00</u>	<u>100,000.00</u>
H	Extractor grilles 450 x 300mm	12	No	<u>3,000.00</u>	<u>36,000.00</u>
J	Installation of 16 air conditioning split units with temperature and humidity controls as per attached drawings and requirements humidity control system	16	No	<u>120,000.00</u>	<u>1,920,000.00</u>
K	Refridgerant piping	98	Lin.m	<u>550.00</u>	<u>53,900.00</u>
L	Voltage regulator	16	No	<u>10,000.00</u>	<u>160,000.00</u>
M	Mounting brackets	16	No	<u>1,500.00</u>	<u>24,000.00</u>
N	Labour Costs				<u>250,000.00</u>

Carried to Collection

(incl. 5% VAT) 3,260,400.00**COLLECTION**

Page 7

(incl. 5% VAT) 1,262,600.00

Page 8

(incl. 5% VAT) 3,260,400.00**MECHANICAL SERVICES**  
Carried to Summary(incl. 5% VAT) 4,523,000.00

**FLOOR, WALL AND CEILING FINISHES****Floor finishes**

- A Allow a provisional sum for all works in floor finishing including general washing polishing and making good of the existing terrazzo as may be directed

1	PS	<u>250,000.00</u>	<u>250,000.00</u>
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**Wall Finishes****In-situ Finishing**12mm internal rendering as described on:

- |   |                                |      |    |               |                   |
|---|--------------------------------|------|----|---------------|-------------------|
| B | Block or concrete walls        | 1402 | m2 | <u>280.00</u> | <u>392,560.00</u> |
| C | Ditto not exceeding 300mm wide | 349  | m  | <u>175.00</u> | <u>61,075.00</u>  |

12mm external rendering as described on:

- |   |                                |     |    |               |                   |
|---|--------------------------------|-----|----|---------------|-------------------|
| D | Block or concrete walls        | 719 | m2 | <u>280.00</u> | <u>201,320.00</u> |
| E | Ditto not exceeding 300mm wide | 214 | m  | <u>175.00</u> | <u>37,450.00</u>  |

**Ceiling Finishes****Suspended Ceiling**

- F 600 x 600 x 15mm thick owacoustic futura 60 suspended ceiling tiles in exposed grids with approved suspension wires and hangers fixed to roof members (ceiling measured nett)

452	m2	<u>2,000.00</u>	<u>904,000.00</u>
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- G Labour Costs

<u>400,000.00</u>
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**FLOOR, WALL AND CEILING FINISHES**

Carried to Summary

(incl. 5% VAT)

2,246,405.00

**PAINTING AND DECORATING**

**Prepare prime and apply three coats of approved gloss paint on**

A	Rendered walls	1402	m2	<u>330.00</u>	<u>462,660.00</u>
B	Ditto not exceeding 300mm wide	349	m	<u>150.00</u>	<u>52,350.00</u>

Prepare and apply two coats of approved Texcote paint on the following

C	Rendered walls externally	720	m2	<u>500.00</u>	<u>360,000.00</u>
D	Ditto not exceeding 300mm wide	214	m	<u>300.00</u>	<u>64,200.00</u>

Knot, prime stop and apply two undercoats and one finishing coat of gloss oil paint on the following metal work (provisiopnal)

E	General surfaces	60	m2	<u>350.00</u>	<u>21,000.00</u>
F	General surfaces not exceeding 300mm	21	m	<u>150.00</u>	<u>3,150.00</u>
G	Labour Costs				<u>150,000.00</u>

**PAINTING AND DECORATING**  
Carried to Summary

(incl. 5% VAT)

