

THE REPUBLIC OF UGANDA



OFFICE OF THE AUDITOR GENERAL

ENGINEERING AUDIT OF UGANDA NATIONAL ROADS AUTHORITY (UNRA), 2009



Final Report

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Contents

Executive Summary	v
1 Introduction	1
2 Objectives and Methodology	1
2.1 Objectives	1
2.2 Methodology	1
3 ROAD PROJECTS SELECTED FOR AUDIT	2
3.1 Category-A: Detailed technical audit including literature review and field tests: 17 road projects.....	3
3.2 Category-B: Detailed literature review and assessment from visual inspection: 19 projects.....	3
3.3 Category-C: Brief literature review and assessment from visual inspection: 14 road projects.....	4
4 AUDIT FINDINGS.....	6
4.1 Category A projects – Detailed literature review and physical inspection.....	6
4.1.1 Physical and Road safety improvements at identified black spots in the road sections between Kampala – Jinja.....	6
4.1.2 Rehabilitation of the Jinja – Bugiri Road (72.8km)	25
4.1.3 Upgrading and Strengthening of Kampala – Gayaza - Ziobwe road (44km)	35
4.1.4 Rehabilitation/Resealing of Kawempe – Luwero road (66km).....	45
4.1.5 Rehabilitation/Resealing of Luwero – Kafu (100km).....	55
4.1.6 Widening and Resealing of Shoulders and Access Roads on Fort Portal – Kyenjonjo (10km) and Improvement of Parking Aprons and Parking Areas around Mpanga Markets ...	66
4.1.7 Strengthening of Fort Portal – Hima (55km).....	75
4.1.8 Strengthening of Hima – Kasese – Kikorongo and Kasese – Kilembe roads.....	85
4.1.9 Upgrading to paved (Bitumen) standard of Olwiyo – Pakwach road (62.5km).....	90
4.1.10 Upgrading of Kiboga – Hoima road (77km)	100
4.1.11 Periodic Maintenance of Nanduget – Aksim (74km)	108
At chainage 11+000 RHS offset 1.8m DCP Subgrade strength test gave a result of 16 yet the recommended minimum should be 50 which resulted into the weak base.....	111
4.1.12 Periodic maintenance of Kamuli – Bukungu road (68km).....	115
4.1.13 Periodic Maintenance of Kotido – Kanawat – Abim road (70km).....	124
4.1.14 Urgent repairs on Pabbo – Atiak – Nimule road (70km).....	131
4.1.15 Periodic Maintenance of Isingiro – Rakai/Mbarara Border Road (56km)	138
4.1.16 Periodic Maintenance of Rakai/Mbarara Border – Rakai road (50km)	146
4.1.17 Emergency Repairs to Hoima-Parajwoki-Buseruka-Kabaale-Kaseeta-Sebagoro / Kaiso road (85.2km).....	153
4.2.1 Upgrading of Soroti – Dokolo road to Bitumen Standard (62.6km)	167
4.2.2 Upgrading of Dokolo – Lira to Bitumen Standard (60.4km)	180
4.2.3 Pilot Project for the Demonstration of Innovative Technologies for the construction of low traffic volume Roads on Mattuga – Semuto – Kapeeka (41.1km).....	192
4.2.4 Backlog Maintenance (routine mechanized) of Ntungamo – Kabale – Katuna (84.5km) 203	
4.2.5 Backlog Maintenance of Masaka – Kyotera and Nyendo – Villa Maria roads (48.7km) 212	
4.2.6 Periodic Maintenance of Moroto – Lokitanyala (44km).....	222
4.2.7 Periodic Maintenance of Fort Portal – Kamwenge (77km)	227
4.2.8 Reconstruction of Priority Sections on the Kampala- Mbarara Road – Package A: Busega – Nsangi and Kamengo - Lukaya (Northern Corridor-Uganda (63.1km)	232

4.2.9	Periodic Maintenance of Moyo – Obongi road (56km)	242
4.2.10	Periodic Maintenance of Arua-Manibe-Wandi (10km) , Manibe-Koboko (50km) and Koboko-Oraba (19km) (Total 79km)	249
4.2.11	Shoulder and pothole repairs of Nansana – Busunju (48km).....	256
4.2.12	Periodic Maintenance of Masaka - Bukakata – Kyakanga – Lambu (43 km).....	264
4.2.13	Upgrading of Busunju – Kiboga (67km)	270
4.2.14	Emergency repairs of Hoima – Kazirafumbi – Kabale (51.2km)	276
4.2.15	Spot Repairs and Resealing of Busega – Mityana (27 km)	285
4.2.16	Urgent repairs of Malaba and Busia Parking yards	290
4.2.17	Periodic Maintenance of Ngetta – Lira Border road (64km)	294
4.2.18	Gravelling, grading and drainage improvement of Nyakahita – Rushere – Rwakitura (45km)	299
4.2.19	Upgrading of Kafu – Masindi road (43.272km)	302
4.3	Category C projects– Brief literature review and visual assessment	314
4.3.1	Periodic Maintenance of Bumbobi/Bubulo/Bududa (44km).....	314
4.3.2	Emergency Repairs of the Approaches to Awoja Bridge on Soroti -Kumi Road (48km)	316
4.3.3	Periodic Maintenance of Lokapel-Nabilatuk- Angatun Road (45km).....	317
4.3.4	Routine Mechanised Maintenance of Kanawat-Apaan-Kaputh Road (39km)	319
4.3.5	Periodic Maintenance of Lira- Kitgum Border	320
4.3.6	Periodic Maintenance of Mpigi-Kanoni Road (60km).....	321
4.3.7	Periodic Maintenance of Kanoni - Maddu- Kisozi-Katonga Road (60km).....	322
4.3.8	Maintenance and Rehabilitation of Myanzi-Kassanda- Bukuya-Zanyiro Road (45km)	323
4.3.9	Periodic Maintenance of Kyapa-Kasensero Road (41km).....	325
4.3.10	Periodic Maintenance Fort Portal – Bundibugyo road (74km)	326
4.3.11	Force on Account Implemented Roads	327
	The following roads were inspected by the audit team during the reconnaissance visits. The works implemented on these roads were by force on account.	327
i)	Spot repairs and pothole patching of Tororo-Mbale Road	327
ii)	Spot Repairs and pothole patching of Mbale-Kumi Road.....	327
iii)	Routine Maintenance of Kaputh-Kaabong Road	327
iv)	Routine Maintenance of Kaabong-Kapedo- Road	327
5.....		329
Value for MONEY		329
6.....		334
6.1.....		335
	Adoption of standard 'General Conditions of Contract' and 'General Specifications'	335
6.2.....		335
	Design and Preparation of Tender Documents.....	335
6.3.....		336
	Contracts Management by UNRA	336
6.4.....		338
	Advance Payments	338
6.5.....		338
	Award of Works Contracts prior to engagement of consultant	338
6.6.....		340
	Considerable Variance of Unit Rates for Same Work Items	340
6.6.1	Come up with the latest unit rate of activities based on current market rates; ...	340
6.6.2	Pursue the possibility of using the Fixed Budget Selection Method;	340
6.6.3	Look at the possibility of setting upper thresholds of the Engineers Estimate.....	340
6.7.....		340
	Scarcity of Road Building Materials.....	340
6.8.....		342
	Decision Making	342

6.9.....	342
Road Safety Measures	342
6.10.....	343
Axle load Control.....	343
6.11.....	343
Performance of Force Account Units.....	343
6.12.....	345
Strengthening of UNBS	345
6.13.....	345
Overstretched Contractors and Consultants.....	345
6.14.....	347
Implementation of the National Road Sector Master Plan	347
6.15.....	347
Contractor’s, Consultant’s and UNRA Personnel	347
6.16.....	348

9. ANNEXES

- 9.1 Unit Rates Comparison Table
- 9.2 List of people Met
- 9.3 Terms of Reference

Acronyms

AG	Auditor General
AV	Air Voids
BC	Bitumen Content
BoQ	Bills of Quantity
CAA	Civil Aviation Authority
CBR	California Bearing Ratio
CD	Core Density
CEO	Chief Executive Officer
CP	Cooperating Partner
DBM	Dense Bituminous Macadam
DCP	Dynamic Cone Penetrometer
DLP	Defects Liability Period
DSD	Double Surface Dressing
EC	European Commission
EU	European Union
GCC	General Conditions of Contract
GRU	Government of the Republic of Uganda
IPC	Interim Payment Certificate
JV	Joint Venture
km	kilometre
M€	Million Euro
mm	millimetre
P&G	Preliminary and General
MDD	Maximum Dry Density
MoWT	Ministry of Works and Transport
OMC	Optimum Moisture Content
PI	Plasticity Index
SD	Surface Dressing
SPA	Specifications of Particular Application
ToR	Terms of Reference
TRRL	Transport and Road Research Laboratory
UGX	Uganda Shillings
UNBS	Uganda National Bureau of Standards
UNRA	Uganda National Roads Authority

EXECUTIVE SUMMARY

BACKGROUND

The Office of the Auditor General (OAG) carried out a financial and engineering audit of the works included in the work program for F/Y 2008/09 which were being executed by Uganda National Roads Authority (UNRA). To carry out the engineering audit, the OAG engaged a team of engineers to work together with a team of OAG auditors.

A total of 50 road projects under UNRA (selected from a list of more than 100 projects) were audited.

The selection of road projects to be audited was based on the following criteria;-

- ❖ Value of works above UGX 2.0bn;
- ❖ Risk attached to the contractors executing the works irrespective of the value.

Due to time constraints, the scope of the audit on the selected 50 road projects differed depending on the findings from the reconnaissance visit made to all the roads at the beginning of the audit. The scope of audit and number of road projects subjected to each level is as follows:-

- ❖ A total of 17 road projects were subjected to detailed technical audit including literature review and field tests;
- ❖ A total of 19 road projects were subjected to detailed literature review and visual inspection;
- ❖ A total of 14 road projects were subjected to brief literature review and visual inspection; and

This report presents the findings of the Engineering Audit conducted on the selected 50 road projects under UNRA as well as the responses submitted by UNRA. My recommendations on the responses submitted by UNRA are also included in the report.

KEY AUDIT FINDINGS

I. Adoption of standard 'General Conditions of Contract' and 'General Specifications'

- Three types of 'Conditions of Contract' are being used namely, the FIDIC Fourth Edition 1987, The EU General Conditions of Contract and The General Conditions of Contract for Procurement of Works (Oct. 2004). Use of different Conditions of Contract and General Specifications may lead to differing specifications between projects for the same type of work with the same materials e.g. spread rates of aggregate for surface dressing.
- Different versions of 'General Specifications for Roads and Bridge Works' are being used. The versions dated June 1990, November 1992, and January 2005 are being applied. One version of the specifications (latest) should be adopted for all road works. Examples of road contracts where different versions of conditions and specifications are referred to include; Fort-Portal- Kyenjojo, Soroti-Dokolo, Dokolo-Lira, and Matuga-Semuto-Kapeeka roads.
- UNRA should consider adopting the 'Multilateral Development Banks' (MDBs) Harmonised Conditions of Contract – 2006 Edition' which has been drawn from the 1999 FIDIC Condition of Contract, for all projects.

II. Design and Preparation of Tender Documents

Some of the UNRA in-house designs for road works were found to be improper (excessive/inadequate quantities and lack necessary drawings).

- Some of the designs for the audited projects were of unnecessarily high standards (e.g. use of asphalt concrete in place of surface dressing and construction of bridges in place of culverts). The design should always take into account the end user of the road and adopt the use of the most appropriate and economical solution.
- Some of the anomalies observed in the contracts are a result of improperly prepared tender documents. The tender documents lack drawings for works and had cases of underestimation/overestimation of quantities of materials. Lack of detailed drawings has led to Construction of culvert headwalls of different shapes and sizes. For example, the contracts for Hoima-Parajwoki-Buseruka-Kabaale-Kaseeta-Sebagoro-Kaiso, Nansana Busunju, Masaka-Bukakata-Lambu, Hoima-Kiziranfumbi-Kabaale and Busega-Mityana roads lacked detailed design drawings and over provisions were noted for mitre drains in the Moyo Obongi road contract.

III. Contracts Management by UNRA

- Weaknesses were observed in the supervision and monitoring of works contracts by UNRA. There are many projects going on at the same time creating a contract management problem to UNRA in terms of effective monitoring. UNRA staff at HQs and at the upcountry stations are stretched with increased workload due to increased network length and increased budgets. In addition, the UNRA stations have a lean staff structure with few engineers and few technicians who are not able to supervise many road projects at the same time. There is need to enhance capacity of UNRA in terms of in-house staff and consider increasing outsourcing of design and supervision.
- UNRA is currently using Small-Medium Local contractors and consultants who are not well versed with contractual issues. This puts additional pressure on the UNRA Staff.

IV. Advance Payments

As a result of using different types of GCCs, the limits for advance payments differ from project to project. In some instances, the amount of advance payment was not stated and the bidders were informed that the amount would be stated in the 'Letter of Acceptance'. This can lead to uncompetitive practices and selection of contractors.

V. Inadequate planning

- There are cases of heavy investments being incurred on maintenance of some roads which are earmarked for rehabilitation in the near future (Ntungamo – Kabale – Katuna & Kawempe - Kafu).
- There is also no clear linkage between UNRA activities with the National Road Sector Master Plan. There is no roadmap for implementation of this plan.

VI. Award of Works Contracts prior to engagement of consultant

Contract management aspects are better handled when the supervising consultant is first in place and has reviewed the contract documentation.

It was observed that some of the projects had been awarded to contractors prior to having a supervising consultant in place. This is not good practice and should be discouraged. Examples of road contracts where the consultants were engaged when the civil works were well advanced include, Fort portal- Kyenjojo, Kamuli-Bukungu, Nansana-Busunju, Isingiro-Rakai/Mbarara Border, Rakai/Mbarara border-Rakai, Bumbobi/Bubulo-Bududa, Mpigi-Kanoni, and Kyapa-Kasensero roads.

VII. Costs of road construction

- Costs of construction for a number of projects were noted to be on the high side. For certain projects the flexible pavement cost is comparable to that of a rigid pavement which has at least twice the design life and very low maintenance costs. Comparison of project costs against the cost for other similar works indicate that the rates of constructing a kilometre of a road vary by great margins, for example, the rate/Km for construction of Soroti-Dokolo road is shs.1.1 billion while that of Dokolo-Lira road is shs.1.4 billion; the rate for maintenance of Kyapa-Kasensero, is shs.29million yet that of Masaka-Bukakata road is shs.50 million. This is an indication that there is lack of cost control during tendering and award of contracts.
- Also noted were the significant variances of unit rates being quoted by contractors for same work items for similar projects. These differ, in some cases, up to 300%; for example, the cost of installing a 600mm diameter culvert is quoted as UGX 186,000 for Rakai – Mbarara Border project while the same culvert size installation is quoted at UGX 705,000 for Hoima-Kizirafumbi project, a variance of 279%. There is need to carry out a unit rate analysis study and disseminate the results to the construction industry.
- According to UNRA the rising unit costs of construction per Km is attributed to procurement methods used which do not allow negotiations on prices. UNRA should consider use of other prescribed methods of procurement like fixed Budget selection which have been proved to be effective in other countries.

VIII. Scarcity of Road Building Materials

Scarcity of good gravels in certain areas demands for concerted efforts and research in utilising the locally available soils for road building (e.g. use of stabilisers). In some areas of Uganda there is lack of adequate and suitable materials such as gravel and aggregates. Transportation of such materials over long distances is a big cost to the projects. On some projects carried out in these areas, there has been significant removal of soils from the road-way which is regarded as 'unsuitable material' for example, on Olwiyo-Pakwach, Dokolo-Lira, Matuga-Semuto-Kapeeka roads. However, it has been proved that many of the tropical soils including black cotton soils may safely be used in construction of roads if appropriate methods for their use are applied (for example by applying stabilizers). More research is needed in the use of the locally available materials. UNRA and consultants should pursue the on-going regional initiatives on use of locally available materials on low volume roads and seriously consider their findings for use in Uganda.

IX. Decision Making

It was noted that there are delays by UNRA in taking decisions regarding issues raised by supervising consultants/contractors. These delays impact negatively on the smooth implementation of works and could eventually lead to claims. It is recommended that timely decisions be made by the appropriate authorities (Consultants/UNRA) to avoid unnecessary delays and eventual cost implications.

X. Road Safety Measures

Safety of road users is not adequately addressed, notably there is lack of road signs and speed control humps in some areas. Improved roads lead to higher vehicle speeds and presents risks to road users particularly where the roads pass through populated areas.

Notable cases where road safety measures were not well addressed include Jinja-Bugiri road, Olwiyo-Pakwach road, and Busunju Kiboga road where there is frequent vandalism of the road signs. Many other roads also lack road signage to address road users' safety. It is recommended that UNRA liaises with stake holders to devise appropriate measures such as speed control humps to force the traffic to reduce speed in such areas. There is also need to sensitise the communities living alongside the roads on road safety. This will help in reducing the thefts/vandalism of road signs and other road furniture.

UNRA should also explore the possibility of using material not prone to thefts/vandalism such as cast iron or concrete instead of aluminium for road signs. For example the photos below show concrete sign posts used in Tanzania



XI. Axle load Control

No evidence of strict control of axle loads was seen during the audit period, save for a few mobile weigh bridges permanently stationed at particular locations on a few roads. There were many heavy trucks seen plying the roads and some appeared to be overloaded. This overloading of trucks causes premature failure of the roads and eventual loss of heavy investment put in them. There is need to institute proper control of axle loads to preserve the investments in roads using the recent technologies including computerization and

networking to prevent the corrupt practices that have always undermined the principal objectives of weighbridges

XII. Performance of Force Account Units

The quality of works done through force account was found to be good and better than some of the works done by contractors on some projects. The examples of roads where UNRA had executed works using this method include

- Spot repairs Soroti-Mbale road and Mbale Kumi road, and
- Routine maintenance on Kaputh-Kaabong, Kaabong-Kapedo and Laropi-Adjumani-Amuru border roads.

The existing weak contracting capacity in the country calls for strengthening of the force account units to cope with the increasing demand for timely maintenance of the roads especially the gravel roads. Many of the equipment seen in the district stations were very old and their efficiency levels are very low. In view of the fact that the private sector may not pick up soon, UNRA should strengthen the capacity of force accounts units.

XIII. Overstretched Contractors and Consultants

There are cases of contractors and consultants who have been awarded a number of contracts all running concurrently.

- Some of the contractors and consultants are delivering while others are failing because of low capacity in terms of equipment and human resources. Cases of contractors 'abandoning the sites' were noted e.g. Zzimwe Hardwares & Construction Ltd had abandoned works on Arua-Manibe-Wandi, Manibe-Koboko-Oraba at the time of this audit. This contractor was also executing works for Fort Portal – Kyenjojo road. In addition, the same contractor had various contracts with other agencies like Kampala City Council. The contractor was overstretched in terms of equipment and personnel.
- There are also cases of Consultants who have been contracted to supervise many projects under one or more contracts. This has stretched their capacity as they are failing to deliver.

XIV. Contractor's, Consultant's and UNRA Personnel

- The competence of staff for contractors and consultants found at the sites ranged from high to low. The personnel to the levels of Site Agent/Supervisors for Contractors and Road Inspectors for Consultants lacked the requisite qualifications and experience. Technicians and craftsmen are given responsibilities of supervision that are beyond their capabilities for example on Moyo-Obongi road.

- UNRA should ensure that only qualified and approved staff are the ones working at the sites
- Over 90% of UNRA Station Engineers are also not registered with the Institution of Engineers and the Registration Board and are therefore practicing illegally.
- Some sites for contracted works were being managed and supervised by Engineers who are not registered with the Institution of Engineers and the Registration Board.
- Some personnel found on various sites for both the Contractors and Consultants were different from those that were proposed during the bidding process and approved as per contracts e.g. Fort Portal-Kyenjojo road, Soroti-Dokolo, Dokolo-Lira and Arua-Manibe-Wandi, Manibe-Koboko-Oraba roads.

The above inadequacies may be the direct cause of defective works sighted during the audit visits and undermine ethical conduct.

XV. Price adjustments

Payments being made for price adjustments have been found to be excessive on some projects (about 30% of contract amount). The rationale and accuracy of application of price adjustment clause/formula (on a monthly basis and use of prices rather than indices and sources) was not well explained. It was noted to be irregular and needs to be reviewed.

For example for Soroti – Dokolo road the amount paid for Variation of Prices (VoP) amounted to shs.18bn/- as of September '09 (26% of contract sum). The estimated amount for Variation of Prices in this contract was shs.3.2bn. For Dokolo-Lira road, the amount paid for VoP amounted to shs.11bn as of September 2009 (13% of contract sum). Incidentally both roads happened to be under one contractor.

XVI. Quality of works

- The quality of the works on the roads that were audited varied from good (carriageway of Kikorongo – Kasese – Kilembe for paved roads and Hoima-Kizirafumbi–Kabaale for gravel roads) to poor (Fort Portal – Hima for paved roads and Hoima–Kaiso for gravel roads). The poorly done works indicate lack of integrity among some of the contractors and consultants.

During the reconnaissance visit, defects were noted on a number of roads. It was noted that corrections of defects that were noted during the auditors' reconnaissance visit on some roads were done immediately before the detailed audit was conducted. This

indicates that there is weakness in supervision of works at all levels. UNRA should closely monitor and supervise ongoing works.

- Some particular works were found to be substandard i.e. concrete pipe culverts and headwalls. It was noted that the production of concrete pipe culverts is not controlled and this has led to having substandard ones in the market and their eventual use on the road works across the country. Many of them have failed especially those installed on gravel roads.
- The results from the field tests undertaken on wearing courses of paved roads revealed that these works were done according to specifications. However tests on other works (underlying pavement layers and other works) revealed unsatisfactory results e.g. strength of cement stabilised bases (low CBR values), thicknesses of gravel wearing courses less than the specified, low cement contents in the mortar used for constructing of culvert headwalls and poor quality of lined drains.
- Cases where unsatisfactory civil works were noted include, Kampala-Jinja road (Black spot), Jinja Bugiri road (Access roads), Luwero-Kafu road, Fort Portal-Kyenjojo road, Fort Portal-Hima road, Pabbo-Atiak-Nimule road, Isingiro-Rakai/Mbarara border road, Hoima-Parajwoki-Buseruka-Kabaale-Sebagoro-Kaiso road, Nansana-Busunju road and Lira-Kitgum road

XVII. Strengthening of UNBS

Tests for roads works were analysed from two laboratories i.e. Uganda National Bureau of Standards (UNBS) and Dar-es-Salaam. The process of testing results delayed the audit exercise because of lack of appropriate capacities at UNBS.

The UNBS needs to be strengthened to handle major tests for road works as a counter check laboratory in addition to MoWT Central Materials Laboratory– Kireka laboratory.

Certification of materials such as culverts by UNBS should be made mandatory.

XVIII. Value For Money

- Some of the projects such as upgrading of Gayaza – Ziobwe (UGX 1.57bn per km) were found to cost well above the rates of similar works in the country. The range of costs for similar works is between UGX 500m (upgrading of Olwiyo Pakwach) and UGX 900m (upgrading of Matuga – Semuto – Kapeeka) for similar type of works.
- Designs for some of the roads were of very high standards and therefore costly (use of asphalt concrete on Busunju – Kiboga – Hoima road). Double surface dressing would have sufficed for this type of road.

- Design and scoping of the works on certain roads will not provide value for money as the interventions will not guarantee long serviceability of the road e.g. shoulder repairs on Nansana – Busunju road while the carriageway is exhibiting failures (increasing number of potholes).
- Most of the works certified for payments on all contracts were found to reflect the actual works done. However the quantities certified and paid for some of the work items were more than 30% of the original estimated quantities and this could not be verified due to the nature of the work (excavate and cut to spoil, fill from borrow, etc.)

KEY SUMMARY FINDINGS PER ROAD CONTRACT

	Road Project	Contractor	Key findings
1.	Black spots improvements on Kampala-Jinja Road	Multiplex/Omega Joint Venture	<ul style="list-style-type: none"> • Delays in completion as a result of inexperienced contractors • Liquidated damages not charged for the delays. • Contract awarded without drawings • Nugatory expenditure of Shs.57.6 million. • A number of defects noticeable on the Road • Asphalt laid at Namanve less than the required thickness • Entebbe-Kampala Sections not worked on yet the amount spent was to cover both Jinja-Kampala and Kampala and Entebbe.
2.	Jinja-Bugiri Road Rehabilitation	Rcc- Reynolds Construction Company/Sonitra Ltd.	<ul style="list-style-type: none"> • Kerbstone along the Jinja Section are low in height.. • Lettering on sign posts not readable • Road safety (Kakira junction) not catered for. • Some defects noted (to be rectified by contractor) • Double surface dressing of shoulders, Access roads and junction not done to standards • Average cost per Km high.
3.	Kampala-Gayaza Rd. Upgrading and Strengthening	Energo Project Miskogradnja	<ul style="list-style-type: none"> • Delayed works • Inadequate provision for crossing culverts • Unrealistic increment in sub-base material valued at Shs.1.3 billion

			<ul style="list-style-type: none"> • Culvert concrete failures in some sections • Unit cost (1.58 billion) high.
4.	Kawempe-Luweeo Road Rehabilitation/ Resealing	Energo Project Niskogradnja	<ul style="list-style-type: none"> • Delayed works • Defects noticeable to be rectified by contractor • Measured and Road length differed from the Contracted length by 8.2 Km. • Unexplained increments in quantities valued at over Shs.4.8 billion..
5.	Luweero-Kafu Rehabilitation/ Resealing	Energo Project Niskogradnja	<ul style="list-style-type: none"> • Delays in commencement of works leading to change in road design and costs. • Contract variations of over 16 billion (U) more than 100% of the contract amount • Delayed execution of works. • 3 vehicles fully paid for were not procured by contractor • Defects in some sections. • Measured length is 105 Km as opposed to 106 Km indicated by the Consultant. • Unexplained increments in materials, quantities of over Shs.2 billion.
6.	Fort Portal-Kyenjojo Road Widening and Resealing	Zimwe Enterprises, Hardwares and Construction	<ul style="list-style-type: none"> • Slow progress of works. • Initial works carried out without a supervising consultant. • Approved staff for the road works were not on site. • Defects need to be rectified by contractor • Contractor thin on the ground • Weak base in some road sections. • UNRA hesitant to invoke termination clause despite slow progress.
7.	Fort portal-Hima Road (Strengthening)	China Chungqing International Construction Corporation (CICO)	<ul style="list-style-type: none"> • Road failures at various road sections. • Contractor granted time extension and compensated despite delays attributed to him. • Weak Road base in various sections. • Contractor found rectifying the defects at night without required supervision.

8.	Hima-Kasese-Kikorongo and Kasese-Kilembe Roads (Strengthening)	SBI International Holdings	<ul style="list-style-type: none"> • Longitudinal cracks visible on the road, a sign of road failure. • Sub-base analysis indicated high clay content. • Defects (aggregate stripping) noticeable in some sections..
9.	Olwiyo-Pakwach Road (Upgrading to Paved Standard)	China Changqing International Construction Corporation	<ul style="list-style-type: none"> • Defects noticeable in some sections (potholes, extensive rutting). • Crushed stone base less than the designed specifications • Wrongly positioned road signage. • Some sections showed extensive road failure. • Accidents common in particular Sections of the Road (possible poor road design). • Poor design of the drainage system at some sections.
10.	Kiboga-Hoima Road (Upgrading)	Stirling International (UK)/Stirling Civil Engineering Ltd.	<ul style="list-style-type: none"> • Contract duration increased excessively by 117% leading to increase in costs. • Works not completed after 9 years. • 3 consultancy firms hired at different times to design bridge/culverts at Kafu River. • Weak asphalt found at some sections of the road • Measured Road length of 75.34 Km against stated length of 77 Km. • Unprotected road edges fast eroding especially in trading centres.
11.	Nanduget-Aksim (Periodic maintenance)	J.W. Opolot Construction Ltd.	<ul style="list-style-type: none"> • Drainage not planned for. • Weak sub-grade was found in some sections. • Measured length of 71.2 Km against stated length of 74 Km. • Compaction of gravel done without enough moisture. • Slow progress of Works.
12.	Kamuli-Bukungu Road (Periodic Maintenance)	Kark Technical Services Ltd.	<ul style="list-style-type: none"> • Consultancy contract procured when the works were 60% complete. • Slow progress of works due to frequent breakdown of contractor's plant • Measured length of 66.3 Km.

			<p>against stated length of 68 Km.</p> <ul style="list-style-type: none"> • Poor workmanship noticed in laying crossing culverts. • Inadequate provisions for drainage along stretches on hills.
13.	Kotido-Kanawa-Abim Road (Periodic maintenance)	Excel Construction Ltd.	<ul style="list-style-type: none"> • Wrong drawings were provided in the contracts. • BOQs provided for 75mm of gravel thickness. Considered to be too small for this road. • Some culverts were not properly aligned, others damaged or lacked headwalls. • Culverts outlet drains were blocked by residents. • Some sections showed rutting • Road edge severely eroded by storm water.
14.	Pabbo-Atiak-Nimule Rd. (Urgent Repairs)	Mulwooza & Brothers Ltd.	<ul style="list-style-type: none"> • Gravel in some sections is of less thickness than required. • Measured length of 67.6 Km. against stated length of 70 Km. • Defects noticed on a number of culverts. • Severe erosion noticed along some headwall surrounding due to poor compaction. • Cost per Km of 47.5 high.
15.	Isingiro-Rakai/Mbarara Border Road (Periodic maintenance)	Assured Engineering Services Ltd.	<ul style="list-style-type: none"> • Supervision Consultancy procured when works were 85% complete. • Weak wearing course noticed in some sections. • Measured length of 52.7Km against stated length of 54.15Km. • A number of culverts had cracked (poor quality). • Long stretches in low lying areas did not have adequate provisions for drainage • Compaction was being done without enough moisture in the gravel.
16.	Soroti-Dokolo Road (upgrading)	China Road and Bridge Corporation	<ul style="list-style-type: none"> • Delay in award of contract (10 months) due to lack of standard rates for materials • Used outdated general conditions of contract. • Wrong application of variation of prices (VoP) formula (indices) escalated the contract price by

			<p>over 18 bn (26%) as of September 2009. UBOS was not consulted on the right formula (indices) to use.</p> <ul style="list-style-type: none"> • Late decisions made on road shoulders, increasing the cost by 1.07 bn. • Contractor works more than the programmed working hours a day. Supervision arrangements for these hours not clear. • Contractor key staff on the site were all different from the approved as per contract. • High percentage of foreign staff (25%) without proper justification. • Extra hours put in by the contractors staff paid under day-works-resulting into over payment of 30 million. • No work items were included in the contract to protect road edges in populated areas. • Lack of sufficient mitre drains. • Substantial upward variation of quantities for some activities by up to 25%. • Excavation of unsuitable material to spoil higher than BOQs quantity. The materials could have been treated and reused. • No measurement Engineer on site after the death of one in July 2009. • Severe erosion of embankments at many locations. • Cost escalation of over 33 bn so far. • Average cost of 1.45 bn (so far) is high.
17.	Dokolo-Lira Road (Upgrading)	China Road and Bridge Corporation	<ul style="list-style-type: none"> • Delayed award of contract (13 months) due to lack of standard rates for materials and unplanned funding gap.. • Used outdated general conditions of contract. • Wrong application of variation of prices (VoP) formular (indices) resulting into price adjusting of 11 bn (13%). • Contractor dos not have own material testing laboratory. • Excavation to spoil of material up to 450mm. Material could have

			<p>been treated and reused.</p> <ul style="list-style-type: none"> • Cement stabilized sub-base showed unnecessary high and costly CBR values of up to 260%. • Safety of road users and workers neglected by the contractor. • Environmental issues not addressed by the contractor • Quantities of some activities have been varied by up to 25% with no negotiations with the contractor to lower the rates. • Cost escalation of more than 25bn (sofar). • Cost per Km of shs.1.6 bn is high.
18.	Matugga-Semuto-Kapeeka Road (Demonstration of innovative technologies)	China Chongqing International Construction Corporation	<ul style="list-style-type: none"> • Used outdated general conditions of contract. • Slow progress by the contractor noted. • Large quantities of cut to spoil material (more than 350% increase of the BoQ provision leading to (extra cost of 6.2 bn). • No application and spread rates of materials were mentioned in the BoQs. • Two types of modified base were referred to in the BoQs. • Key approved contractor's staff not on site
19	Ntungamo-Kabale-Katuna (Backlog maintenance)	Spenco-Stirling JV (Uganda)	<ul style="list-style-type: none"> • Delay in award of contract (15 months). • Wrong formula for price adjustments (using prices instead of indices) • Contractor not accounting for the 20% advance payments • Traffic management not well handled. • Late submission of progress reports by consultants. • Experimenting Cold Slurry Seal material on the road earmarked for reconstruction. • Road Section from Kabale to Katuna looked good enough. Isolated pothole repair could keep the road until the reconstruction.
20.	Masaka-Kyotera and Nyendo-Villa Maria roads (backlog maintenance).	Dott Services Ltd. (Uganda)	<ul style="list-style-type: none"> • Contract expired with no extension granted. • Very slow progress

			<ul style="list-style-type: none"> • Claim for price increase submitted (increase in costs) • Concern over misuse of project vehicles. • Fresh potholes developing at the edges of the patched ones. • The rates of application for the Slurry Seal Material not stated in the BoQs (contract).
21.	Moroto-Lokitanyala Road (Periodic Maintenance)	Kirk Technical Services Ltd.	<ul style="list-style-type: none"> • Supervision consultants procured when the work had already progressed. Not on-ground. • Multiple culvert failures were noticeable • Average cost of shs.54.01m per Km is high.
22.	Fort Portal-Kamwenge Road (Periodic Maintenance)	Kato Investments Ltd.	<ul style="list-style-type: none"> • Poor jointing of culverts. • Inadequate provisions for drainage along the hilly sections.
23.	Kampala-Mbarara Road (Reconstruction of Priority areas).	Reynolds Construction Company (Nigeria) Ltd.	<ul style="list-style-type: none"> • Contracts for works and consultancy denominated in Euros instead of UGX (functional currency). • Payment made for materials (G30) which was not on the list of materials at the site. • Laboratory equipment fully paid for by GoU will revert to the contractor. • Physical progress of 16% against time taken of 40.8%. • Environmental concerns not adequately catered for.
24.	Moyo-Obongi Road (Periodic Maintenance)	Universal engineering (U) Ltd.	<ul style="list-style-type: none"> • Provisions for Mitre drains excessively high. • No strip maps were available • Work activities not included in the BoQs all being proposed (Lack of proper planning). • Contractor was found dumping heavy clay material late in the evening without the knowledge of the Consultant. • Consultant thin on the ground (being represented by a junior person) • Average cost per Km of Shs.54.67m high.

25.	Arua-Manibe-Wandi, Manibe-Koboko-Oraba Road (Periodic Maintenance)	Zzimwe enterprises, Hardwares and Construction Ltd.	<ul style="list-style-type: none"> • Very slow progress due to contractor management problems. (Abandoned works). • Late procurement for supervision consultants • Sections worked on were deteriorating while the sections unattended to were becoming impassable. • UNRA hesitant to invoke termination clause in the Contract
26.	Nansana-Busunju Road (Shoulder & Pothole repair)	Nicontra Ltd.	<ul style="list-style-type: none"> • Inappropriate drawings provided for the contract. • Test results for Kayunga-Kalagi Road included in the 2nd progressive report (doubtful results). • Some individual items in the BoQs varied by up to 476.5%. • Some cases of poor workmanship noted. • Some primed sections left for long time leading to deterioration. • Completed sections showing a number of defects. • Supervision consultancy procured when the works were 48.1% complete. • Very slow physical progress of 48% against time progress of 109%. • Low Quality progress reports.
27.	Masaka-Bukakata- Kakyanga-Lambu Road (Periodic Maintenance)	Multiplex Ltd.	<ul style="list-style-type: none"> • Inappropriate drawings provided in the contract. • Small Culverts used (could be a future maintenance problem). • Specifications for paved roads included in the contract. • Snags list shows sections with less than the required thickness of gravel; work activity fully paid for. • Average cost per Km of 50.2 m high.
28.	Busunju-Kiboga Road (Upgrading)	Stirling International Civil Engineering Ltd.	<ul style="list-style-type: none"> • Delayed completion • Road edges being eroded especially at sections in populated areas. • Most of the road signs vandalized/stolen • Blocked side drain by residents. (Inadequate access provisions

			<p>were provided).</p> <ul style="list-style-type: none"> Supervising Consultants changed three times.
29.	Hoima-Kiziranfumbi-Kabale Road (Emergency Repairs)	Dott Services Ltd.	<ul style="list-style-type: none"> Contradicting test results noted. No drawings were included in the contract Average cost per Km of 96.88m considered high.
30.	Busega-Mityana Road (Spot Repairs)	Spenco Services Ltd.	<ul style="list-style-type: none"> No drawings were included in the contract. As built drawings were also not available. Some pay items in the BoQs were raised up to 150% but not properly documented. Completion Certificate issued when the snags on the road had not been attended to. Average cost per Km (spot repairs) of shs.152.8m is high. Road had been earmarked for reconstruction (in progress). Spot repairs should have been scaled down to avoid waste.
31.	Malaba and Busia parking Yards (urgent repairs)	BCR General Ltd.	<ul style="list-style-type: none"> Contract duration expired when 84% of works were complete. No extension of time was granted. Drawings in the contract were for road works. Contractor's staff changed without approval. Cost per cu.m of concrete of shs.680,000 considered high.
32.	Ngetta-Lira Border Road (Periodic maintenance).	Mulwooza & Brothers Ltd.	<ul style="list-style-type: none"> Delays noted. Contract period expired when works were 63% complete. Approved contractor's staff not found on site. Some works not done according to specifications. Drainage failure noted. Average cost per Km of Shs. 42.17m is high. Progress reports not adequately prepared.
33.	Nyakahita-Rushere-Rwakitur Road. (Gravelling, grading and drainage improvement).	BCR General Ltd.	<ul style="list-style-type: none"> No progress reports were available. Average cost per Cubic Metre of concrete at shs.680,000 for headwalls is considered high.