1,112,360.00

**SUMMARY**

SUBSTRUCTURE		<u>346,540.00</u>
CONCRETE WORK	}	
BLOCKWORK		<u>3,840,420.00</u>
ROOFING		<u>3,195,550.00</u>
DOORS AND WINDOWS		<u>2,155,100.00</u>
ELECTRICAL INSTALLATIONS		<u>3,488,650.00</u>
MECHANICAL INSTALLATIONS		<u>4,523,000.00</u>
FLOOR, WALL AND CEILING FINISHES		<u>2,246,400.00</u>
PAINTING AND DECORATING		<u>1,113,360.00</u>
LABORATORY FURNITURE (as per drawings)		<u>3,000,000.00</u>
<b>TOTAL FOR CHEMISTRY / FOOD LABORATORY</b>		<u>23,909,025.00</u>
	(incl. 5% VAT)	

TOTAL CONTRACT PRICE (excluding 5% VAT)

NAIRA 22,713,573.73

**TERMS OF REFERENCE**

**MODIFICATION / REFURBISHMENT OF  
CHEMICAL / FOOD TESTING LABORATORY  
STANDARDS ORGANISATION OF NIGERIA (SON)  
LEKKI, LAGOS STATE**

October 2004



## **TERMS OF REFERENCE**

### **FOR THE MODIFICATION/REFURBISHMENT OF CHEMICAL AND FOOD TESTING LABORATORY OF STANDARDS ORGANISATION OF NIGERIA IN LAGOS**

#### **1. BACKGROUND**

The Country Service Framework (CSF) is a technical assistance programme of UNIDO to the Government of Nigeria and it is made up of four separate but interlinked Integrated Programmes namely.

- IP - 1 : Industrial Governance focusing on Public Private partnerships
- IP - 2 : Strengthening Industry - Related institutional support base
- IP - 3 : Environment and Energy
- IP - 4 : Rural private sector Agro - industrial development

The objectives of the second integrated program is to strengthen the national industry related institutional support base in the fields of investment and technology promotion, R & D, metrology and testing, training and SME development and link their programmes and outputs more closely to industry needs.

Under Integrated Programme II of above said programme, UNIDO is supporting in upgrading the chemical and food testing laboratory of Standards Organisation of Nigeria in Lagos. The necessary testing instruments for upgrading have been already procured.

In order to accommodate and operate the testing instruments new environmental controlled laboratory rooms are needed.

#### **2. SCOPE OF THE WORK TO BE CARRIED OUT**

(SON) in Lagos is to be The existing building at the premises of the Standards Organisation of Nigeria modified / refurbished as per the specifications given in the attached drawings, Bill of Quantities and work plan. This modified/refurbished building will be used as a Chemical/Food Testing laboratory.

#### **ADDRESS OF THE SITE**

Standards Organisation of Nigeria  
Plot 13/14 Northern Business District  
Victoria Arobieke Street  
Lekki Peninsula Scheme 1  
Lekki, Lagos State

### **3. REQUIREMENTS**

The existing building at the premises of the Standards Organisation of Nigeria (SON) in Lagos is to be modified / refurbished as per the specifications given in the documentation by supplying and implementing the items given in the Bill of Quantities. This modified/refurbished building will be used as a Chemical/Food Testing laboratory.

### **4. TECHNICAL SPECIFICATIONS**

The Technical Specifications of this Terms of Reference to which the modification / refurbishment works of the SON-Chemical/Food Testing laboratory facilities should conform are given in the following technical drawings (Drawing No. – Sheet No.: Drawing Title - Sheet Title) as well as in Chapter 5 "Description of Works to be Carried Out by the Contractor":