34.	Kafu-Masindi Road (Upgrading)	General Nile Company for Roads and Bridges/Dott Services Ltd. Joint Venture	<ul style="list-style-type: none"> Contract delayed and extended for 23 months. Shs.16.676bn approved and paid in respect of the contractor's claim for prolonged stay. Final average cost per Km of Shs.1.12 high. Unit cost application rate for crushed stone base was raised leading to increase in contract sum by Shs.2.5bn. Unit for stone pitching more than doubled from Shs.27,000 to Shs.54,210. Application rates for first seal and surfacing dressing were also revised, increasing the cost by Shs.4 bn. Bitumen variations of Shs.147 million. Dangerous drainage systems in Masindi town. 20mm size aggregates were applied on top instead of the specified 10mm size aggregates.
35.	Bumbobi-Bubulo-Bududa Road. (Periodic maintenance).	Rocktrust Contractors (U) Ltd.	<ul style="list-style-type: none"> Engagement of supervising consultants when works had progressed. Defects noticed at the beginning sections of the road. Gravel which failed tests was applied from Section 16 + 000. Silted drains noticeable.
36.	Soroti-Kumi Road (Emergency Repairs)	Spenco Services Ltd.	<ul style="list-style-type: none"> Contract cost revised by 111% from shs.2.77bn to Shs.3.17bn. Shoulders not sealed as per contract. No design plans/drawings Grass not planted on embankments.
37.	Lakapel-Nabilatuk Road (Periodic Maintenance)	Kark Technical Services Ltd.	<ul style="list-style-type: none"> Supervising Consultant procured when the works were over 70% complete and appeared only once on site.
38.	Kanawat-Apaan-Kaputh Rd. (Periodic maintenance)	Minimax Enterprises Ltd.	<ul style="list-style-type: none"> Lack of water in the area to provide for adequate compaction. Sandy soils difficult to compact.
39.	Lira-Kitgum Border (Periodic Maintenance)	Kark Technical Services Ltd.	<ul style="list-style-type: none"> No design plans/drawings. Road in poor state

			<ul style="list-style-type: none"> • Insufficient Culvert provisions (drainage is still a challenge).
40.	Mpigi-Kanoni Road (Period maintenance)	Valley Technical Services Ltd.	<ul style="list-style-type: none"> • Late procurement of supervising consultant (2 months to completion date). • Cracked culverts noticeable. • Consultant's staff not on site. • Sub-standard quality of headwalls.
41.	Kanoni-Maddu-Kisozi-Katonga Road (periodic Maintenance)	Sobetra Uganda Ltd. Construction and Engineering Company	<ul style="list-style-type: none"> • Supervising consultant procured 3 months to completion date. • 67% of physical works progress against 88% time progress. (delays). • Medium grading not sufficient. • Road becomes narrower after Maddu. • Road failure (failing camber) on graveled sections. • Poor drainage.
42.	Myanzi-Kassanda-Bukuya-Zanyino Rd. (Maintenance & Rehabilitation)	Kato Investments Ltd.	<ul style="list-style-type: none"> • Water logging on both sides of the road in swampy sections (not sufficient drainage). • Crossing culverts improperly laid. • No drainage provisions in urban areas.
43.	Kyapa-Kasensero Road (Periodic Maintenance).	Otada Construction Company Ltd.	<ul style="list-style-type: none"> • Consultancy Contract procured when the works were almost completed. • Access to the fish factory not provided for in the contract. • No Engineer's estimate • There were major works done in the defects liability period • Poorly constructed headwalls.
44.	Fort-Portal-Bundibugyo Road (Periodic Maintenance)	Kasese Nail & wood Industry Ltd.	<ul style="list-style-type: none"> • No Engineers estimates. • Drainage problems noted at some sections • Insufficient gravel on culverts and not properly compacted.
45.	Force on Account <ul style="list-style-type: none"> • Tororo-Mbale Road • Mbale-Kumi Road • Kaputh-Kabong Road • Kabong-Kapedo Road 	Uganda National Roads Authority (UNRA)	Good works completed at minimal costs.

1 INTRODUCTION

Under Article 163 of the Constitution of the Republic of Uganda and Sections 13 and 19 of the National Audit Act, the Auditor General (AG) is mandated to audit Government and all those organizations, which receive and utilize public funds. Under the same Act, the Auditor General has powers to engage consultants to assist him carry out his work. Accordingly, a team of six consultants was engaged by the OAG to work closely with the OAG staff to undertake an engineering audit of a sample of selected road works under UNRA.

A total of 50 projects were selected for the engineering audit based on their contractual value and the risk assessment undertaken during the planning stage of the audit.

2 OBJECTIVES AND METHODOLOGY

2.1 Objectives

The specific objectives of the Engineering Audit were:

- A. To evaluate the existence and effectiveness of internal controls, which are needed for sound management and engineering principles and practices;
- B. To obtain reasonable assurance, that the constructed and rehabilitated/maintained roads, were actually done with reasonable quality in accordance with specifications, sound engineering principles, practice and technical management policies;
- C. To report on the findings and communicate as required.

2.2 Methodology

A preliminary risk assessment was carried out by the OAG and a list of 50 roads identified for engineering audit. The projects identified included paved roads and unpaved roads regardless of the source of financing.

- The first task was to make a reconnaissance site visit to all the selected road projects in order to appreciate the works being undertaken and assess, by visual inspection, the condition and quality of the works. After the reconnaissance visit the team collected and reviewed the documents related to the projects including the contracts, progress reports payment certificates/invoices, and others.
- Following the initial assessment of the road works, the team grouped the road works in three categories and decided on the scope of auditing for each category

- a. Level A - Detailed technical audit including literature review and field tests: 17 road projects.
 - b. Level B - Detailed literature review and assessment from visual inspection: 19 road projects
 - c. Level C - Brief literature review and assessment from visual inspection: 14 road projects
 - d. Level D- brief visual inspection of roads encountered during reconnaissance visits: 2 road projects
- The 17 roads selected under Level A were again inspected to carry out field tests and measure some of the works done to ascertain their compliance with specifications and to check whether the quantities certified for payment were accurate. Interviews were conducted with the relevant personnel (UNRA staff, consultants and contractors).
 - A detailed literature review was undertaken for category B roads to compare the field inspection findings during reconnaissance with the documentary evidence especially on quantities and contract management aspects.
 - For category C roads, limited literature review was undertaken.
 - No literature review was undertaken for category, D because of time constraints.
 - The findings were presented and discussed with UNRA management, in a meeting held on 27th January 2010.
 - The team undertook further inspections to verify some of the responses provided by management
 - Field tests were conducted for some of the roads selected for detailed audit. The tests included: grading, bitumen content, air voids, core density for asphalt and DBM (paved roads) and DCP tests to determine the CBR to estimate the strength of the base course / sub-grade (for both unpaved and paved roads). For contracts where the CBR specifications were lacking, the auditors related the CBR results with strength of base and/or sub-grade in accordance with TRRL recommended values.
 - In addition, tests were carried out on cement content in mortar used for lining drains and headwalls for some of the roads.

3 ROAD PROJECTS SELECTED FOR AUDIT

The 50 road works/projects that were selected for auditing were grouped in three categories and subjected to different levels of audit. The roads and the level of audit carried out on each are listed in the following sub-sections.

3.1 Category-A: Detailed technical audit including literature review and field tests: 17 road projects

Paved Roads

- i. Kampala – Jinja
- ii. Jinja - Bugiri
- iii. Kampala – Gayaza – Zirobwe
- iv. Kawempe – Luweero
- v. Luweero – Kafu
- vi. Fort Portal – Kyenjonjo
- vii. Fort Portal – Hima
- viii. Hima – Kasese – Kikorongo
- ix. Olwiyo – Pakwach
- x. Kiboga - Hoima

Unpaved roads

- i. Naddunget – Aksim
- ii. Kamuli – Bukungu
- iii. Kotido – Kanawat – Abim
- iv. Pabbo – Atiak – Nimule
- v. Isingiro – Rakai/Mbarara Border
- vi. Rakai/Mbarara Border - Rakai
- vii. Hoima - Kaiso

3.2 Category-B: Detailed literature review and assessment from visual inspection: 19 projects

Paved Roads/yard

- i. Soroti - Dokolo
- ii. Dokolo - Lira
- iii. Matugga – Semoto – Kapeeka
- iv. Ntungamo - Kabale
- v. Masaka – Kyotera & Nyendo – Maria Villa
- vi. Kampala – Masaka - Mbarara
- vii. Nansana - Busunju
- viii. Busunju - Kiboga

- ix. Busega - Mityana
- x. Kafu – Masindi
- xi. Urgent repairs of Malaba and Busia Customs Parking Yards

Unpaved roads

- i. Moroto - Lokitanyala
- ii. Fort Portal - Kamwenge
- iii. Moyo - Obongi
- iv. Arua – Manibe – koboko - Oraba
- v. Bukakata – Kakyanga - Lambu
- vi. Hoima-Kiziranfumbi-Kabale
- vii. Ngetta-Lira Border
- viii. Nyakahita-Rushere –Rwakitura Road

3.3 Category-C: Brief literature review and assessment from visual inspection: 14 road projects

Paved Roads

- i. Tororo-Mbale
- ii. Mbale-Kumi
- iii. Approaches to Awoja Bridge on Soroti -Kumi

Unpaved roads

- i. Bumbobi – Bubulo - Bududa
- ii. Lokapel-Nabilatuk- Angatun
- iii. Kanawat-Apaan-Kaputh
- iv. Kaputh-Kaabong
- v. Kaabong-Kapedo
- vi. Lira- Kitgum Border
- vii. Mpigi - Kanoni
- viii. Kanoni-Maddu- Kisozi-Katonga
- ix. Myanzi-Kassanda- Bukuya-Zanyiro
- x. Fort Portal-Bundibugyo
- xi. Kyapa-Kasensero

All projects except the Tororo – Mbale, Mbale – Kumi, Kaputh – Kaabong and Kaabong – Kapedo projects are being worked on by contractors. The four roads referred above were being worked on by UNRA using force account.

4 AUDIT FINDINGS

This section presents the detailed findings on each of the selected projects.

4.1 Category A projects – Detailed literature review and physical inspection

4.1.1 Physical and Road safety improvements at identified black spots in the road sections between Kampala – Jinja

Civil Works Contract No. RDP/HW/C015

Consultancy Contract No: RDP/HW/S009

a. Contract Details

Client	RAFU / UNRA
Design Consultant	Phoenix Engineering & Research Ltd
Supervising Consultants	Phoenix Engineering & Research Ltd
Consultant Contract sign Date	6 th March 2003, Additional 3 addenda the third was retrospective
Consultant Contract Amount	USD 368,000 revised three times to USD 488,134.38
Works Contractor	Multiplex Ltd, Omega Construction Ltd, Joint Venture
Letter of contract award date	18 th December, 2006
Works Contract sign date	9 th January, 2007
Commencement date	15 th January, 2007
Contract duration	12 months extended to 22 months
Completion date	15 th January, 2008 extended to Nov. 2008
Contract amount	UGX 13,108,057,200 revised to 13,893,396,115
Amount Certified to date	Certificate No. 9, on 6 th April, 2009, Certified cumulative amount UGX 13,893,396,729
% of progress reported	88.3%

b. Scope of works

The works under this contract were to improve selected black spots of the affected areas as follows; improvement to the vertical alignments by either removing crests or by raising valleys to improve on sight distances, followed by construction of new pavements, provision of bus bays, improvement to junctions by widening roads at major junctions to create medians and waiting lanes, provision of pedestrian crossings and foot paths, speed control in trading centres, providing clear road marking and road signs, general repairs to the pavement and shoulders, lining drains and construction of new culverts, providing humps and rumble strips where necessary, construction of kerbs at improved junctions, erection of

guard rails and pedestrian fences and rectification of defects during the defects liability period.

SNo.	Observation	Management Response	Auditors Opinion
c.	<p>Document review</p> <p>The documents reviewed included the contract, progress reports and the corresponding interim payment certificates, correspondence between the client and contractor, quality control tests results, and payment vouchers. The following was observed from the document review activity:-</p>		
i)	<p>The measurement of general items is not clear especially provisional sums. The measurement sheets vis-à-vis receipts were not attached to the certificate;</p>	<p>The general items relate to land acquisition 12.01a), relocation of services 12.02a) and 12.03a) removal/relocation of existing fences and signs. The Contractor's overheads/profit for the items are covered under 12.01b) 12.02b) and 12.03b) respectively.</p> <p>Land acquisition was effected by the Contractor through payment of compensation amounts for the affected persons approved by the Chief Government Valuer. (Attached as an example is a set of accountability of expenditure for the item</p> <p>Relocation of services was undertaken by the service providers NWSC for water and UMEME for power and attached are some of the receipts for this expenditure (Attached are receipts related to services relocation by the utility firms)</p>	<p>Details of payments were seen by the Auditors and the response is satisfactory.</p>
ii)	<p>The completion date was revised from 15th January, 2008 to 17th April, 2008 but the actual completion date was 24th February, 2009;</p>	<p>This is a correct observation</p> <p>The delay in commencement of the works related to late availability of the Consultant's Project Manager's Representative to approve surveys confirming the</p>	<p>No documents provided that legalised the 10 months extension; liquidated damages should</p>

		<p>extent of the various black spot sites and also to issues instructions on actual works to be executed</p> <p>The Consultancy services comprised for design, tender assistance and supervision of construction with a one month period between end of tender assistance (approve of the works bid evaluation report) and commencement works. The procurement process of the Contractor was subject to an unsuccessful administrative review process which caused a delay between the consultant's submission of the bid evaluation report 5 April 2006 and actual issues of letter of acceptance on 18 Dec 2006 of 7 months. By this time the original Project Manager's Representative was no longer available. The replacement Project Manager' Representative was only secured after the commencement of the works. (see copy of administrative review report dated 2 October 2006)</p> <p>The Project Manager's Representative awarded 55 calendar days due to inclement weather and 30 working days extension due to delay (see attached copies of PMR's correspondence on the matter)</p>	<p>have been imposed with effect from 18th April 2008.</p>
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iii)	The main cause of the extra 10 months delay was attributed to the " <i>Inexperience</i> " of the contractor in handling asphalt. This in effect resulted in the Consultant's stay on site for a longer period and hence more project costs;	<p>This is a correct observation</p> <p>The Contractor had problems in his organization of the works. The Contractor had substantially completed the main works by end of August 2008. Between this time and when he attained substantial completion on 24 February 2009, the Contractor was rectifying unsatisfactory asphalt concrete wearing course which required him to re-do the surfacing at some sections</p>	The payments done to the Consultant for the 10 months period is nugatory and could have been avoided if an experienced contractor had been engaged.
iv)	Substantial completion of works was in February 2009 and works were in defects liability period (1 year) at the time of Audit;	<p>This is correct observation.</p> <p>Substantial completion was attained on 24 February 2009. Copies of the substantial completion certificates are included in the substantial completion report availed to the audit team during the audit. The reasons for this have been given in A iii above</p>	No documents were seen that legalised the 10 months extension; liquidated damages should have been imposed starting 18 th April 2008.
v)	The contractor was awarded a contract without drawings and complete specification, which caused delay for commencement of works. In fact the contractor received the drawings 28 days after commencement of works;	<p>This is not a correct observation</p> <p>The specifications Vol 1 –Section VII and drawings Vol 1 –Section VIII were part of the signed contract document.</p> <p>The delay in the commencement of the works was related to delayed approvals of surveys confirming the extent of the various blackspot locations and related works to be executed. The reasons for the delay have been given in c. ii) above.</p>	The replacement of the Consultant's Project Manager took long and affected the progress of works.

vi)	The delay in commencement of works (due to lack of drawings and non responsiveness to the contractor's communications), attracted a financial claim of UGX 57,672,000;	<p>The Contractor's financial claim was UGX 2.236 B based on idle time for equipment and personnel. This was evaluated to UGX 57,672,000.</p> <p>The reason for this was due to delayed instructions to the Contractor as has been explained in c. ii) above.</p>	This is a nugatory expenditure that could have been avoided if the instructions were issued in time.
vii)	The construction supervision services were extended to 15 th November 2008; because the newly laid asphalt concrete surfacing had developed cracks without due consideration of what caused the cracks especially the consultant's efficiency in supervision;	<p>The quality of the placed asphalt concrete was actually tested at our instruction using an independent laboratory namely TECLAB. However the results indicated that the asphalt concrete was mainly within the specifications (A summary sheet of the TECLAB results are attached for reference)</p> <p>Accordingly, a decision was taken to instruct the Contractor to seal the minor cracks with surface dressing and to remove and replace the deformed asphalt at the contractor's own cost. The Contractor complied with the instruction</p>	The fact that the asphalt works were failing while the test results were satisfactory as per the 'independent laboratory' report raises question on credibility of the laboratory.
d.	<p>Quality of Works</p> <p>A reconnaissance inspection of the road was carried out on 22nd September, 2009. Defects were noticeable on the carriageway that included potholes as shown bellow;</p>		

	 <p><i>Junction in poor state</i></p>	 <p><i>Recently laid stone pitching failing</i></p>		
<p>i)</p>	<p>On the whole the road was fully opened to traffic and the condition was good although there were notable surface defects as highlighted under the technical observations selection</p>	<p>The project is under defects liability period and the Contractor started rectification of the defects on 10 February 2010. Following joint inspection of the works with the Consultant and Contractor at substantial completion and subsequently, the identified defects have been documented in snags lists and submitted to the Contractor for rectification. (See snags in substantial completion report of March 2009 already with Audit Team and UNRA letter of 27 Jan 2010-additional correspondence on snags)</p> <p>At UNRA's requirement, the Contractor has extended the validity of his performance guarantee and insurances to end of April 2010 (copies of Contractor's 27 Jan 2010 letter on extensions of validity are attached)</p>	<p>While the steps taken are proper It is important that the defects are corrected at the earliest. UNRA to follow up.</p>	
<p>ii)</p>	<p>Some sections of asphalt surfacing applied had high bitumen content (Namanve, Kayanja and Namagunga)</p>	<p>The design bitumen content for AC was 5% nominal. Following depiction of smoothness in some sections of asphalt concrete surfacing, independent tests were conducted to investigate the matter. The results of the tests indicated bitumen content ranging between</p>	<p>Response noted. The snag list shows that the defects are appearing at the locations where the auditors have found the</p>	


		4.99 to 5.2 % which is within the specification (See attached copy of summary TECLAB results). None the less, sections showing bleeding have been brought to the attention of the contractor for rectification during the Defects Liability Period as indicated in the snag list at substantial completion.	AC to be having had high bitumen contents. <ul style="list-style-type: none"> Contractor to rectify the defects as per the snags list. UNRA to follow up.
iii)	Base course for footpaths at these locations was very weak Kitega LHS, Kayanja, Seeta.	The strength of the footpath bases will be re-checked through additional tests and rectified together with the other snags.	Contractor to rectify the defects as per the snags list. UNRA to follow up.
iv)	Most of the defects noted by the audit team had been identified by the Consultant and included in the snag lists	This is a correct observation The Consultant is obliged to supervise the Contractor in the proper rectification of the identified defects. UNRA has in addition appointed a representative on site to closely work with the supervision consultant to ensure close supervision of the Contractor during the rectification of the defects. (see UNRA letters of 15 & 16 Feb 2010 seeking method statement for rectification of DLP works and marking of defective surfacing) UNRA will make a joint final inspection with the consultant to ensure that the snags have been properly fixed.	Contractor to rectify the defects as per the snags list. UNRA to follow up.
v)	Asphalt placed at Namanve-thickness less than half on average	At Namanve, the Contractor was unable to lay a second layer of asphalt as the first layer had rutted in sections which were replaced. The layer was under	The second layer of asphalt should be laid and to achieve the specified




			observation. The full specified thickness is to be constructed as part of the rectification of the AC as part of the snag list.(See UNRA letter of 27 January to Contractor)							level of thickness or the equivalent amount recovered from the contractor. UNRA Should follow up.	
Chainage	Test	Thickness (mm)	Result (%)			Specification (%)			Remarks		
			BC	AV	CD	BC	AV	CD			
Bus bay at Njeru offset 4.2m RHS	Asphalt Analysis	65	5.2	3.0 2	2.3 4	5	-	-	Ok		
Bulyantente climbing lane LHS offset 5.4m	Asphalt Analysis	75mm and 10mm SD	5.0	4.2 4	2.3 0	5	-	-	Ok		
Namagung Upper offset 5.7m RHS	Asphalt Analysis	70	5.7	1.0 7	2.4 0	5	-	-	High Bitumen Content		
Footpath at Kitega 3.5m from 50km sign	DCP – CBR%		31			60 - 80%			Too weak base		



LHS												
Kayanja offset 3m RHS	Asphalt Analysis	50	5.8	3.14	2.35	5	-	-	High BC; Spot was surface dressed with 6mm aggregate to cover asphalt defects			
Kayanja offset 3m RHS	DCP – CBR%		43		60 - 80%		Too Weak base					
Seeta, end of walkway RHS	DCP – CBR%		31		60 - 80%		Too weak, used quarry dust base.					
Namanve offset 3.6m LHS	Asphalt Analysis	40	6.6	1.08	2.39	5	-	-	Too high BC; Less thickness			
Namanve, waiting lane 3m from 2 nd island from Coca-cola	Asphalt Analysis	70	8.6	2.0	2.4	5	-	-	Tack coat seen, Too high BC			
Namanve,	Asphalt	28.6	12.	0.4	2.4	5	-	-	Tack coat not			



	3.4m offset from CL, at Access to DRACO (U) Ltd	t Analysis		8					seen, could have migrated; less thickness		
	Namanve walkway LHS	DCP – CBR%		64		60 - 80%		Ok			
e.	Quantities Verification Interim Certificate No 9 of 8 th April 2009 was the latest certified by audit time and was reviewed. Generally, the works were for spot improvement and required more time to measure. The only measurements taken were for asphalt thickness which was found varying. At Namanve, the Asphalt laid was found to be less by half on average.							Only AC in LHS and RHS lanes at Namanve was lower than specified thickness. The reason for this has been given in d-v) above			UNRA Should follow up.
f.	Supervision of Works The supervision of works was done by Phoenix Engineering & Research Ltd. Progress reports were of good standard. Borrow pits and field density and compaction tests results were seen on file.							Statement there under is correct			
g.	Resources on Site The auditors, at the time of detailed assessment found no works or equipment on site. The contract was in defects liability period.							It is correct that works were under DLP ending 24 February 2010 UNRA has requested the Contractor to undertake repairs of defects; see UNRA letters attached and Contractor's response giving program for the			UNRA to follow up.


		repairs and extension of performance security and insurances. The Contractor commenced rectification works on 10 February 2010.	
h.	Outstanding Technical Observations		
i)	Most of the sections with asphalt wearing course as per design were surface dressed reportedly at the Contractor's expense in an effort to rectify surface defects;	This is correct. The reason for this has been given in d.-viii) above	<p>The defects were being corrected through application of surface dressing on AC layers that had cracked. These defects could have been avoided if sound quality control measures were being implemented.</p> <ul style="list-style-type: none"> • The supervising consultant should have been held responsible and penalised accordingly. • UNRA should ensure that contractors are supervised properly.
ii)	There were notable localised failures on lined drains;	<p>This is correct observation</p> <p>Most of the localized failures have been caused by vehicle wheels straying to the shoulder edge and at scenes of accidents where vehicles have ended up in the lined drains. Others were caused when the contractor provided diversions over already</p>	The failures should be rectified. UNRA to follow up.

		<p>constructed drains during repairs to the asphalt concrete surfacing.</p> <p>These failures have been included in the snag lists at substantial handover</p>	
iii)	<p>At Njeru black spot, the audit team noted that kerbstones had been damaged and it was reported that the cause of damage was trailers; footpaths were also damaged. Part of the drain on RHS had collapsed. The 30m access junction on RHS has stripped (see picture right);</p>  <p><i>Stripped access junction</i></p>	<p>These will be re-instated by the contractor as part of the snag list.</p>	<p>Contractor to rectify the defects. UNRA to follow up</p>
iv)	<p>At Bulumagi black spot, the team noted that a pothole had developed along Koonko junction (see picture below); there was a skew culvert (900mmϕ) installed but the outlet drain was very old and damaged; there was notable deformation on the road surface along the skew culvert indicating possible settlement due to weak culvert bedding;</p>	<p>These will be re-instated by the contractor as part of the snag list.</p>	<p>Contractor to rectify the defects. UNRA should follow up</p>

	 <p><i>Kooko access junction failure</i></p>	 <p><i>Outlet drainage of skew culvert not lined</i></p>	<ul style="list-style-type: none"> • This pothole in surface dressed junction is already included in the snag list communicated to the Contractor at substantial completion • A new 900mm diameter skewed culvert was constructed terminating into an existing outfall of an existing 600mm diameter culvert now reserved for services(water pipes) This existing outfall was subsequently damaged during installation of optic fibre cables by others. Outfall will be repaired by UNRA road maintenance. • Culvert is in concrete surround. The depression is in LHS lane and will be rectified as part of the snags already communicated to the Contractor. 	
<p>v)</p>	<p>At Bulyantente black spot, it was noted that shoulders had been primed but not protected by sealing (surface dressing); the surface dressed section of the shoulders was poorly done; there was notable rutting and heaving of the road surface LHS (see picture); the asphalt placed on the bus bays was of poorly graded</p>	 <p><i>Heaving at Bulyantente</i></p>	<ul style="list-style-type: none"> • The un-surfaced shoulders has been part of the snag list since substantial completion • The finishing is rough due to large-sized aggregates used. This was not considered a serious issue given that separate footpaths have been provided for the pedestrians • This rutting and heaving is at Kayanja and is already included in the snag list. • In spite this observation, this AC is quite stable. 	<ul style="list-style-type: none"> • Contractor to rectify the defects. • Large sized aggregates should not have been used as they do not meet the specifications. • Although the AC looks stable, the specifications should have been adhered to.

	aggregates;			
vi)	At Lugazi – Kitega black spot, it was noted that shoulders, lined drains, footpaths and kerbstones were worked upon, however, some of the kerbstones were knocked down and vehicles were driving over the foot paths causing rutting (see picture right;		This is correct. The contractor will rectify these damages. Greater sensitization on proper road usage will be conducted by UNRA to minimize abuse of facilities.	Contractor should rectify the defects. UNRA to follow up
		<i>Ruts developed on footpath</i>		
vii)	At Namagunga Upper black spot, it was noted that there was minor rutting and some sections of the shoulders had been primed but not sealed. At Namagunga Lower, the surface dressing had been applied onto the asphalt wearing course at the contractor's expense in order to improve on the skid resistance;		Rutting has been noted on the climbing lane in Namagunga upper; and this is part of snag list. But there are no unsealed shoulders but there are sections of shoulders that have not been sealed at Bulyantete. These are included in the snag list.	Contractor should rectify the defects. UNRA to follow up
viii)	At Kitega black spot, it was noted that a lined drain, shoulders and footpath was worked upon; however, there was a trailer accident that damaged the culvert and footpath. There was evidence of siltation and lack of proper routine		This is correct and is part of the snag list. UNRA routine maintenance contractor is undertaking maintenance activities UNRA Kampala station has been informed to improve supervision of the maintenance contractor	Contractor should rectify the defects. UNRA to follow up
		<i>Poorly maintained drain at Kitega</i>		

	<p>maintenance by UNRA (see picture right);</p>			
ix)	<p>At Kayanja black spot, it was noted that both sides of the footpaths had stripped; the Access on the RHS was poorly surfaced and there was a pothole nearby (see picture right);</p>	 <p><i>Poorly constructed access junction</i></p>	<ul style="list-style-type: none"> • Contractor is to lay a second surface dressing layer over these footpaths at his cost. • This is correct and is part of the defects to be rectified included in the snag lists. 	<p>Contractor should rectify the defects. UNRA to follow up</p>
x)	<ul style="list-style-type: none"> • At Namataba black spot, 6/10mm surface dressing was applied onto the asphalt wearing course to correct surface defects. • The shoulders that had been surface dressed and failed, corrections were done using asphalt. • There were localised failures on the lined drain LHS and some 	 <p><i>Kerbstone identified as made of brick and painted</i></p>	<ul style="list-style-type: none"> • This is correct. The asphalt surface had developed hair cracks but still looking sound and even and within the specifications based on independent testing. The surface dressing has protected the AC from ingress of water. • This is not a correct observation, the shoulders had not failed. Rather the Contractor opted to apply two additional layers of asphalt concrete to correct irregular riding quality. Then applied asphalt concrete to shoulders to address the difference in levels between the pavement and originally surface dressed shoulders. This was done by the contractor on own cost. • The kerbstone in the photo is at Namawojjolo. It is included in the snag list and will be rectified as necessary. 	<p>Contractor should rectify the defects.</p>

	kerbstones were made out of brick instead of concrete;			UNRA should follow up
xi)	<p>At Namawojolo black spot,</p> <ul style="list-style-type: none"> it was noted that two bus bays were constructed but by observation, one of them was bleeding. The culvert headwall on LHS had broken down. It was also noted that there was a fence designed to be fixed so as to stop meat vendors from running onto the road. This fence was never installed due to the vendors' outcries; 		<ul style="list-style-type: none"> This is correct and is part of the snag list. This is correct and is part of the snag list. This is correct observation 	<p>Contractor should rectify the defects.</p> <p>UNRA should follow up</p>
xii)	<ul style="list-style-type: none"> At Mbalala black spot, it was observed that access junction, kerbstones, footpaths and lined drains were constructed. It was noted that the main carriageway was failing and needed an intervention. It was also observed that rumble strips that had been fixed to reduce speed had flattened (see picture right); 	 <p><i>Poorly constructed rumble strips</i></p>	<p>This is correct. Main carriageway was not included in the improvements under the contract</p> <p>The strips are to be rectified.</p>	<p>UNRA should take immediate measures to repair the failing section even though it was not part of the contract.</p> <p>Contractor to rectify the defects on the rumble</p>

			strips
xiii)	At Kitega – Wantone black spot, a 60m access road was constructed, a lined drain was also constructed; however, both sides of the shoulders had stripped;	This is correct and is part of the snag list.	Contractor should rectify the defects. UNRA should follow up
xiv)	At Seeta black spot, the carriageway was extended to create a waiting lane; a walkway was constructed reportedly with a crushed stone base and double surface dressed; however, on investigation of <i>one</i> spot towards the end of the walkway, it was noted that the base material was of quarry dust. Accesses along Seeta were failing i.e. potholes and stripping was noted;	This will be checked in the field and rectified. This is correct; The failure is a result of waste water from frontage activities such as repair garages and washing bays. This will be rectified together with the other defects in the snag lists	Contractor should rectify the defects. UNRA should follow up
xv)	At Namanve black spot, the auditors observed rutting on the LHS, walkway was single surface dressed and aggregate were stripping due to poor bitumen spray. There was localised lined drain failures. The thickness of asphalt placed was less than the design thickness (see table of test results).	This is correct and is part of the snag list.	Contractor should rectify the defects. UNRA should follow up
xvi)	Entebbe-Kampala Section was not worked upon. It was noted that the total amount initially intended to cover the two roads i.e. Kampala-Jinja and Kampala-Entebbe (UGX 13.1bn) had all been spent on one road Kampala – Jinja, and an extra UGX 758mill was added.	This is correct. Implementation of project coincided with resealing project of Entebbe-Kampala Road in preparation for CHOGM. Management accordingly opted to limit the implementation of black spot improvements to Kampala-Jinja section and to increase the black spot locations to be improved on the section to 12 No from the original 11 No. See Substantial Completion Report March 2009 ;	The explanation by management is not satisfactory. UNRA should provide more justification in terms of scope and cost given the fact that there are even major defects yet to be addressed.

		Section 3.1.3 Financial Aspects/Cost Analysis of the Project for scope of the works undertaken along Kampala-Jinja section	
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Generally, the above defects are a responsibility of the Contractor, and the Consultant. It was noted that the Consultant had identified most of the above defects and prepared a snag lists.

i. Recommendations

On the basis of test results, it was generally noted that the base course for foot paths was weak, and some sections of the asphalt surfacing applied on the carriageway had high bitumen content; an intervention to correct these defects should be sought.

- i) The Consultant should ensure close supervision of the contractor and ensure all snags are fixed to expected standards.
- ii) During evaluation of tenders, contractors' experience in handling works in question should not be neglected. The evaluation procedure of the contract tenders should be reviewed and lessons learnt for future contracts.

4.1.2 Rehabilitation of the Jinja – Bugiri Road (72.8km)

Civil Works Contract No. EU/HW/C003

Consultancy Contract No: EU/HW/CS002

a. Contract Details

Client	Uganda National Roads Authority
Design Consultant	Gauff Consulting Engineers
Supervising Consultants	Egisbceom International
Consultant Contract Date (Supervising)	6 th February 2004
Consultant Contract Amount	UGX 3,351,544,800
Works Contractor	RCC-Reynolds Construction Company (Nigeria) Ltd and Sonitra Ltd of Ghana Joint Venture
Letter of contract award date	20 th June, 2006
Works Contract sign date	26 th June, 2006
Commencement date	1 st July, 2006
Completion date	31 st December, 2008
Contract amount	UGX 110,468,755,944
Amount Certified as of 17th September 09	Certificate No. 33, Amount UGX 143,172,692,857
% of progress reported as of end of June 2009	103.20%

b. Scope of works

The works under this contract included strengthening, reinforcement, and widening of the existing road, rock-fill in swamps, and the improvement of the drainage structures, provide service roads in Iganga and Bugiri towns, widening and upgrading of the Magamaga bypass to bitumen standard and improvements of the major junctions and intersections at Musita, Iganga, Nakalama, and entrance to Kakira sugar works factory.

The pavement layers include graded crushed stone sub-base and base, 150mm thick binder course of dense bitumen macadam (DBM) and 60mm thick asphalt concrete (reduced to 35mm in some sections), The shoulders were to be double surface dressed and in trading centres, asphalt wearing course to apply.

The total length of the project road is 72.8km. The first 60.95km of the road is a single carriage way, 6.5m to 7m wide and the remaining 11.85km stretch being dual carriage way separated by 3.5m wide central median. The total length of swampy areas covers 6.075km.

SNo	Observation	Management Response	Auditors Opinion
c.	<p>Document review</p> <p>The documents reviewed by the auditors included the contract, progress reports and the corresponding interim payment certificates, correspondence between the client and contractor, quality control tests results, and payment vouchers. The following was observed from the document review activity:-</p>		
i)	<p>The Completion date was changed from 31st December, 2008 to 15th March 2009 but the contractor was still operating on site as per progress report No. 35.</p>	<p>Correct observation.</p> <p>The works were substantially completed on 25 September 2009 and provisional acceptance was granted on 13 October 2009. The final extension of time will be determined after assessing the Contractor's claim for extension of time that was submitted on 30 December 2009. The application of the liquidated damages clause was not effected since UNRA had not received a written confirmation from the Contracting Authority. This has now been received and the quantum of LDs will be determined on completion of UNRA's assessment of Contractors claim of 30 December 2009.</p>	<p>UNRA to assess liquidated damages to be charged</p>
ii)	<p>The contract works were in defect liability period and a snag list had been jointly prepared as of 12th October 2009. The 36th Management meeting held on 13th October 2009 indicated that provisional acceptance of the works would be on 25th September 2009 subject to as-built drawings being in place.</p>	<p>Correct observation. The AS-built drawings were submitted to the Supervisor on 23 December 2009. The Certificate of Provisional Acceptance was issued.</p>	
iii)	<p>The last progress report on the works was of May – June 2009 and yet works continued to be performed on site. This audit was conducted on 9th November 2009.</p>	<p>Correct observation. Another progress report for the period July-October 2009 was submitted by the Consultant on 14 January 2010. This report</p>	<p>Delays in submitting progress reports impact on timely intervention of issues</p>

		covers the progress of works up to the time of provisional acceptance. The Consultant also submitted a status report on the correction of snags by the Contractor on 02 February 2010.	that may need action and follow up.
iv)	There was no provision in the bills of quantities for HIV/AIDs sensitisation and Road Safety Campaigns but it was agreed during the contract negotiations that the sensitisation campaigns will be done. There were no records showing that this was done.	Correct observation. The Contractor carried out HIV/AIDS sensitisation for his staff as a requirement by his company but not as a contractual requirement. So he was not obliged to report on this activity.	The contractor had undertaken to sensitise the community as well but did not do so. UNRA should consider imposing a penalty on the contractor for failure to carry out the agreed sensitisations
d.	<p>Quality of Works</p> <p>A detailed assessment of the road was conducted on 9th November 2009 in the presence of UNRA Project Engineer, UNRA Station Engineer – Jinja, the Deputy Resident Engineer, the Consultant’s Inspector of Works, and the Contractor’s Material Engineer (names in the Annex 2). On the whole, the road was fully open to traffic and the condition was good although there were notable surface defects as highlighted under Technical Observations sections. Outstanding and on-going works at the time of audit included: stone pitching, re-installation of drainage culverts 600mmϕ with 900mmϕ (Ch. 99+380 to 100+200 LHS), sealing of access roads, and top soil placement for erosion protection.</p> <p>The following pictures show the auditors check in asphalt thickness and on-going works at the time of audit and sign posts with missing signs reportedly stolen and the poor quality of surface dressing works at an access junction.</p>		



Coring for samples



Measuring thickness of asphalt layer



Missing sign and poor surface dressing at Magamaga access




Repair of damaged lined drain at Iganga

The table below shows the audit tests carried out and corresponding results which are compared with the specification limits.