#### **Annex I - Architectural Drawings**

1. Sha/Son/Comm.33/02 – Sheet No. 01: Office Complex - Site Plan
2. Sha/Son/Comm.33/02 – Sheet No. 02: Laboratory Complex - Composite Floor Plan
3. Sha/Son/Comm.33/02 – Sheet No. 03: Laboratory Complex - Chemical/Food Laboratory
4. Sha/Son/Comm.33/02 – Sheet No. 04: Laboratory Complex – Floor Plan Chemical/Food Laboratory (Table Layout)
5. Sha/Son/Comm.33/02 – Sheet No. 05: Laboratory Complex – Roof Plan Chemical/Food Laboratory (Extractor Fans)
6. Sha/Son/Comm.33/02 – Sheet No. 06: Laboratory Complex – Section Chemical/Food Laboratory
7. Sha/Son/Comm.33/02 – Sheet No. 07: Laboratory Complex – Elevation A Chemical/Food Laboratory
8. Sha/Son/Comm.33/02 – Sheet No. 08: Laboratory Complex – Elevation B Chemical/Food Laboratory
9. Sha/Son/Comm.33/02 – Sheet No. 09: Laboratory Complex – Schedule Chemical/Food Laboratory (Doors & Windows)
10. Sha/Son/Comm.33/02 – Sheet No. 10: Laboratory Complex – Tables Details Chemical/Food Laboratory

#### **Annex II - Structural Drawings**

1. MC/127/01: Chemical/Food Laboratory (Floor Plan)
2. MC/127/02: Chemical/Food Laboratory (Existing Steel Roof)
3. MC/127/03: Chemical/Food Laboratory (Existing Aluminium Roofing)
4. MC/127/04: Chemical/Food Laboratory (Existing Steel Roof)
5. MC/127/05: Chemical/Food Laboratory (Existing Steel Roof)

6. MC/127/06: Chemical/Food Laboratory (Floor Plan – Block Partion)
7. MC/127/07: Chemical/Food Laboratory (Proposed Steel Roof)
8. MC/127/08: Chemical/Food Laboratory (Proposed Aluminium Roofing)
9. MC/127/09: Chemical/Food Laboratory (Proposed Steel Roof)
10. MC/127/10: Chemical/Food Laboratory (Proposed Steel Roof)

### **Annex III - Mechanical Engineering Drawings**

1. P42A/04: Chemical/Food Laboratory (Air Conditioning Layout)
2. P42M/01: Chemical/Food Laboratory (Water Supply Layout)
3. P42M/02: Chemical/Food Laboratory (Waste Pipe Layout)
4. P42M/03: Chemical/Food Laboratory (Gas Pipe Layout)
5. P42M/04: Chemical/Food Laboratory (Fume Cupboard Layout)
6. P42M/05: Chemical/Food Laboratory (Fire fighting Layout)
7. P42M/06: Chemical/Food Laboratory (Roof Extractor Layout)

### **Annex IV - Electrical Engineering Layout**

1. P42E/20: Chemical/Food Laboratory (Legend)
2. P42E/06: Chemical/Food Laboratory (Lighting Layout)
3. P42E/07: Chemical/Food Laboratory (Fire alarm and Power Outlet Layout)
4. P42E/16: Chemical/Food Laboratory (Diagram of Distribution Boards)
5. P42E/18: Chemical/Food Laboratory (Lighting Prevention Layout)
6. P42E/19: Chemical/Food Laboratory (Fire Alarm System Diagram)

The Bill of Quantities is attached in Annex V

## **5. DESCRIPTION OF WORKS TO BE CARRIED OUT BY THE CONTRACTOR**

### **5.1 SUBSTRUCTURE**

#### **Demolition works generally**

Carefully break and pull down existing partitions, blockwalls including hacking of floors for preparation works to new works and dispose all debris arising as may be directed. (approx 15m<sup>2</sup> )

See Annex I 3.:

---Location: grid C / 1,2 office C1 07

Drawing no: sha / son / comm. 33 /02 Sheet no: 03

Reinforced in-situ concrete 1:2:4/20mm aggregate in 150mm Floor  
See Annex I 3.:

---Location: *grid C / 1,2 office C1 07*

Drawing no: *sha / son / comm. 33 / 02* Sheet no: 03

High yield bar reinforcement in concrete  
12mm diameter and 10 mm diameter

See Annex I 3.:

---Location: *grid C / 1,2 office C1 07*

Drawing no: *sha / son / comm. 33 / 02* Sheet no: 03

## 5.2 CONCRETE WORK AND BLOCKWORK

### Concrete Work

See Annexes II 1.) and I 3.):

see ---*structural Engineer's drawings MC / 127 / 01*

---*Architectural Drawing no: sha / son / comm. 33 / 02*

---*Location: Lintels, Roof beam, and Ring beam.*

---*Sheet no: 03*

Reinforced in-situ concrete 1:2:4/20mm aggregate in :

High yield bar reinforcement in concrete  
12mm diameter and 10 mm diameter

### Sawn formwork as described

See Annexes II 1.), I 3.) and I 6.):

----*structural engineer's drawing mc / 127 / 01 @ A2 and C1 / C2*

----*Architectural drawing no: sha / son / comm. 33 / 02*

----*Sheet no: 03 & 06*

Sides and soffit of beams

Ring beam

Lintel

### Blockwork

230mm walls internal walls and external walls

See Annexes (I 6.), (I 3.) and (I 6.):

-----*structural engineer's drawing mc / 127 / 06*

-----*Architectural drawing no: sha / son / comm. 33 / 02*

-----*Sheet no: 03 & 06*

### **5.3 ROOFING**

#### **Structural Steelwork**

Dismantle completely tongue and groove hardwood ceiling and Part of steel roof trusses as directed by the Engineer

See Annexes (II 7.), (II 9.) and (II 10.):

-----*structural engineer's drawing MC / 127 / 07,*

*structural engineer's drawing MC / 127 / 09*

*and structural engineer's drawing MC / 127 / 10*

Supply, fabricate and erect new Steel roof structure in accordance with Engineer's drawings

#### **Roofing**

0.7mm longspan aluminium roof covering fixed with appropriate side and end laps in accordance with manufacturer's instructions

See Annex (II 8.)

-----*structural engineer's drawing MC / 127 / 08*

Roofing

Flashing 600mm girth

Ridge cap

### **5.4 INSTALLATION OF DOORS AND WINDOWS**

Following Aluminium Windows are to installed as per the Architectural drawings attached and window schedule.

See Annex (I 9.):

-----*Architectural Drawing no: sha / son / comm. 33 / 02*

-----*Sheet no: 09*

UTAL anodised aluminium double

Leave swing door size 1200x2400mm high overall

Ditto but composite projected window size 3600 x 1200mm comprising 6No

Projected windows with top fixed light

Ditto but overall size 2400x1200mm

Ditto but overall size 1800 x1200mm

Ditto but overall size 1200 x1200mm

Ditto but overall size 1200x 600

Aluminium sliding window size 900 x 600mm

### **Burglary Proofing**

Fabrication and installation of burglary proofing bars comprising 25x 25mm square bars in accordance with Architect's drawings

See Annex I 3.) and 9.)

---Architectural Drawing no: sha /son / comm.33 / 02

---Location: All external windows and doors

---Sheet no: 03 & 09

## **5.5 HARDWOOD DOORS**

Installation of

See Annex I 9.);

---Architectural Drawing no: sha / son / comm.33 / 02

---Sheet no: 09

44mm thick semi-solid core Mahogany flush doors complete with fadex mortice locks and set and all other ironmongery and fixed to position to suit opening size:

900 x 2100mm high

Ditto size 750 x 2100mm high

## **5.6 ELECTRICAL INSTALLATIONS**

Following electrical installations are to be carried out as per Annexes IV 2.), IV 3.), IV. 4.) and IV 5. drawings No P42E/06, 07, 16 & 18

**Wiring Points**

Lighting fittings

13A SSO in PVC

Ditto in PVC trunking

20A DP switch for AC units

Telephone outlets

**Lighting Fittings**

4x 20W 600mm floor fitting with prismatic diffuser

1x40W, 1200mm floor fitting with opal

Diffuser

100W extractor fans

**Emergency lights**

1 x 18 W non-maintained exit light fittings to be installed with accumulator with automatic recharging unit