Chainage	Test	Thickness (mm)	Result (%)			Specification (%)			Remarks		
			BC	AV	CD	B	AV	CD			
138+300 RHS offset 2.5 from CL	Asphalt Analysis	60	6.8	0.15	2.5	5	≥3		Thickness Ok, BC high & Low AV		
138+300 RHS offset 2.5 from CL	DBM Analysis	75mm 2 nd DBM / 70mm 1 st DBM	7.4	1.04	2.5	5	≥3		Thickness Ok, BC high & Low AV		

e.	<p>Quantities Verification</p> <p>Interim Certificate No 33 of 17th September 2009 was the latest certified by audit time and was reviewed. On average, the width of the carriageway was 7.1m and 10.5m inclusive of shoulders which is in close agreement with the design widths. The estimated length of the contracted section was measured as 11.85km of dual carriageway and 60.95km of single lane section. Test cores indicated that the parameters used in the estimation of quantities paid for i.e. asphalt thickness of average 59mm instead of 60mm; DBM of about 145mm instead of 150mm was in close agreement. The thickness of item 55.01(a) road surface painting was verified as 100mm. At Ch. 99+900, it was observed that the thickness of the crushed stone base was 460mm at the shoulder which was within agreed specifications.</p>		
f.	<p>Supervision of Works</p> <p>The supervision of works was done by Egis- BCEOM. Progress reports were found to be of fairly good standard. Borrow pits and field density and compaction tests results were taken and results were seen on file.</p>		
g.	<p>Resources on Site</p> <p>The auditors, at the time of detailed assessment found some contractor and consultant staff on site. Equipment seen on site included a Grader, Tyre excavator and Distributor.</p>		
h.	<p>Outstanding Technical Observations</p>		
i)	The height of kerbs for the median along the dual	Correct observation.	UNRA should come with an

	carriageway section is low and could favour unlawful drivers to drive over the median.	The low height of kerbs was partly due to late change (after the kerbs were in place) in the thickness of w/c from the original 35mm to the present 60mm. Raising the kerbs at a later stage would mean digging up the road which could cause damage to the pavement.	alternative solution to avoid damage to the median.
ii)	The lettering on Kilometre posts is small and may not serve their purpose to some road users especially drivers (see picture below). 	Correct observation. This is the size of the letters that were indicated in the design. The audit observation is noted and it will inform future and ongoing projects where kilometre mark posts have not yet been produced	This was inappropriate design and should not have been accepted in the first place. This shortcoming should be rectified by UNRA.
iii)	The rubble strips were not of appropriate standard.	Correct observation. This issue was raised to the Contractor as a snag. The rumble strips have since been rectified to acceptable standard.	UNRA should follow up.
iv)	Flushing of the surfacing was noted between Ch. 83+000 and CH 97+000 more pronounced on the LHS.	Correct observation. The sections of the road where flushing is evident were brought to the attention of the Contractor who stated that the flushing is temporary and would disappear within a year of opening the road to traffic. UNRA is closely monitoring the flushing sections of the road to	UNRA to follow up

		determine whether the flushing is disappearing and also to detect any development of ruts along these sections. In case the flushing does not disappear before the end of the defects liability period (slated for 13 October 2010), the Contractor will have to rectify these sections.	
v)	The safety of the road users at some sections e.g. near Kakira Junctions was not properly catered for.	Correct observation. By the time of audit, the Contractor had not installed all the road signs at Kakira junction. When all the specified road signs for this junction are installed, the road users will be adequately informed and regulated as they approach and pass through this junction. The Contractor promised to install all road signs by the end of March 2010 due to delays he reportedly experienced in importing these road signs.	Contractor should install all road signs by March 2010. UNRA to follow up.
vi)	Stripping of shoulders was noted at Ch. 126+200 and Iganga Town Service roads.	Correct observation. The issue of stripping on the shoulders and at Iganga Town Service roads was notified to the Contractor as a snag. Contractor has rectified some sections and he is expected to complete the remaining sections.	The defects should be rectified by the Contractor. UNRA to follow up
vii)	There were sections observed to have been repaired after ruts had developed.	Correct observation. These sections were repaired by the Contractor as defects that had developed on these road sections. UNRA is closely monitoring the entire road to detect any defects so that the Contractor is promptly	The monitoring period should be extended for the affected to ensure that contractor does not hand over works with defects.

		notified.	UNRA to follow up.
viii)	Some road signs were missing and reportedly stolen e.g. at Ch. 118+700; some signs were placed at wrong locations.	Correct observation. The road signs that were placed at wrong locations have been relocated to the right locations. The missing and stolen road signs are to be installed by the Contractor and are included on the snag list.	<ul style="list-style-type: none"> Contractor should reinstall the missing and stolen road signs. UNRA should follow up on use of materials not prone to theft and to conduct road safety campaigns to the communities.
ix)	The double surface dressing of shoulders, access roads and junctions was not done to expected standards e.g. at Ch. 118+700 Magamaga barracks access, 1 st seal was done with notably high bitumen. Generally, the above defects are a responsibility of the Contractor and the Consultant. It was noted that the Consultant had identified most of the above defects and prepared a snag list as of 12 th October 2009.	Correct observation. The Magamaga barracks access road that was sealed with high bitumen content has been rectified. The other sections of shoulders and access roads where the works were done not to standard, have to be rectified by the Contractor during the defects liability period. All these areas/sections are listed on the snag list.	Contractors to rectify the defects as per the snags list. UNRA to follow up
i.	Value for Money The average cost per km of UGX 1.54bn is far higher than costs for similar works in the country. Reasons for this could be the use of 150mm thick DBM as the binder course		There is need for unit cost study of road construction.
j.	Recommendations		
i)	The Consultant should ensure close supervision of the finishing works and ensure all snags are fixed to expected standards.		UNRA to follow up
ii)	UNRA should conduct a road safety audit and organise		UNRA to follow up

	road safety campaigns along the road to address all related issues including the proper use of the infrastructure and respect for road signs.		
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4.1.3 Upgrading and Strengthening of Kampala – Gayaza - Ziobwe road (44km)

Civil Works Contract No. RDP/HW/C014A

Consultancy Contract No: RDP/HW/CS014A

a. Contract Details

Client	Ministry of Works and Transport/Uganda National Roads Authority
Design Consultant	Phoenix Engineering & Research Ltd
Supervising Consultants	NorConsult International A.S.
Consultant Contract Sign Date	10 th August 2007
Consultant Contract Amount	Euro 756,270.00
Works Contractor	M/S Energo Project Niskogradnja
Letter of contract award date	24 th December 2007
Works Contract sign date	18 th February 2008
Commencement date	30 th March 2008
Contract Duration	20 Months
Completion date	30 th November 2009
Contract amount	UGX 69,499,914,926 (US\$ 39,499,136.09)
Amount Certified by August 2009	UGX 43,809,073,514 (63.03% of Contract Price)
% of progress	37.47% as opposed to the planned 80.52% as reported of end of August 2009

b. Scope of works

The works under this contract included upgrading and strengthening of the road using gravel sub base, crushed stone base, with varying types of wearing course depending on the amount of traffic in the sections as listed below:-



- i. Kalerwe – Nsooba (1.3Km), Bitumen Class I having a 7.0m wide carriageway with asphalt concrete surface, 2.6m wide double-surfaced shoulders and concrete line drains;
- ii. Nsooba – Mpererwe (3.3Km), Bitumen Class I having a 7.0m wide carriageway with asphalt concrete surfacing, 2.0m wide double surfaced shoulders and concrete lined drains;
- iii. Mpererwe – Gayaza (10.03Km), Bitumen Class III with 7.0m wide double surfaced carriageway and 2.0m paved shoulders;
- iv. Gayaza – Ziobwe (29.665Km), is also dividing into two sections (IV & V) based on the traffic characteristics. Both sections designed to Bitumen Class II, 6.0m wide carriage way and 1.5m paved shoulders.

SNo	Observation	Management Response	Auditors Opinion
c.	<p>Document review</p> <p>The documents reviewed included the contract, progress reports and the corresponding interim payment certificates, correspondence between the client and contractor, quality control tests results, and payment vouchers.</p> <p>The following was observed from the document review:-</p>		
i)	<p>The contract works were 37.47% complete and yet the contract time of 85% has been realised; There is accumulative delay of 43.05% which is attributed to delay in commencement of sub base and base construction activities;</p>	<p>This is a correct observation.</p> <p>The implementation of the works have delayed with progress at end of Aug 2010 being 37.47% compared to planned on 80.52% and time expiry of 85%.</p> <p>The Contractor has been issued Clause 46.1 notice to improve the progress of implementation of the contract</p> <p>(Copy of RE's Clause 46.1 notice to the Contractor, is attached for reference)</p>	<p>UNRA should ensure that there are no associated claims by the contractor due to his own delays.</p> <p>UNRA to follow up. Liquidated damages should be applied in case of delays attributed to the contractor.</p>
ii)	<p>The Contractor has so far not given a time extension notification, though the Consultant has noted that it is clear that the Contractor cannot complete the works in the original contract period;</p>	<p>This is not a correct observation</p> <p>The Contractor gave Notice of Intention to claim for extension of time and costs on 22 September 2009.</p> <p>This was followed with a submission on 10</p>	<p>UNRA should ensure that there are no associated claims by the contractor where the delays are occasioned by the contractor. Proper evaluation of the claim should be carried out.</p>


		<p>November 2009 by the Contractor of substantiation for this claim based on encumbered site and increased quantities of selected sub-base.</p> <p>The Engineer has evaluated the claim and recommended that the Contractor would be entitled to extension of time for the contract works up to end of June 2010</p> <p>UNRA is currently reviewing the Engineer's evaluation of the claim</p> <p>Encumbrances on site have been as a result of the need to undertake updated valuations of properties to be compensated which exercise commenced in early 2008. The original valuation of properties was done in 2003 during detailed design.</p> <p>(Copies of Contractor's notice for EOT and RE's assessment of the claim are attached for reference)</p>	.
iii)	The Materials Laboratory is run jointly by the Contractor and Engineer's staff. There is no independence in the testing exercises and this may lead to connivance.	<p>This is a correct observation</p> <p>The equipment is shared but tests are independently carried out. The advantage is that the equipment has the same calibration. All records from both the field results and lab</p>	For independence purposes, the consultant should test the materials using a different laboratory. UNRA to follow up.

		<p>results are kept independently, thus avoiding any conflicting situations. – All test results which are sent to the Engineer for approval are compared to his own independent records before any approvals are given</p> <p>None-the-less, UNRA is taking up this matter with the Resident Engineer.</p>	
d.	<p>Quality of Works</p> <p>The auditors carried out a reconnaissance visit of the road on 6th October 2009.</p> <p>The following were observed during the inspection:-</p>		
i)	<p>Crossing culverts are inadequate in some sections due to large volumes of water;</p>	<p>This is not correct observation.</p> <p>The Supervision Consultant as part of his pre construction services undertook a design review of the original design and concluded that the drainage design and calculations were satisfactory. However as part of this review he recommended upgrading all designed 600mm diameter pipes to 900mm diameter in line with the current MoWT manual</p> <p>(Attached is the design report section on cross culverts and design review report-executive summary on drainage)</p>	<p>UNRA to closely follow up the implementation of the design review as drainage is vital to longevity of the roads.</p>
ii)	<p>Back slopes are not protected and are being eroded by rain water.</p>	<p>The road works are ongoing and during construction, excavations and fills expose loose</p>	<p>Protection of the road to be followed up by UNRA.</p>

		<p>material which is susceptible to erosion. There will be top soiling, grassing and stone pitching to protect surfaces susceptible to erosion. Further the Contractor has been asked for a rate for top-soiling as it is not included in the BOQ</p> <p>(see RE's request for a top soiling rate)</p>	
iii)	Diversions are not well maintained and pose a problem to traffic.	<p>This is a correct observation</p> <p>The Contractor has been asked during monthly site visits and meetings to maintain and install appropriate signage to his diversions. It should be noted that there is little room for the Contractor to build diversions along Kampala-Gayaza section due to the level of frontage activities along the road. The Contractor mostly accommodates the traffic within the works at the locations where new cross drains/box culverts are being constructed. There is also a persistent problem of theft of temporary wooden and metal signage along the roads.</p> <p>UNRA will increase the frequency of inspection to ensure that the Contractor maintains the diversions in satisfactory condition</p>	<p>UNRA should ensure that the associated claims do not include undeserving costs.</p> <p>The supervising consultant should ensure that proper maintenance of the diversions is done. UNRA to follow up</p>
	The auditors then conducted a detailed assessment of the roads on 30 th October 2009 in the presence of the UNRA Project Manager, the Resident Engineer, Materials Engineer and the contractor's representatives (names as in Annex 2)		

No quality tests were conducted by the auditors as works were still on-going. Status of road at audit time								
								
<i>Back slopes being washed away by rain</i>		<i>Road diversion not in good condition</i>						
e. Quantities Verification Interim Certificate No.10 was the last certified by audit time and was made use of in assessing some details of works certified.								
Pay Item	Work activity	Unit	Qty in the BoQ	Variation to date	Total done to date	Financial implication		
34.01(b)	Rock fill processing and compaction	M ³	3,000	4,279.50	7,279.50	336,481,101 (increment)		
34.02(b)	Selected sub-grade with indicated soaked CBR	M ³	18,000	50,216.98	68,216.98	974,661,365 (increment)		
i)	Item no 34.01b) Rock-fill processing and compaction,				This is a correct observation		The variation is noted to be	

	Increase of 4279.5m	<p>The quantity for rock fill was occasioned by the need to create a stable pioneer layer at the swamps at Km 19 and Km 23 and a substantial amount at the large 875m long swamp at Km 42</p> <p>In the design review report, the Consultant observed that overall; the quantities in the contract were marginal.</p> <p>UNRA has in consultation with IDA initiated procurement of an independent consultant to review the quantities on the project. (Copies of correspondence between RE and Contractor are attached)</p>	<p>too high, an indication of major shortcomings in the design. The designing consultant should be held responsible.</p> <p>The outcome of the independent review is awaited.</p>
ii)	Item no 34.02b) Selected sub-grade with indicated socked CBR	<p>This is a correct observation</p> <p>The quantity of selected sub-base increased because the existing sub-grade failed to meet the minimum specifications for underlying layer to the sub-base.</p> <p>UNRA has in consultation with IDA initiated procurement of an independent consultant to review the quantities on the project (Copies of correspondence between RE and Contractor are attached)</p>	UNRA should follow up and the report on the review exercise is awaited.
f.	Supervision of Works The supervision of works was done by NorConsult.		

	Progress reports were of good standard. Borrow pits and field density and compaction tests were taken and the results were seen on file.		
g.	Resources on Site The auditors, at the time of detailed assessment found the contractor staff and consultant staff on site. There was a stockpile of chippings, culverts, gabions, and quarry dust and bitumen drums. All equipment necessary to execute the works including dozers, graders, rollers, water bowsers, concrete mixers, trucks etc were found on site and were operational.		
h.	Outstanding Technical Observations		
i)	The works done by audit time were generally of good standard.		
ii)	There was a common laboratory utilised by both the contractor and the consultant.	A response on the issue is given in C iv above	Laboratories should be separated. UNRA to follow up
iii)	Road works were on-going but were behind schedule	A response on the issue is given in C i above	UNRA to follow up
iv)	There was a box culvert with many patched cracks indicating concrete failures (see photo right).  <i>Patched cracks as seen inside the box culvert</i>	The observation that patching indicated concrete failure is not a correct The box culvert at chainage 42+600 has mortar patched over its longitudinal construction joints on the interior, which was perceived as a failure by the audit team. This surface flaw did not manifest itself on the exterior walls as such there is no concrete failure.	Both the interior and exterior of the culvert should have same appearance i.e. they should not be motor patched. The cause of the cracks should have been investigated first. UNRA to follow up.

			(see attached copies of photos of the box culvert) Should defects in the concrete be identified in the future, the Contractor will be asked to rectify them as is his obligation in the contract	
i.	Value for Money The average cost per km of UGX 1,58bn is very high for this work as compared to costs for similar types of work (surface dressed and crusher run base course).		This is not a correct observation The road is being upgraded and strengthened to Class 1 bitumen standard for the first 14.6 km of which 4.6 km will be surfaced with 50 mm thick asphalt concrete. The remaining 30km is being upgraded from gravel to Class 2 bitumen standard. It should be noted that the works contractor was competitively procured under IDA international procurement regulations, leading to a shortlist of 6 prospective contractors. Energoprojekt Niskograndnja submitted the lowest bid of the three bidders who opted to bid for the project and was the lowest evaluated bidder at the same bid price. (IDA approved shortlist of bidders, bid opening minutes)	There is need for unit cost study and use alternative procurement methods e.g. fixed budget selection.
j.	Recommendations			
i)	On the basis of the reasons for delays as given in the			

	progress reports the Contractor should take measures to accelerate the works		
ii)	Defectives concrete works should be corrected		
iii)	Diversions should be maintained at all times when they have to be used.		
iv)	Management should carry out detailed review of the civil works on this road before final acceptance of the works;	The contract provides for the Contractor to remove defective works and replace with that which conforms to the requirements or remedy defects, shrinkages or other faults that may be found upon examination before final acceptance.	UNRA to follow up
v)	Consultant to control expenditures for items in Bill 1 'General Items'		

4.1.4 Rehabilitation/Resealing of Kawempe – Luwero road (66km)

Civil Works Contract No. RDP/HW/C015-A

Consultancy Contract No: RDP/HW/CS015-A

a. Contract Details



Client	Uganda National Roads Authority
Design Consultant	Africon Ltd
Supervising Consultants	Africon Ltd
Contract Sign Date	31/01/06
Consultant Contract Amount	USD 499,830 revised to USD708,092
Works Contractor	M/S Energo Project Niskogradnja
Letter of contract award date	12 th January 2007
Works Contract sign date	8 th February 2007
Commencement date	5 th March 2007
Contract Duration	Original 12 Months, Revised to 20Months
Completion date	4 th March 2008, Revised to 20 th November 2009
Contract amount	UGX 17,087,122,147 revised to 28,542,172,136
Amount Certified by August 2009	UGX 30,533,180,372
% of progress reported	91.7% as of Feb 2009

b. Scope of works

The works under this contract included shoulder reconstructions and sealing, drainage improvements, reconstruction of failed sections repair works on main carriageway and double surface dressing of the entire road. The materials used for base course was crushed stone and cement stabilised gravel.

SNo	Observation	Management Response	Auditors Opinion
c.	<p>Document review</p> <p>The documents reviewed included the contract, progress reports and the corresponding interim payment certificates, correspondence between the client and contractor, quality control tests results, and payment vouchers.</p> <p>The following was observed from the document review activity:</p>		
i)	Type 1 and Type 2 houses were not found on site as specified in the Contract under special provisions to the general specifications but the same houses were measured, certified and paid, Bill Item No. 14.01 (a) and 14.01(b) Certificate No.11, 31 st March, 2009;	We would like to note that in the last (Final) certificate for the contractor issued on 17 January 2010, the Project Manager has adjusted payments accordingly to remove the construction component. Contractor's price breakdown given at time of bidding is attached. Annex RM1	Evidence of adjustments not availed. Final certificate not seen
ii)	The contract price was UGX 17,087,122,147 but was revised to UGX 28,542,172,136 which amounts to 67.04% increment; PPDA approval for this was not seen; certified payments have gone up to 30,533,180,372 without further approval by PPDA	PPDA approval for the 67.04% increment on the Contract Price is attached as Annex RM2	The cost increase is astronomical and shows lack of proper planning at the design stage.
iii)	The contract period was 563 days which by 28 th Feb had gone up to 606 days and works were still progressing without a binding completion date and this has also increased the cost of general items;	Approval for extension of time has been requested from the Contracts Committee and this includes related costs for the general items	Proof of request for time extension not availed.
iv)	The contract works were 91.7% complete and yet the contract time was 191.67 %;	As above.	As above
v)	The ongoing road works were designed to last 4-5 years. It is in plan to add an overlay to extend the life span by another 10 years. Study reviews on	It is not advisable to allow the road to serve its intended life, because the required intervention thereafter will be the more expensive reconstruction and not overlay. Application	The works that have been done now at a cost of UGX 30.5bn should be able to


	the finished road works are however not yet done.	of overlay now will delay the need for reconstruction by up to 10 years. Study reviews on the finished road works have been done and a design report by Ms Africon is available showing the applicable thickness at each section depending on the existing underlying strength	extend the life of the road for minimum of 4 years and no further interventions should be done earlier.
d.	Quality of Works The auditors carried out a reconnaissance visit of the road on 5 th September 2009. The following were observed:-		
i)	Major works have been done		
ii)	Carriage way 7.0m and 1.5m shoulders either way		
iii)	Shoulders are not protected	The fixing of the road edges and protection of shoulders is planned to be done using Force Account	UNRA to follow up.
iv)	No head walls built on culvert crossings	All new culverts have head walls. However some of the old existing culverts were not worked on and may not be having head walls. An inventory shall be carried out to have the missing and /or damaged headwalls worked on by force account	All Culverts should have headwalls in order to protect road users. UNRA to follow up.
v)	On some sections, the road surface has heaved and rutting was noted.	The heaving and rutting sections are to be fixed during the defects liability period	This could be a sign of poor workmanship by the contractor. UNRA should follow up and ensure that the defects are rectified.

<p>vi)</p>	<p>Quality of stone pitching not good</p>  <p><i>Stone pitching works on drains. Not done to good standards</i></p>	<p>Its true some sections of stone pitching are not good. These will be put right during the defects liability period and before handing over the road</p>	<p>UNRA should follow up and ensure the defects are corrected.</p>
	 <p><i>Earth above channel will result in silting of channel. Need to remove before rains</i></p> <p><i>Re-sealed road surface. Quality looked good on some sections but not good on others</i></p>		
<p>The auditors conducted a detailed assessment of the roads on 31st October 2009 in the presence of the UNRA Project Manager and the Consultant's representatives (names in Annex 2). The Contractor was absent for non-justifiable reasons. The comfortable driving speed was about 90km/hr.</p> <p>The table below shows the audit tests carried out and corresponding results which are compared with the specification limits.</p>			

	Chainage	Test	Thick ness (mm)	Result	Speci ficati on (%)	Remarks		
	29+000 LHS	DCP – CBR for base course		367%	60%	Cement stabilised base. Excessive stabilisation leading to wastage		
	29+000 LHS	Cement content		7.8%	3	Ok		
	35+000	DCP – CBR for base course		85%	60% - 80%	OK		
	39+200	DCP – CBR for base course		76%	60% - 80%	OK		
	44+480	DCP – CBR for base course		35%	60% - 80%	Weak base course material	Sections of the road that have shown distress shall be repaired during the defects liability period and / before handing over or application of the overlay.	UNRA should follow up and ensure the defects are corrected.
	44+480	PI & Grading for base		PI 27%, MDD	PI 8% - 12%	Too high PI – reason for rutting/heaving		

		course		2.1Mg/ m ³ , OMC 12.5%				
	50+900	DCP – CBR for base course		328%	60%	Cement stabilised base. Excessive stabilisation leading to wastage		
	51+525	DCP – CBR for base course	DSD - 20	113%	60% - 80%	OK.		
	58+566	DCP – CBR for base course	DSD - 28	122%	60% - 80%	Ok.		
e.	Quantities Verification Interim Certificate No 11 was the latest certified by audit time and was made use in assessing the details of works certified. On average, the width of the carriageway was 7.2m and 9.4m inclusive of shoulders. The estimated length of the contracted section was measured as 57.8km but the contract documents keep mentioning and measuring 66km.						Whereas The Project Title indicates 66km, the payments made under this contract have been based on the actual length of 57.8km. The method of payment has therefore been based on actual work executed by the contractor independent of the length indicated on the project title.	Final measurements and report yet to be submitted for verification.

	Pay Item	Work activity	Unit	Qty in the BoQ	Variation to 31/3/2009	Total done to 31/3/2009	Financial implication (UGX)		
	21.02	Clearing and shaping existing drains	M ³	10,500	31,708	42,208	265,808,164 (increment)		Increments not explained.
	25.01(b)	Grouted stone pitching	M ²	500	35,985.67	35,485.67	1,630,034,251 (increment)		
	33.04	Scarification & recomposing of pavement layers	M ²	0	590,000	600,252	9,620,207,750 (increment)		
	39.01(b)	Crushed Aggregates	M ³	13,000	59,901	72,901	4,540,076,493 (increment)		
	41.01(a)	MC-30 cut-back bitumen	Litres	65,000	515,390	580,390	1,689,963,810 (increment)		
	45.01(a)	20mm and 10mm surface dressing	M ²	300,000	140,000	440,000	963,060,000 (increment)		

	45.07(b))	Crusher sand	ton	10	2,350	2,360	183,734,750 (increment)			
f.	Supervision of Works The supervision of works was done by Africon. The progress reports prepared contain substantial information for monitoring of the progress but lack the program vs. progress chart, minutes of site meetings and progress photographs. Rate of application of binder, rate of application of chippings, particle size analysis of aggregates, flakiness and elongation of aggregates results were submitted in the progress report.			It will be ensured that the missing parts in the progress reports are included in the submitted reports.			UNRA to follow up			
g.	Resources on Site At the time of detailed assessment, the consultant staff were found on site. There was rock fill and no equipment was found on site.									
h.	Outstanding Technical Observations									
i)	There was observed rutting and heaving along some sections of the road (see picture below);			The heaving and rutting sections are to be fixed during the defects liability period			The contractor should rectify the defects. UNRA should follow up.			
			<i>Heaving section along the road</i>							
ii)	In trading centres, there were notable road edge failures			The fixing of the road edges will be planned for			UNRA to follow up.			

		action by Force Account or during the overlay.	
	Generally, the above defects are a responsibility of the Client, Contractor and the Consultant.	The responsible entities shall put right the defects in their respective jurisdiction	UNRA to follow up.
i.	Value for Money The average cost per km of UGX 432mn is reasonable for this type of work.		
j.	Recommendations		
i)	Explanations on status of the houses that were to be provided for the Engineer/Project Manager, Type 1 and Type 2;	Rented accommodation was provided to the Engineer/project Manager and we would like to note that in the last (Final) certificate for the contractor issued on 17 January 2010, the Project Manager has adjusted payments accordingly to remove the construction component. Contractor's price breakdown given at time of bidding is attached. Annex 1.	Documents showing the adjustments yet to be submitted.
ii)	The planned overlay is not necessary at this time as the road has not served for even one year of its life span. The road should be left to serve its intended life and any interventions should follow thereafter.	It is not advisable to allow the road to serve its intended life, because the required intervention thereafter will be the more expensive reconstruction and not overlay. Application of overlay now will delay the need for reconstruction by up to 10 years.	The works that have been done at a cost of UGX 30.5bn should be able to extend the life of the road for minimum of 4 years and no further interventions should be done earlier.
iii)	Sections noted with rutting and heaving should be re-done.	The heaving and rutting sections are to be fixed during the defects liability period	UNRA should follow up.
iv)	The road edges in the populated areas (towns or	The fixing of the road edges will be planned for	UNRA to follow up.

	trading centres) should be protected by kerbs.	action by Force Account or during the overlay.	
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4.1.5 Rehabilitation/Resealing of Luwero – Kafu (100km)

Civil Works Contract No. RDP/HW/C016

Consultancy Contract No: RDP/HW/CS015-B

a. Contract Details

Client	Ministry of Works and Transport/Uganda National Roads Authority
Design Consultant	Phoenix Engineering & Research Ltd
Supervising Consultants	Phoenix Engineering & Research Ltd in association with TNM Technology and Management Ltd.
Consultant Contract Sign Date	31 st January, 2006
Consultant Contract Amount	Euro 756,270.00
Works Contractor	M/S Energo Project Niskogradnja
Project Award Date	8 th December 2006
Works Contract sign date	29 th December 2006
Commencement date	5 th January 2007
Contract Duration	Contract Period 12 months
Completion date	5 th February 2008
Contract amount	UGX 14,390,128,731 revised to 30,493,677,911
Amount Certified to date	UGX 25,857,786,877 (As of end of August 2009)
% of progress reported	≈ 96.5%

b. Scope of works

The original scope of works comprised of rehabilitation and resealing of the existing paved road to bituminous standard providing where necessary widened embankments, improvement of the drains and the reconstruction of the existing base course with modification with crushed stone material where the pavement structure had deteriorated, repair of pavement distresses and potholes, reconstruction of shoulders, double seal treatment in the reconstructed areas, single seal coat in resealed sections and shoulders.

The revised scope of work included full stage rehabilitation of the whole road length. The rehabilitation details included, additional of gravel material to achieve a road base thickness of 200mm, scarification of shoulder and carriage way and mixing of material with 30%-40% crushed stone and compaction to 98% of the MDD-AASHTO T180, application of prime coat to the carriageway and shoulders, application of a double seal coat with 14/20mm

aggregates as first seal and 10/14mm as the second seal with 80/100 penetration bitumen, applying a single seal on shoulders with 6/10mm and 80/100 penetration bitumen as binder.

SNo	Observation	Management Response	Auditors Opinion
c.	Document review The documents reviewed included the contract, progress reports and the corresponding interim payment certificates, correspondence between the client and contractor, quality control tests results, and payment vouchers. The following was observed from the document review activity:		
i)	There was a long lapse of time between design and commencement of physical implementation;	UNRA is trying its best to avoid this scenario in future.	There is a need for improved projects planning and management.
ii)	The long lapse of time resulted in change of design at the time of physical implementation. This was attributed to increased traffic and "exceptional" adverse weather condition;	This is correct.	
iii)	The revised design also resulted into revised contract price and contract duration;	This is correct.	
iv)	The Contractor was granted an interim time extension of four months because of the fuel crisis and adverse weather conditions. This extended the contract completion time to 5 th July 2008;	This is correct.	
v)	The Contractor was later awarded another time extension of 180days as a result of the first variation order. This also extended the completion date to January 2009;	This is correct.	
vi)	The Contractor made another claim and was granted more 120 days because of the fuel crisis and the inclement weather. This further extended the completion date to 5 th May 2009;	This is correct.	
vii)	The Contractor has submitted yet another request for time extension of 120 days. The extension had not yet been	The request for extension of time was submitted to Contracts Committee and approval was	

	approved by the client at the time of audit. At the end of August 2009, the over all time that had elapsed was 114.24% (with the project completion date of May 2009) and the registered over all progress at 96.5%;	awaited	
viii)	The variation orders resulted in the revision of the contract price from UGX 14,390,128,731.00 to UGX 30,493,677,911.64 which is more than 100% the original contract price without PPDA approval.	PPDA approval for increment of more than 100% of the Contract Price is attached. Annex RM3	Although PPDA approved the variations, exorbitant contract variations of more than 100% shows inadequate planning on behalf of UNRA.
ix)	The Contractor has so far been paid for supply of 4 Pick up double cabins and 4 Station Wagons though at the time the Audit was conducted, the contractor had only supplied 3 Pick up Double Cabins and two 8-Seater Station Wagons. The Contract provided for two 4-wheel station wagon cars and two 4-wheel drive double cabin pick ups.	We acknowledge that the contractor has so far been paid for 4 station wagons and 4 pickups although he has supplied only 2 station wagons and 3 pickups. This could be in error and we shall request the Project Manager to make the necessary adjustments to the subsequent certificates based on the actual vehicle costs to recover any over payments under this item. UNRA shall ensure that all vehicles paid for are received.	The fact that the contractor was paid for all vehicles before delivering them is irregular. UNRA should follow up.
x)	The contract allowed for 2.8 litre engine capacity but the Contractor supplied 3.2 litre capacity. This would result in increased maintenance cost both for the project and after the cars have reverted to the client;	UNRA considers that the vehicles of 3.2 litre provided are at the same cost as the 2.8 litre and notes that the relative maintenance costs are not remarkably different.	The operation and maintenance costs for the 3.2 litre remain higher.
xi)	The ongoing road works were designed to last 4-5 years. It is in plan to add an overlay to extend the life span by another 10 years. Study reviews on the nearly finished road works are however not yet done.	It is not advisable to allow the road to serve its intended life, because the required intervention thereafter will be the more expensive reconstruction and not overlay. Application of	The works that have been done at a cost of UGX 30.5bn should be able to extend the life of the road

		overlay now will delay the need for reconstruction by up to 10 years. Study reviews on the finished road works have been done and a design report by Ms Africon is available which shows the design thickness per section depending on the strength of the underlying layers.	for minimum of 4 years and no further interventions should be done earlier.
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d. Quality of Works
 A reconnaissance inspection of the road was carried out on 8th October 2009. The auditors conducted a detailed assessment of the roads on 2nd November 2009 in the presence of the UNRA Project Manager, the Resident Engineer, Materials Engineer and the Contractor’s Site Agent (names in Annex 2). The comfortable safe driving speed was about 100km/hr.



Culvert sections of insufficient size



Road edge not protected


The table below shows the audit tests carried out and corresponding results which are compared with the specification limits.

Chainage	Test	CBR Result (%)	Specification (%)	Remarks		
0+037 RHS	DCP – CBR for base course	130	60 – 80%	Offset 2.5m from CL; strong base		UNRA to follow up

	6+200 CL	DCP – CBR for base course	58	60 – 80%	Oil spill, notable rutting due to weak base	All sections of the road that show distress or failure shall be repaired during the defects liability period or before handing over/application of the overlay	
	20+100 LHS	DCP – CBR for base course	108	60 – 80%	Offset 1.75m from CL; strong base		
	40+000 RHS	DCP – CBR for base course	63	60 – 80%	Ok		
	60+300 CL	DCP – CBR for base course	186	60 – 80%	Strong base		
	80+000 LHS	DCP – CBR for base course	52	60 – 80%	Weak base		
	105+000 RHS	DCP – CBR for base course	133	60 – 80%	Offset 1.7m from CL; strong base		
e.	Quantities Verification					Whereas The Project Title indicates 100km, the payments made under this contract have been based on the actual length of 106km. The method of payment has therefore been based on actual work executed by the contractor independent of the length indicated on the project title.	Proper measurements of the roads should have been undertaken before the contract was awarded. Final measurements of this should be done by UNRA.
	Interim Certificate No 11 was made use in comparing the details of works certified and those actually performed by the contractor. On average, the width of the carriageway was 6.16m and 8.16m inclusive of shoulders. On-going works included; stone pitching of drains, repairs to the 1 st seal in preparation for the 2 nd seal, and construction of concrete headwalls. The estimated length of the contracted section was						

	measured as 105km. The consultant mentions the road length being 106 km which he uses in his quantity determinations. However he contradicts himself by at times quoting the length is 100 km which the contract agreement also mentions							
	Pay Item	Work activity	Unit	Qty in the BoQ	Variation to 28th Feb 09	Total done to 28th Feb 09	Financial implication (UGX)	
	14.05(a)	2 Vehicles for the Project Manager (Station wagons)	P.S	1	2	2	117,000,000 (increment)	Increments not explained
	14.05(b)	Operate and Maintain the cars (Station wagons)	P.S	1	1.67		88,725,000 (increment)	
	14.06(a)	2 Vehicles for the Project Manager (Double Cabin Pick ups)	P.S	1	2	2	117,000,000 (increment)	
	14.05(b)	Operate and Maintain the cars (Double Cabin Pick ups)	P.S	1	1.67		88,725,000 (increment)	
	25.0(a)(i)	Stone Pitching	M ²	24,251	22,312	46,563	838,931,200 (increment above variation 1)	
	36.02(c)	Fill with selected	M ³	131,250	27,858		754,868,226	

	material					(increment above variation 1)	
f.	Supervision of Works The supervision of works was done by Phoenix Engineering & Research Ltd in Partnership with TNM Technology & Management Ltd. Progress reports were of good standard. Borrow pits and field density and compaction test results were not seen on file.			Files for borrow pits and field density/compaction are available any time needed but during the audit visit they were not asked for.			The test results should always be appended as annexes to the progress reports for ease of reference.
g.	Outstanding Technical Observations						
i)	All access roads had not been sealed.			Scope of works did not include surfacing of the access roads due to the limited funds however, this has been noted and in future these shall be made part of the works to improve on the functionality of the locations in question.			Unsealed access roads increase the vulnerability of the main road edges.
ii)	There were too many temporary humps running at 30m interval for 10 km. This was too long and greatly impacted on the traffic flow along the road section.			Humps were temporary for speed reduction of traffic during construction and have been removed. The interval was such that it was not too long to initiate acceleration and not too close to over strain traffic flow/movement			The humps were too many on a very long stretch and caused inconvenience to road users. This is not good practice.

<p>iii)</p>	<p>It was noted that the contractor implementing works on this road section was the same for Kawempe – Luwero section. The quality of works on this section however was much better than the quality along the Kawempe – Luwero section. The Consultant was different (see picture right).</p>	 <p><i>Good quality of wearing course seen on the road</i></p>	<p>Comparison of the quality of work on both sections is relative and could be true. Account has to be taken of the fact that the Kawempe - Luwero section is more trafficked and had no diversions implying that the road was constructed under live traffic.</p>	<p>Differing quality of works on the same road by the same contractor is an indication of lack of close quality control by the supervising consultant.</p>
<p>h.</p>	<p>Value for Money The average cost per km of 305 million UGX which is within the range of similar works in the country.</p>			
<p>i.</p>	<p>Recommendations</p>			
<p>i)</p>	<p>Period between design and construction stages should be shortened else design reviews should be commissioned prior to commencement of works.</p>		<p>UNRA considers this very pertinent and actually many of the supervision contracts have a component of design review. It will be strengthened further.</p>	<p>UNRA should follow up</p>
<p>ii)</p>	<p>About the design; the planned overlay should not be applied. The road should be left to serve its intended life and thereafter a complete overhaul of the base and sub base be done.</p>		<p>It is not advisable to allow the road to serve its intended life, because the required intervention thereafter will be the more expensive reconstruction and not overlay. Application of overlay now will delay the need for reconstruction by up to 10 years. Study reviews on the finished road works have been done and a design report by</p>	<p>The works that have been done at a cost of UGX 30.5bn should be able to extend the life of the road for minimum of 4 years and no further interventions should be done earlier.</p>

		Ms Africon is available which shows the design thickness per section depending on the strength of the underlying layers.	
iii)	Temporary humps should be placed for shorter distances.	Humps were temporary for speed reduction of traffic during construction and have been removed. The interval was such that it was not too long to initiate acceleration and not too close to over strain traffic flow/movement	Humps were too many on a very long stretch and caused inconvenience to road users. This is not good practice.
iv)	Some Quantities like stone pitching should be physically ascertained. The increment in quantity was found substantial and there is need for UNRA to verify.	Stone pitching quantities measurement were done jointly by the Consultant and the Contractor and these can be physically ascertained.	
v)	Consultants' design report should be assessed to ascertain adequacy of design recommendations and why there are always variations.	Design report is available which clearly shows there are remarkable changes in the scope of the works. This was not requested for the audit.	UNRA should always undertake quality assurance checks to ensure that the designs have captured the correct scope of works at the planning stage.
vi)	Payments need to be scrutinised further.	The re-measurements for payments will be done for subsequent payments especially the last IPC	UNRA to follow up
vii)	Liquidated damages should be applied to the contractor.	As long as the Project Manager approves legitimate extension of time, liquidated damages shall be applied when appropriate and advised by him to UNRA	UNRA to follow up
viii)	The planned overlay is not necessary at this time as the road has not served for even one year of its life span. The road should be left to serve its intended life and any interventions should follow thereafter.	It is not advisable to allow the road to serve its intended life, because the required intervention thereafter will be the more expensive reconstruction and not overlay. Application of overlay now will delay the need for reconstruction	The works that have been done now at a cost of UGX 30.5bn should be able to extend the life of the road for minimum of 4 years and no

		by up to 10 years. Study reviews on the finished road works have been done and a design report by Ms Africon is available which shows the design thickness per section depending on the strength of the underlying layers.	further interventions should be done earlier.
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4.1.6 Widening and Resealing of Shoulders and Access Roads on Fort Portal – Kyenjojo (10km) and Improvement of Parking Aprons and Parking Areas around Mpanga Markets

Civil Works Contract No. *MoWT/Wks-07-08/00078*

Consultancy Contract No: *UNRA/SERVICES/2008-09/0021/08/06*

a. Contract Details

Client	Uganda National Roads Authority
Design Consultant	UNRA
Supervising Consultant	Technology Consults Ltd in Association with Trio Consultants Ltd
Consultant Contract Date	18 th August, 2009
Consultant Contract Amount	Not applicable
Works Contractor	M/S Zzimwe Enterprises, Hardwares & Construction
Letter of contract award date	30 th November, 2007
Works Contract sign date	3 rd March, 2008
Commencement date	17 th April, 2008
Contract duration	9 months
Completion date	17 th January, 2009
Contract amount	UGX 3,610,182,800
Amount Certified to date	Certificate No. 4, on 25 th September, 2009, Certified amount UGX 1,784,096,766
% of progress reported	62% (Contract management report submitted on 30 th October 2009)



b. Scope of works

The works under this contract included widening and re-sealing of shoulders from Fort Portal towards Kyenjojo (10km) and upgrading of selected access roads, by stabilisation with lime, natural sub grade preparation, sub base mechanical stabilisation with stone dust, crushed stone base, double seal coat surface treatment, and drainage works.