60W ceiling mounted incandescent fitting

**Wiring Accessories**

20A DP switch for AC units

13A single socket

13A double socket

1 gang 1 way switch

1 gang 2 way switch

2 gang 1 way switch

3 gang 1 way switch

13A SSO with cover

Telephone outlet

**Fire Alarm System** FIRE Alarm system is to be installed with following items as given in the attached fire alarm system Annexes IV 3.) and IV 6.)  
**Drawings No P42E/ 07 and P42E/19**

Smoke detector,

Alarm initiating points

#### Alarm bell

Fire alarm control board ( FACP ) is to be installed at the reception as per the Bill of Quantities. The Accumulator should be a fully sealed one in order to avoid any acid vapour spreading at the reception during charging or trickling

#### **Cables and Distribution Boards**

25mm 4-core PVC/SWA/PVC cable

25mm<sup>2</sup> single core PVC/PC Cable

2 pieces of 6way TPN distribution board complete with ELCB , 14 x RCCB ( 8 x distribution board DB-A and 6 x distribution board DB-AA, drawing P42E/16; rated 60 A with 30 m A residual current) and face failure relay as per attached drawings are to be installed.

#### **Earthing System**

Install the electrical earthing system complete from Distribution boards and from city power supply board according to the requirements of the Nigerian Electricity Board in accordance to Nigerian Standards.

#### **Voltage Stabiliser**

The installation of the 50kVA 3phase automatic voltage Stabiliser will be done by SON. One three phase, 5 wire system socket is to be installed at the location indicated in the attached drawings.

#### **Telephone System**

The required type of telephone system apparatus shall be an extension to the existing system already installed in the adjacent main office building.

#### **Lightning Protection**

To be installed for the whole building as specified in the applicable Nigerian Standards (For the installation of the lightning protection, please prepare a drawing and specify the size of the conductors to be used according to Nigerian Standards).

### **5.7 MECHANICAL INSTALLATIONS**

**Air conditioning Trunking only is to be installed with following items as given in the Annex III 1.) Drawing No P42A/04, including:**

75mm diameter UPVC pipe

25mm diameter ditto



UPVC Elbows

Concrete plinth

**Plumbing installations are to be carried out as given in the Annex III 2.)**

**Mechanical engineering drawings No P42M/01**

Classic Twyford water closet complete

GX9 Expelair fans

Ditto wash hand basin

Toilet roll holders

Shower tray with necessary fittings

Soap dispenser

Automatic electric hand drier

610x460mm toilet mirror

**Cold water supply pipes and fittings**

Supply and fix cold water supply pipes  
and fittings as per water supply lay out drawing

Supply and installation of soil and waste pipes and fittings as per the waste pipe  
lay out drawing.

**Overhead water tanks**

Supply and install 2000L GP water tanks  
including all necessary piping and fittings at the place shown in the Annex III 2.)  
Mechanical Engineering Drawing P42M/01(Water Supply Layout)

**Gas Supply and the installation of gas supply outlets in the laboratories.**  
The location of outlets and cylinders are given in Annex III 4.) Drawing No  
P42M/03, that includes:

- 50kg gas cylinder
- Gas top twin outlet
- 16mm diameter copper pipe
- Ditto elbow
- Ditto Tee
- Gas manifold
- Gas regulator

### **Fume Cupboard Chimney**

Fume cupboard chimneys, constructed with 4mm metal sheet complete and extractor fan with fire proof motor are to be installed as per fume cupboard lay out attached.

### **Fire fighting Equipments as per Annex III 6.) Drawing No P42M/05**

Supply and install

5 pieces of 9 kg carbon dioxide fire extinguisher complete with bracket and  
5 pieces of dry chemical powder fire Extinguisher as per Annex III 6. Drawing No P42M/05

### **Roof space extractor**

Air volume 3750m<sup>3</sup>/hr

Extractor grilles 450 x 300mm

Installation of 16 air conditioning split units as per Annex III 7. Drawing No P42M/06

with temperature and humidity controls

The installation locations and the cooling capacities are given in the Air conditioning lay out. Required temperature: 23 ±2°C ( 24 hours )

Required Humidity : 50±5% ( 24 hours ) Cooling capacities : as per the Mechanical Engineer's drawings

Refrigerant piping

Voltage regulator and Mounting brackets

## **5.8 FLOOR, WALL AND CEILING FINISHES**

**Floor finishes:** Following works are to be carried out: Washing , polishing and carry out some repair at the damaged surfaces if necessary, of the existing terrazzo flooring.

### **Wall Finishes**

**In-situ Finishing** Rendering of the walls as given below is to be carried out.

12mm internal rendering on:

Block or concrete walls

not exceeding 300mm wide

12mm external rendering as described on:

Block or concrete walls not exceeding 300mm wide

## Ceiling Finishes

**Suspended Ceiling is to be installed as given below:**

Installation of 600 x 600 x 15mm thick acoustic suspended ceiling tiles in exposed grids with approved suspended wires and hangers fixed to roof members (ceiling measured nett)

## 5.9 PAINTING AND DECORATING

Prepare prime and apply three coats of  
Approved by Supervisor gloss paint on  
Rendered walls

Ditto not exceeding 300mm wide

Prepare and apply two coats of approved Texcote paint on the following.

Rendered walls externally

Ditto not exceeding 300mm wide

Knot, prime stop and apply two undercoats and one finishing coat of gloss oil paint on the following metal work (provisiopnal)

General surfaces

General surfaces not exceeding 300mm wide

## 5.10 FURNITURES

Delivered and install the furnitures ( tables, cupboards etc.) as given in the Annex I, architectural drawings.

## 8. WORK PLAN

The duration of the modification / refurbishment works according to the technical specifications of this Terms of Reference shall be of maximum four months.

# HELICON NIGERIA LIMITED

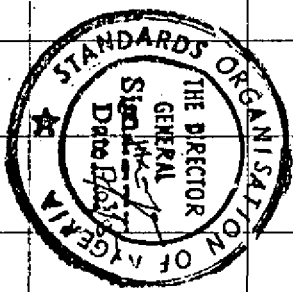
## WORK PLAN AND BAR CHART

COMMENCEMENT DATE: MARCH 7, 2005

### REHABILITATION OF FOOD AND CHEMICAL LABORATORY FACILITY LAGOS NIGERIA

M O N T H S

S/N	ACTIVITIES	1	2	3
1	[A] SUBSTRUCTURE <ul style="list-style-type: none"> <li>Demolition</li> <li>Reinforcement</li> <li>Concreting</li> </ul>			
2	[B] SUPERSTRUCTURE FORMWORK REINFORCEMENT CONCRETE WORKS			
3	BLOCKWORK			
4	ROOFING <ul style="list-style-type: none"> <li>Demolition of steel Roof Truss</li> <li>Steel Fabrication and Fixing</li> <li>Aluminum Roof Covering</li> </ul>			
5	DOORS AND WINDOWS			
6	ELECTRICAL INSTALLATION			
7	MECHANICAL INSTALLATION			
8	FLOOR, WALL AND CEILING FINISHES <ul style="list-style-type: none"> <li>Rendering</li> <li>Terrazzo</li> <li>Acoustic Ceiling</li> </ul>			
9	PAINTING & DECORATING			
10	LABORATORY FURNITURE			
11	INSPECTION & HAND OVER			



*Handwritten notes:*  
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# Helicon Nigeria Ltd.

(Engineers, Builders, Consultants And Project Managers)

Suite 17B-19B, First Floor, Entrance 6, East Pavillion, (TBS) Lagos.