SNo	Observation	Management Response	Auditors Opinion
c.	<p>Document review</p> <p>The documents reviewed by the auditors included the contract, progress reports and the corresponding interim payment certificates, correspondence between the client and contractor, quality control tests results, and payment vouchers.</p> <p>The following was observed from the document review activity:</p>		
i.	<p>The General and Particular Specifications referred to for this contract are of 1992 and 1990 respectively instead of the latest specifications of 2005.</p>	<p>It is true that General and Particular Specifications referred to are of 1992 and 1990 instead of specifications of 2005. This contract was assigned by MoWT to UNRA in October 2008 when it was already in progress; specifications could not be changed then.</p>	<p>It was noted that the letter of award of the contract was issued on 30th Nov 2007, giving enough time to refer to the latter specifications.</p>
ii.	<p>The status report of 30th October, 2009 showed that physical progress of works was 62% against 153% time elapsed, and yet the liquidated damages expired on 30th July 2009 and the Contractor was still on site.</p> <p>It was also noted that the delays in terms of time were more than the maximum amount of liquidated damages that could be imposed, thus necessitating termination of the contract in accordance, GCC, clause 59.2 (g).</p>	<p>It is true that progress was 62% vs 153% time; the contractor was behind schedule. UNRA has and continues to make efforts to make the contractor complete works. Liquidated damages were imposed as explained under ii below in order to get works completed under the current contract. The option of termination was also considered but was not implemented as explained under iii below. Efforts are continuing to urge the contractor to complete the works. In January 2010 the contractor made efforts to execute the outstanding priming works on one of the roads.</p> <p>It is true that the period of maximum liquidated damages had expired on 30th July 2009 but the contractor was still on site. The contractor had</p>	<p>Close follow up is necessary by UNRA and termination of contract should be considered if the contractor does not show significant progress.</p> <p>Continued delay of termination may cause more losses to the UNRA especially if the contractor continues with slow progress.</p>



		<p>already been charged liquidated damages. The option of terminating the contract was considered but looked costly on the following grounds:</p> <ul style="list-style-type: none"> • A lot of works involving pavement layers had been done but not completed to topmost layer (surfacing). So the finished layers were not yet protected from weather and traffic; they would wear and tear rapidly during the procurement period if a new contract was to be procured. This would lead to great loss of money. • The extent of wear by the time of commencement of works under the new contract would be very difficult to determine in order to make accurate provisions in the new BOQ. 	
iii.	The Consultancy Contract was signed after expiry of liquidated damages;	It is true that the Consultancy Contract was signed after expiry of liquidated damages. This consultancy covered supervision of periodic maintenance contracts that were on-going in the region including this one. Since it was still going on at the time of signing, it was left among those to be supervised by the consultant.	Delays in appointment of the consultant may have contributed to slow progress. This is also a sign of poor contract management.
iv.	At the time of writing this report, it was noted that the Consultant had never submitted a progress	It is true that at the time of writing the audit report the consultant had not submitted a detailed	UNRA should penalise the consultant for delaying

	report as per the terms of reference as of 15 th February, 2009;	report for November 2009. A detailed report for the month of November 2009 was submitted late, (on 5 February 2010) and is now available. The consultant has been warned and asked to ensure timely submission of progress reports.	submission of progress reports. UNRA should improve on the supervision of consultants.
v.	Despite the assurance by the Consultant's re-affirmation of availability of all the proposed staff for immediate commencement of the assignment, the Auditors didn't find any of the proposed and approved staff on site.	Two staff members, namely; the Inspector of Works and a Materials Technician are supposed to be on site full time. By time of Audit in September 2009 they had just reported. The consultant has however been asked to be on site irrespective of whether there is activity going or not.	UNRA should make sure that only approved consultants' staff is involved in supervision and changes should only be allowed according to the term of the contract agreement.
vi.	The criterion for selecting the access roads to be included in this contract was not clear. These roads are a responsibility of the Municipal Council and are de-linked from Fort Portal Kyenjojo road for which UNRA is responsible	It is true that some of the roads under the contract are Municipal Council roads. These roads lead to important public places/amenities. The works on the parking aprons and areas around Mpanga Markets were intended to divert parking of vehicles on the main road	The criteria used requires clarification
d.	Quality of Works A reconnaissance inspection of the road was carried out on 30th September, 2009. The following were noted during the visit:-		
i)	The contractor had not completed works on time and had been charged liquidated damages;	It is true that the contractor had not completed works on time and had been charged liquidated damages. This was in effort to make the contractor complete works and avoid the option of termination as explained under Document Review above.	Continued delay of termination may cause more losses to the client especially if the contractor continues with slow progress.
ii)	Scope of works to be revised to eliminate parking	The scope of work is to be revised to leave out	Efforts to solve the

	because of unresolved land ownership matters.	parking areas around Mpanga Markets because of unclear land tenure.	unresolved land issue should be taken so as to provide the parking place and solve the current congestion problems on the road.
iii)	Poor jointing between road and shoulder;	It is true that at some places there was poor jointing between road and shoulders. These works had been identified and they were to be made good by the contractor.	UNRA to follow up
iv)	Drainage and culverts activities not yet completed;	It is also true that drainage and culvert activities were not yet completed: Culvert activities had been completed but works had been damaged during other construction activities and were to be redone. Some other drainage works like stone pitching were not yet done.	UNRA to follow up
	 <i>Access road annexed to main contract works</i>	 <i>Uncompleted work on shoulders</i>	
<p>Status of road works during Reconnaissance Visit</p> <p>A detailed assessment of the roads was carried out on 24th October 2009 in the presence of the UNRA Station Engineer –Fort Portal, the</p>			

	Consultant's representative and the contractor's representatives (names as in Annex 2). There was a general observation that there was no significant works that were performed between the time of reconnaissance visit by the auditors and the time of detailed assessment. The table below shows the audit tests carried out and corresponding results which are compared with the specification limits.					
	Chainage	Test	Thickness (mm)	Result (%)	Specification (%)	Remarks
	0+880 LHS	DCP - CBR		84	≥70	Strong base
	0+880	Lime content	300mm	5.8	3-5	Lime content within limits
	7+818 RHS	DCP - CBR		42	≥70	Weak base
	7+818 LHS	DCP - CBR		59	≥70	Weak base
	7+818 LHS	Lime content		1.99	3-5	Lime content Too low
e.	Quantities Verification Interim Certificate No 4 was the latest certified by audit time and was made use in assessing the details of works certified and were found actually performed by the contractor. Most of the works that had been performed by the contractor were not complete to warrant measurements.			Works that had been executed after certificate No. 4 had not been measured yet		UNRA should follow up
f.	Supervision of Works The supervision of works was initially done In-house but by the time of this audit, a Consultant had been posted to the site. The Consultancy Contract was signed after 62% The progress reports (status report			It is true that the Status Report at 30th October 2009 lacked some information. The lack is explained below: • Site diaries and weather records are normally not attached to the written progress reports.		UNRA to follow up

	at 30 th October 2009) prepared contain substantial information for monitoring progress but lack, the program vs progress chart, progress photographs, test records, site diaries and weather reports. Borrow pits and field density and compaction tests were not seen.	<p>However they are kept at the supervisor and /or site agent's office as record for reference</p> <ul style="list-style-type: none"> • Test records and progress photographs are included in the progress reports for progress and activities recorded during the reporting period. In the month of October 2009 there was no works done. However these exist on record relating to the months when works were done. • It is true that the programme Vs progress chart was not attached. UNRA will ensure that future reports will have the charts attached. 	
g.	Resources on Site The auditors, at the time of detailed assessment found the contractor staff and consultant staff on site. Equipment such as Motor Grader, Water bowser, 7-ton drum roller, Bitumen distributor and pneumatic tyre roller were found at the site camp idle. A wheel loader and tippers were operational, delivering crushed stone to one of the access roads.	It is true that some plant were idle possibly due to lack of activity.	It was not explained why the progress is so slow while equipment was on site and idle, the contractor does not seem to be serious and termination option should be considered as advised earlier.
h.	Outstanding Technical Observations		
i)	Works on the shoulders had stalled; some primed sections had started to fail due to delayed surface dressing;	As regards observations i, ii, iii and iv it is true that there were a number of defects due to workmanship and/or delay by contractor to complete/protect the executed works. This has	UNRA to follow up

	 <p><i>Picked sample for testing lime content</i></p>	 <p><i>Carrying out DCP on sealed shoulder</i></p>	<p>been brought to the attention of the contractor for his remedial action as it is his responsibility; among other things.</p>	
<p>ii)</p>	<p>The 1st seal on Kakiiza extension access road had stripped. There was notable poor bitumen spray distribution;</p>			
<p>iii)</p>	<p>Some sections of the access roads had been primed over the crushed stone base and others had not been primed. The sections were open to traffic and continued delays in protecting the works may lead to severe failure of the base course.</p>			
<p>iv)</p>	<p>On the basis of the test results above, the base course at Ch. 7+818 was found to be weak which could be attributed to very low stabilising agent (lime) applied.</p>	<p>The base at Ch. 7 + 818 is to be further investigated and the Contractor will be instructed to make good.</p>	<p>UNRA to follow up</p>	
<p>v)</p>	<p>The contractor was thin on the ground.</p>	<p>It is true the contractor was thin on the ground. Efforts continue urging the contractor to complete the works.</p>	<p>This shows lack of seriousness on the part of the contractor.</p>	
	<p>Generally, the above defects are a responsibility of the Contractor who has delayed to timely complete</p>			

	the works.		
i.	Recommendations		
i)	The contractual clauses for liquidated damages should apply leading to contract termination.	The contractual clauses for liquidated damages should apply leading to contract termination: As explained under Document Review above, the option was considered but looked costly.	UNRA should re-consider their position of no termination unless the contractor shows seriousness and expedite the works.
ii)	An intervention to improve on the strength of the base should be sought before continuing with the works.	An intervention to improve on the strength of the base should be sought before continuing with the works: The locations with weak base, e.g. at Ch. 7 + 818, are to be further investigated and the Contractor will be instructed to make good.	UNRA to follow up

4.1.7 Strengthening of Fort Portal – Hima (55km)

Civil Works Contract No. RDP/HW/C007

Consultancy Contract No: RDP/HW/CS007

a. Contract Details

Client	Ministry of Works and Transport
Design Consultant	The Design was reviewed by Dr Ahmed Abdel Warith Consulting Engineers in association with MBW Consulting Engineers
Supervising Consultant	Dr Ahmed Abdel Warith Consulting Engineers in association with MBW Consulting Engineers
Consultant Contract Date	
Consultant Contract Amount	Foreign \$ 547,900 plus UGX 365,355,000 (Including taxes)
Works Contractor	China Chongqing International Construction Corporation. (CICO)
Letter of contract award date	27 th May, 2004
Works Contract sign date	21 st June, 2004
Commencement date	22 nd July, 2004
Contract duration	1230 days
Completion date	21 st July, 2006
Contract amount	UGX 27,090,920,232
Amount Certified to date	UGX 25, 769,820,358 as of progress report No. 45, April 2008
% of progress reported	100%, as per final completion

b. Scope of works

The works under this contract included strengthening of the road section by application of cement-stabilised base; double seal surface dressing, improvement of drainage works and repairs on selected bridges.

SNo	Observation	Management Response	Auditors Opinion
c.	<p>Document review</p> <p>The documents reviewed included the contract, progress reports and the corresponding interim payment certificates, correspondence between the client and contractor, quality control tests results, and payment vouchers.</p> <p>The following was observed from the document review activity:</p>		
i)	<p>It was noted from the final completion report, test results for the gravel sub base failed (sections 51+540-51+440, 48+760-48+630, 45+280-45+100, 42+880-42+760, 37+540-37+020, 33+540-33+280 and 32+700-32+380), it is not clear what the client did in the circumstances;</p>	<p>While the initial tests in the subject subsections failed, the tables' referred to indicate re-testing was done in the same spots and results passed see Appendix 14 (a) & (b) excerpts attached. All re-tests would be done after reworking on the sections.</p> <p>Whenever the section passed no further action was done.</p>	<p>The works were noted to be failing at various locations. Follow by UNRA up is necessary.</p>
ii)	<p>Some other sections (18+360-18+00) passed all single tests but failed the mean compaction test.</p>	<p>Appendix 14 (a) shows the sub base compaction re-tests were passed (95.8 and 96.5% against a minimum of 95%)</p>	<p>Failing works on the sections were noted.</p>


iii)	<p>The Engineer issued notices to the Contractor in relation to clause 46.1, on 4th March 2005, 1st December 2005, 20th March 2006 and 3rd August 2006 for the continued slow progress of work;</p> <p>The Engineer also advised the client to invoke clause 63.1 of the general Conditions of the Contract and terminate the Contract. The Contractor did not respond to some of the notices but only mentioned reasons for delay during the defects liability period that is after the contract had ended.</p> <p>The reason of delay in payments was improved but the Contractors progress of works never improved.</p> <p>Instead on 21st August 2006 the contractor submitted claims which superseded all the previous claims. Rather he was awarded extension of time and also compensated for the extensions.</p>	<p>The advice to invoke clause 63.1 was given on 5 January 2006. At the time the Employer was at default in payment. This is evidenced by the Contractor's letter dated 19 January 2006 (attached) in which he politely informs RAFU (the Employer) that some monies were not received on their accounts. Under the circumstances it was not considered prudent to invoice clause 63.1</p>	<p>The contractor did not deserve the time extension and compensation in respect thereof since the delays were attributed to him.</p>
	<p>The Contractor did not respond to some of the (above) notices.</p> <p>The Contractor only mentioned the reasons for delay during the defects liability period i.e. after the contract had ended.</p>	<p>This was so. As part of action taken the Client, RAFU, summoned the Contractor and the Consultant to meetings like one on 9 May and 2 June 2005 (see letter, minutes and 20 June 2005 report attached). The results would also cover the notices not specifically responded to. In addition the Client demanded for more frequent reports of the status. A progress enhancement memorandum was implemented in October 2005.</p> <p>The Contractor submitted their (6 months) time</p>	<p>It is proper for the contractor to respond in writing to the specific notices.</p>


		and cost claims in August 2005 which was half way the contract period, and repeated it in January 2006 (copy attached). The Engineer agreed with this in September 2005).	
	<p>While the delay in payment was improved but the Contractors progress of works never improved.</p> <p>Instead on 21st August 2006 (during the contractual defects liability) submitted claims which superseded all the previous claims. Rather he was awarded extension of time and also compensated for the extensions.</p>	<p>While the payment was improved it was never perfected thus leaving the Employer susceptible to claims. See 4 April and 2 May 2007 reports attached.</p> <p>The evaluations were done by the Engineer and found to have merit for extension of time, thus the award. The compensation was not related to the extension of time but the cost incurred due to inconsistent survey data.</p>	As stated earlier the reason of delayed payments should not have stopped the client to terminate the contract.
iv)	The Contractor was awarded a time extension to end on 7th February, 2008 but the monthly progress report number 45 of April 2008 reflected that some works had not been completed; the report instead reported that the Contractor had delayed by 83days but no contractual obligation has been imposed on him.	By the time of preparation of the report (No. 45) the extension of time was not yet approved. A number of claims were pending clearance by the World Bank and these resulted into extension of time up to 3 December 2008 (See attached). In addition the Contractor, on 4 April 2007, had correctly contractually notified the Employer, in accordance with clause 69.4 of the Conditions of Contract, about defaulting on clause 60.8 (time of payment) and warned about reduction in rate of progress. On 2 May 2007 the Contractor notified the Client they had reduced rate of works due default in payment (both letters are	It is always important that the UNRA meets his obligations e.g. timely payments to avoid penalties in form of interest.

		attached). This situation continued up to end of the project. Under the circumstances it was prudent to delay imposition of obligation as these would boomerang.				
d.	Quality of Works	<p>The auditors carried out a reconnaissance visit of the road on 23rd September, 2009 accompanied. Defects were noticeable on the carriageway that included potholes. Defects are yet to be attended to by the Contractor e.g. peeling off surface.</p> <p>The contractor was found correcting some defects late at night when it was even raining in absence of the consultant and client’s representative.</p> <p>The auditors conducted a detailed assessment of the road on 23rd – 24th October 2009 in the presence of the UNRA Assistant Station Engineer –Kasese, UNRA Station Engineer –Fort Portal, and a Road Inspector (names as in Annex 2). There was a general observation that the surface defects identified during the reconnaissance visit were deteriorating further and new ones were coming up. On average, the safe riding comfort speed was about 60km/h due to poor surface dressing.</p>			<p>Noted: Test results, however, were closely monitored during construction and the CBR values were always far above the specified 160% while the UCS was maintained between 1.4 and 6 specification.</p> <p>The remark of night works and absence of the supervisor is noted with concern. UNRA will put mechanism to ensure that this does not happen.</p>	<p>The failures which were observed during the audit are associated with the weak base (see table of test results below). This calls for improved supervision and monitoring of the road works.</p>
The table below shows the audit tests carried out and corresponding results which are compared with the specification limits.						
	Chainage	Test	Result	Specification	Remarks	

			(%)	(%)	
11+700 RHS	DCP –CBR		78	160	Weak base mainly on RHS
11+700 LHS	DCP –CBR		122	160	
33+900 RHS	DCP -CBR		160	160	Strong base
34+800 RHS	DCP-CBR		66	160	Weak base mainly on RHS
34+800 LHS	DCP-CBR		129	160	
35+300 RHS	DCP-CBR		153	160	Weak base on LHS due to poor compaction
35+300 LHS	DCP-CBR		43	160	
35+300 RHS	Base – Cement content		8.52	3-7	
35+300 LHS	Base – Cement content		4.67	3-7	
51+900 LHS	DCP-CBR		128	160	Weak base
51+900 LHS	Base – Cement content		8.07	3-7	
51+900 RHS	Cement content in lined drain mortar (over a sub-surface drain)		7.72	20-25	Weak mortar; disintegrates on light loads
e.	Supervision of Works The supervision of works was done by Dr Ahmed Abdel				

	Warith in association with MBW Consulting Engineers Progress reports were of good standard. Borrow pits and field density and compaction tests were taken and results were seen on file.		
f.	Resources on Site The auditors, at the time of detailed assessment only interacted with the Consultant's representative. No works were on-going		
g.	Outstanding Technical Observations		
i)	<p>There were localised failures of the road surfacing which was more pronounced on LHS. Base and sub-base failures were noted at Ch. 47+000 and Ch. 51+900 among other spots. The road failures could be attributed to:</p> <ul style="list-style-type: none"> Under design of the base and sub-base. Heavily loaded trucks ply the route e.g. trucks carrying gypsum and fuel meant for Hima Cement factory. It is important to note that the failures are on the LHS which is the loaded lane. No similar failures were noted on other roads plied by the same trucks along their routing to Hima. Basing on the test results, there was inadequate stabilising agent applied during stabilisation. The CBR results also indicate minimal strength of the base course as compared to the specifications. This could be the cause of majority failure sections on the LHS of 	<p>It is noted that the failures are on the LHS from Fort Portal to Hima. The Gypsum trucks join the tarmac at Fort Portal and end in Hima. There is no other tarmac road used by the gypsum trucks with which comparison could be made. These trucks are visibly overloaded and move on the LHS thus the damage. The same construction methods, materials, workmanship, quality controls and environment were used for both sides of the road. Damage on one side is therefore considered external to the construction</p> <p>The tests results, however, show contents above the minimum content.</p>	<p>However the gypsum trucks are known to have been plying the route for over 20 years and this should have been taken into account during the design. It is also the responsibility of UNRA to control overloading which is said to be the cause of the failures.</p> <p>The low CBR values could be attributed to poor material which</p>

	the road.		was being stabilised or low compaction levels.
	 <p><i>Failures mostly along the loaded lane</i></p> <p><i>Heavy trucks along the loaded lane</i></p>		
ii)	Bleeding was noted at various spots e.g. at Ch. 11+700	Correct observation. Stone/quarry dust will be applied on the effected sections to address the bleeding problem whenever necessary.	Follow up by UNRA required.
iii)	There is a lined drain over a sub-surface drain at Ch. 51+900 that was poorly built. The mortar mix was doubtful because it was disintegrating upon light loading (see results table above).	Correct observation. Checked and actual problem investigated. The station engineer will attend to the defects.	The works were not done to perfection because of inadequate supervision.
iv)	There was poor surface dressing resulting into corrugations from Ch. 0 + 000 to Ch. 16+000. The rest of the road section was in good condition.	This surface was made up by application of a third bituminous seal at the Contractor's own cost. While the surface may not be very smooth, it more protected.	This is a result of poor workmanship and weak supervision.
v)	Some defects corrections were found being done late in the evening and the works were of poor quality (see pictures below).	The remark of night works and absence of the supervisor is noted with concern.	This shows that the contractor lacks work ethics and should have

			been penalised.
	 <p><i>Repair works being done late in the evening without supervisor, which failed later</i></p>		
	Generally, the above defects are a responsibility of the Contractor, the Consultant and the Client		
h.	<p>Value for Money</p> <p>The average cost per km of UGX 492,562,186 is within range of similar works in the country.</p>		
i.	<p>Recommendations</p>		
i)	UNRA should re-consider the use of cement for base strengthening;	<p>The recommendations have been noted and will be considered whenever necessary.</p>	<p>UNRA to follow up.</p>
ii)	A rehabilitation intervention should be planned in the near future for this road		
iii)	UNRA should establish a data base for roads performance data based on the construction method applied; Traffic analysis should also be key to guide on loading requirements along particular routes;		
iv)	The Contractor should work on the failed sections as it was required of him by the Contract;		
v)	The Contractor's contract should have been terminated as per the Engineers recommendations.		



4.1.8 Strengthening of Hima – Kasese – Kikorongo and Kasese – Kilembe roads
Civil Works Contract No. RDP/HW/ C008
Consultancy Contract No: RDP/HW/CS008

a. Contract Details



Client	Uganda National Roads Authority (RAFU)
Design Consultant	
Supervising Consultant	Tecnic Consulting Engineers S.p.A in Professional Association with Data Systems Engineering and Research Corporation Ltd (BVI) Via Panama 86/A – 00198, Roma
Consultant Contract Date	
Consultant Contract Amount	US\$ 1, 159,880 Excluding taxes
Works Contractor	SBI International Holdings
Letter of contract award date	27 th May, 2004
Works Contract sign date	
Commencement date	21 st July, 2004
Contract duration	730 days (24 months)
Completion date	20 th July, 2006 revised to 31 st March, 2007
Contract amount	Ushs 28,787,648,210 (US\$ 14,283,200.72) including taxes
Amount Certified to date	
% of progress reported	

b. Scope of works

The works under this contract included strengthening of the road section by application of cement-stabilised base.

SNo	Observation	Management Response	Auditors Opinion
c.	<p>Quality of Works</p> <p>A reconnaissance inspection was carried out on the road on 23rd September 2009. Defects were noticeable on the carriageway that included cracks on the shoulders and some potholes.</p> <div style="display: flex; justify-content: space-around;">   </div> <p><i>Longitudinal cracks on shoulders repaired</i> <i>Good drainage, but inadequate during in heavy rains, residents say</i></p> <p>The auditors conducted a detailed assessment of the road on 23rd October 2009 in the presence of the UNRA Assistant Station Engineer –Kasese and a Road Inspector (names as in Annex 2).</p> <p>There was a general observation that the surface defects identified during the reconnaissance visit were being fixed as a temporary measure by the station. The safe riding comfort speed was about 120km/h.</p>	<p>True, some cracks on the shoulders have been noticed and these are being fixed by the station as part of their routine maintenance duties since the contractor was released after the end of the defects liability period in March 2008. The speed limit on this road is 80km/hr.</p>	<p>The interventions by the Station Engineers appear to be inadequate because no proper diagnosis of the cause of the problem was carried out. UNRA should establish and address the actual cause of the cracks.</p>
<p>The table below shows the audit tests carried out and corresponding results which are compared with the specification limits.</p>			

	Chainage	Test	Result	Specification (%)	Remarks
	86+500 RHS	Base-Cement content	3.63%	3-7	Result is within specified range
	86+500 RHS	Sub-base Analysis	PI 24%, MDD 2.3Mg/m ³ , OMC 8% Grading; 10mm:93.7 5mm: 85.3 2.36mm: 63.4 1.18mm: 56 0.425mm:42.6 0.3mm: 39.7	PI-15% Grading; 10mm:45-85 5mm: 30-70 2.36mm: 22-57 1.18mm:17-50 0.425mm:10-37 0.3mm:9-35	There was more of clayey material. This could be the cause of longitudinal cracking on the shoulders. The grading was outside the envelope.
	92+000 RHS	DCP -CBR	194% in 2009	160% after 3 days curing and 4 days soaking	Cement stabilised base. The base had satisfactory strength
	92+000 RHS	Base cement content	7.46%	3-7	Ok
d.	Resources on Site The auditors, at the time of detailed assessment did not find any resources on site because the road had been handed over to the Client long before this audit.			True, for information	

e.	Outstanding Technical Observations		
i)	<p>There were longitudinal and transverse cracks mostly pronounced along the RHS shoulder way from Katunguru – Kikorongo – Kasese (see pictures below). The cracks were being repaired as a temporary measure by the Station Maintenance gang by the time of this audit.</p> <div style="display: flex; justify-content: space-around;"> <div>  <p><i>Longitudinal crack being investigated by the audit team</i></p> </div> <div>  <p><i>One of the sealed cracks</i></p> </div> </div>	<p>True. The repairs are being carried out by the station as part of their routine maintenance duties.</p>	<p>UNRA should establish the causes of the failures/cracks so as to provide an appropriate solution.</p>
ii)	<p>Stripping of aggregates was noted at Chainage 77+000 RHS shoulders.</p>	<p>True, the wearing course on the shoulders was single bitumen surface treatment and this is not adequate especially where traffic commonly use the shoulders. UNRA has now decided that all future shoulder construction will be with double bitumen surface treatment.</p>	<p>The stripping should not be occurring if the single seal was applied properly. This could be a problem of workmanship.</p>
<p>The rest of the road section was in good condition.</p>			

	Recommendations		
i)	UNRA should further investigate the probable causes of the cracks along this road section. A data bank should be created within UNRA to capture as-built drawings for all roads in the country under UNRA jurisdiction. This would aid the institution during future designs and undertaking remedial actions.	True, investigations on the cracks have been carried out on other similar projects and it is believed to be due to slight traversal swelling and shrinkage due to the cyclic change of moisture content on the embankment sides in the foundation beneath the embankment. It is also reported that the major problem that the cracks create is the ingress of water to the pavement layers. The Directorate of planning is developing a data bank for all the road inventory and this will help in monitoring performance and remedial actions	There was clayey material in the shoulders and this could be the cause of the longitudinal cracks. This could be attributed to weak supervision.

4.1.9 Upgrading to paved (Bitumen) standard of Olwiyo – Pakwach road (62.5km)

Civil Works Contract No. *RDP/HW/C003*


Consultancy Contract No: *RDP/HW/CS007*

a. Contract Details


Client	Uganda National Roads Authority (RAFU)
Design Consultant	
Supervising Consultant	Black & Veatch Africa
Consultant Contract Date	16 th September 2002
Consultant Contract Amount	US\$ 868,800
Works Contractor	China Chongqing International Construction Corp (CICO)
Letter of contract award date	5 th March 2004
Works Contract sign date	
Commencement date	12 th March 2004
Contract duration	1092 days
Completion date	9 th March 2007
Contract amount	UGX 24,535,698,809
Amount Certified to date	<i>UGX 24,106,613,203 on original contract and Variation of 1,054,564,989</i>
% of progress reported	<i>100%</i>



b. Scope of works

The works under this contract included upgrading the road to class II bituminous paved road standard (Double Surface Dressing) including drainage improvement. Width of carriageway is 6.00m and shoulders are 1.5m each side single surface dressed. The base course was of crushed stone base 200mm thick and stabilised gravel sub base 200mm thick.

SNo	Observation	Management Response	Auditors Opinion				
c.	<p>Quality of Works</p> <p>The auditors carried out a reconnaissance visit of the road on 7th October 2009. Defects were noticeable on the carriageway that included potholes.</p> <p>The auditors conducted a detailed assessment of the roads on 3rd November 2009 in the presence of the UNRA Station Engineer – Gulu. The Contractor and Consultant representatives were not on site since the road had been handed over long past. On the whole, the road was fully open to traffic and the condition was good although there was notable rutting and potholes developing in some sections as noted below. The safe and comfortable riding speed was about 80km/hr and a few corrugations were noted</p>						
	 <p><i>Failed sections along the road</i></p>						
<p>The table below shows the audit tests carried out and corresponding results which are compared with the specification limits.</p>							
	Chainage	Test	Thickness	Result	Specification	Remarks	




			(mm)		(%)		
	52+000 RHS, offset 2.5m from CL	Grading	175		Specifications not availed for review	Crushed stone base	
	52+000 RHS, offset 2.5m from CL	Lime Content		11%		Stabilised sub-base	
	5+675 LHS offset 1.8m from CL	Grading	100			Crushed stone base, failed section	
	5+675 LHS offset 1.8m from CL	Lime Content		4.33%		Stabilised sub-base	
	3+583 CL	Grading	175			Crushed stone base	
	3+583 CL	Lime Content		6.4%		Stabilised sub-base	
	1+073 RHS offset 2.3m from CL	Grading	170			Crushed stone base	
	1+073 RHS offset 2.3m from CL	Lime Content		6.17%		Stabilised sub-base; Sub-surface water	
d.	Quantities Verification The payment Certificate of 24 th November 2008 was the latest certified by audit time and was reviewed. On average, the width of the carriageway was 6m and 9m inclusive of shoulders which was within the specified road dimensions.						
e.	Resources on Site The auditors, at the time of detailed assessment did not find either the contractor or the consultant because the road works had been						

	handed over long past.		
f.	Outstanding Technical Observations		
i)	<p>There was extensive rutting between Ch 0+700 to Ch 5+700 LHS; some potholes had been formed along the same section (see pictures below). The thickness of the crushed stone base was found to be 100mm but it was unclear what the specifications demanded. Some defects corrections had been done towards the end of the liability period but again had failed.</p>	<p>The observation on rutting and the formation of potholes is correct. Although nothing can be done at the moment on the rutting, the responsible station engineer (Gulu UNRA Station) will be instructed to repair the potholes.</p> <p>The observation on the thickness of the crushed stone base is not correct. The road was designed to have 200mm thick stone base and it was constructed as such. The as-built drawings are herewith attached.</p>	<p>The cause of rutting should be established and defects rectified. UNRA to follow up</p> <p>The field measurement for thickness of base course showed thicknesses ranging from 100mm to 175mm. This could be a contributing factor for surface failures observed</p>
	 <p><i>Failed section on the approaches to Olwiyo trading centre</i></p>		

	 <p style="text-align: center;"><i>Heaving and potholes</i></p>		
<p>ii)</p>	<p>There were wrongly placed road signs e.g. showing a sharp left turn when instead it is a sharp right turn (Ch. 39+700 RHS), see picture below;</p>  <p style="text-align: center;"><i>Wrongly placed sign</i></p>	<p>The observation is correct. Since the road was handed over to the client, the responsible station engineer will be instructed to erect the correct sign at the location.</p>	<p>UNRA to follow up</p>
<p>iii)</p>	<p>There was limited community accesses provided along this road section and this had led to damaging of shoulders by residents trying to create their own access points.</p>	<p>The observation is correct.</p> <p>At the time of design and during most of the construction phase all the people were concentrated in IDP camps. The communities are now resettled and since the road has long been handed over to the client, the responsible station engineer will be given instructions to</p>	<p>UNRA should follow up</p>

		make the necessary provisions.	
iv)	In trading centres, there were notable road edge breaks e.g. At Latoro.	The observation is correct. No protection was provided because at the time of design and construction, there were no busy centers since the area was still under insurgency. The responsible station engineer will be instructed to provide kerbs at these locations next financial year.	UNRA to follow up
v)	The white road marking paint i.e. the white lines were of varying width (120-130mm) and the yellow lines (90 – 120mm).	The observation is correct. The irregularity of the line markings was noted and discussed during the project handover inspection. The general tendency was over-application i.e. the lines tended to be slightly wider than specified. The line marking was however of thermoplastic material. It was noted that trying to remove the excess would cause adverse effects on the finished road and the road was taken over as it was. Since the road has already been taken over by the client, corrective measures will be undertaken when the existing lines are worn off. At that time the responsible station engineer will be instructed to apply the line markings correctly.	The specifications were for white lines of 150 mm width and yellow lines of 100mm width. This shows that the white lines were not provided to correct width although payment was effected for the specified width.
vi)	Extensive road failures were noted at various locations e.g. Ch.	The observation is correct. The section	The failures could be attributed

	6+200 that had been corrected towards the end of the defects liability period. The defects liability period for these sections should have been extended but this was not the case	is adjacent the Purongo IDP camp. During and after construction there was rampant dumping of all manner of refuse and debris from the camp into the road side drains. Surface runoff could not be drained away promptly. This impaired the performance of the pavement. The effect of the debris on the performance of the drains was noted throughout the construction period and the project management talked to the IDP camp leaders but there was little improvement. However, all defects that were noted during the DLP were attended to by the contractor. Since the works have long been taken over by the client, the responsible station engineer will be instructed to carry out the necessary investigations to determine causes of failure and determine appropriate remedies.	weak base course. UNRA to investigate and determine appropriate remedies.
vii)	It was also noted that the road section experiences many accidents. There were tyre bust evidenced nearly every 3-4km. At Ch. 45+600, there was an accident where the tyre rims damaged the road pavement and the spot is a threat to more accidents unless repaired (see picture below).	The observation is correct. The responsible station engineer will be instructed to carry out the repairs as a matter of urgency.	UNRA to follow up. However a road safety audit is necessary on this road.

				
viii)	<p>Some sections of the lined drains had failed i.e. mortar disintegrating from the stones (see picture below).</p> 		<p>Observation is correct. At the time of handing over of the road the drain was functioning well. The failures have been noticed recently and the responsible station engineer will attend to them</p>	<p>The defects could be attributed to poor workmanship and inadequate supervision. UNRA should follow up.</p>
ix)		<p>The design of the drainage system to include heavy concrete covers at Purongo village resulted into heavy maintenance costs. The designs were noted to be inappropriate for this section of the road.</p>	<p>The observation is correct. Future designs will address this shortfall.</p>	<p>Designs should consider the future maintenance costs.</p>

	<i>Heavy silting of drains : inappropriate design with heavy concrete slabs for covering causing a maintenance problem</i>		
	Generally, the above defects are a responsibility of the Contractor, the Consultant and the client.	The observation is correct. Since that the road was handed over to UNRA more than two years ago. We will therefore carry out the repairs to damaged sections as part of our maintenance regime.	
g.	Recommendations		
i)	Since the road was handed over and accepted by the client, the above noted defects should be remedied by the Client.	Recommendations noted. To be implemented whenever applicable.	UNRA to follow up.
ii)	The damaged road section at Ch. 45+600 should be repaired as a matter of urgency.		
iii)	The road edges in the busy trading centres should be protected by kerbs.		
iv)	Appropriate design systems (drainage) that reduce construction and maintenance costs should be considered.		

4.1.10 Upgrading of Kiboga – Hoima road (77km)

Civil Works Contract No. **RDP/HW/ C006**

Consultancy Contract No: **RDP/HW/CS007**


a. Contract Details

Client	Ministry of Works , Housing and Communication (then)
Design Consultant	Renardet (Switzerland)
Supervising Consultant	BCEOM (France), GIBB (Kenya)
Consultant Contract Date	
Consultant Contract Amount	EU 1,234,711 + UGX 115,455,000, EU 151,035 + UGX 1,590,603 Taxes
Works Contractor	Stirling International (UK)/Stirling Civil Engineering Ltd.
Letter of contract award date	5/31/2001
Works Contract sign date	<i>Works contract not availed</i>
Commencement date	7/9/2001
Contract duration	36 months (1,100 days)
Completion date	July 12, 2004 Revised to 26th February 2008
Contract amount	UGX 33,925,249,671 = US\$ 19,583,322
Amount Certified to date	<i>Certificate not availed</i>
% of progress reported	<i>Progress report not availed</i>

b. Scope of works




The works under this contract included upgrading the road to bitumen standard (Asphalt concrete surfacing) including drainage improvement. The base course was of crushed stone base 175mm thick.


SNo	Observation	Management Response	Auditors Opinion
c.	<p>Document review</p> <p>The documents reviewed by the auditors included the consultant's contract, correspondence between the client and contractor, and payment vouchers.</p> <p>The following were observed from the document review activity:-</p>		
i)	<p>The Consultant was given 5 addenda as detailed:- Addendum No. 1, UGX 140,886,953, EU 261,879 + UGX 1,996,698 Taxes, Addendum No. 2, UGX 73,999,569, EU 17,747+ UGX 1,996,698 Taxes, Addendum No.3, UGX 22,324,625, EU 120,373+ UGX 6,103,652 Taxes, Addendum No. 4, UGX 29,666,623, EU 24,276 9+ UGX 472,075.7 Taxes;</p>	Agree	
ii)	<p>The Contract duration was increased from 36 months (1,100 days) to 78 months (2380 days) which is 117% time increment. This is in effect increased the Consultants duration on site and in effect the final contract price. At the time of audit inspections, works were still ongoing especially road markings, railings and signs.</p>	True, the extensions were approved as provided for in the contract; the contractor is finalizing the works that were identified in the snag list at the time of substantial completion.	The extensions are excessive to make such a contract run for a duration of more than 9 years. Unjustified extensions escalate project costs.
iii)	<p>Three Consultant firms were hired at different times to design the water crossing at Kafu river as seen in</p>	RAFU was concerned that the bridge of 360m over KAFU was an over design and this necessitated the	It is important that designs are reviewed for their

	<p>the pictures below. It was not clear as to why there were changes in designs and whether all the Consultants were paid. However, the implanted option saved funds.</p>	<p>investigation that actually revealed that the bridge was an over design and a series of box culverts would suffice with a saving of funds. This option was eventually adopted with a saving of funds. All the consultants were paid for the services they provided.</p>	<p>appropriateness and cost implications by UNRA before the design consultants are paid.</p>
 <p><i>Series of Box culverts that substituted the bridge</i></p>			
<p>d.</p>	<p>Quality of Works The auditors carried out a reconnaissance visit of the road on 5th October 2009, and a detailed assessment on 27th October 2009 in the presence of the UNRA Station Engineer and Road Inspector, Hoima, the Consultant's representative and the contractor's representatives (names as in Annex 2). There was a general observation that there was minimal works performed between the time of reconnaissance visit by the auditors and the time of detailed assessment. On the whole, the road was fully open to traffic and the condition was good.</p>	<p>The road is under defects liability period and only activities identified in the snag list are being addressed.</p>	<p>UNRA to follow up.</p>
<p>The table below shows the audit tests carried out and corresponding results which are compared with the specification limits.</p>			

	Chainage	Test	Thickness (mm)	Result (%)			Specification (%)			Remarks
				BC	AV	CD	BC	AV	CD	
	68+915 LHS	Bitumen Analysis	60	4.1	10.3	2.22	6.5	3-6	-	Weak asphalt due to low BC and high AV
	90+600 RHS	Bitumen Analysis	60	6	1.93	2.33	6.5	3-6	-	Severe bleeding due to poor grading of aggregates used in Asphalt production.
	94+504 LHS	Bitumen Analysis	50	6.42	0.1	2.6	6.5	3-6	-	Asphalt within limits
	104+590 RHS	Bitumen Analysis	55	6.8	1.82	2.37	6.5	3-6	-	Asphalt within limits
	114+615 CL	Bitumen Analysis	50	4.0	5.79	2.33	6.5	3-6	-	Weak asphalt due less binder
	122+498 LHS	Bitumen Analysis	60	3.45	0.1	3.08	6.5	3-6	-	Failed section
	124+800 LHS	Bitumen Analysis	65	4.6	3.76	2.35	6.5	3-6	-	Weak asphalt due less binder
e.	Quantities verification. Interim certificate No. 52 was the latest certified by audit time and was made use in assessing the details; works certified were actually performed by the contractor. On average, the width of the carriage way was 6.11m and 8.97m inclusive of shoulders. The estimated length of the contracted section was measured as 75.34km.					Carriageway width of the road is 6.0m and the overall width inclusive of the shoulders is 9.0m. The length of the road as obtained using surveying equipment was 76.9km. Quantities paid for are those actually measured on site.				Proper measurements of the roads should have been undertaken before the contract was awarded. Final measurements of the road should be done by

	The measurement conducted at Ch 131+000 showed a thickness of 140-150mm.of base course.			Thickness of crushed stone base was 175mm		UNRA. Thickness at Ch. 131+000 was less than specified.
	S/N	Work activity	BoQ Qty	Qty certified in Cert No.52 of 31st May 2008	Estimated Qty as on 27th October '09	Remarks
	35.01 (a)	Gravel sub base compacted to 95% modified AASHTO constructed from natural base	138000	136233.49	135,612	Qty certified more than actual on site
f.	Resources on Site The auditors, at the time of detailed assessment found the contractor staff and one representative of the consultant on site. A dozer was on site restoring gravel borrow pits. Stone pitching of side drains was also on-going. Pending works included; access culverts, sealing of accesses, planting of trees, and rectification of defects on the carriageway and shoulders.			The activities being executed by the contractor are those identified and are to be accomplish during the defects liability period.		UNRA to follow up
g.	Outstanding Technical Observations					
i)	Stripping of shoulders along some sections e.g. Ch 120+700 to Ch 123+900 both sides; Ch 134+450 to 136+000 RHS; Ch 134+450 to 135+475 LHS;			Stripping of the shoulders is to be rectified by the contractor before handing over at his own cost.		UNRA to follow up.
ii)	There were cracks in asphalt along section Ch. 120+700 to 123+700. The section was chip-sealed but was noted as bleeding. Severe bleeding was also			The contractor is addressing the bleeding problem by applying quarry dust. If this fails to improve the section, the contractor will be required to remove		UNRA to follow up.

	<p>noted between Ch 90+400 and 90+700 RHS;</p>  <p><i>Bleeding section</i></p>	<p>and replace the bleeding areas.</p>	
<p>iii)</p>	<p>In trading centres, there were notable road edge failures;</p> 	<p>In trading centres, flush kerbs were introduced to prevent edge failures, however, the activities in the trading centres has since increased and has gone beyond the areas with flush kerbs and hence the scoring. UNRA station will address the problem as a routine maintenance activity.</p>	<p>UNRA to follow up.</p>
<p>iv)</p>	<p>The lined drains were at risk of being silted due to self-improvised community accesses across the drains (see picture below)</p>  <p><i>Improvised community accesses</i></p>	<p>UNRA will provide well designed accesses where it becomes necessary and also continue maintaining the drains.</p>	<p>UNRA to follow up.</p>
<p>v)</p>	<p>The white road marking paint was peeling off before hand-over of the road. The width of both the white</p>	<p>The contractor will have to rectify all defective road marking and any other works before handing over</p>	<p>UNRA to follow up.</p>

	and red lines was found to be 110mm.		
vi)	<p>There were still uncompleted works on the road that included access culverts and sealing of accesses (see picture below)</p>  <p><i>Exposed culverts awaiting backfilling</i></p>	The contractor is to accomplish all outstanding works before handing over.	UNRA to follow up.
vii)	UNRA has made an effort of installing road reserve posts along this road.	True, for information.	Good practice
viii)	Generally, the above defects are a responsibility of the Contractor and the Consultant.		
ix)	There was an I-section at Ch 124+000 which is 11m long, 0.92m wide/0.85m internal width. This section could be used on other water crossings in the country but was just abandoned.	The I-section found on the site is the property of the contractor and they will be instructed to remove it from the road corridor.	UNRA to follow up.
h.	<p>Value for Money</p> <p>The average cost per km is UGX 600,698,358</p> <p>Measured length differed from the stated length by 1.66KM (77-75.34)</p>	<p>True, for information</p> <p>The actual project road length as obtained using surveying equipment is 76.9km.</p>	Average cost could have been lower had the project been completed earlier.
i.	Recommendations		
i)	The stripped sections of the shoulders should be re-done at the contractor's expense.	Agreed.	UNRA to follow up.
ii)	The cracks in the asphalt indicate that the asphalt	This section was a trial section during the	UNRA to follow up.

	<p>production quality control was lacking. The approximately 3km affected may have to be re-done using a double chip seal since the asphalt plant may have to be re-mobilised to site; the bleeding section at 90+600RHS should equally be re-surfaced as the asphalt used was found to have been poorly graded. (more fines).</p>	<p>commencement of asphalt laying and was deficient in some properties as noted. After evaluating the performance of the asphalt, it was agreed that the contractor overlays the asphalt with double bitumen surface dressing which has been executed. The bleeding areas are being addressed by the application of quarry dust. Sections that are not satisfactory will have to be re-done before final hand over at the contractor's cost.</p>	
<p>iii)</p>	<p>The road edges in the busy towns or trading centres should be protected by kerbs.</p>	<p>The road edges in busy towns or trading centres were protected by using flush kerbs, however as the trading centres grow, the activities go beyond the areas provided with flush kerbs. UNRA stations will address the issues as part of their routine maintenance activities.</p>	<p>UNRA to follow up.</p>

4.1.11 Periodic Maintenance of Nandugut – Aksim (74km)


Civil Works Contract No. *UNRA/PM/08/09/08*

a. Contract Details

Client	Uganda National Roads Authority
Design Consultant	UNRA
Supervising Consultants	UNRA
Consultants contract No and date	N/A
Consultants contract amount	N/A
Contractor	M/S J. W. Opolot Construction Ltd
Letter of contract award date	5/12/08
Works contract No and date	UNRA/PM/08/09/08 of 6/02/09
Commencement date	20/02/09
Completion date	20/11/09
Contract amount	UGX 1,657,130,000
Certified amount to-date	40%
% progress reported	Works generally behind schedule

b. Scope of works

The works under this contract were for periodic maintenance that included heavy grading, excavation of drains and gravelling up to 150mm thick wearing course. Drainage improvement including provision of culverts is also part of the works.

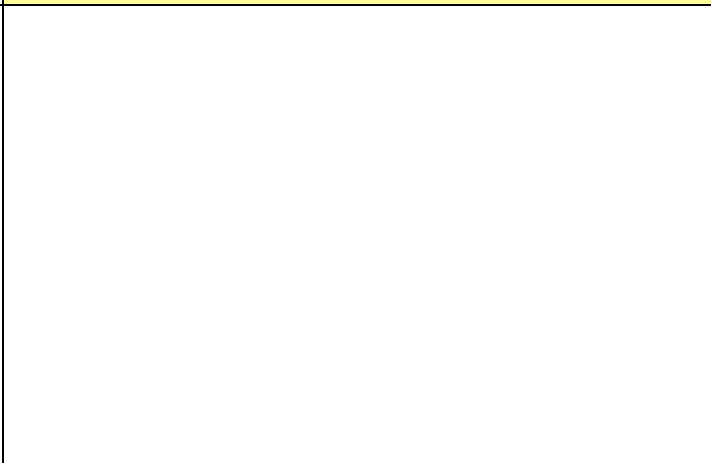
SNo	Observation	Management Response	Auditors Opinion
c.	<p>Document review</p> <p>The documents reviewed included the contract, interim payment certificates, correspondence between the client and contractor, quality control test results,</p> <p>The following was observed from the document review activity:</p>		
i)	The drawings included in the contract document were for paved roads instead of unpaved. Particular specifications include those of bitumen surfaced roads.		Proper drawings and specifications should be included in contracts to guide the contractors.
ii)	The contract signature was on 6 th February 2009 and yet the contractor's stamp indicates it was signed on 30 th January 2009.		It is important that the contract dates agree.
iii)	<p>No culvert or bridge works were planned for under the contract. Some of the existing ones required headwalls (see pictures below).</p> 	<p>It is true under the contract no bridge works were planned to be carried out. However, it is not true that under the contract there are no culvert works. Items 3.8.2 and 3.8.3 are for supply and installation of 600mm and 900mm diameter culverts.</p>	Headwalls for the existing bridges and culverts should have been provided for.



Culverts Lacking headwalls




d. Quality of Works
 A reconnaissance inspection was carried out on the road on 29th Sept 2009 accompanied by the UNRA Station Engineer, Moroto. The auditors conducted a detailed assessment of the road on 6th November 2009 in the presence of the UNRA Station Engineer and Assistant Engineer, Moroto and the Contractors' Site Agent and Foreman (names as in Annex 2). There was a general observation that the contractor had rectified some of the surface defects noted during the reconnaissance visit. The safe riding comfort speed was about 55km/h.



The table below shows the audit tests carried out and corresponding results which are compared with the specification limits.

Chainage	Test	Grading Width (m)	CBR Result (%)	Specification (%)	Remarks
0+020 LHS offset 1.8m	DCP –Sub-grade strength	9.0	52	≥50	Strong sub-grade
11+000 RHS offset 1.8m	DCP DCP – Sub-grade	7.4	16	≥50	Weak sub-grade

S/N	Work activity	Qty in the BoQ	Qty certified in PC No. 2	Estimated Qty as on	Remarks	
	strength					
	19+700 CL at Kangole	DCP –Sub-grade strength	7.3	82	≥50	Strong sub-grade
	31+500 LHS offset 2.1m	DCP –Sub-grade strength	7.5	55	≥50	Strong sub-grade
	42+000 RHS offset 1.9m	DCP –Sub-grade strength	7.0	38	≥50	Weak sub-grade
	51+400 CL	DCP –Sub-grade strength	7.6	91	≥50	Strong sub-grade
	At chainage 11+000 RHS offset 1.8m DCP Sub-grade strength test gave a result of 16 yet the recommended minimum should be 50 which resulted into the weak base At chainage 42+000 RHS offset 1.9m DCP –Sub-grade strength test gave a result of 38 yet the recommended minimum should be 50 which resulted into the weak base	The road sections identified with weak sub-grade are noted and will be improved by raising those areas with 300mm gravel thickness using UNRA Force Account.			The contractor should have rectified the weakness before starting gravelling on these sections. It is important that UNRA supervises this work more closely.	
e.	Quantities Verification Interim Certificate No.2 was the latest certified by audit time and was reviewed to assess the some of the major items of work. The width of the heavy grading gravel was on average 7.63m but could be a result of few points taken: The length of the road was found to be approximately 71.2 km although it was less than the contractual 74 km.	The actual length of the road to measured and reflected in the final account.			Proper measurements of the roads should have been undertaken before the contract was awarded. Final measurements of the road should be done by UNRA.	
S/N	Work activity	Qty in the BoQ	Qty certified in PC No. 2	Estimated Qty as on	Remarks	

				of 27/07/09	6th Nov '09		
	4.3.1	Shape the road by heavy grading to camber	518,000m ²	518,000m ²	498,400m ²	Mgt should ascertain the actual length of the road to avoid loss of funds.	
f.	Supervision of Works The supervision of works is being done in-house by UNRA staff. Borrow pits, field density and compaction tests were carried out and results were seen on file.						
g.	Resources on Site The auditors, at the time of detailed assessment found gravel stacks, a Foreman and Site Agent on site. Equipment seen on site included a Grader, 6 Tippers, 1 Roller and 1 Excavator.						
h.	Outstanding Technical Observations						
	i)	The road was graded for the full length and gravelling operation was on-going (see pictures below).					
							
		<i>Road condition at audit time, DCP tests were carried out on subgrade</i>					

ii)	There were over 1,500 mitres of 10m average length. Some mitres had silted causing flow back.	All blocked mitre drains to be desilted by the contractor before handing over the road.	UNRA to follow up.
iii)	Along Ch. 0+000 and Ch. 12+000 the scarified sub-grade lacked optimum moisture to achieve the compaction requirements.	The section is to be watered and re-compacted before regravelling is carried out.	UNRA to follow up.
iv)	On the basis of test results, there are sections of the road that have weak effective sub-grade strength.	The road sections identified with weak sub-grade are noted and will be improved by raising those areas with 300mm gravel thickness using UNRA Force Account	UNRA to follow up.
v)	There was notable slow progress of works.	On acceleration of work, the contractor has mobilized extra equipment above that in the contract including an excavator, a 950 CAT wheel Loader and Two 20t Tipper Trucks.	UNRA to follow up.
i.	Value for Money The average cost per km of UGX 22,393,649 which is within the range of similar works in the country		
j.	Recommendations		
i)	The road length should be re-confirmed by chaining.	Recommendations by Audit Team are noted and they will be implemented.	UNRA to follow up.
ii)	Mitres should often be de-silted and the levels should be improved upon to minimise unnecessary silting.		
iii)	UNRA station supervisors should check the sub-grade strength before allowing the contractor to proceed with gravelling operation.		
iv)	The Contractor should be advised to accelerate the works in order to fit within the planned contract period.	The physical progress to date stands at 60%. The completion date is 15 March 2010. Request has been to Contracts Committee to have the completion date extended due to heavy rains.	UNRA to follow up.


4.1.12 Periodic maintenance of Kamuli – Bukungu road (68km)**Civil Works Contract No. UNRA/PM/08/09/009****Consultancy Contract No: UNRA/SERVICES/2008-09/0021/08/05****a. Contract Details**




Client	Uganda National Roads Authority
Design Consultant	UNRA
Supervising Consultants	Supervised by UNRA up to 60% works; Professional Engineering Consultants deployed to supervise 40% and defects liability
Consultant Contract Sign Date (Supervising)	14 th August, 2009
Consultant Contract Amount	Not provided
Works Contractor	M/S Kark Technical Services Ltd
Letter of contract award date	5 th December, 2008
Works Contract sign date	28 th January, 2009
Commencement date	11 th February 2009
Contract duration	9 months
Completion date	11 th November 2009
Contract amount	UGX 2,226,950,000
Amount Certified as of 25th August 2009	Certificate No. 4, Amount UGX 1,295,437,300(VAT exclusive)
% of progress reported	Over all physical progress is 48% reported as of end of August 2009

b. Scope of works


Works mainly consists of clearing of shoulders and existing side drains of vegetation and debris, reshaping of the existing mitre drains, excavations for new side drains, catch water drains and offshoots, installation of cross pipe culverts, construction of headwalls, wing walls, aprons, toe walls and drop inlet chambers, shaping to camber and cross fall of the road surface by medium grading and provision of natural base course material of 150mm thick to form the wearing course.


SNo	Observation	Management Response	Auditors Opinion
c.	<p>Document review</p> <p>The documents reviewed included the contract, progress reports and the corresponding interim payment certificates, correspondence between the client and contractor, quality control test results, and payment vouchers.</p> <p>The following was observed from the document review activity:</p>		
i)	<p>The Consultants' Contract was signed on 14th August, 2009 for three roads. At the time of signing the Contract, Kamuli-Bukungu which had the longest Contract duration was supposed to end on 11th November 2009.</p> <p>The road works were designed and supervised in-house up to when 60% of the works were done. A Supervising Consultant was thereafter deployed to oversee the remaining works for a 9 months contract duration, it is not clear what he was going to do after the Contractors' Contracts had ended;</p>	<p>It is true at the time the consultant came in place the civil works contract was on-going. The consultancy services remaining time in put is to be utilized on supervising Tororo-Busia-Majanji road contract.</p>	<p>The consultants should always be appointed earlier before engaging the contractor.</p>
ii)	<p>Time for the works contract was expiring but no official extension of time had been granted by audit time;</p>	<p>Request for extension of time by sixty (60) days was submitted to Contracts Committee waiting for the approval</p>	<p>UNRA should assess and expedite the approval of the extension.</p>
iii)	<p>Only one progress report was submitted covering the period 11th February, 2009 to 18th August, 2009;</p>	<p>The progress reports for this contract are available and copies are attached as Annex RM4</p>	<p>Progress reports lack material information required for</p>

			monitoring purposes.
iv)	The over all physical progress was 48% but the over all time progress was 67% and financial progress 68%.	The contract is substantially completed.	UNRA to follow and ensure timely completion of the project.
v)	The frequent break down of the Contractor's plant caused "some slight setbacks" in the execution of the contract.		
d.	Quality of Works The auditors conducted a reconnaissance visit of the road on 22 nd September 2009		
	Road status during Reconnaissance visit		
	 <p><i>Drainage channel way above invert level of culverts. Road works on going</i></p>		
	Road status during detailed assessment The auditors conducted a detailed assessment of the road on 10 th November 2009 in the presence of the UNRA Station Engineer and Assistant Engineer–Jinja; the Contractor's Site Engineer and Site Agent (names as in Annex). There was a general observation that the contractor had rectified the surface defects that		

	<p>were identified during the reconnaissance visit. The safe riding comfort speed was about 60km/h on the gravelled section. Graveling works, stone pitching and culvert works were still on-going (see pictures below).</p>																																							
	<div style="display: flex; justify-content: space-around;">    </div> <p><i>Stone-pitching works</i> <i>Auditors measuring the gravel thickness</i></p>																																							
	<p>The table below shows the audit tests carried out and corresponding results which are compared with the specification limits.</p>																																							
	<table border="1"> <thead> <tr> <th>Chainage</th> <th>Test</th> <th>Thickness (mm)</th> <th>CBR Result (%)</th> <th>Specification (%)</th> <th>Remarks</th> </tr> </thead> <tbody> <tr> <td>0+014 LHS offset 1.0m</td> <td>DCP</td> <td>195</td> <td>170</td> <td>≥60</td> <td>Gravelled, Ok</td> </tr> <tr> <td>9+000 CL</td> <td>DCP</td> <td>170</td> <td>194</td> <td>≥60</td> <td>Gravelled, Ok</td> </tr> <tr> <td>15+200 RHS offset 1.75m</td> <td>DCP</td> <td>200</td> <td>85</td> <td>≥60</td> <td>Gravelled, Ok</td> </tr> <tr> <td>24+000 LHS offset 2.4m</td> <td>DCP</td> <td>230</td> <td>48</td> <td>≥60</td> <td>Gravelled, weak</td> </tr> <tr> <td>40+500 CL</td> <td>DCP</td> <td>n/a</td> <td>142</td> <td>≥50</td> <td>Sub-grade, strong</td> </tr> </tbody> </table>			Chainage	Test	Thickness (mm)	CBR Result (%)	Specification (%)	Remarks	0+014 LHS offset 1.0m	DCP	195	170	≥60	Gravelled, Ok	9+000 CL	DCP	170	194	≥60	Gravelled, Ok	15+200 RHS offset 1.75m	DCP	200	85	≥60	Gravelled, Ok	24+000 LHS offset 2.4m	DCP	230	48	≥60	Gravelled, weak	40+500 CL	DCP	n/a	142	≥50	Sub-grade, strong	
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40+500 CL	DCP	n/a	142	≥50	Sub-grade, strong																																			
e.	<p>Quantities Verification</p>																																							

	Interim Certificate No.4 was the latest certified by audit time and was reviewed. On average, the width of the road: drain to drain was $\approx 8.2\text{m}$ while the gravelled section was $\approx 6.2\text{m}$ which satisfy the design width of 7m and 6m respectively. The length of the road was found to be approximately 66.3km although it was less than the contractual 68km.	The actual length of the road to measured and reflected in the final account.				Proper measurements of the roads should have been undertaken before the contract was awarded. Final measurements of the road should be done by UNRA.	
	S/N	Work activity	Qty in the BoQ	Qty certified in PC No. 4 of 18/08/09	Estimated Qty as on 10th November '09	Remarks	
4.3.2		Shape the road surface by medium grading	476,000m ²	476,000m ²	>476,000m ²	Ok	
4.3.3		Provide & transport up to 10km, spread & compact gravel	61,200m ³	21,150m ³	>21,150m ³	Works still on-going	
f.	Supervision of Works The supervision of works was being done in-house by UNRA staff although a Consultant had been deployed but not yet on site by audit time. Borrow pits, field density and compaction tests were carried out and results were seen on file.						
g.	Resources on Site The auditors, at the time of detailed assessment found gravel stockpiles; contractor's staff were on						

	site; the equipment on site included: 2 Graders, Water bowser, 2 Rollers, Dozer, Wheel loader, three 15-tonne trucks, two 7-tonne trucks.		
h.	Outstanding Technical Observations		
i)	The contract was to expire 1 day after the audit i.e. 11 th November 2009. No time extension had been granted;	Request for extension of time by sixty (60) days was submitted to Contracts Committee waiting for the approval	Extension yet to be granted.
ii)	The contractor had spread gravel over a long stretch of the road before compaction; this is not a good practice as it can affect traffic flow on the road (see picture below);  <i>Un-compacted gravel over long stretches</i>	The contract is substantially completed.	Materials should be spread in a manner that has minimum obstructions of traffic especially where diversions are not provided
iii)	Culverts were of good quality, however, the installed culvert joints were not sealed; the culvert line at Ch. 8+700 should have been skewed instead of cross. Culvert headwalls and wing-walls were not appropriately designed (see picture below); culvert pipe cover was mostly less than the expected requirements;		

	 <p><i>Poor culvert headwall and wing walls</i></p>	<p>Observations to be addressed during the defects liability period. For all our future contracts we shall ensure that we have a bill item on road signs</p>	<p>UNRA to follow up.</p>
<p>iv)</p>	<p>The Bills of Quantities lacked an item of road signs to cover safety features;</p>		
<p>v)</p>	<p>Some of the mitre drains seen were silted.</p>		
<p>vi)</p>	<p>There were long stretches on hills without lined drainages or scour checks to check the speed of water.</p>		
<p>i.</p>	<p>Value for Money The average cost per km of UGX 32.749.265 is within costs for similar works in the country</p>		
<p>j.</p>	<p>Recommendations</p>		
<p>i)</p>	<p>Review Consultants Contract terms of reference clearly specifying the level of works to be supervised;</p>	<p>Recommendations by Audit Team are noted and they will be implemented</p>	<p>UNRA to follow up</p>
<p>ii)</p>	<p>The road length should be re-confirmed by chaining.</p>		
<p>iii)</p>	<p>The process of evaluating the request for contract extension should be speeded up so that the works are not affected.</p>		

iv)	The deployed Consultant should review the designs for headwalls and wing-walls; those not yet constructed should follow appropriate designs.		
v)	Mitre drain levels should be improved upon to allow free flow of water away from the road.		
vi)	UNRA should consider road safety requirements in future contracts.		

4.1.13 Periodic Maintenance of Kotido – Kanawat – Abim road (70km)

Civil Works Contract No. KOTIDO/01/006/07/08




a. Contract Details

Client	Ministry of Works and Transport/Uganda National Roads Authority
Design Consultant	In house
Supervising Consultants	UNRA
Consultant Contract Date	<i>Not Applicable</i>
Consultant Contract Amount	<i>Not applicable</i>
Works Contractor	M/S Excel Construction Ltd
Letter of contract award date	03/12/09
Works Contract sign date	22 nd May 2009
Commencement date	25/05/09
Contract Duration	6 months
Completion date	25/11/09
Contract amount	UGX 1,152,911,800/=
Amount Certified to date	Certificate No. 4, on the 17 th July, 2009 Certified amount UGX 1,058,296,549
% of progress reported	88.3%

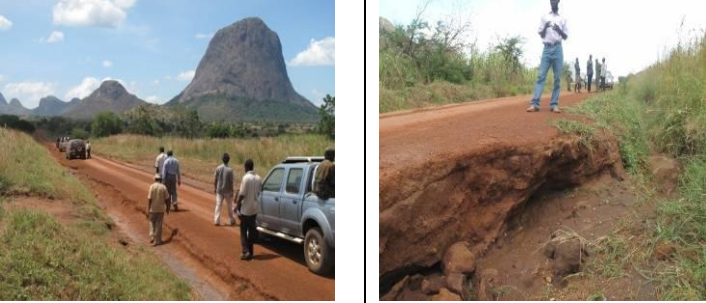
b. Scope of works


The works under this contract were for periodic maintenance that included heavy grading, culvert installations and spot gravelling (Ch. 0+000 to Ch. 11+000; 4kms of access road – circular; 5km from access road towards Kanawat; and 25km from Abim towards Kanawat).


SNo	Observation	Management Response	Auditors Opinion
c.	<p>Document review</p> <p>The documents reviewed included the contract, progress reports and the corresponding interim payment certificates, correspondence between the client and contractor, and quality control tests results.</p> <p>The following was observed from the document review activity:</p>		
i)	<p>The drawings provided in the contract document were for paved roads instead of unpaved.</p> <p>Particular specifications include those of bitumen surfaced roads.</p>		<p>Proper drawings and specifications should be included in contracts to guide the contractors.</p>
ii)	<p>The thickness of gravel provided as 75mm was too small for a road type of this nature carrying heavy loads of traffic</p>	<p>The thickness of gravel layer is not 75mm but 100mm.</p>	<p>Item 4.3.3 of the BoQ indicates a thickness of 75 mm of gravel.</p>
d.	<p>Quality of Works</p> <p>The auditors conducted a reconnaissance visit of the road on 30/09/2009 accompanied UNRA Station Engineer –Kotido. The following were noted during the visit:</p> <ul style="list-style-type: none"> • 2 line of culverts were damaged • Headwalls not protected • deep gullies on road sides 		<p>UNRA to check the defects noted and ensure they are corrected.</p>

<p>The auditors conducted a detailed assessment of the road on 7th November 2009 in the presence of the UNRA Station Engineer –Kotido and the Contractors’ Site Agent and Foreman (names as in Annex 2). There was a general observation that the contractor had rectified some of the surface defects noted during the reconnaissance visit. The safe riding comfort speed was about 60km/h.</p>							
<div style="display: flex; justify-content: space-around;">    </div> <p>Poorly aligned culverts Status of a fair road section Poorly compacted fill</p>							
<p>The table below shows the audit tests carried out and corresponding results which are compared with the specification limits.</p>							
Chainage		Test	Grading Width (m)	CBR Result (%)	Specification (%)	Remarks	
0+033	LHS offset 2.3m	DCP	8	67	≥60	Gravelled, Ok	

	13+900 CL (Access road)	DCP	7	105	≥60	Gravelled, Ok	
	29+900 RHS	DCP	7.2	58	≥50	Sub-grade, Ok	
	51+600 LHS offset 1.6m	DCP	7	75	≥60	Gravelled, Ok	
	67+400 CL	DCP	5.8	65	≥60	Gravelled, Ok	
	69+800 RHS	DCP	6.2	81	≥60	Gravelled, Ok	
e.	Quantities Verification Interim Certificate No.4 was the latest certified by audit time and was reviewed to assess the some of the major items of work. The width of the heavy grading gravel was on average 6.9m: The length of the road was found to be approximately 73.8km which is less than the contractual 76km.						
	S/N	Work activity	Qty in the BoQ	Qty certified in PC No. 4 of 17/07/09	Estimated Qty as on 7th November '09	Remarks	
	4.3.1	Shape the road by heavy grading to camber	490,000m ²	526,400m ²	509,220m ²	The difference could be due to possible inaccuracy in road length.	
f.	Supervision of Works The supervision of works is being done in-house by						

	UNRA staff. Borrow pits, field density and compaction tests were carried out and results were seen on file.		
g.	<p>Resources on Site</p> <p>The auditors, at the time of detailed assessment did not find any materials on site; works were in defect liability period, however, a grader, roller, water bowser, tipper and pick-up were mobilised for final rectification of snags identified by the Station Engineer.</p>		
h.	<p>Outstanding Technical Observations</p>		
i)	Notably, the quality of culverts and installation procedure was fairly done; however, in some sections along the road, the culvert outlet drains were blocked by nearby residents claiming that the water destroys their crops. In other areas that require catch water drains, they could not be excavated due to similar reasons. This aspect was more pronounced between Ch. 54+500 and Ch. 56+600 near Alerek Trading Centre.		This is an issue that needs to be resolved and water allowed to flow out of drains/captured before reaching the road. Durability of roads is dependant on adequate drainage system!
ii)			

	<i>Destroyed road sections due to lack of drainage culverts</i>		
iii)	There were low spots identified that require filling. This was however outside the scope of works under this contract.	The low lying areas that require raising will be worked on by UNRA Force Account Unit in May 2010 after expiry of the Defects Liability Period	UNRA to follow up.
iv)	There was rutting noted along un-gravelled sections. Heavily loaded World Food Programme trucks ply the route on a daily basis. This, coupled with the small thickness provided of 75mm could be the cause of the rutting (see picture below). 		
	<i>Rutting along un-gravelled section</i>		
v)	At Ch. 65+500 LHS, there was a deep road cut due to too much storm water run off onto the road; the spot requires an emergency relief culvert (see picture below).	Lining of side drains where storm water is currently running over a long stretch before it is disposed off is planned to commence next FY 2010.	UNRA to follow up.

	 <p><i>Deep cut nearly one lane left</i></p>		
<p>i.</p>	<p>Value for Money The average cost per km of UGX 16.470.154 is within the cost for similar works.</p>		
<p>j.</p>	<p>Recommendations</p>	<p>Recommendations by Audit Team are noted and they will be implemented.</p>	<p>UNRA to follow up.</p>
<p>i)</p>	<p>The road section lengths should be re-confirmed by chaining.</p>		
<p>ii)</p>	<p>The Local Authorities should intervene by sensitising residents about the need for culvert outlets and catch water drains.</p>		
<p>iii)</p>	<p>UNRA should consider commissioning additional works of emergency in nature along this road section at particular spots. Consideration for gravelling the remaining sections should be recommended.</p>		
<p>iv)</p>	<p>The Station Engineer should ensure the contractor rectifies the snags identified before final acceptance of the works.</p>		




4.1.14 Urgent repairs on Pabbo – Atiak – Nimule road (70km)**Civil Works Contract No. UNRA/EMG/08/09/001****Consultancy Contract - N/A****a. Contract Details**

Client	Ministry of Works and Transport/Uganda National Roads Authority
Design Consultant	In-house
Supervising Consultants	Supervised In-house
Consultant Contract Date	<i>Not applicable</i>
Consultant Contract Amount	<i>Not applicable</i>
Works Contractor	M/S Muloowoza and Brothers Ltd
Letter of contract award date	17 th October, 2008
Works Contract sign date	4 th December, 2008
Commencement date	1 st November, 2008
Contract Duration	9 Months
Completion date	1 st August, 2009
Contract amount	UGX 3,323,572,500/=
Amount Certified to date	Certificate No.6 (Substantial Completion), UGX 3,084,045,335 which is 92.79% of the contract sum.
% of progress reported	95.5%

b. Scope of works


The works under this contract were for urgent repairs of 70km total road sections including heavy grading and placement of gravel wearing course at 150mm thickness, raising some sections and improvement of the drainage system.

SNo	Observation	Management Response	Auditors Opinion
c.	<p>Document review</p> <p>The documents reviewed by the auditors included the contract, progress reports and the corresponding interim payment certificates, correspondence between the client and contractor, and quality control tests results.</p> <p>In one of the correspondences, the auditors noted that the client asked the contractor to re-grade the whole road; this implied that there was lack of close supervision.</p>	<p>To provide the best level of traffic service possible, the recommended frequency of grading for the traffic volume on this road is 4 times annually. Therefore, there was need to instruct the Contractor to re-grade the road during the execution of the 9 months project duration. Although the Station has no adequate supervision staff, this project was however supervised by an Assistant Engineer in charge of Contracts, a Road Inspector and had a full time Road Overseer at Site. The project had close supervision.</p>	<p>The frequency of grading of gravel roads should be minimal to avoid disturbing the road structure and thereby increasing the rate of gravel loss.</p>
d.	<p>Quality of Works</p> <p>The auditors conducted a reconnaissance visit of the road on 2nd October, 2009. The auditors further conducted a detailed assessment of the road on 4th November 2009 in the presence of the UNRA Station Engineer –Gulu and the Contractors’ Headman / Site Agent (names as in Annex 2).</p> <p>There was a general observation that the contractor had rectified some of the surface defects noted during the reconnaissance visit save for the drainage structures i.e. culverts. The safe riding comfort speed was about 55km/h.</p>	<p>This is correct. Culvert defects are on the snag list.</p>	<p>UNRA to follow up.</p>
	<p>Road condition</p>		

					
<i>Audit team ascertaining gravel thickness</i>		<i>Potholes due to loss of camber</i>			
The table below shows the audit tests carried out and corresponding results which are compared with the specification limits.					
Chainage	Test	Thickness (mm)	CBR Result (%)	Specification (%)	Remarks
0+030 CL	DCP	115	41	≥60	weak wearing course, & inadequate thickness, less than 150mm
5+300	Cement content in mortar		6.23	20 - 25	Poor mortar mix
10+300 LHS	DCP	190	90	≥60	7.2m width;
19+300 RHS	DCP	130	178	≥60	6.7m width; Inadequate thickness, less than 150mm
30+000 CL	DCP	100	194	≥60	6.5m width; Inadequate thickness, less

						than 150mm	
	40+000 LHS	DCP	150	121	≥60	6.5m width; width ok	
	50+000 RHS	DCP	135	89	≥60	6.8m width; Inadequate thickness, less than 150mm	
	60+000 CL	DCP	100	130	≥60	7.0m width; Inadequate thickness, less than 150mm	
e.	Quantities Verification The substantial completion (Interim Certificate No.6) was the latest certified by audit time and was reviewed to assess the some of the major items of work. On average, the thickness of gravel was on average 131.5mm albeit the design thickness of 150mm. The width of the gravel was on average 6.9m: The length of the road was found to be approximately 67.6km which is less than the contractual 70km			The length as determined by chaining done during execution of works was 69 km and this was used in all computations for derivation of quantities for certification. Considering that regravelling of some sections were completed in January 2009, and due the heavy traffic, high gravel loss is experienced on this road. A loss of about 20mm for average period of six months is quite normal in such conditions of the road (ref studies carried out by World Bank in Kenya)			There are sections where gravel thicknesses was established to be 100mm.
	Pay Item	Work activity	Qty in the BoQ	Qty certified in PC No. 6 of 01/09/09	Estimated Qty as on 4th November '09	Remarks	
	4.3.3	Provide and transport up to	65,100m ³	65,205m ³	61,337m ³	To re-chain for road length	

		10km, spread, shape, water and compact (150mm thick)				
f.	Supervision of Works The supervision of works is being done in-house by UNRA staff. Borrow pits, field density and compaction tests were carried out and results were seen on file with appropriate recommendations.		This project was supervised by the Station Engineer who was the Project Manager, an Assistant Engineer in charge of Contracts, a Road Inspector and had a full time Road Overseer at Site			
g.	Resources on Site The auditors, at the time of detailed assessment did not find any equipment on site. The team was told that equipment was being mobilised from another site to come and fix the surface snags noted by the Station Engineer.		This is correct observation			The snags identified by the supervising Engineers should always be corrected immediately for monitoring in the defects Liability period.
h.	Outstanding Technical Observations					
i)	Concrete culvert lines at least had one or more defects i.e. cracked, collapsing headwalls. Joints were not sealed, and the culvert beddings were not properly done. The culvert pipe cover was mostly as required. Some culverts had silted (see pictures below). The wing walls design was not appropriate. The culvert inventory kept at the station was not representative on ground.		It is true that culvert lines had defects. The contractor has been instructed to replace all damaged culverts. A proper wing walls design was issued to the Contractor who will have to reconstruct all end culvert structures. The culvert inventory was updated but the discrepancy was mainly due to use of different vehicles when undertaking the measurements.			UNRA should follow up.

	 <p style="text-align: center;">Defective culvert works</p>		
ii)	<p>There was severe erosion along some headwall surroundings caused by inadequate compaction. There were sections where there was evidence of water ponding as a result of loss of camber leading to pothole formation (see picture on road condition above).</p>	<p>This observation is correct. The erosion along the headwalls is to be corrected by the Contractor during defects rectification process. Loss of camber is attributed to the high traffic levels on the road coupled by high axle loading. Plans are underway to grade the road in April 2010.</p>	<p>UNRA to follow up.</p>
iii)	<p>“Supply, delivery and installation of corrugated metallic pipe culverts, use for bedding and filling approved materials”, was done in 3 places each of 8m length but the total length measured and certified was 40m; the difference of 16m is not accounted for.</p>	<p>The installation was done in 3 places; Ch. 68 + 400 (1 line) Ch. 68 + 600 (2 lines) and at Ch. 68 + 650 (2 lines) all totalling to 40 lm. Hence all the 40 lm is accounted for. See photographs enclosed under separate cover.</p>	
iv)	<p>Though the actual road width constructed including shoulders is 9m, 900mm diameter concrete and corrugated steel culverts of 8m were installed. Implying that they cannot be seen from either side and as such cannot even serve the drainage purpose;</p>	<p>It is correct that the culverts are 8m and road width 9m. Since the road is for upgrading to bitumen standards due to commence by July 2010, extension of the culvert length to be left for the project to handle.</p>	<p>This creates safety hazards as the road will become narrower at the culverts locations.</p>
i.	<p>Value for Money The average cost per km of UGX 47,479,607 which for this type of road is on high side compared to the costs</p>	<p>The condition of this road was more of rehabilitation than periodic maintenance. It was full of gullies; ponds etc which necessitated first</p>	

	for similar works in the country.	filling all such sections with borrow materials. See photographs enclosed under separate cover.	
j.	Recommendations		
i)	The road length should be re-confirmed by chaining;	The recommendations to be adopted.	UNRA to follow up.
ii)	Culvert defects identified should be rectified. For headwalls and wing walls noted to be re-constructed, a proper design should be made available to the contractor;		
iii)	Whereas some of the above defects were identified by the Station Engineers and provided to the contractor as snags; the Station Engineer should ensure close supervision for the contractor to make good the defects;		
iv)	Re-measurement of works is necessary before final accounts are produced to re-confirm the actual gravel and other quantities.		

4.1.15 Periodic Maintenance of Isingiro – Rakai/Mbarara Border Road (56km)

Civil Works Contract No. **UNRA/PM/08/09/015**

Consultancy Contract No: **UNRA/SERVICES/2008-09/0021/08/02**



a. Contract Details

Client	Uganda National Roads Authority
Design Consultant	UNRA
Supervising Consultant	Prome Consultants Limited
Consultant Contract Date	18 th August ,2009
Consultant Contract Amount	UGX 316,340,000
Works Contractor	Assured Engineering Services Ltd
Letter of contract award date	5 th December, 2008
Works Contract sign date	13 th February, 2009
Commencement date	27 th February, 2009
Contract duration	7 months
Completion date	27 th September, 2009
Contract amount	UGX 1,096,991,500
Amount Certified to date	Certificate No. 2, on 21 st September, 2009,Certified amount UGX 668,197,130
% of progress reported	92% (Contract management report submitted on 30 th October 2009)

b. Scope of works

The works under this contract were for periodic maintenance of 56km road length including heavy grading for 32kms and medium grading for 24kms all at 7m width; installation of culverts and re-gravelling 6m carriageway.