P. O. Box 73193, Victoria Island, Lagos.

Tel: (01) 263-2589 Fax: (01) 264 - 5742 E-mail: psnl.hnl@hyperia.com

THE PROCUREMENT SERVICES, GENERAL SERVICES

**INVOICE**

BRANCH, DISTRICT OF ADMINISTRATION (UNIDO)

**Nº 0000088**

P.O. BOX 300, A-1400 VIENNA, AUSTRIA

Date: 09/09/2005

Qty	Description of Goods	Rate	#	K
	FINAL PAYMENT FOR THE REHABILITATION OF FOOD AND CHEMICAL LABORATORY FACILITY AT STANDARDS ORGANISATION OF NIGERIA (SON) LEKKI, LAGOS, NIGERIA.		6,802,350	45
	CONTRACT NO 2005/025/VK			
	UNIDO PROJECT NO TN/NIR/04/JOI			
	PURCHASE ORDER NO 16000787			
		<b>TOTAL #</b>	<b>6,802,350</b>	<b>45</b>

Amount in words: **SIX MILLION, EIGHT HUNDRED AND TWO THOUSAND, THREE  
HUNDRED AND FIFTY NAIRA, FORTY FIVE KOBO ONLY.**

Customer's Signature

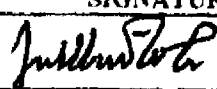
*[Handwritten Signature]*  
19/09/05

*[Handwritten Signature]*  
19/09/05  
UNIDO For Helicon Nigeria Ltd.  
*[Handwritten Name]*

# BANK INFORMATION FORM

**Important:** Please provide *complete* and *correct* bank details as required below. The beneficiary is responsible for the banking data provided in this form. UNIDO is not responsible for any delay in payments resulting from changes in banking information which have not been promptly communicated to UNIDO, nor will bear any charges resulting from incorrect and incomplete information provided in this form.

*Note: Only one bank account in the name of the beneficiary will be accepted. No third-party payee is allowed.*

<b>NAME AND ADDRESS OF ACCOUNT HOLDER</b>	HELICON (NIGERIA) LIMITED SUITE 17/19B TAFAWA BALEWA SQUARE COMPLEX LAGOS P.O.BOX 73193 VICTORIA ISLAND, LAGOS, NIGERIA.
<b>BANK NAME AND ADDRESS</b>	IMB INTERNATIONAL BANK PLC 1 AKIN ADESOLA STREET, VICTORIA ISLAND P.M.B 12028, LAGOS, NIGERIA
<b>ACCOUNT NUMBER</b>	0101020005991
<b>IBAN</b> <small>(INT'L BANK ACCOUNT NO.)</small>	
<b>BIC OR SWIFT CODE</b>	
<b>ABA NUMBER</b> <small>9-DIGITS CODE FOR ACH</small>	
<small>ACH (AUTOMATED CLEARING HOUSE) AND FED WIRE TRANSFERS (ONLY FOR USA)</small>	
<b>BANK ROUTING NO.</b> <small>(BLZ, SORT CODE, CHIP UID, TRANSIT NO. etc.)</small>	
<b>DATE</b>	<b>SIGNATURE</b>
APRIL 14, 2005	

*Kabiru Mu'azu M.*  
UNIDO Civil Consultant  
Chemical / Food Laboratory  
Project.  
SON Operational Headquarters,  
Lekki, Lagos.

**CERTIFICATE OF PRACTICAL COMPLETION**

PROJECT: REHABILITATION OF FOOD AND CHEMICAL,  
LABORATORY FACILITY FOR STANDARDS ORGANISATION OF  
NIGERIA (SON).

LOCATION: LAGOS NIGERIA. LEKKI

This is to certify that Helicon Nigeria Limited has formally completed all works on the rehabilitation of food and chemical Laboratory facility for Standards Organisation of Nigeria, SON.

The work has been carried out in line with specifications in the working drawings and terms of reference and has been duly certified by SON and UNIDO Consultant. In accordance with the condition of contract, the work is hereby accepted and handed over to SON.

*Ahmedu*  
**Director General**  
Standards Organisation  
of Nigeria (SON).



*Ual*  
**UNIDO Supervisor.** 19/09/05