SNo	Observation	Management Response	Auditors Opinion
c.	<p>Document review</p> <p>The documents reviewed by the auditors included the contract, progress reports and the corresponding interim payment certificates, correspondence between the client and contractor, quality control tests results, and payment vouchers.</p> <p>The following were noted from the document review activity:</p>		
i)	<p>The Consultancy Contract was signed less than 2 months to Project completion when 85.7% supervision of works had been done by the Station Engineer; the Consultant supervised only 14.3%. It is not practical for the consultant to understand the scope of the works done and offer effective supervision at this stage of the contract performance.</p>	<p>Agree, the procurement for the consultant delayed and this is to be addressed by proper planning.</p>	<p>Consultancy services should be procured well in advance before commencement of works contracts.</p>
d.	<p>Quality of Works</p> <p>The auditors carried out a reconnaissance visit of the road on 30th September, 2009. Defects were noticeable on the carriageway that included potholes and culvert headwalls were cracked.</p>	<p>True, the contractor has agreed and has mobilized to rectify all the defects for which the risks are attributable to his performance. An inspection is to be conducted by all the parties once the contractor has completed the rectification of the defects.</p>	<p>UNRA to follow up.</p>
	<p>Status of road during Reconnaissance</p>		



		<div style="background-color: yellow; height: 280px;"></div>																												
<p><i>Missing headwalls and poor quality of finishes</i></p>	<p><i>Team observed compacting of gravel mixed with polythene and without adequate water</i></p>																													
<p>A detailed assessment of the road was carried out on 22nd October 2009 in the presence of the UNRA Station Engineer –Mbarara, the Consultant representative and the Contractor (names as in Annex 2). There was a general observation that the contractor had rectified surface defects identified during the reconnaissance visit and the safe riding comfort speed was about 65km/h. The table below shows the audit tests carried out and corresponding results which are compared with the specification limits.</p>																														
<table border="1"> <thead> <tr> <th>Chainage</th> <th>Test</th> <th>Thickness (mm)</th> <th>CBR Result (%)</th> <th>Specification (%)</th> <th>Remarks</th> </tr> </thead> <tbody> <tr> <td>3+000 CL</td> <td>DCP</td> <td>130</td> <td>96</td> <td>≥60</td> <td>Strong wearing course</td> </tr> <tr> <td>28+000 LHS</td> <td>DCP</td> <td>230</td> <td>57</td> <td>≥60</td> <td>Weak wearing course</td> </tr> <tr> <td>38+700 RHS</td> <td>DCP</td> <td>200</td> <td>62</td> <td>≥60</td> <td>Strong wearing course</td> </tr> </tbody> </table>	Chainage	Test	Thickness (mm)	CBR Result (%)	Specification (%)	Remarks	3+000 CL	DCP	130	96	≥60	Strong wearing course	28+000 LHS	DCP	230	57	≥60	Weak wearing course	38+700 RHS	DCP	200	62	≥60	Strong wearing course						
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38+700 RHS	DCP	200	62	≥60	Strong wearing course																									
<p>e. Quantities Verification Interim Certificate No.2 was the latest certified by audit time and was made use in assessing the details of works done by the contractor. The actual works done</p>	<p>The length of 54.15 was obtained by chaining by the contractor in the presence of the consultant; however the road length will be re-confirmed by joint chaining by the contractor, consultant and</p>	<p>Proper measurements of the roads should have been undertaken before the contract was awarded.</p>																												

for some of the work items compared to the quantities certified vide the interim certificate are as shown in the table below. On average, the width of the road: drain to drain was \approx 8m while the gravelled section was \approx 5.96m. The length of the road was found to be approximately 52.7km although it was reported to be 54.15km which was even less than the contractual 56km.		UNRA. Payments were effected on the basis of the 54.15km length not the contractual 56km since this is an admeasure contract.			Final measurements of the road should be done by UNRA.
S/N	Work activity	BoQ Qty	Qty certified in PC No. 2 of 15/09/09	Estimated Qty as on 22 nd October '09	Remarks
3.8.2	Supply, deliver and install concrete pipes	80	80	80	A number of Culverts were cracked and headwalls poorly designed.
4.3.1	Shape the road surface by heavy grading	224,000	224,000	224,000	Ok.
4.3.2	Shape the road surface by medium grading	168,000	63,000	144,900 ¹	More works were performed after issuance of certificate
4.3.3	Provide & transport up to 10km, spread & compact gravel	39,200	25,200	31,409	More works were performed after issuance of certificate
f.	Supervision of Works				

¹ Based on the road length of 52.7km and assuming heavy grading of 32km as specified.

	The supervision of works was done by UNRA for 6 months through the Station Engineer and 1 month by Prome Consultant Ltd. The Station Engineer submitted one report for the first 5 months. The progress reports prepared contain substantial information for monitoring progress but lack, the program vs progress chart, progress photographs, test records, site diaries and weather reports. Borrow pits, field density and compaction tests were carried out and results were seen on file.	Delays in procurement for the consultants are being addressed by proper planning. The supervision by the Station Engineer was of an emergency nature since the works were to commence and could not be allowed to proceed without supervision. All deficiencies in documentation identified by the audit will be addressed in all future supervision before commencement of the services.	UNRA to follow up.
g.	Resources on Site The auditors, at the time of detailed assessment found no equipment, no materials or contractor personnel on site.	True, the contract is under defects liability period and the contractor is not obliged to keep any equipment on site. However, after an agreement with the contractor on the defects to be rectified, the contractor has mobilized some equipment to carry out the remedial works.	
h.	Outstanding Technical Observations		
i)	Culvert locations by chainages were not accurate. The road length requires re-measurement by chaining to confirm the exact length;	Inventory of newly installed culverts will be captured accurately by chaining. The road length will be re-measured by joint chaining by the parties to the contract.	UNRA to follow up.
ii)	All culverts had been installed; however, about 50% of the culverts had cracked. Culvert joints were not sealed as required and some headwalls had cracked as well. The cause of culvert cracking was attributed to less pipe-cover and weak culvert bedding. Some of the cracked culverts were located at Ch 20+500, 28+000	The contractor has already replaced some of the cracked culverts and the remaining are to be replaced as well. A joint inspection preferably with the presence of the internal Audit will be carried out once the contractor indicates that he has accomplished the remedies.	Audit verification of the response on 10 th March 2010 showed that the defects had not been corrected.

	<p>and 38+700. The Supervisor and the Contractor should take responsibility. The following pictures show some of the defects.</p>		
<p>iii)</p>	<p>All culverts were installed after gravelling and this created dangerous humps on the road as shown in the picture below;</p>  <p><i>Hump created as a result of laying culverts after gravelling</i></p>	<p>True, the humps have now been flattened and there is no safety risk at the locations.</p>	<p>Audit verification of the response on 10th March 2010 showed that the defects had not been corrected.</p>
	 <p><i>Poorly installed culverts showing less pipe cover and disjointing</i></p>		
<p>iv)</p>	<p>The road traverses a relatively flat terrain and long low spots (see pictures below). The carriageway was getting washed away due to flooding / water ponding along these spots. The designer takes responsibility of this oversight.</p>	<p>Estimates for improvement of drainage on the entire road have been submitted by the Station Engineer. UNRA is considering a separate contract for drainage improvement on the entire road and also other roads due to the increased</p>	<p>UNRA to follow up.</p>

	 <p><i>Flat terrain prone to flooding and silting due to poor drainage intervention and poor camber</i></p>	scope of the works.	
v)	<p>Reconnaissance revealed that compaction was being done without adequate moisture leading to poor results as shown in the pictures below;</p>  <p><i>Poorly compacted grave</i></p>	True, this was noted at the time of construction and the contractor was instructed appropriately. Some of the sections with poor results are to be rectified by the contractor.	Response is satisfactory. UNRA to follow up.
i.	<p>Value for Money</p> <p>The average cost per KM of the road of UGX 19,589,134 is within the costs for similar works in the country.</p>	Agreed	
j.	<p>Recommendations</p>		
i)	<p>The road length should be re-confirmed by chaining;</p>	The road length will be re-confirmed by joint chaining by the contractor, consultant and UNRA;	Response is satisfactory. UNRA to follow up.
ii)	<p>The newly installed culvert inventory should be accurately captured;</p>	The newly installed culvert inventory will be accurately captured;	Response is satisfactory. UNRA to follow up.

iii)	Whereas the Station Engineer and the Consultant had identified most of the notable culvert defects at an earlier date, the contractor had not attempted to replace the culverts. The contractor should replace the cracked culverts and seal all the joints for the rest of the pipes. Broken-down headwalls should be re-built;	The contractor is now rectifying the defective/cracked culverts and headwalls;	UNRA to follow up.
iv)	The Station Engineer should consider substantial fills and adequate cross drainage along the low spots in the near future;	Agree, the Station Engineer will consider substantial fills and adequate cross drainage along the low spots in the near future; also Estimates for improvement of drainage on the entire road have been submitted by the Station Engineer. UNRA is considering a separate contract for drainage improvement on the entire road and also other roads due to the increased scope of the works.	UNRA to follow up.



4.1.16 Periodic Maintenance of Rakai/Mbarara Border – Rakai road (50km)**Civil Works Contract No. UNRA/PM/08/09/006****Consultancy Contract No: UNRA/SERVICES/2008-09/0021/08/02****a. Contract Details**

Client	Uganda National Roads Authority
Design Consultant	UNRA
Supervising Consultant	Prome Consultants Limited
Consultant Contract Date	18 th August ,2009
Consultant Contract Amount	UGX 316,340,000
Works Contractor	Assured Engineering Services Ltd
Letter of contract award date	5 th December, 2008
Works Contract sign date	5 th February, 2009
Commencement date	9 th February, 2009
Contract duration	6 months
Completion date	8 th August, 2009
Contract amount	UGX 1,125,549,700
Amount Certified to date	Certificate No. 4, on 12 th November, 2009,Certified amount UGX 1,125,547,119
% of progress reported	100% (Progress report for October 2009)

b. Scope of works

The works under this contract was periodic maintenance of 50km road length including medium grading (7m width), installation of culverts, medium grading, re-gravelling 6m carriageway and the improvement of the drainage system.

SNo	Observation	Management Response	Auditors Opinion
c.	<p>Document review</p> <p>The documents reviewed included the contract, progress reports and the corresponding interim payment certificates, correspondence between the client and contractor, and quality control tests results.</p> <p>The following was observed from the document review activity:</p>		
i)	Works were substantially completed by 6 th June 2009;		
ii)	<p>The Consultancy Contract was signed 2 months after the works had been completed;</p> <p>The Consultancy Contract terms of reference included supervision of works, it is not clear why the Consultants Contract was awarded after all works had been done;</p>	<p>It is true consultancy contract was signed 2 months after the works had been completed. However, after signing consultancy services, the scope of services was revised to exclude Rakai – Mbarara Bdr road.</p>	<p>UNRA to ensure that payments the consultants are not paid for supervising this contract.</p>
iii)	<p>The defect liability period was extended to end 29th October 2009 i.e. by 13 days although the reasons for extension were not justified;</p>	<p>The defects liability period (DLP) was not extended to 29th October 2009 but at that time all defects as listed in the snag list had not been rectified. Extension of DLP can only be done with approval of UNRA Contracts Committee.</p>	<p>Documents show that this extension was granted.</p>
iv)	<p>Though the defects liability was extended to end 29th October 2009, in the payment and certification of the retention amount, the original substantial completion date of 16th October 2009 was applied;</p>	<p>The original substantial completion date was 16th June 2009 but this date was erroneously indicated as 16th October 2009 in the payment certificate.</p>	
v)	<p>The Auditors (22nd October 2009) observed that the Contractor had not attended to defects on culvert and head walls (breakages) which the Engineer had also</p>	<p>It is true that at the time of Audit (22nd October 2009) the Contractor was on site rectifying defects but he had not yet attended to culvert and</p>	<p>Defects corrected</p>

	<p>noted. This however contradicts with the Station Engineers letter 3rd November 2009.</p>	<p>headwall defects despite the fact that defects liability period had ended on 16th October 2009. Retention monies were not released until 3rd November 2009 when all defects had been attended to.</p>	
<p>vi)</p>	<p>A number of snags pointed out by the supervising Engineer (UNRA) had not been addressed by the contractor and this had taken a long time.</p>	<p>It is true that at the time of Audit (22nd October 2009) a number of snags pointed out by the supervising Engineer (UNRA) had not been addressed by the contractor and this had taken a long time. However although defects liability period had ended on 16th October 2009, retention monies were not released until 3rd November 2009 when the Contractor had made good all the defects.</p>	<p>Defects corrected</p>
<p>d.</p>	<p>Quality of Works The auditors carried out a reconnaissance visit of the road on 30th September 2009. Defects were noticeable on the carriageway that included potholes. The Auditors also noted that the road had heavily increased traffic trading in Bananas and Cattle.</p>		
	<p>Status of road</p> <div style="display: flex; justify-content: space-around;">   </div>		

	<i>Fair condition of the road</i>		<i>Audit team carrying out DCP test</i>			
	A detailed assessment of the road was carried out on 22 nd October 2009 in the presence of the UNRA Station Engineer –Masaka, his Assistant and the Contractor (names as in Annex 2). There was a general observation that the contractor had rectified surface defects identified during the reconnaissance visit and the safe riding comfort speed was about 60km/h.					
	The table below shows the audit tests carried out and corresponding results which are compared with the specification limits.					
	Chainage	Test	Thickness (mm)	CBR Result (%)	Specifications (%)	Remarks
	0+036 RHS	DCP	300	51	≥60	Weak wearing course
	0+036 CL	DCP	-	142	≥60	Strong wearing course
	26+750 RHS	DCP	150	66	≥60	Strong wearing course
	49+100 LHS	DCP	230	55	≥60	Weak wearing course
e.	Quantities Verification					
	Interim Certificate No.4 was the latest certified by audit time and was made use in assessing the details of					

works done by the contractor. The actual works done for some of the work items compared to the quantities certified vide the interim certificate are as shown in the table below. On average, the width of the road: drain to drain was 7m while the gravelled section was 6m. The length of the road was found to be approximately 50km.						
S/N	Work activity	BoQ Qty	Qty certified in PC No. 4 of 16/06/09	Estimated Qty as on 5 th October '09	Remarks	
3.8.2	Supply, deliver and install concrete pipes	80	224	224	Quantities were varied; culverts were mostly cracked	
4.3.2	Shape the road surface by medium grading	350,000	350,000	350,000	Ok.	
4.3.3	Provide & transport up to 10km, spread & compact gravel	45,000	45,000	45,000	Stony gravel with less binder noted between Ch 26+000 and Ch 27+600	
f.	Supervision of Works The supervision of works was done in-house by UNRA staff. Though the Consultant was posted to the project, his contribution to the project in relation to the terms of reference was not clear. Progress reports seen were not of desired standard. Borrow pits and field density					The progress reports have to contain sufficient information for purposes of follow up and monitoring.

	and compaction tests were carried out and results were seen on file.		
g.	Resources on Site The auditors, at the time of detailed assessment found some equipment on site which included a water bowser, grader, trax-cavator, roller, 4 tippers, an inspection vehicle and a low-bed. The site Agent; Mr. Bomugisha Bernard was on site. Re-gravelling works (repairs) were on-going.		
i)	The road traverses a hilly terrain causing heavy erosion of the road surface e.g. between Ch 26+000 to Ch 27+000 but no stone linings were provided for in the BOQs and the contract.	Stone pitching of side drains will be considered in future maintenance projects along hilly terrains	UNRA to follow up.
h.	Value for Money The average cost per Km of the road is UGX 22,510,942 which was found to be within the range for similar works in the country.		
i.	Recommendations		
i)	Whereas the Station Engineer had captured most of the notable culvert defects at an earlier date, the contractor had not attempted to replace the culverts. The contractor should replace the cracked culverts and seal all the joints for the rest of the pipes. Broken-down headwalls should be re-built;	This recommendation has been already implemented	Defects corrected

ii)	Since the road traverses hilly terrain leading to severe erosion in some sections, excavation of catch water drains should be looked at as an immediate solution;	The force account operations that replaced the failed Armco culverts also included excavation of catch water drains and replacement of 450mm diameter cross culverts	Defects corrected
iii)	UNRA should replace the damaged Armco culvert at Ch 25+600 with immediate effect to avoid catastrophes;	This recommendation has been already implemented	Defects corrected
iv)	There is need to evaluate the contribution made by the Consultants towards ensuring defects are rectified given that they were deployed when the project was being finalised.	This recommendation is not applicable since the Consultants' scope of services was reduced to exclude Rakai – Mbarara Bdr road	Defects corrected

4.1.17 Emergency Repairs to Hoima-Parajwoki-Buseruka-Kabaale-Kaseeta-Sebagoro / Kaiso road (85.2km)

Civil Works Contract No. *GOU/HW/C003*

a. Contract Details

Client	Uganda National Roads Authority
Design Consultant	UNRA
Supervising Consultant	UNRA Station Engineer, Hoima
Consultant Contract Date	Not applicable
Consultant Contract Amount	Not applicable
Works Contractor	Stirling Civil Engineering Ltd
Letter of contract award date	12 th June, 2008
Works Contract sign date	9 th July, 2008
Commencement date	22 nd July, 2008
Contract duration	6 months
Completion date	22 nd January, 2009
Contract amount	UGX 7,542,596,600
Amount Certified to date	Certificate No. 10, on 20 th July, 2009, Certified amount UGX 6,875,048,501
% of progress reported	99% (Status report submitted on 30 th September, 2009)

b. Scope of works

The works under this contract were for Emergency Repairs of 85.2km total road sections including heavy grading for 7.5kms and medium grading for 77.7kms all at approximately 8m width; installation of culverts and re-gravelling of the carriageway.

SNo	Observation	Management Response	Auditors Opinion
c.	<p>Document review</p> <p>The documents reviewed included the contract, progress reports and the corresponding interim payment certificates, correspondence between the client and contractor, quality control tests results, and payment vouchers.</p> <p>The following were noted from the document review activity:</p>		
	<p>The pay item number 1.4 under preliminaries has a unit measurement of PS (Provisional Sum), which is Contradicting with the general specifications for ministry of works, which specifies that the allowances shall only be used to cover the cost of work, materials, goods or services provided by the contractor not the Engineer;</p>	<p>Item 1.4 (Provision for Materials Testing and Quality Control) under preliminaries has a unit measurement of PS (Provisional sum), which is contradicting with general specifications for MoWT: Under this item the contractor provides funds for the material testing and quality control and then reimbursed. This was considered a service to be provided by the contractor.</p>	<p>The facilitation of the engineer by the contractor is irregular and the practice should be discouraged.</p>


	The Contract documents did not include drawings which may explain the discrepancies in the constructed head walls as was observed in the detailed audit investigation;	It is true that the contract documents did not include drawings. This was an isolated anomaly/omission in the two emergency contracts for the oil roads that were procured at the same time. Such an omission has not happened again since. UNRA will ensure that there are no such omissions in future contracts.	Drawings/sketches and specifications should always be included in contracts to guide the contractors even in emergencies.
	Laboratory test results were not included in the report.	It is true that laboratory test results were not included in the report. Results are included in the reports for works done and/or tested during the reporting period; during that period no tests were carried out. However as correctly observed in your report, materials were tested and results are available on file. All the test results will be included in the completion report.	UNRA to follow up.
d.	<p>Quality of Works</p> <p>The auditors conducted a reconnaissance visit of the road on 06th October 2009.</p> <p>Some sections of the road have been done properly and holding well (first 30km) but quality on remainder part is not impressive with certain sections being narrower than the design width and having less gravel. Some of the culvert headwalls/wingwalls are poorly constructed. The gravel used on some sections contained large stones and the road will become rough in a short time.</p>	It is true that some sections were narrower than the design width and there were also some sections having less gravel. Some culvert headwalls and wing-walls were poorly constructed and the gravel used in some sections contained large stones.	Defects were corrected.



	<p>The auditors conducted a detailed assessment of the road on 26th October 2009 in the presence of the UNRA Station Engineer –Hoima, his Assistant Engineer, the Contractors’ Site Supervisor and the Contract Manager (names as in Annex 2). There was a general observation that the contractor had rectified some of the surface defects and drainage structures defects identified during the reconnaissance visit. The safe riding comfort speed was about 60km/h.</p>	<p>The narrow sections were as a result of limitations in widening due to topographical and geological features like massive/extensive hard rock (e.g. at Km32.6) that would call for blasting which was not provided for under the contract. In addition, some existing drainages structures which were stable and would not economically require extending were narrower than the design width, contributing indirectly to the narrower width of some sections such as at km 65.8.</p> <p>With regard to the sections that were identified to have less gravel thickness, inadequate compaction and/or inadequate CBR and the poorly constructed headwalls the contractor was notified (see attached snag list). At the time of the audit survey these were still being rectified. The rectification was completed and compaction tests carried out by the end of December 2009. Test results are available on file. Also with regard to some gravel containing large stones e.g. at Ch 51+000-51+100, the affected sections were brought to the notice of the contractor and were accordingly corrected.</p>	
	<p>The table below shows the audit tests carried out and corresponding results which are compared with the specification limits.</p>	<p>CBR values in Table of Auditors’ Test Results: The available materials along the contract road that were tested had CBR values on four days soaking ranging from 30 to 56. The test results</p>	<p>The defects were corrected.</p>


		are available on file. The available gravel was used for wearing course in accordance with clause 3702 and table 3702/1 of the MoWT General Specifications. However the sections which were identified to be inadequately compacted were reshaped and re-compacted. Test results are available on file.				
Chainage	Test	Thickness (mm)	Result	Specification (%)	Remarks	
34+300 CL	Grading	150	MDD 2.45Mg/m ³ , OMC 11%		Ok	
47+884 CL	DCP - CBR		26%	≥60	Weak wearing course	
47+884 CL	Gravel Grading	50	MDD 2.45Mg/m ³ , OMC 11%		At Kabaale, thickness <150mm	
65+000	DCP - CBR	250	45%	≥60	Weak wearing course	
71+550 RHS	Mortar Mix for culvert headwall		7.28%	20 -25	Poor mortar mix	
74+600 RHS	DCP - CBR		24%	≥60	Weak wearing course	
74+600	Grading	163	MDD 2.3Mg/m ³ , OMC 12%		Ok	
85+190 CL	DCP - CBR		85%	≥60	Ok	
85+190	Grading	100	MDD 2.3Mg/m ³ , OMC 12%		Thickness <150mm	

	1+650 LHS	DCP - CBR		81%	≥60	Ok	
	1+650 LHS	Grading	150mm CL; 70mm LHS	MDD 2.2Mg/m ³ , OMC 4.5%		Sebaggolo Link	
	7+650 RHS	DCP - CBR		28%	≥60	Sebaggolo Link; weak wearing course	
	7+650 RHS	Grading	120mm loose	MDD 2.2Mg/m ³ , OMC 4.5%		Sebaggolo Link; thickness <150mm	
e.	Supervision of Works The supervision of works is being done in-house by UNRA staff. The main supervisor of works has an advanced Certificate in Road Maintenance. The Station Engineer for Contracts provides backstopping in the supervision. Borrow pits, field density and compaction tests were carried out and results were seen on file.			It is true that one of the people who supervised the project is a holder of an Advanced Certificate in road maintenance. This person, a Road Inspector, was the full time personnel on site. He was not the main supervisor. The main supervisor was the Station Engineer assisted by the Assistant Engineer in charge of contracts, giving instructions and approving works. The Road Inspector's role was limited to daily site inspection, recording daily site events for information to the Station Engineer.		The main supervisor on the road should have better qualifications than advanced certificate in road maintenance.	
f.	Resources on Site The auditors, at the time of detailed assessment found some gravel stacks for corrections at particular spots; some of the Contractor's supervisory staff were on site; the equipment on site included: Chain loader, Motor Grader, 2 Tippers, Water Bowser and a Vibrat roller			Observation is correct. The contractor was using the resources to handle snags and defects.			

g.	Outstanding Technical Observations		
i)	The road surface was in fair condition although there was loss of camber for the first 5 km. There was severe erosion along the escarpment where the gravel thickness by audit time had reduced to between 30mm to 80mm.	<p>It is true that the first 5km had lost camber and there was severe erosion and loss of gravel along the escarpment.</p> <ul style="list-style-type: none"> The first 5km had lost camber because the section was regravelled in September 2008 and was already a year old at the time of audit survey. The section is also part of Hoima –Biiso road which has a comparatively higher traffic volume of vehicles plying to Bullisa District than the rest of the contract road. Given the time lapse of more than one year since regravelling compounded by heavy traffic the contract section carries, the observed deterioration was expected. None the less, the contractor was notified of the deterioration and the section was reshaped to satisfaction (see attached photographs taken before and after reshaping in December 2009 in Annex RM6). The rapid erosion and loss of gravel along the escarpment occurred due very steep gradients. This was worsened by the heavy trucks for the oil exploration activities that frequently ply this route. Had it not been that the road is being considered for upgrading to bitumen standards soon, the escarpment section would be recommended for paving. 	<p>The contractor should have corrected the defects since he had not handed over the works to UNRA.</p> <p>UNRA should follow up</p>

		The section and other isolated similarly steep sections along the road will require more regular maintenance before the upgrading starts.	
ii)	<p>Some sections of the road had received less gravel than was specified. E.g. Ch. 47+884 (Kabaale area) where the thickness was found to be 50mm instead of 150mm or approximate – see picture below.</p>  <p><i>Less gravel and no camber at Kabaale</i></p>	It is true that some sections were found to have less thickness of gravel. As mentioned under Quality of Works above, the contractor was notified and at the time of the audit survey these were still being rectified. The rectification was completed by the end of December 2009.	Defects were corrected.
iii)	<p>Some of the installed culverts had notable defects; Culvert bedding appeared weak, jointing of the pipes was not done for some culverts, the pipe cover was less than the recommended i.e. was between 170mm to 200mm instead of 450mm for a 600mmϕ culverts. Culvert headwalls and wing-walls were not properly designed (see pictures below). Culvert outlets levels were not as desired and there was notable silting and water ponding.</p>	It is true that some of the installed culverts had notable defects. As mentioned under Quality of Works above, the contractor was notified and rectification was done and completed by the end of December 2009.	Defects were corrected.

			
	<p><i>Same spot where culvert headwalls had cracked on both sides</i></p>		
<p>iv)</p>	<p>Some of the mitre drains seen were non-functional.</p>	<p>It is true some mitre drains were non-functional at the time of audit survey. These have since been rectified.</p>	<p>Defects were corrected.</p>
<p>v)</p>	<p>Some sections of the road that have river crossings were poorly prepared i.e. no proper river training was done. The crossings flood during the rainy season and are washing away the fill material (see picture below).</p>  <p><i>The section during the rainy season floods</i></p>	<p>It is true that at the time of audit survey some sections of the road that have river crossings were in poor shape and the fill material was being washed away. This problem is being handled by force account. River crossings handled so far include Wambabya Bridge at km 34.5, Rutoha Bridge at km 53 and Hohwa I and Hohwa II drainage structures at km 55 and Km 57, respectively.</p>	<p>UNRA to follow up.</p>
<p>vi)</p>	<p>There was Bailey bridge installed onto an existing bridge. No study report was availed to the team to confirm the necessity of the bailey bridge (see picture below).</p>	<p>It is true a Bailey bridge was installed onto an existing bridge over River Wambabya at Km34.5. This was done after a study was conducted by the UNRA Bridge Team. A study report was compiled</p>	<p>Study report seen.</p>

	 <p><i>Bailey bridge installed on existing bridge</i></p>	<p>by the team and is available.</p>	
<p>h.</p>	<p>Value for Money</p> <p>The average cost per km is UGX 83,186,113 which is considered high based on the going rates for similar works in the country.</p>	<p>The average cost per km of UGX 83,186,113 is higher than the average unit cost for ordinary regravelling works due to the factors below:</p> <ul style="list-style-type: none"> • These were emergency works that were absolutely necessary to enable facilitation of movements of wide and heavy trucks to the oil exploration areas around L. Albert in Hoima District in preparation for Early Production Scheme (EPS) that was scheduled for third quarter of 2009. The gravity of the urgency was expressed in the correspondences to UNRA from the Permanent Secretary Ministry of Works and Transport, Minister of State for Works and Transport (W) and in other correspondences in the same connection between the three concerned Ministries of Energy, Works and Transport, Finance, Planning and Economic Development and as well as one of the oil exploration companies (M/S Tullowoil). These correspondences are 	

		<p>available on file and copies have been submitted to the Auditors. The oil exploration companies wished to get the road open to trucks of the sizes they were anticipating to use the route commencing in July 2008.</p> <ul style="list-style-type: none">• As such the works contract that was procured expeditiously to address the urgency was by direct procurement. Procurement through competitive bidding would take long to procure and also mobilization of whoever would win the job could not be guaranteed to beat the urgency to deliver. Therefore a contractor who had adequate capacity and would mobilize easily and at short notice had to be identified. The identified contractor was M/S Stirling Civil Engineering. This contractor had finalized the major works on Busunju-Kiboga-Hoima road and had his equipment available in the area. Documents that relate to the contract procurement are available and copies have been submitted to the Auditors. <p>ii. The scope of work was not ordinary regravelling. It was involved upgrading because:</p> <ul style="list-style-type: none">▪ The existing road, which was a district road, was narrow, with width varying between	
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		<p>4m and 5m. The widening that was done to achieve a wider carriageway involved substantial clearing and earthworks.</p> <ul style="list-style-type: none"> ▪ The existing road was characterized by a number of low spots that required raising/filling in order to facilitate drainage and very sharp summit curves that required some cutting to improve on visibility. These are not common items under the ordinary regravelling works contracts. ▪ The existing road seriously lacked drainage facilities, culverts, miter drains. A lot of these facilities were provided under the contract in order to protect the new road from early damage by storm water. ▪ The contract involved refurbishment of a bridge at Km54. This is not a common item under the ordinary regravelling contracts. ▪ The contract was also to involve construction of a new bridge at Km34.5 (at over Shs.500mn). However this was left out. 	
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i.	Recommendations		
i)	The road length should be re-confirmed by chaining;		
ii)	Lost camber for the first 5km should be restored. For the severe erosion along the escarpment, UNRA could consider applying mechanically stabilised gravel;		
iii)	Culvert defects identified should be rectified. For headwalls and wingwalls not yet constructed, a proper design should be made and passed over to the contractor;		
iv)	Mitre drain levels should be improved upon to allow free flow of water away from the road;		
v)	Appropriate river training should be done to direct the water during the rainy season so as not to damage the road sections;		
vi)	Whereas some of the above defects were identified by the Station Engineers and provided to the contractor as snags; the Station Engineer should ensure close supervision for the contractor to make good the defects.		

4.2.1 Upgrading of Soroti – Dokolo road to Bitumen Standard (62.6km)

Civil Works Contract No. RDP/HW/C010

Consultancy Services Contract No.? (J. Burrow Ltd) *No contract seen*

a. Contract Details

Client	Ministry of Works and Transport
Design Consultant	Ms Gauff Ingenieure (Mid 2004)
Supervising Consultants	Ms J. Burrow Ltd (former Black & Veatch Africa)
Consultancy Contract sign date	Not seen
Consultancy Contract amount	Not seen
Works Contractor	Ms. China Road and Bridge Corporation
Letter of contract award date	13 August 2007
Works Contract sign date	13 September 2007
Commencement date	01/11/2007 – Mobilisation of 4.5 months allowed. Physical works commenced late March '08
Contract duration	30 Months
Completion date	30/04/2010
Works Contract amount	UGX 70,642,241,162 (27% local currency and 73% foreign currency)
Amount certified to-date	Cert. No 21 for Sept '09 – UGX 83,765,914,190
% Progress reported	Progress report No. 24 of October '09 - 88.3%

b. Scope of works

The works under this contract involves upgrading of the 62.6 km gravel road to Class II paved standards (6m carriageway and shoulders varying from 1.5m to 2.0m both sides). The major works includes improvement of the sub-grade material, provision of 250mm cement (4%) improved gravel sub-base, 150mm crushed stone base. Surfacing is double surface dressing on the carriageway and single/double surface dressing on shoulders. Also included is provision of drainage structures and road marking/signage.

SNo	Observation	Management Response	Auditors Opinion
c.	<p>Document review</p> <p>The documents reviewed included the civil works contract, progress reports, and interim payment certificates.</p> <p>The following were observed from the document review activity:</p>		
i)	<p>Bids were submitted in December 2006 but contract signed in September 2007, i.e. 10 months later. A period of 7.5 months passed between date of contract award and physical commencement of works. Floods in the project area were a reason for delayed commencement. However mobilisation could have started from September '07 and physical works start in January '08</p>	<p>This is a correct observation.</p> <p>The delay between the receipt of bids in December 2006 and the issuing of the Letter of Acceptance (Award) on 13th August 2007 was due to reviews to justify award of contract at bid rates considered to be high by the World Bank (WB), which financed the works. The Banks' no-objection to award was received on 29 June 2007. Subsequently the Letter of Acceptance (Award) was issued on 13th August 2007 and the Contract was signed on 13 September 2007. (See attached WB letters of requesting review to justify bid rates and of no-objection to Bid Evaluation Report).</p> <p>Regarding delays after award; based on the award date 13th August 2007, the Commencement was due on 8th October 2007. However, due to flooding in Eastern Uganda, the main access road to site, through Awoja Bridge, was inaccessible; while on the alternative access</p>	<p>There is need to establish standard rates to avoid unnecessary delays in commencement of road works.</p>

		<p>route through Ngora-Serere road restricted axle loads were imposed at Agu Bridge. Accordingly UNRA agreed to defer the effective Commencement Date by three weeks to 1 November 2007. This was done to forestall possible claims for extension of time and standing equipment as the floods are an Employer's risk. (See attached letter of Contractor & Clients response agreeing to commencement on 1 Nov 2007).</p> <p>Physical Works commenced with Clearing and Grubbing in January 2008. (See attached Table 10 of January 2008 Monthly of Progress Report).</p>	
ii)	The contract uses the FIDIC Fourth Edition 1987 reprinted 1992 for GCC instead of the recent FIDIC First Edition 1999 version?	The Development Financing Agreement between Government and the World Bank stipulated the use of the Standard Bidding Document (SBD) May 2004 Version for use in the procurement of Works. The SBD incorporates FIDIC Fourth Edition 1987 reprinted 1992 for GCC.	It is recommended that the most recent versions of FIDIC GCC be used, where possible.
iii)	Amount paid for Variation of Prices (VoP) amounts to UGX 18bill as of Sept 09 (26% of contract sum). The anticipated amount for VoP was UGX 3.2bill. Some of the figures used as indices in the formulae are not indices but prices of the materials e.g. for fuel, bitumen, cement, etc. This is not correct and needs explanation.	<p>The observation is correct.</p> <p>The high VOP costs are due to the long period between receipt of bids and the award of contract. The delays arose in securing approval of the World Bank which financed the works.</p> <p>The Contractor proposed a use of prices of suppliers as proxy indices, which was accepted</p>	<p>It was noted that part of overpayment was due to use of wrong formulae viz MPCE's (independent consultants) Draft Variation of Price Review Report of Jan 2010 page 9.</p> <p>No evidence, that UNRA</p>

		<p>for use in the contract since Uganda Bureau of Statistics (UBOS) was not publishing construction indices. Now UBOS is publishing indices and these will be used.</p> <p>UNRA has engaged an independent consultant to review the VOP computations on the Contract.</p>	<p>consulted Uganda Bureau of Statistics about the matter for guidance.</p>
<p>iv)</p>	<p>The 13,393 tons cement used and paid for stabilisation of the 156,289 m³ gravel sub base translates to approximately 5% of cement. The contract specifications are for 4% cement content. If 4% cement content was applied the amount of cement would be 10,627.tons.</p>	<p>Tests are carried out on site to determine the amount of cement required to achieve the various design criteria for the Sub-Base layer. The cement content being used is 4%.</p> <p>For the gravel paid for 156,289 m³ compacted to at 95% AASHTO of the average Maximum Dry Densities (MDD) of 2.1 tons per m³ and Optimum Moisture Contents (OMC) of about 11%, at 4% rate of application by weight of material the corresponding quantity of cement corresponds to . At MDD 2.1 tons/ cum and a compaction of 95% AASHTO, the cement amount is correct for the volume of gravel.</p> <p>As per Clause 3507 of Special Specification stipulates four criteria for Sub-Base as %age passing 0.425 mm Sieve; Plasticity Index ≤ 15%; Plastic Modulus ≤ 250% & CBR ≥ 70% after stabilization. Borrow pits used were selected accordingly, and 4% cement requirement was re-confirmed. (Results of Lab. Investigations with</p>	<p>This is noted and agreed.</p>




		different cement %ages).	
v)	<p>The cement stabilised sub base have CBR values as high as 300%. This shows that the quality of gravel is good and cement levels are higher than necessary since the specifications allow for use of stabilised gravels of CBR 70%.</p> <p>Many of the tropical soils can be used in road construction although they do not exhibit the qualities of the "conventional" road building soils.</p>	<p>The observed high CBR values are of the cement stabilized gravel materials of the Sub-Base.</p> <p>Up to 21 borrow sources were investigated during the design stage. The neat materials showed both low CBR values and high Plasticity unsuitable for Sub-Base layer i.e. Plasticity Indices exceeding 15% and CBR values lower than 70% stipulated by Clause 3507 of the Special Specifications. When treated with up to 4% lime materials from most sources satisfied the CBR criterion but not the Plasticity criterion. When treated with 6% Lime, the results were marginal against the Plasticity criterion although a majority met the CBR criterion. (See attached excerpts of the Design Report – Main Text & Factual Materials Report (Annex G))</p> <p>Meanwhile tests with up to 4% cement showed results satisfying all the design criteria, although high CBR values would result. Finally, treatment of the gravels with 4% cement was preferred to 6% lime basing on technical and cost comparisons.</p>	<p>The specifications used preferred lime for stabilisation of materials with high plasticity Indices (PI) which is more effective and cheaper.</p>
vi)	<p>Considering the length of the road, the quantities allowed in the BoQ for the 1st and 2nd seals are more than the required quantities by about 40,000 sqm.</p>	<p>This observation is not correct.</p> <p>The quantity in the BOQ also include quantities for junctions and access roads, bus bays and</p>	<p>The measurements need to be verified because as the variance is very big.</p>

		<p>caters for sections through trading centers where the shoulders have been widened to 2 meters.</p> <p>Payments are based on measurements of actual works executed.</p>	
vii)	A decision was made after contract award to cover the shoulders with a 2 nd seal of surface dressing. The cost involved is more than UGX 1.07bill.	<p>UNRA observed that the road has high volume of heavy traffic and that Shoulders with Single Seal surface dressing on such roads deteriorate faster due to early edge damage from traffic veering off the carriageway which fast reaches the carriageway and quickly compromises integrity of the whole road.</p> <p>The decision was taken to enhance the protection of the pavement and increase serviceability of the road. (UNRA letter approving the additional cost is attached).</p>	Late decisions that increase the project cost and procurement systems reflect inadequate planning.
viii)	Contractor is reported to be working 12 hours a day, 7 days a week. It is not said how the supervision staff is coping.	<p>The observation is correct.</p> <p>The extra supervision costs outside the Engineer's normal working hours are met by the Contractor in accordance with the Contract.</p>	Work programmes should be strictly adhered to avoid unsupervised works.
ix)	The contractors key staff at site in October 2009 are all different from those approved as per contract	<p>The observation is correct.</p> <p>The contractor made proposals for change of staff at different times. All changes of key staff were approved by the Engineer in accordance</p>	No proof attached to show new staff were of equal or better qualification and experience.

		with the Contract.	
x)	A total of 85 Chinese nationals were found working on the project Vs 367 locals (25%).	<p>This is a correct observation.</p> <p>The Contractor has unique language requirements that can not be easily filled by the local labour. The contract also did not restrict labour origins. However, UNRA will seek to incorporate appropriate regulations in bidding documents that promote the local construction industry.</p>	UNRA to follow up.
xii)	Many extra hours input by contractors' foreman and artisans are paid for under day-works. This led to an overpayment of shs.30 million.	<p>This is a correct observation.</p> <p>This is an anomaly and UNRA has directed the Supervision Consultant to rectify.</p>	<p>UNRA is to follow.</p> <p>Amount overpaid to the tune of shs.30 million should be recovered.</p>
xiii)	UGX 500mill to be paid to contractor for lab equipment which will eventually revert to contractor	<p>The observation is correct.</p> <p>UNRA's is perceived as primarily a procuring entity utilizing the private sector to deliver services and works. Accordingly, retaining such assets would be unnecessary and uneconomical. However, it is noted that there is a need to retain a minimum capacity at regional centers for use in force account operations and in remote areas. UNRA will consider the proposal.</p>	UNRA is to follow.
xiv)	The CPA formula has more factors than those agreed upon at the meeting of contract negotiation (10 Vs 6). The VoP formula should include the six items discussed and agreed upon during the contract negotiation	<p>This observation is not correct.</p> <p>Items of the CPA formula are 10. The six items discussed during Contract Negotiations are those observed in the Bid Evaluation Report as having</p>	An in depth assessment of the application of the VoP Clause and Application should be urgently undertaken.

	meeting only.	issues requiring agreement of the parties. (See the attached list of major construction inputs that are subject to price adjustment).	
xv)	No work items have been included in the contract to prevent failures of the road edges at populated areas and erosion of side slopes on sections with embankments (kerb stones / grass plantation)	<p>The observation is correct.</p> <p>A Variation Order is being processed to provide a concrete edge kerbing to shoulders along populated areas.</p> <p>Top-soiling of embankment slopes is on going, and grass is expected to grow and provide erosion control on the embankment slopes.</p>	UNRA is to follow.
d.	<p>Quality of Works</p> <p>The auditors visited the road on 24th September 2009. From the visual inspection on the sections that were already completed the road looked good. At some sections in the rural areas the width of the road (carriage way plus shoulders) was more than 10m. However there is concern on potential road edge failures mostly at populated areas, and erosion of side slopes on sections with embankments. There is lack of sufficient mitre drains and the reasons given by the consultant is that the land owners are reluctant to channel water to their farms.</p>		
xvi)	There is lack of sufficient mitre drains because land owners are reluctant to channel water to their farms	<p>The observation is correct.</p> <p>The law requires private land taken by road works to be compensated. UNRA has hired a</p>	UNRA is to follow.

		<p>consultant to carry out Valuation for acquisition of land for culvert drainage channels. The Valuation Report is before the Chief Government Valuer for approval.</p> <p>UNRA is continually sensitizing communities on various aspects of road use.</p>	
xvii)	Quantities for some of the activities have varied upwards by more than 25%	<p>The observation is correct.</p> <p>The significant causes of the increases are increase in the swamp lengths and the extent of unsuitable soils within and below the road formation. As a result some works that were considered nominal in the contract became significant.</p> <p>UNRA has engaged an independent review consultant to verify the increases in quantities. UNRA will request the supervision consultants to identify items where the Client can seek compensation for the increased project costs in accordance with the Conditions of Contract.</p>	<p>According to "Draft Technical Review Report" Document there has been mismanagement.</p> <p>UNRA is to follow.</p>
xviii)	Excavation of unsuitable material to spoil are higher than BOQ quantity	<p>All material that was cut to spoil did not meet specifications to be included in the works and there was no nearby material to improve them. However, the remark is noted and where possible the recommendation will be applied.</p>	<p>UNRA is to follow.</p>
xix)	No Measurement engineer is on site since July 2009 when the staff died in a car accident.	<p>The observation is correct.</p>	

		At the time of his death most of the work had been done. Since the contract was nearing completion the Resident Engineer handled the rest of the work.				
Status of the road during Reconnaissance visit						
						
	<i>Completed surfacing of carriageway. Quality of works is good</i>	<i>Road edge failures at populated areas. A need for road kerbs</i>	<i>Erosion of embankments seen at many locations. A need for planting of grass to prevent erosion</i>			
e.	Quantities Verification					
	The actual quantities certified vide interim certificate No.21 compared to the quantities in the BoQ for some of the work items whose quantities have varied significantly and which will eventually increase the project costs are shown in the table below					
	Pay Item	Work activity	Unit	Qty in the BoQ	Qty certified in PC No. 21 Sept. '09	Remarks
	34.01 (b)	Fill from borrow in soft material	M3	575,500	823,122	Extra quantity cost UGX 4.1bill
	34.05	Excavate and remove unsuitable material to	M3	5,000	86,774	Extra quantity cost UGX 1.6bill

		spoil					
	81.30	Day-work Foreman	Hr	5,000	22,966	Extra hours cost UGX 30mill	
	81.31	Day work Artisans	Hr	2,500	18,473		
		Variation of Price		3.2bill	18bill	Could be beyond 20bill	
f.	Supervision of Works						UNRA should follow up.
	The supervision is being done by Ms. J. Burrow Ltd. Progress reports are prepared by the consultant timely and have enough information for follow up of the project by UNRA and other stakeholders. A total of 10 full time senior staff are reported to be involved in the works supervision. The measurement engineer has not been on site from July 2009 (died in accident) and no replacement has been done. Two people (K. Karberg and Gilbert Nyamongo) are all referred as Soils/Materials Engineers.						
g.	Value for Money						
	The average cost per km of UGX 1.14bill based on the initial contract (shooting to UGX 1.45bill when the VoP is included) for this type of road (class III paved) is on high side compared to the costs for similar works in the country.						
h.	Recommendations						
i)	Better planning could have enabled the works to start earlier and thereby reduce the effect of variation of prices on the project. Need for explanations as to the causes of delays.						UNRA should follow up.

ii)	The method for calculation of the amount to be paid for 'Price Adjustment' needs to be reviewed, verify the indices that have been used and check if the adjustment has been correctly applied.		UNRA should follow up.
iii)	Measures should be taken to provide kerb stones at the edges of the shoulders at populated areas to prevent shoulder edges failures. Planting of grass on steep side slopes will also prevent erosion of side slopes.		UNRA should follow up.
iv)	The local communities should be sensitised on importance of mitre drains to the roads and be asked to cooperate in keeping them clean.		UNRA should follow up.
v)	As the quantities for some of the activities have been varied upwards by more than 25% then the supervising consultant, on behalf of the client, should negotiate for lower unit rates thereby reducing the overall effect on project cost		UNRA should follow up.
vi)	The consultants should investigate and make use of the in-situ soils as far as possible to reduce the need for excavation to spoil. Many of the tropical soils can be used in road construction although they do not exhibit the qualities of the 'conventional' road building soils.		UNRA should follow up.
vii)	Tests to determine the necessary percentage of cement for stabilisation of gravel for sub base and which will meet the specifications should have been undertaken and the correct levels of cement should have been used so to reduce the project cost.		UNRA should follow up.
viii)	Reappointment of the Measurement Engineer should be done.		

ix)	The quantities for the 1 st and 2 nd surface dressing seals should be recalculated and the actual ones used.		
x)	Consultant should explain how the supervision team is coping with the contractor's extended time of working		
xi)	When changes of contractor's key staff is necessary then the qualifications of the replacement should be the same or better than those being replaced. The Consultant should confirm that the contractor adhered to this requirement.		
xii)	The necessity of contractor having 25% of the workforce from abroad should be investigated and proper actions taken to reduce their number and get more nationals working on the project.		
xiii)	Reports on HIV/AIDS awareness campaigns as prepared by COHEPCO should be appended in the progress reports		
xiv)	The VoP formula should include the 6 items discussed and agreed upon during the contract negotiation meeting only.		
xv)	Conditions for providing equipment for materials testing for the Engineer should be such that the equipment reverts to the client at the end of the contract. This will be more cost effective and enhance the in-house capacity of the client to undertake quality control tests in various parts of the country..		
xvi)	Road kerb stones should be provided at the areas that could experience edge failures and, measures to plant grass on embankments undertaken to prevent erosion.		

4.2.2 Upgrading of Dokolo – Lira to Bitumen Standard (60.4km)

Civil Works Contract No. RDP/HW/C011

Consultancy Services Contract No: Contract not seen

a. Contract Details

Client	Ministry of Works and Transport
Design Consultant	Ms Gauff Ingenieure (Mid 2004)
Supervising Consultants	J. Burrow Ltd Comptran Engineering & Planning Associates (Ghana) from May 2009.
Consultancy Contract sign date	J. Burrow Ltd - Comptran Engineering -
Consultancy Contract amount	
Works Contractor	Ms. China Road and Bridge Corporation
Letter of contract award date	14 February 2008
Works Contract sign date	18 March 2008
Commencement date	01/06/2008
Contract duration	30 Months
Completion date	30/11/2010
Works Contract amount	UGX 82,068,227,664 (28% local currency and 72% foreign currency)
Amount certified to-date	Cert. No 14 Sept '09 – UGX 61,400,895,350
% Progress reported	70.1 % as per progress report No. 17 of October '09

b. Scope of works

The works under this contract involves upgrading of the 60.4 km road to Class II paved standards (6m carriageway and shoulders varying from 1.5m to 2.0m both sides). The major works includes improvement of the sub-grade material, provision of 250mm cement (4%) improved gravel sub-base, and 150mm crushed stone base and double surface dressing on the carriageway. Shoulders will receive single/double surface dressing. Also included is provision of drainage structures and road marking/signage.

SNo	Observation	Management Response	Auditors Opinion
c.	<p>Document review</p> <p>The documents reviewed by the auditors included the civil works contract, progress reports, and interim payment certificates. The Consultancy services contracts were not availed to the auditors.</p> <p>The following was observed from the document review activity:</p>		
i)	<p>Bids were submitted in February 2007 but contract was signed in March 2008, i.e. 13 months later. A period of two and half months passed between contract signing and commencement of works. Physical works started 4.5 months after signing of contract. Reasons for the delays are not known.</p> <p>Better planning could have enabled the works to start earlier and thereby reduce the effect of variation of prices on the project. Needs explanation for the cause of delays</p>	<p>The delay between the receipt of bids in February 2007 and the signing of the contract arose due to i) reviews to justify award of contract at bid rates perceived to be high, and ii) arrangements for funding the short fall after funds of RDPP3 Credit were exceeded. GOU agreed to finance the deficit and in October 2007 gave a commitment to finance the deficit.</p> <p>Subsequently IDA's no-objection to award contract was received on 28 November 2008. Thereafter, Contract Negotiations were held on 21 December 2008, the Contracts Committee approved the Contract Agreement on 12 February 2008. The Letter of Acceptance (LOA) was issued on 14 February 2008 (See attached letter of MOFPED giving Government commitment and IDA</p>	<p>There is need to establish standard rates to avoid unnecessary delays in commencement of road works.</p>




		<p>letter of No-objection).</p> <p>The contract conditions provide a period of 28 days from the issuance of the LOA within which to submit a Performance Security prior to signature of the Contract Agreement. By the date of the LOA, the Performance Security was due to by 13 March 2008. The Contractor furnished the security and the Agreement was signed on 18th March 2008.</p> <p>Subsequent delays were due to lack of the supervision consultant. The procurement faced challenges of complaints by contending consultants. Eventually Government cancelled the procurement and the process was re-started 9 months after the receipt of the bids.</p>	
	The contract uses the FIDIC Fourth Edition 1987 reprinted 1992. Why not the recent FIDIC 1999 First Edition version?	The Development Financing Agreement between Government and the World Bank stipulated the use of the May 2004 Version of the Standard Bidding Document (SBD) for use in the procurement of Works. That version of SBD incorporates FIDIC Fourth Edition 1987 reprinted 1992 for GCC.	It is recommended that the most recent versions of FIDIC GCC be used.
ii)	The progress of works is good (ahead of schedule)		
iii)	Amount paid for 'Variation of Prices/Price adjustment' amounts to UGX 11bill as of Sept 09 (13% of contract	<p>The observation is correct.</p> <p>The high VOP costs are due to the long period</p>	It was noted that part of overpayment was due to use

	amount). Some of the figures used as indices in the formulae are not indices but prices of the materials e.g. for fuel, bitumen, cement, etc. This is not correct and needs explanation.	<p>between receipt of bids and the award of contract. The delays arose in securing approval of the World Bank which financed the works.</p> <p>The Contractor proposed the use prices of suppliers as proxy indices, which was accepted for use in the contract since Uganda Bureau of Statistics (UBOS) was not publishing construction indices. Now UBOS is publishing indices and these will be used.</p> <p>UNRA has engaged an independent consultant to review the VOP computations.</p>	<p>of wrong formulae viz MPCE's (independent consultants) Draft Variation of Price Review Report of Jan 2010 page 9.</p> <p>No evidence, that UNRA consulted Uganda Bureau of Statistics about the matter for guidance.</p>
iv)	The contractor has no own materials testing laboratory and is using the Engineers lab which is paid for by the client.	<p>The observation is correct.</p> <p>UNRA's is perceived as primarily a procuring entity utilizing the private sector to deliver services and works. Accordingly, retaining such assets would be unnecessary and uneconomical. However, it is noted that there is a need to retain a minimum capacity at regional centers for use in force account operations and in remote areas. UNRA will consider the proposal.</p>	For independence purposes the Contractor should carry out material tests in an independent laboratory.
v)	A proposal by the contractor to change the type of pavement at the roundabouts (rigid in place of flexible) was refused by the consultant. The effect of turning by the heavy traffic at roundabouts has in many instances been failure of flexible pavements at the roundabout. It is not a matter of axle load but the	<p>The observation is correct.</p> <p>The Consultant based his reason on the costs. UNRA will objectively review the matter with a specific view to performance under heavy traffic.</p>	UNRA to follow up.

	stresses induced on the pavements during the turning manoeuvres Consultant to provide reason for rejecting the contractor's proposal.		
vi)	Instructions were given to contractor to excavate up to 450mm below road formation and replace with selected sub-grade material The removal of 450mm of in-situ soils on the road formation and replacing with selected material needs explanation. The Consultants should investigate and make use of the in-situ soils as far as possible to reduce the need for excavation to spoil. Many of the tropical soils can be used in road construction although they do not exhibit the qualities of the conventional road building soil.	This observation is not correct. The Site Instructions specified removal of unsuitable materials down to 450 mm depth and replacement with Common Fill up to 100 mm followed by 350 mm of Selected Sub-Grade. This is consistent with requirements of the specifications (Clause 3402 of the Special Specifications) for treatment of the road formation in cut areas with unsuitable soils. The 350 mm depth of selected sub-grade is to ensure consistent quality within the sub-grade zone. (See attached copy of typical Site Instructions).	Detailed studies need to be carried out before such materials are removed to be replaced in a costly manner.
vii)	The pages in the progress reports with results from laboratory tests have the logos of the contractor, client and the consultant. It is not clear as to who undertook the tests and from which laboratory	The tests were carried out jointly by the consultant and the contractor.	This may lead to lack of professionalism and possible instances of unethical conduct (collusion).
viii)	The cement stabilised sub base have CBR values as high as 260%. This shows that the quality of gravel is good and cement levels are higher than necessary since the specifications allow for use of stabilised gravels of CBR 70%.	The observed high CBR values are of the cement stabilized gravel materials of the Sub-Base. Up to 21 borrow sources were investigated during the design stage. The neat materials showed both low CBR values and high Plasticity unsuitable	The specifications used preferred lime for stabilisation of materials with high plasticity Indices (PI) which is more effective and cheaper

		<p>for Sub-Base layer i.e. Plasticity Indices exceeding 15% and CBR values lower than 70% stipulated by Clause 3507 of the Special Specifications. When treated with up to 4% lime materials from most sources satisfied the CBR criterion but not the Plasticity criterion. When treated with 6% Lime, the results were marginal against the Plasticity criterion although a majority met the CBR criterion.</p> <p>Meanwhile tests with up to 4% cement showed results satisfying all the design criteria, although high CBR values would result. Finally, treatment of the gravels with 4% cement was preferred to 6% lime basing on technical and cost comparisons.</p>	
ix)	<p>Safety of road users and workers is not being addressed sufficiently. Inadequate warning signs and workers not having/using safety gadgets.</p>	<p>This has been sounded to the contractor in several site meetings and communications from the Resident Engineer. Contractor complains of stealing of road signs.</p> <p>UNRA has been keeping up demands for better performance by the contractor. UNRA has asked the Consultant to be vigilant in demanding compliance. However, the Contractor also complains of lack of cooperation from his workers. The Consultant has proposed withholding payments certain payments until action is taken by the contractor.</p>	<p>UNRA to follow up.</p>

x)	<p>Minutes of the site meeting held on 28th October '09 appended in the October '09 Monthly Progress Report have been signed by the RE and the PM on 10th November '09 before being confirmed by all parties (not presented yet at the next site meeting). Minutes of site meetings should be signed after being approved by all parties who attended the meeting</p>	<p>This is true. However, the regular practice is that the minutes of every monthly site meeting minutes are confirmed during the next site meeting.</p>	UNRA to follow up.
xi)	<p>Environmental issues: borrow pits not reinstated, oil spillage and lack of latrines for workers at the quarry and mixing plant sites. Measures to control environmental effects should be taken and followed up by the consultant. Penalties should be applied if contractor does not do the needful.</p>	<p>This is correct. Environmental issues have been sounded to the contractor on several meetings and the contractor has now improved on the issue of spillage of oil, however, apart from the one borrow pits the contract has reinstated, borrow pits are still active and as a policy will be reinstated at the close in accordance with the contract.</p>	UNRA to follow up.
xii)	<p>Quantities for some of the activities have varied upwards by more than 25%. As the quantities for the activities have been varied upwards by more than 25% then the supervising consultant on behalf of the client, should negotiate for lower unit rates thereby reducing the overall effect on project cost</p>	<p>This is a correct observation. Significant causes are the increases of swamp lengths, the extent of unsuitable soils within and below the road formation levels. As a result some items considered nominal in the contract became significant. UNRA has engaged an independent consultant to verify the increases. UNRA will follow to seek compensation for the increased projects costs in accordance with entitlements in the Contract. The Engineer will be requested to identify the</p>	UNRA to follow up.

		increased items where lower rates could be negotiated with the contractor in accordance with Sub-clause 52.3 of the Conditions of Contract.	
d.	<p>Quality of Works</p> <p>The auditors visited the road on 30th September 2009. The section that had received the stabilised gravel sub-base looked OK as well as the culverts that had been installed. However the cover on some of the culverts looked insufficient. The side slopes on embankments were seen to be eroded by water running off from the road. There was no section that had been surfaced.</p>		
Status of road works during reconnaissance visit			
	 <p><i>Stabilised sub base ready to receive crushed stone base. The test results give very high CBR values</i></p>	 <p><i>The CMP culverts installed with gravel cover considered not sufficient.</i></p>	 <p><i>Completed crushed stone base course. Quality of works looks good.</i></p>
e.	<p>Quantities Verification</p> <p>The actual quantities certified vide interim certificate No 14 compared to the quantities in the BoQ for</p>		

some of the work items whose quantities have varied significantly and which will eventually increase the project costs are shown in the table below:					
Pay Item	Work activity	Unit	Qty in the BoQ	Qty certified in PC No 14 Sept. 09	Remarks
34.01 (b)	Fill from borrow in soft material		574,000	675548	Extra UGX 1.8bill
34.01 (c)	Fill from borrow in natural gravel material	M3	45, 000	119,075	Extra UGX 1.7bill
34.05	Excavate and remove unsuitable material to spoil	M3	5,000	315,725	Extra UGX 5.6bill
34.06	Prepare road bed	M3	92,000	176,400	Extra UGX 600mill
34.11	Provide rockfill to swampy areas	M3	58,000	121,492	Extra UGX 6.2bill
	Variation of Prices		3.8bill	11.8bill	Could go to 15bill
f.	Supervision of Works The supervision of works is being done by M/S COMPTRAN Engineering & Planning associates who took over from M/S J. Burrow Ltd. The progress reports prepared by the consultant are detailed enough to provide the client sufficient information for follow up purposes. The consultancy contract was not availed to the auditors for purposes of checking				

	whether the Consultants are performing to their contracts' requirements.		
g.	Value for Money The average cost per km of UGX 1.36bill based on the initial contract (shooting to UGX 1.6bill when the VoP is included) is on high side compared to the costs for similar works in the country.		UNRA to follow up.
h.	Recommendations		
i)	Better planning could have enabled the works to start earlier and thereby reduce the effect of variation of prices on the project. Need for explanations as to the causes of delays.		UNRA to follow up.
	The method for calculation of the amount to be paid for 'Price Adjustment' needs to be reviewed, verify the indices that have been used and check if the adjustment has been correctly applied.		
	The contractor is supposed to operate own laboratory for quality control of the works. If he is using the Engineers' laboratory which is paid for by the client then the costs for operation of the laboratory should be shared between the client and the contractor		
	The proposal by the contractor to use rigid pavement at the roundabouts is sound and the consultants may		

	have to re-consider their position..		
	The removal of 450mm of in-situ soils on the road formation and replacing with selected material needs explanation. The consultants should investigate and make use of the in-situ soils as far as possible to reduce the need for excavation to spoil. Many of the tropical soils can be used in road construction although they do not exhibit the qualities of the 'conventional' road building soils.		
	Tests to determine the necessary percentage of cement for stabilisation of gravel for sub base and which will meet the specifications should be undertaken and the correct levels of cement should be used so to reduce the project cost.		
	As the quantities for some of the activities have been varied upwards by more than 25% then the supervising consultant, on behalf of the client, should negotiate for lower unit rates thereby reducing the overall effect on project cost		
	When changes of contractor's key staff is necessary then the qualifications of the replacements should be the same or better than those being replaced. The Consultant should confirm that the contractor adhered to this requirement		

	Measures to ensure safety of road users and workers as well as environmental safeguards at site have to be undertaken. The consultant may have to penalise the contractor if this is not happening. Reminders at the site meetings without actions by consultants mostly do not make the contractors to do the needful.		
	Minutes of site meetings should be signed after being approved by all parties who attended the meeting.		
	Reports on HIV/AIDS awareness campaigns as prepared by COHEPCO should be appended in the progress reports.		
	Measures to control environmental effects should be taken and followed up by the Consultant. Penalties should be applied if contractor does not do the needful.		

4.2.3 Pilot Project for the Demonstration of Innovative Technologies for the construction of low traffic volume Roads on Mattuga – Semuto – Kapeeka (41.1km)

Civil works Contract No: RDP/HW/C011

Consultancy Services Contract No: NDF/HW/S001

a. Contract Details

Client	Uganda National Roads Authority (UNRA)
Design Consultant	M/S COWI A/S in association with Danisk Beton Teknik
Supervising Consultants	M/S COWI A/S (Denmark)
Consultancy Contract sign date	Main - 01 December 2003, Addendum 1 - 20 March 2009, Addendum 2 - Date not mentioned in the Addendum.
Consultancy Contract amount	DKK 6,312,748.25 and UGX 1,533,384,700.50 revised to DKK6,471,227.75 and UGX 1,685,977,228.50
Works Contractor	Ms. China Chongqing International Construction Corporation
Letter of contract award date	31 October 2008
Works Contract sign date	09 December 2008
Commencement date	06/01/2009
Contract duration	20 Months
Completion date	05/09/2010
Works Contract amount	UGX 37,912,132,240 (30% local currency and 70% foreign currency)
Amount certified to-date	Cert. No 7 Sept '09 – UGX 7,394,154,563
% Progress reported	20.7% as of end of September '09. Programmed progress is 33.9%. Time elapsed is 44%

b. Scope of works



The works under this contract involves upgrading of the 41km gravel road to Class III paved road (5.6m wide carriageway with 1.0m gravel shoulders {2.0m in populated areas}). The pavement on the most part of the road (34km) will be of 125mm gravel sub-grade, 150-175mm lime stabilised gravel sub-base, 150-200mm cement stabilised base course and double surface dressing on the 5.6m carriageway. Also included is provision of drainage structures and road marking/signage. The pavement structure on the remainder of the road sections will be of different materials and combinations varying from section to section for research purposes.

SNo	Observation	Management Response	Auditors Opinion
c.	The following were observed from the document review activity:		
i)	The contract uses the FIDIC 1987 Fourth Edition reprinted 1992. It is not clear as to why the recent FIDIC 1999 First Edition version was not used.	This project was part of the RDPP 2 projects and the version used for them was FIDIC 1987 Fourth edition reprinted in 1992, as agreed with the financing Bank.	The most recent versions of FIDIC GCC should be used.
ii)	Slow progress by the contractor will lead to delay in completion of works. Correspondences from Consultant to Contractor points out substandard material and workmanship.	The observation is correct. In order to catch up on progress, a recovery programme has been agreed with the Contractor. In order to increase the level of supervision, In addition to the normal monthly site inspections and meetings, UNRA now conducts weekly site inspections on this project road.	Supervising consultant and UNRA to follow up.
iii)	The contract duration for the whole works is 20 months. The programme of works shows works continuing all through the 20 months without interruptions due to rainy season. This is unrealistic.	The observation is correct. The Contractor has been advised to prepare a recovery programme which includes the effects of the rainy periods. However it should be noted that works will continue even during the rainy season albeit, at reduced quantities for some of the work items like earthworks.	The anomaly should have noted and corrected during the contract negotiation stage.
iv)	Work on the trial research sections have not started.	Trial research works had not commenced because the Contractor was still concentrating on	

		constructing layers below the sub base	
v)	U PVC type of culverts are used instead of the traditional concrete and corrugated metal pipes	<p>The observation is correct.</p> <p>This project has a research component and U PVC culverts are being used for access culverts. Also 9No. cross culverts have been constructed with UPVC for monitoring. They will all be monitored for suitability for use in the country. The remaining cross culverts are made from concrete.</p>	UNRA to follow up.
vi)	Large quantities of excavations (cut to spoil) being anticipated by the Engineer. More than 350% increase in BOQ (progress report of Sept 09 pages 19-20)	<p>The observation is partly correct and partly not correct.</p> <p>Payments for cut to spoil are done according to design cross sections. Quantities are being controlled by mechanical modification like adding sand which is located in the vicinity of the affected sections</p>	UNRA to follow up..
vii)	Removal of trees and stumps: A large variation in quantities between the BoQ and actual as of September '09. The pay item is for tress of girth between 1.0m and 2.0m. These are 'big' trees. No other pay item was allowed for smaller trees and it seems all trees uprooted are paid under this pay item.	<p>The observation is correct.</p> <p>The Consultant has been asked to use pay item 31.02 (b) only for trees of girth exceeding 1.0m. He has also been asked to review payments already made for trees and if necessary recover any excess payments made from future IPCs.</p>	UNRA to follow up.
viii)	Students are undertaking industrial training at the site. This is good and should be encouraged.		

ix)	No mention of the rates of application of lime and cement for stabilisation of the natural gravels. Extrapolating from the BoQ the rates are approximately 5% lime for improved sub base and 3.5% cement for improved base. It is anticipated that tests were done during the design stage to arrive to these levels.	At design stage, sources of borrow pits were tested for lime/cement stabilization and appropriate rates were used to arrive at quantities to be placed in the BoQ. During construction each borrow pit is tested and the rates are between 3.5-4.0% for lime/cement stabilization. (see attached sheet).	Supervising consultant and UNRA to follow up.
x)	The spread rates for aggregates (DSD) not mentioned.	At the design stage, the Consultant used spread rates which are in the General Specifications. The rate of spray for aggregates was determined during construction stage and it is 21.4 kg/sq.m. for the 20mm aggregates. The one for 10mm aggregates is yet to be confirmed.	The 21.4 kg/sqm spray rate is considered high. The Gen Specs are for 14-19kg/sqm.
xi)	The Specifications refer to two types of modified base course materials, CMB Type I and CMB Type II. However the BoQ item 38.02 (e) mentions of Cement improved road base, Class CMB without stating whether it has to be Type I or Type II. The type should have been stated in the BoQ pay item 38.02 (b) for the purpose of quality control.		UNRA to follow up.
xii)	The change in design for shoulders from gravel to 'stabilised natural wearing course gravel with single 10mm seal coat'. Progress report pg 5. This will improve the safety aspects of the road as pedestrians and cyclists will use the shoulders and not the carriageway		UNRA to follow up.

xiii)	Safety of pedestrians and cyclists being considered (shoulders, raised crossings and speed control humps). This is good practice.		UNRA to follow up.
xiv)	Out of the contractor's key staff who worked on the site during September '09 it is only the Project Manager and the Chief Accountant who are the same persons earmarked for the posts as per contract. All the others are different from those listed in the contract.	The observation is correct. This is a normal UNRA procedure for all projects. However on this particular project, some other key staff have been requested by the Consultant to enhance planning and management of the Contractor. Those regarded to have less experience were taken on trial basis.	UNRA to follow up..
xv)	The minutes of the Pre-Contract discussions have been signed by client and contractor. In attendance and providing advice was the representative of the Consultants M/S COWI		
xvi)	HIV/AIDS awareness campaigns are undertaken by COHEPCO. Well written reports prepared. Good example		
d.	Quality of Works The auditors visited the road on 7 th October 2009. Very little work had been done as of the date of visit. The section which had been worked on and covered with stabilised gravels is holding and seems intact. The quality of box culverts and pipe culverts looked OK.		UNRA to follow up.

	<p>The trees beside the road alignment were noted to be of small size and not of girth between 1.0m and 2.0m which the pay item No. 31.02 (b) is used to pay the contractor. .</p>						
 <p><i>Batching plant</i></p>	 <p><i>Completed box culvert with wingwalls. Quality of works is good</i></p>						
<p>e.</p>	<p>Quantities Verification</p> <p>The actual quantities certified vide interim certificate No.7 compared to the quantities in the BoQ for some of the work items whose quantities have varied significantly and which will eventually increase the project costs are shown in the table below:</p>						
	<p>Pay Item</p>	<p>Work activity</p>	<p>Unit</p>	<p>Qty in the BoQ</p>	<p>Qty certified in IPC No 7 Sept. 09</p>		

13.01 (b)	P&G – Insurances and sureties	L.S	250mill/=	250mill/=	100% paid. This should be OK if the insurance policies cover the periods up to completion of works	
31.02 (a)	Remove and grub trees and stumps girth exceeding 1.0m	No.	40	670	Extra UGX 145mill. No trees of girth exceeding 1.0m seen at site.	
36.01 (a)	Common excavation to spoil	M3	21,700	17,451	Approaching limit while progress is only 21%	
36.01 (b)	Excavation in swamps to spoil	M3	9,000	16,016	Quantity nearly double while progress is only 21%.	
34.11	Provide rock fill to swampy areas	M3	58,000	121,492	Extra UGX 6.2bill	
Insurance and Sureties				After the insurances were checked, they were accepted because they cover the whole period of construction works, and subsequently, 100% for this item was certified.		UNRA to follow up.
Rock fill to swampy areas				Observation is correct. This is because the Contractor commenced with swampy areas and they are mainly located in the first sections of the road. Some realignments to virgin territory in swamps was also done to improve on horizontal geometry and this resulted into more rock fill.		Close control of this item of work is necessary. The extra amounts show weakness in the planning and design stages. UNRA to

			follow up.
f.	<p>Supervision of Works</p> <p>The supervision of works is being done by M/S COWI A/S of Denmark. The main Contract was signed on 1st December 2003 with duration of 60 months from 1st January 2004 i.e. up to 30th November 2008. Two addendums have been signed for additional services and extension of time to 30th September 2011. The costs for Addendum 1 (UGX 386,202,000 for services related to compensation issues) are not reflected in the total new contract amount under Addendum 2. The addendum No. 2 for consultancy Services does not show the date when the addendum was signed. The supervision team has all the required necessary staff but are different to those earmarked for supervision and listed in the Consultancy contract.</p> <p>Progress reports seen are of good quality and have sufficient information for use in follow up of project implementation by the client. However progress chart included in the progress report (Annex 3 page 15/20) can not be easily understood and does not report on drainage activity.</p>		
g.	<p>Value for Money</p> <p>The average cost per km of UGX 925mill for this type of road (Class III paved) is fair compared to similar works in the country.</p>		

h.	Recommendations		
i)	Closer follow up of the implementation of this project is necessary as the progress is far behind the program and the contractor is having difficulties to adhere to specifications		
ii)	It is important to ascertain whether the U PVC culverts will perform in the country and adopt them if they prove to be OK and cost effective		
iii)	The amount of soils to be excavated to spoil should be controlled as this will increase the project cost. More use of in situ (marginal) soils should be explored.		
iv)	Pay item 31.02 (b) should be used only when trees and stumps being removed are of girth exceeding 1.0m.		
v)	It is not proper not to mention the rates of stabilising agents in the stabilised soils. The rates should be clearly stated for the purpose of quality control. Similarly for the aggregates when surface dressing is applied as the wearing course.		
vi)	Client should ensure that whenever changes of the key		

	staff of contractor or the consultant have to be made then the replacements should be of equal or better quality staff.		
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4.2.4 Backlog Maintenance (routine mechanized) of Ntungamo – Kabale – Katuna (84.5km)

Civil Works Contract No. RDP/HW/C006

Consultancy Contract No: Contract not numbered

a. Contract Details

Client	Uganda National Roads authority (UNRA)
Design Consultant	Technology Consults Ltd (Uganda)
Supervising Consultants	EGIS BCEOM International (France)
Consultancy Contract sign date	04/06/2008
Consultancy Contact amount	Euro 958,338 for working on 6 packages
Works Contractor	SPENCON-STIRLING JOINT VENTURE (Uganda)
Letter of contract award date	5 th February 2009
Works Contract sign date	06 March 2009
Commencement date	06 April 2009
Contract duration	18 Months
Completion date	05 October 2010
Works Contract amount	UGX 17,309,293,108. Revised to UGX 11,312,889,232 due to reduction of scope of works
Amount certified to-date	Cert. No 3 15 th Oct '09 – UGX 6,386,813,956
% Progress reported	Progress report of October '09 does not mention

b. Scope of works





The initial works under this contract involved cleaning of drains and culverts, repairing shoulders and resealing short sections with a single seal, spot rehabilitation with double surface dressing, pothole and edge repairs, reseal the carriageway (6.5m) with 14mm aggregates. Also included is the provision of road signs, kilometre markers and road marking. However due to the fact that the road will be reconstructed commencing mid 2010 the scope of works have been reduced significantly and only the necessary works to keep the road in good condition will be undertaken.

SNo	Observation	Management Response	Auditors Opinion
c.	<p>Document review</p> <p>The documents reviewed included the contracts, progress reports and the interim payment certificates.</p> <p>The following was observed from the document review activity:</p>		
i)	<p>Bids were submitted in November 2007, contract signed in March 2009 (15months later). The long delays in conclusion of contract after bid submission have significant effect on final project costs. Base prices for materials for the purpose of VoP are those of October 2007.</p>	<p>Reasons include the procurement cycle where a number of approvals are needed from: Contracts Committee, Solicitor General, PPDA and Funding Agency. The Stages at times require clarifications and responses.</p>	<p>There need to improve procurement management systems to avoid delays.</p>
ii)	<p>Some of the figures used in the formulae for Price Adjustment are not indices but prices of the materials e.g. for fuel, bitumen, cement, etc. This is not correct and needs explanation.</p>	<p>The Price Adjustment application will be checked otherwise price for inputs has been used as a proxy-index due to lack of indices from the Uganda Bureau of Statistics at the time.</p>	<p>No evidence, that UNRA consulted Uganda Bureau of Statistics about the matter for guidance.</p>
iii)	<p>Scope of works will be reduced due to foreseen reconstruction of the road starting mid 2010.</p>	<p>Correct. There is a major rehabilitation upcoming project under the European Union funding that is to embark on major works therefore the maintenance works have been scaled down.</p>	<p>UNRA to follow up.</p>
iv)	<p>Progress report has an organogram for the Contractor</p>	<p>It is noted that if implementation of projects takes</p>	<p>UNRA to follow up.</p>

	showing three people only ; (Project Director, Site agent and Quantity Surveyor) all of whom being different from those approved as per contract	a bit of time, it's at times difficult for the service provider to keep them waiting. The project Manager ensures that equal or better replacements are provided.	
v)	10 No. vehicles and 3No. Motorcycles procured under the civil works contract. They will revert to UNRA after completion of project.	The Contract is designed to have the vehicles revert to UNRA and have to be in an acceptable condition.	UNRA to follow up.
vi)	Some figures in the IPC No. 3 and those in the progress report for October '09 differ (total for P&G, total for carriageway works). There is a table in the IPC No. 3 with a column showing Estimated Contract Amount of UGX 20,388,373,108. This is not clear.	Certificates are actual measured quantities. The column in the certificate contains the estimated projected cost at that time taking into account changes in the road condition and is only providing information. At that time it was anticipated that a substantial length of road was going to be scarified, modified and double sealed. Hence the estimate was higher than the budgeted amount. It has subsequently been reduced as only patching is being done ahead of the 2010 reconstruction.	UNRA to follow up.
vii)	The organogram for the supervision staff includes UNRA Project staff 3 No. (Bongire, Bashabe and Musoke). Their role is not stated.	The 3 no. Project staffs are attached to the Engineer for training purposes and take on the role of inspectors under the supervision of the Asst. Resident Engineer. They are rotated around and have been introduced to the Consultants site management system. This is ideally meant for capacity building for the future.	

viii)	Supervising Authority (UNRA) complaining of contractor not presenting the accountability for the 20% advance for materials (site meeting of 29 Oct '09). No response given by the contractor!	The Project Manager has written to the Contractor again to account for the 20% advance for materials. Failure for him to respond UNRA shall have no option other than cash the guarantee.	Supervising consultant and UNRA to follow up.
ix)	Contractor is using boulders and logs to block traffic from passing on the completed works instead of erecting sufficient signs/cones. Workers not wearing the safety gadgets despite possessing them.	The boulders are used as the signs are stolen from time to time. However, he has been urged to append reflective tapes especially at night. As for the workers, the contractor has been advised to deny them access to site and not pay for that day or even sack if this becomes repetitive.	UNRA to follow up.
x)	Late submission of progress reports by Consultant. Report for July '09 submitted on 24 August '09. The ToR requires submission of the monthly reports within 14 days after the end of the month.	This has been brought to the attention of the Resident Engineer and improvement is envisaged. Shall ensure the submission dates of these reports complies with the Terms of Reference	UNRA to follow up.
xi)	Items 14.10 (a) and (b) in the BoQ not same as in the special specs.	The BoQ takes about Attendance to the Engineer while the Special specifications refer to Attendance to the Project. The wording shall be corrected for both to read either "Attendance to the Engineer" or "Attendance to the Project Manager" as and when applicable. Otherwise, the objective remains the same.	UNRA to follow up.
xii)	Some of the pages in the IPC No. 3 cannot be read because of poor quality.	The quality of the IPC's shall be improved however; this was not brought to the attention of the Project Team during the audit. The original	All copies of documents kept should be of good quality.

		IPCs are kept in the Accounts section.	
xiii)	Positions/titles of site meetings attendees not mentioned. It is important to know who attended the site meetings and under what capacity.	The designations of the attendees to the site meetings shall be taken into consideration.	UNRA to follow up.
xiv)	HIV/AIDS awareness campaigns are reported to be done but reports by the sub-contractor were not seen.	Noted. The report on HIV/AIDS sensitization shall be appended to the monthly reports.	UNRA to follow up.
xv)	Slurry material is being experimented on this road yet the road itself is slated for reconstruction. Results will not have been observed over time long enough to make future decisions on the material.	The slurry seal material is not just being experimented. Trials have been done on Masaka-Kyotera road and the results so far are good. The technique is faster and is environmental friendly. No need to use firewood, thus reduction in deforestation and pollution.	Experiments should not be done on roads that earmarked for further developments before the results are properly observed.
	<p>d. Quality of Works</p> <p>The auditors visited the road on 26th September 2009. The section from Ntungamo to Kabale was found to be in a fair condition but with a few bad sections with many potholes while the section between Katuna and Kabale was found to be in good condition with isolated potholes that could be fixed by force account to keep the road motorable at a much lower cost. The potholes repair works were going on and the quality of the works was found to be OK. A 'cold slurry seal' material was being used to repair the pothole and edge failures. However cold mixes do not stand water and</p>	<p>Quality of Works</p> <p>The Contractor has possession of site and Force Account attention can only be appreciated in extreme cases of emergencies. However, a discussion with the Contractor has been held taking serious concern of the slow progress with the fast mushrooming potholes. He has promised to increase on the work fronts. Cold mixes, when they properly set, perform well both in the cold and hot conditions. The side drains at the noted locations will be handled</p>	UNRA to follow up.

	<p>they can only hold if covered by a layer of asphalt concrete. Side drains around Kyamugashe, 10km from Ntungamo were found to be blocked and needed special attention.</p>		
<p>Status of works during Reconnaissance visit</p>			
	 <p><i>Potholes filled with slurry seal</i></p>	 <p><i>One of the good sections of Kabale – Katuna</i></p>	
	 <p><i>Logs and tree branches used to block traffic.</i></p>	 <p><i>Bad sections at Katuna Border post to be repaired</i></p>	
<p>Quantities Verification</p>			
	<p>Most of the payments claimed by the contractor in IPC</p>		

No. 1 were for preliminary and general items and variation of prices. Some of the payments certified in IPC No. 3 for works up to 15 th October 2009 are as shown in the table below:						
Pay Item	Work activity	Unit	Qty in the BoQ	Qty certified in IPC No 3 Oct. 09	Remarks	
13.01 (b)	Insurances and Sureties	LS	208,512,500	208,512,500	100% of total. This should be OK if the insurance policies cover the periods up to completion of works	
14.05/06 (a)	Provide vehicles for RE (10No. vehicles and 3No. Motorcycles)	LS	642,516,400	642,516,400	This item should have been under Provisional sums and a percentage of cost paid to contractor for administration.	
	Revision of Prices		0	294,676,710		
e.	Supervision of Works The supervision of works is done by M/S EGIS BCEOM International. The supervision team is composed of the approved staff as per contract. The Progress reports prepared by the consultants have most of the information to enable the client to follow up implementation of the project. However some of the reports have been submitted late and some of the information is missing/not correct. Appendices are called Addendums, Table under 5.3 Quality of Works			Supervision of Works We have noted the quality of the reports and have requested the Resident Engineer to have a quality assurance system to ensure the correct information is given without missing out any relevant information. The reports shall be submitted in accordance with the Terms of Reference. The Resident Engineer shall ensure that the records for the payment certificates are corrected in the subsequent progress reports.		UNRA to follow up.

	has quantities of works, Overall progress not mentioned, records on payments certificates not correctly reported in Progress report for October '09 (Sect. 6.3 Payment Certificates),		
f.	Value for Money The average cost per km of UGX 205mill for the original planned works is considered to be within the range of costs for similar works in the country. The revision on scope of works should reduce the final cost by more than 50%.	Value for Money The revision on scope of works may not reduce the final cost by more than 50%. The road is still serving traffic. Its performance before the major rehabilitation is dependent upon the commencement date and most critically on the procurement time taken to commencement of the major works. In the interim, the current maintenance scope should be closely monitored to keep the road in a safe motor able state.	UNRA to follow up.
g.	Recommendations		
i)	The method for calculation of the amount to be paid for 'Price Adjustment' needs to be reviewed, verify the indices that have been used and check if the adjustment has been correctly applied.	Please refer to "c (ii)" above	UNRA to follow up.
ii)	Re-scoping of the works should be done mostly on the shoulder and carriageway works. The re-scoping on carriage way works does not seem to be enough as the difference with the original estimates in terms of cost for this activity is only 2.52bill (i.e. 30% of initial estimated work).	The works have been scaled down taking into account the upcoming major rehabilitation by end of 2010. However, the project team is assigned the task to keep monitoring the scope with time to ensure the road is kept in an acceptable condition.	It is recommended that the re-scoping should reduce the works to about 30%. UNRA to follow up.

iii)	Accountability for the 20% advance paid to the contractor for materials need to be pursued.	Please refer to " c (viii)" above	UNRA to follow up.
iv)	The progress reports need improvement so as to make them easily understood.	We have noted the quality of the reports and have requested the Resident Engineer to have a quality assurance system to ensure the correct information is given without missing out any relevant information. Shall endeavour that the reports are submitted in accordance with the Terms of Reference.	UNRA to follow up.
v)	A report on HIV/AIDS sensitisation prepared by the sub-contractor should be appended in the progress report.	Noted. The report on HIV/IDS shall be appended in the progress reports.	UNRA to follow up.

4.2.5 Backlog Maintenance of Masaka – Kyotera and Nyendo – Villa Maria roads (48.7km)

Civil Works Contract No: EU/HW/C003

Consultancy Services Contract No: Contract not numbered

a. Contract Details

Client	National Authorising Officer of EDF, Ministry of Finance
Design Consultant	Technology Consult Ltd (Uganda)
Supervising Consultants	EGIS BCEOM International (France)
Consultancy Contract sign date	04/06/2008
Consultancy Contact amount	Euro 958,338 for working on 6 packages
Works Contractor	Ms. Dott Services Ltd (Uganda)
Letter of contract award date	04/03/2008
Works Contract sign date	Contracting authority signed on 7 th May 2008 Contractor signed on 15 th May 2008
Commencement date	15/07/2008
Contract duration	18Months
Completion date	14/01/2010
Works Contract amount	UGX 9,229,051,916
Amount certified to-date	Cert. No 1 dated 13 th November 2008 – UGX 766,916,896
% Progress reported	Progress report of October '09 not mentioning directly but from the information the contract is far behind schedule for completion.

b. Scope of works





The works under this contract involves cleaning of drains and culverts, repairing shoulders and re-sealing short sections with a single seal, spot rehabilitation with double surface dressing, pothole and edge repairs, reseal the carriageway (6.0m) with 10/14mm aggregates. Also included is the provision of road signs, kilometre markers and road marking.

SNo	Observation	Management Response	Auditors Opinion
c.	<p>Document review</p> <p>The documents reviewed included the contract, progress reports and the corresponding interim payment certificates, correspondence between the client and contractor and quality control tests results</p> <p>The following was observed from the document review activity:</p>		
i)	<p>The contract duration has expired and no extension of time has been granted to the contractor. No application for extension of time has been done by the Contractor as of Mid January 2010.</p>	<p>The contractor submitted a claim for extension of time with related costs to the Consultant in March 2009 for evaluation and recommendation. The Consultant submitted his findings on the 18 January 2010 granting no extension of time. UNRA is studying the Consultant's submission and before making a decision, a legal opinion shall have to be sought from the Solicitor General. However, the Contract is considered operational unless the following has been met at the least (i) Objective of the project, (ii) Termination and /or (iii) Taking over certificate</p>	<p>UNRA to follow up.</p>
ii)	<p>Very slow progress of works. Reseal activity is 43 weeks behind schedule.</p>	<p>The slow progress has been noted and all measures are being done to put the project back on course.</p>	<p>UNRA to follow up.</p>
iii)	<p>There is a design change from single seal surfacing to</p>	<p>The whole of the section between Masaka and</p>	

	slurry seal on Masaka – Kyotera road. It is not clear as to what extent the slurry seal will be used, whether on shoulders or on the carriageway. No rate was tendered for the slurry seal.	Kyotera is to be slurry sealed. Only the carriageway is to be slurry sealed. The reason for adopting the slurry seal was due to the severe stripping of the existing surfacing and the difficulty of designing a single surface dressing on an existing surfacing with variable surface texture. The single surface dressing reseal would also have left numerous depressions. The rate for slurry seal was agreed and implemented by an Administrative Order. Attached Annex RM7	
iv)	Smaller culverts of 300mm are replaced by 600 mm. Good decisions.		
v)	Payment cert No. 1 of November 08 paid in July .09	The long delay in payment of IPC No.1 arose from the time taken in the process to change from EU to Government of Uganda funding.	Delays on contractual obligations have negative impact especially additional costs in form of interest.
vi)	Insurances policies have expired since August '09 for workers compensation and Sept '09 for personal accident.	As at the site meeting of 23 February 2010, the Resident Engineer informed the meeting that the Insurance Covers were updated.	It is important to ensure that insurance policies are always updated and maintained.
vii)	Claim submitted by contractor in August '08 on increase of prices for materials has not been evaluated due to its complexity and time constraint on the RE.	The Resident Engineer has submitted his recommendation concerning the Contractor's claim on 18 January 2010. UNRA is studying the submission and shall seek a legal opinion from the Solicitor General before a decision is made.	The Resident Engineer's delay indicates weakness in project supervision.

viii)	Weak traffic management through the works (no signs). Heaps of soils along the roads	The Contractor has been urged at a number of meetings to take serious concern about the traffic management. The Resident Engineer and UNRA shall not stop the campaign. The heaps of soil are material from the drains at a number of locations. He has been instructed to clear this.	UNRA to follow up.
ix)	Concern over the use of the UNRA project vehicles (minutes of site meeting 27/10/09)	It had been noted that the project vehicles despite being registered with number plates, they had no identification. The UNRA Project Manager initiated the action to put stickers and this has been effected. The vehicles can be easily identified and potential misuse has been checked.	UNRA to follow up.
x)	No results of quality control tests were seen. These are supposed to be appended in the monthly progress reports.	The quality control results are in the site office and can be assessed as and when needed.	It is good practice to have the test results report included in the progress reports.
xi)	Reports show accidents occurring every month. Among the reasons for accidents is 'road condition.	Its true one of the reasons for road accidents is road condition but the main cause has been established being reckless driving.	There is need to address the road safety for user on this road.
xii)	There are delays on clearing/endorsement of 'Administrative Orders' by UNRA.	UNRA has endeavoured to take prompt action in dealing with Administrative Orders and if any cases of delay have been encountered, this is regretted and shall be avoided in future.	UNRA to follow up.

xiii	HIV/AIDS awareness campaigns undertaken but no reports seen.	The reports shall be appended in the monthly reports for ease of reference.	UNRA to follow up.
xiv	New potholes developing at the edges of the newly patched areas indicating poor delineation of the affected areas.	New potholes and edge breaks have manifested themselves after the rains. The contractor trims the affected areas but allows traffic to uneven the cut edges. He has been cautioned to backfill the potholes and should divert the traffic not to spoil the marked out sections	Supervisor and UNRA to follow up.
d.	<p>Quality of Works</p> <p>The auditors visited the road on 1st October 2009. Most of the road was in a fair condition but certain sections had many potholes and road edges failures were seen on a few areas. The works that were going on were pothole patching and repair of edges on Masaka – Kyotera road. No works were ongoing on Nyendo - Villa Maria road. The potholes repair and edge repair works was being done using cold slurry seal and the quality was seen to be OK. The roads will be surfaced fully with the same type of slurry seal. This is a new approach to sealing of roads in the country. However cold mixes do not stand water and they can only hold if covered by a layer of asphalt concrete. Shoulder repair works are also being done but the actual scope for this activity is not clearly mentioned. The cleaning of drainage system is not done adequately (progress report of October pg 5).</p>	<p>Quality of Works</p> <p>The slurry seal approach has been carried out with pothole patching earlier on. It has now been extended to the entire road and this is an adopted experience from the resident engineer who has demonstrated its use with the associated advantages which include durability, good performance, environmentally acceptable and easy to handle. The cold mixes if well made, can stand both wet and hot conditions. The shoulders are designed for regravelling and sealing.</p> <p>Action on the drainage system shall be improved and adequately be attended to.</p>	From site investigations, there are likely to be delays in progress due to weather effects.

Status of the road during Reconnaissance visit			
 <p><i>Potholes and edge repairs using slurry seal</i></p>	 <p><i>Potholes appearing at edges of the repaired potholes</i></p>		
 <p><i>On going edge repairs and shoulder construction</i></p>	 <p><i>Stripping of aggregates</i></p>		
<p>Quantities Verification</p> <p>Some of the payments certified in IPC No. 1 for up to October 2008 are as shown in the table below:</p>			

	Pay Item	Work activity	Unit	Qty in the BoQ	Qty certified in PC No 1 October08	Remarks
	13.01 (a)	Establishment on Site	LS	180,000,000	90,000,000	50% of total
	13.01 (b)	Insurances and Sureties	LS	72,000,000	48,240,000	67% of total.
	14.04 (a)	Provide furnished site cabin for RE	LS	60,000,000	60,000,000	100% of total
	14.07 (a)	Provide survey equipment for RE	LS	17,000,000	17,000,000	100% of total
		Material on site			569,420,896	All for bitumen. Material has to be at site.
e.	Supervision of Works			Supervision of Works		UNRA and consultant to follow up.
	The supervision of works is done by M/S EGIS BCEOM International. The supervision team is composed of the approved staff as per contract. The Progress reports prepared by the consultants have most of the information to enable the client to follow up implementation of the project. However some of the information is not clear enough and some is missing e.g. test results, the Addendum E of progress report for October '09 has positions of contractor's staff but no			The Resident Engineer shall ensure that the missing information is adequately provided and included in the reports. The correct nomenclature shall be used and the quality control tests be appended in the reports.		

	names, annexes/appendices are called 'addendums' in the progress reports, etc. The captions for the photographs in the report do not properly/accurately explain the photos and the quality control tests results are not included in the reports.		
f.	Value for Money The average cost per km of UGX 189mill for this type of work is within the range of costs for similar works in the country.		
g.	Recommendations		
i)	The contractor is obliged to pay the liquidated damages from 15 th January 2010. If it is considered that he can not complete the works as of the date when the limit of liquidated damages will have been reached then a decision to terminate the contract should be taken.	The Resident Engineer/Project Manager shall approve legitimate extension of time, liquidated damages shall be applied when appropriate and advise UNRA accordingly	UNRA and consultant to follow up.
ii)	The rationale for changing of design from surfacing material for the whole works and introducing a new sealing product (slurry) is not appreciated. The new material should be tested on a section of this road and its performance evaluated before it is adopted in the other works	Please refer to (iii) above. However, the performance of the material is so far good and appreciable.	UNRA and consultant to follow up.
iii)	Since there is no rate for the slurry seal in the current contract the Contractors' rate that he has submitted should be analysed by the consultants and agreed upon by client before starting to use the material.	The rate for the slurry seal was not in the original contract. The Contractor submitted a rate that was analysed by the Resident Engineer and agreed upon by the client in the form of an Administrative order that was	

		issued to confirm.	
iv)	The contractor should keep the insurances policies active all through the project duration.	Renewal of the policies is done as and when the need arises.	The insurance policies should always be renewed.
v)	Management of traffic through the works should be improved to prevent accidents and avoid inconvenience to road users	The point of traffic management has been raised at a number of meetings. Shall ensure this is effected.	UNRA to follow up.
vi)	Delays in assessing contractor's claims should be minimal especially for those which could affect the cash flow and jeopardise the progress of works	The Consultant had wanted the Client to consider the services of a Contract specialist as separate from the main services contract. The Client, after a series of discussions made it clear that the services were included. It was then that they mobilized and evaluated the submitted claims. The issue of administering the claims has now been sorted and it is hoped that the delays shall be minimized.	Supervising consultant's expertise questionable since he did not even understand his terms of reference, he should be held liable for costs incurred as a result of the delay
vii)	UNRA should expedite making payments to the contractor and making decisions on proposed Administrative Orders so as to avoid any effect on the progress of works	Payments to the Contractors are handled expeditiously and the decisions on proposed Administration Orders shall be immediately handled.	UNRA should follow up.
viii)	Reports on HIV/AIDS campaigns should be prepared and submitted to the consultant/client prior to effecting payments for the activity.	The reports on HIV/AIDS shall be submitted to the RE and payments for the activity effected after this.	UNRA to follow up.

ix)	A 'Road Safety Audit' should be done to determine the main causes of accidents and necessary measures that have to be undertaken to reduce/eliminate them.	The Road safety Audit shall be initiated. However, following discussions with the traffic authorities, reckless driving is the main cause of accidents.	UNRA to follow up.
x)	The consultants should improve the quality of the progress reports for them to serve their purpose.	The Resident Engineer is required to improve on the reports and set up a quality assurance system to ensure the correct information is given without missing out any relevant information. Shall endeavour that the reports are submitted in accordance with the Terms of Reference	Standard templates for progress reporting by consultants should be used. UNRA and consultants to follow up.

4.2.6 Periodic Maintenance of Moroto – Lokitanyala (44km)

Civil Works Contract No: UNRA/RMM/08/09/059

Consultancy Contract No: Contract not availed

a. Contract Details



Client	Uganda National Roads Authority
Design Consultant	UNRA
Supervising Consultants	Arch Design Ltd In association with Otieno Odongo & Partners Consulting Engineers
Consultant Contract Date	<i>Not seen</i>
Consultant Contract Amount	<i>Not see</i>
Works Contractor	Ms Kark Technical Services Ltd
Letter of contract award date (Bid acceptance)	Not seen
Works Contract sign date	1 st July 2009
Commencement date	14 th July 2009
Completion date	14 th December 2009
Contract Duration	6 months
Contract amount	UGX 2,376,520,000/=
Amount Certified as of 11th October, 2009 i.e. Cert. No.2	1,328,111,970/= (VAT exclusive)
% of progress reported	20% by Station Engineer; 68% by the Consultant

b. Scope of works

The works under this contract included heavy grading to camber and cross-fall, construction of a 150mm thick and 6m wide natural base course and, installation of drainage structures.

SNo	Observation	Management Response	Auditors Opinion
c.	<p>Document review</p> <p>The documents reviewed included the Progress report, the Contractors contract, and the Certified Interim certificate No. 2.</p> <p>The following were observed from the document review activity:</p>		
i)	<p>The Contractors Contract commenced on 10th March 2009 and the Consultant submitted the 1st progress report at the end of September 2009;</p>	<p>It is true the first progress report from the consultant for this civil works contract was produced in September, 2009. This is because the supervision consultancy services commenced in September 2009. Copy of the commencement Order is attached as Annex RM8</p>	<p>Delay of consultants starting work on jobs should be discouraged. UNRA to ensure compliance.</p>
ii)	<p>The physical progress was 20% while overall time progress was 33% (Station Engineer's progress report dated 8th September, 2009) ;</p>		
iii)	<p>The Consultants' 1st and 2nd reports for the months of September and October respectively reported the same physical progress of work of 68%; it was noted that there was inconsistencies in progress reporting when compared with the Station Engineer's report.</p>		

iv)	There was a problem of water scarcity which hampered the progress of works;		
v)	The Station Engineer and the Consultant have different commencement and completion dates for the same project;	The original commencement date is 14 July 2009 and completion date is 14 January 2010.	Similar dates should be referred to in all correspondences and reports.
vi)	The Consultant (in the 2 nd Report of end of October 2009) reported that the Contractor intended to submit the 1 st Interim Payment Certificate and yet the Station Engineer had already approved 2 Certificates, and the 1 st Certificate had already been paid. It is therefore not clear who is right between the Station Engineer and the Consultant; there was no evidence that the 2 nd certificate was certified by involving the Consultant and yet by the time of its production the Consultant was on site.	The last certified payment certificate for this contract is No. 3.	The miscommunication by the station engineer and the consultant could be a result of engaging the consultant mid way the project and again the consultant not reviewing the progress up to the time of his engagement.
vii)	The Consultant also reported that the Contractor had received 20% of the Contract Sum as Advance payment but this is not reflected on the latest Interim Certificate i.e. No.2;	The amount advanced to the contractor is indicated in Certificate no.3 together with that which has been recovered	Advance payments should be reflected on all interim certificates.
viii)	The minutes for meetings held in the months of September and October were not included in the 1 st and 2 nd reports;	Point noted.	UNRA to follow up.
ix)	A comparison of the bills of quantities and the interim	Mismatch in bills of quantity numbering and the interim certificated to be corrected in certificate	UNRA to follow up.

	certificates indicate mismatches in bill numbering.	No. 4.	
d.	Quality of Works The auditors visited and made visual assessment of the road on 29 th September, 2009 The following was noticed:-		
i)	The Contractor had problems with finding water for executing the works;		
ii)	Consultant not properly on ground;		
	Status of road		
	 		
	<p>Broken culvert in the middle of the road</p> <p>Multiple culvert structure outlet</p>		
e.	Supervision of Works The supervision of works was initially done by UNRA		

	and later a Consultant was deployed to undertake the supervision role. The progress reports prepared contain substantial information for monitoring of the progress but lack, the program vs. progress chart, status of payments to contractor, minutes of site meetings, borrow pit test results, and progress photographs.		
f.	Value for Money The average cost per km of UGX 54,011,818.18 is high compared to costs for similar works in the country.		
g.	Recommendations		
i)	Actual progress of works should be harmonised and reported;	Recommendations by Audit Team are noted and they will be implemented.	UNRA to follow up.
ii)	Actual payments to the contractor should be evaluated and reflected on all certificates issued on the contract;		
iii)	Review Consultants Contract and terms of reference;		
iv)	The contractor should accelerate the works so as to complete promptly		
v)	The progress reporting should be comprehensive.		

4.2.7 Periodic Maintenance of Fort Portal – Kamwenge (77km)

Civil Works Contract No. *UNRA/PM/08/09/16*

a. Contract Details


Client	Uganda National Roads Authority/Ministry of Works
Design Consultant	<i>Document not provided</i>
Supervising Consultants	UNRA
Consultant Contract Date	<i>Not applicable</i>
Consultant Contract Amount	<i>Not applicable</i>
Works Contractor	Ms Kato Investments Ltd
Letter of contract award date (Bid acceptance)	5 th December, 2008
Works Contract sign date	30 th January, 2008
Commencement date	13 th February, 2009
Contract Duration	9 Months
Completion date	12 th November, 2009
Contract amount	UGX 1,616,620,000/=
Amount Certified by end of June 2009 i.e. Certificate No. 6	UGX 1,347,121,567
% of progress reported as of 11th September, 2009	90%

b. Scope of works

The scope of works included the following major items; drainage improvement, medium grading and full carriage way re-gravelling.

SNo	Observation	Management Response	Auditors Opinion
c.	<p>Document review</p> <p>The documents reviewed included:- the Contractors contract' the Certified Interim certificate No. 6 and the monthly progress report for the month of September 2009.</p> <p>The following were noted from the documents review</p>		
i)	The work methodology reflected in the report only listed the activities of work to be done instead of the method or process or procedure of doing the work;	It is true that work method reflected in the report only listed activities to be done instead of method. The omission is noted and UNRA will make the required presentation in the future reports.	UNRA to follow up.
ii)	The Contract provided for purchase of a double cabin pick up and two motorcycles for the employer to supervise works;	It is true that for the purchased car and motorcycles no details about maintenance and ownership were included in the contract. However with regard to this particular contract it is clear to both UNRA and the contractor that UNRA maintains and takes ownership; the vehicles were registered under UNRA. UNRA will ensure that in future contracts if such a provision is included maintenance and ownership will be clearly indicated.	UNRA should avoid aggregating contracts of road maintenance and purchase of vehicles in accordance with the PPDA laws.
iii)	The Contract does not state who maintains and who takes ownership of the above mentioned car and motorcycles;		
d.	<p>Quality of Works</p> <p>The auditors visited and made visual assessment of the</p>		

	road on 23 rd September 2009. The following were noted-		
i)	The road was fairly in good condition;		
ii)	There was no provision for community access culverts and this has led to communities blocking the road drains;	Some access culverts were provided for but could not cover every location as new accesses keep coming up; needs will be addressed progressively in the near future contracts/works.	UNRA to follow up.
iii)	At about 34 km from Fort Portal there is a drainage problem; water passes below instead of through the culvert (under-scouring). The new culverts added at both ends of the existing culverts were not properly jointed.	The drainage problem at Km34 arose as a result of extending the existing Armco culvert using a concrete culvert; the culverts specified in the contract were concrete and joining these with Armco posed a problem. The problem has since been rectified.	It is improper to join metallic Armco with concrete culverts.
iv)	At 56.1km from Fort Portal, the spot requires culverts.	It is true that at Km 56.1 from Fort Portal a culvert was required. This has been addressed and a culvert has been provided.	
e.	<p>Other Observation</p> <p>It was noted that the contract works in addition to the National road (Fort Portal – Kamwenge) also covered some community access roads (loops) along the road. The rationale of inclusion of the access roads under this</p>	Works on community access roads: It is true that the contracted works also covered some community access roads along the road. These access roads (Loops) along the road provide access to the local community amenities like schools.	This criteria requires clarification

	contract requires explanation.		
Status of road			
<div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p><i>Community improvised accesses</i></p> </div> <div style="text-align: center;">  <p><i>Under-scouring at Km 34</i></p> </div> <div style="text-align: center;">  <p><i>Cross drainage required at Km 56.1</i></p> </div> </div>			
f.	<p>Supervision of Works</p> <p>Supervision of works was being done by UNRA, Regional Manager West represented by Station Engineer, Fort Portal. The progress reports prepared contain substantial information for monitoring of the progress but lack the program vs progress chart, minutes of site meetings and progress photographs.</p>	<p>It is true that the Status Report prepared lacked programme Vs progress chart, minutes of meetings and progress photographs. Minutes were available though not attached on the report. UNRA will ensure that future reports will have all these attached.</p>	UNRA to follow up.
g.	<p>Value for Money</p> <p>The average cost per km is UGX 20,995,064.94 which is within acceptable limits</p>		

h.	Recommendations		
i)	The supervisor should critically check the gravel thickness placed as compared to the requirement;	Checking of gravel thickness: Checking had already been done when testing for compaction.	
ii)	<p>Review the need for purchase of vehicle and motorcycles in relation to vehicles at the station and there respective uses; compare the time left for the project to complete;</p> <p>Investigate source of maintaining the vehicles if there is no provision for supervision of projects under stations since the same was not provided for under the Contract.</p>	<p>Need for purchase of vehicle and time of delivery: There was absolute need for the vehicles for effective supervision of the project as the supervision transport at the station was very poor with only one sound pickup, one limping pickup and one motorcycle.</p> <p>Investigate source of maintaining the vehicles: As mentioned under document review above, maintenance of the vehicles is the responsibility of UNRA.</p>	Procurement of such vehicles should have been under a different arrangement due to the small scope and little time of this project.

4.2.8 Reconstruction of Priority Sections on the Kampala- Mbarara Road – Package A: Busega – Nsangi and Kamengo - Lukaya (Northern Corridor- Uganda (63.1km)

Civil Works Contract No. *GOU/HW/C003*

Consultancy Contract No. *UNRA/SERVICES/08-09/00018/03/CS003*

a. Contract Details

Client	Uganda National Roads Authority
Design Consultant	<i>Document not provided</i>
Supervising Consultants	AIC Progetti SpA (Italy) in Association with TECHNITAL SpA (Italy) and SABA Engineering Plc (Ethiopia)
Consultant Contract Date	20 th January, 2009
Consultant Contract Amount	Euro 2,028,989.00
Works Contractor	Reynolds Construction Company (Nigeria) Limited
Letter of contract award date (Bid acceptance)	14 th October, 2008
Works Contract sign date	29 th October 2008
Commencement date	5 th January 2009
Completion date	After 730 days
Contract amount	Euro 44,791,586.90; Addendum Euro 1,392,704
Amount Certified by end of June 2009	Certificate No. 4, Euro 1,676,921.99
% of progress reported as of 31st October 2009	Planned 22.7 while actual is 16%; Time elapsed 40.8%

b. Scope of works

Kampala- Nsangi 11.5km and Kamengo-Lukaya 51.6km

The works under this contract comprise of upgrading the two sections of the existing road to Paved Class I road with 7.0m carriageway and 2.0m shoulders, drainage improvements, Installation of road furniture including road signs, guardrails and road markings.

SNo	Observation	Management Response	Auditors Opinion
c.	<p>Document review</p> <p>The documents reviewed included: - the Supervising Consultants contract, the 2nd Progress report from the Consultant, the Contractors contract, the Certified Interim certificate No. 4</p> <p>The following was observed from the document review activity:</p>		
i)	<p>The two contracts (works and consultancy) are all in Euros. Normal practice is to quote in local currency (Functional Currency) and state the currencies to be used for payment and exchange rates to be applicable.</p>	<p>The observation that the two Contracts (Works and Consultancy) are in Euros is correct.</p> <p>The two Contracts (Works and Supervision) were originally tendered under EU and the currency of Tender was Euro.</p> <p>The works Contract could not be awarded because after tendering the money available from EU financing could only cover Package B: Masaka-Mbarara and Masaka-Kyotera. When Government of Uganda availed money for the implementation of package A, the best evaluated Tender (RCC (Nig) Ltd) was awarded the Contract at the same rates and prices that were tendered in Euro and under EU guidelines. The use of EU guidelines under GoU funding was approved by PPDA and the Solicitor General (see the attachments).</p>	<p>It is recommended that in future local currency is used to execute local projects.</p>

		Similarly, the Services for Supervision of the Project were awarded to the same Consultant who had won the Tender (in Euro) of Kampala-Mbarara Project at the same Euro rates as was tendered.	
ii)	The Contract Form in the contract does not show the date when the contractor signed the contract. This is a date when the contract is supposed to be effective as per article 7 of the Form of Contract.	The observation is correct. The signing of the Contract by both parties was done simultaneously on 29 October 2008 (at a ceremony for signing the Contract). The Contracting Authority put this same date against his name, but the Contractor did not. The Contractor has been asked to put this same date against his name/signature on the Contract Documents (see the attached letter to the Contractor)	UNRA to follow up.
iii)	Natural gravel class G30 material was certified for payment but the material is not included on list of materials brought to the site intended and not yet incorporated in the works for interim payment;	The observation is correct. The work involving this material was for emergency works, due to failure of a culvert, and was executed under day works (payable under BOQ day work Items). The BoQ breakdown of price of the G30 gravel material (see the attached sheet) that was provided by the Contractor in accordance with the Contract was used to pay for the material, since the day work items do not include materials on site.	The practice is irregular and is prone to abuse.
iv)	The contract documents do not state ownership of	The observation is not correct.	Contracts should be

	<p>the laboratory equipment on completion of the projects. However, this clearly shows how the contractor took advantage of a poorly negotiated contract: Instead of the client negotiating to retain the laboratory equipment, the contractor has been allowed high maintenance costs and ownership of laboratory after the contract.</p>	<p>The laboratory equipment is paid under Item 14.09(b (see the attached BoQ and General Specification sheets). In accordance with the Specifications, "Only SUBITEM 14.09 (b) shall be applied in case where the laboratory equipment reverts to the Contractor upon completion of the Contract."</p> <p>Therefore in accordance with this Clause the ownership of the laboratory equipment reverts to the Contractor after completion of the project.</p>	<p>negotiated in a manner that is beneficial to the client.</p>
v)	<p>The contractors achieved progress was below 16% for all the planned activities against a time progress of 40.8%;</p>	<p>The planned progress at the end of October 2009 was 22.7% and the physical progress was 16% while the time progress was 40.8%. The physical progress is not linearly related (directly proportional) to the time lapsed for the project. For example the time progress involves the mobilization time of 3 months. During this time, there are no physical works that are carried out. The lost time as a result of mobilization is compensated during the later stages of the Contract.</p> <p>However, to ensure that the project progresses well, UNRA has initiated the replacement of the Contractor's Project Manager with a more</p>	<p>UNRA to follow up.</p>

		experienced staff (which has been done). Similarly, the performance of the Consultant Key staff is being reviewed and already the Materials Engineer has been replaced. The situation will continue to be monitored.	
vi)	The material used in some of the stretches has been confirmed unsuitable and the works have also been rejected;	The observation is correct. Unsuitable material and works are always rejected and replaced with approved material and works retested.	UNRA to follow up.
vii)	In the implementation of environmental mitigation measures, it has been noted that:- <ul style="list-style-type: none"> • There is no noise detection equipment available on site 	<ul style="list-style-type: none"> • The observation is correct. <p>This equipment would not be a priority unless the site is likely to emit noise levels in excess of the permissible levels for receptors such as Hospitals, Schools, Institutions of higher learning and homes for the disabled. These receptors are not in the vicinity of the site. However, the observations had also been raised by the RE and in order to reduce the Impact, regulated blasting is done in day time and once a week (between 07-19000hrs) and the communities are informed through a moving siren.</p>	UNRA to follow up.

	<ul style="list-style-type: none"> • There is no equipment for measuring the exhaust emissions, so dust nuisance is observed visually. Access roads were not regularly watered down at the beginning of the month which resulted in dust disruption to the surrounding communities; • Speed humps present on the access roads were not sufficient for checking the truck traffic; • There was no silt-fencing observed at all at any of the sites. The presence of galleys at the quarry, site offices and crusher site clearly demonstrate lack of erosion mitigation measures. • Plus that the effect of soil erosion is only measured by visually observing the turbidity of water 	<p>In addition, the Contractor has been urged to procure the equipment.</p> <ul style="list-style-type: none"> • The observation is correct. <p>The humps are increasing as the work increases. At present many more humps are present and the situation has progressively improved.</p> <ul style="list-style-type: none"> • The observation had also been made and reported by the RE and the Contractor has been urged to ensure that these are in place. • However, the Contractor is using other measures for control of soil erosion namely catchment trenches at the operational quarry and grassing along the slope in front of the site offices and the laboratory. There is provision at the end of the project to 	<p>UNRA to follow up</p>
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		restore the sites to as near as possible the original sites and re-vegetate them.	
	<p>Occupational health and safety: There was almost total disregard to worker safety at the crushing site. The operators were not facilitated with helmets, eye protection against dust, personal ear muffs for noise protection, protective foot wear and dust masks.</p> <p>In addition, during the exit meeting, it was discussed and noted that the program on HIV/AIDS had attracted a monthly payment of euros 32,426 for a qualified safety officer to deal with OHS, HIV/AIDS and Gender management, including transport. (See Cert. no.4 Bill item no. 18.01) This would be an exaggeration. There is need to furnish details on the criteria, award and procedure, complete with reports of work undertaken. Details on the Safety officer with his/her qualifications also needed.</p>	<p>The observation was also reported by the RE.</p> <p>However, the Contractor has been instructed on a continuous basis to take considerable measures in this respect, and there has been some improvement (for example masks that were in the store have been handed over to the workers, safety fences around the crusher feeder have been erected etc). UNRA is mainstreaming occupational health right from EIA, through to planning of environmental and social management activities, monitoring and reporting.</p>	UNRA should follow up on the details of the OHS, HIV/AIDS budget and award of euros 32,426.
d.	<p>Quality of Works</p> <p>The auditors visited and made visual assessment of the road on 2nd October 2009. The quality of completed works looked good.</p>	The observation is correct	



Earthworks and drainage works on-going;

<p>e.</p>	<p>Supervision of Works</p> <p>Supervision of works is being done by AIC Progetti in Association with TECHNICAL SPA and SABA Engineering Plc.</p> <p>It was noted that the Resident Engineer was not registered with the Institution of Engineers and the Registration Board of Uganda.</p>	<p>The observation is correct: Although the RE is registered with the Technical Chamber of Cyprus, which is affiliated to the Engineering Council of UK, he is not yet registered in Uganda.</p> <p>The Resident Engineer and all the professional staff recruited by the Consultant to work on this project and any other projects have been asked to register in accordance with the Law of the Republic of Uganda.</p>	<p>UNRA to follow up.</p>
<p>f.</p>	<p>Payments</p> <p>At the time the audit was conducted, all the consultants' invoices had been paid. The contractor had only not been paid the most recent certificate that is certificate no.4</p>		

g.	Recommendations		
i)	Key Consultants staff should endeavour to register with professional bodies in accordance with the Ugandan regulations;		
ii)	Ensure that rejected works (those that do not conform to standards) are re-done.		

4.2.9 Periodic Maintenance of Moyo – Obongi road (56km)

Civil Works Contract No. **UNRA/RMM/08/09/069**

Consultancy Contract No. **UNRA/SERVICES/2008-09/0021/08/03**

a. Contract Details

Client	Uganda National Roads Authority
Design Consultant	<i>Document not provided</i>
Supervising Consultants	Tamp Blessed-3Ms Jv Ltd
Consultant Contract Sign Date	14 th August 2009
Consultant Contract Amount	UGX 303,340,000 (Selected National Roads)
Works Contractor	Ms Universal Engineering (U) Ltd
Letter of contract award date (Bid acceptance)	Not seen
Works Contract sign date	18 th July 2009
Commencement date	15 th July 2009
Completion date	15 th March 2010
Contract amount	UGX 3,061,600,000
Amount Certified by end of June 2009 i.e. Certificate No.2	UGX 499,602,910/=
% of progress reported as of 31st October 2009	41%

b. Scope of works

The scope of works under this contract includes the following major items

- i. Heavy grading for 2.05km and medium grading for 4.48km over 6m width
- ii. Drainage improvement including culvert installations;
- iii. Line draining with stone pitching;
- iv. Re-gravelling;

SNo	Observation	Management Response	Auditors Opinion
c.	<p>Document review</p> <p>The documents reviewed included:-, the Contractors contract, the Certified Interim certificate No. 2;</p> <p>The following was observed from the document review activity:-</p>		
i)	<p>The quantity of mitres provided in the bills of quantities (item 3.3) totalling 33,600m triangulating to 60 mitres per km is not practical and therefore considered exaggerated even if each of the mitres is 10m average length. The Interim Certificate No.2 of 5th November 2009 already accounted for 27,937m which in the auditor's opinion is high.</p>	<p>The provided quantity was an estimate made during the project preparation. The project road was impassable at the time of preparation of the quantities. Final quantities as built will be measured and be paid for.</p>	<ul style="list-style-type: none"> Excessive provisions for mitre drains. UNRA, consultant and contractor on site indicated, that the paid certificate included mitres and catch water drains, which should have been a separate item. This could be an indication of inadequate supervision and raises doubts to the correctness of the quantities paid for in this work item.
ii)	<p>The quantity of fill material provided in the bills of quantities i.e. item 4.4.1 appears to be too much as compared to the total quantity provision for gravel. The strip map showing the fill areas was not provided for</p>	<p>The road section km18 to km 48 is parallel to river Nile with low-lying sections that required raising to improve the drainage system. Flooding is experienced over this section every rainy season.</p>	<ul style="list-style-type: none"> The strip map referred to was not provided for verification. Much as there is flooding

	review. Interim Certificate No. 2 considers 44,852.5m ³ as so far placed.	Just like the mitre drains above, the quantity of fill material was an estimate. Actual fill quantities will be measured for payment. The strip map for the fill sections is in the project file.	in the area, executing the works without technical documentation leaves room for possible manipulation and could cause financial loss.
iii)	Interim Certificates are prepared by the Consultant although it is expected that they are originated by the Contractor and certified by the Consultant. Correspondence letters from the Consultants to the client regarding the certificates are on UNRA headed papers which is peculiar and not correct.	The Contractor is the one who originates certificates and the Consultant certifies it. However, at times the Contractor does not sign on the measurement sheets but attaches covering letters. The payment system will be streamlined. The Consultant has been advised to use their own headed paper which they are now adhering to.	UNRA to follow up.
iv)	Some culvert crossings as per measurement sheets are indicated as 2m long (may be used on access roads) while the road width is of average 7m;	The road has been widened and short length culverts extended. The 2.0 m culvert installation reflected is for the extension of the existing culvert crossings that do not make the 7.0 m required.	UNRA to follow up.
v)	The report submitted by the station engineer, lacks key chapters like introduction, background of the project, the weather report was not included, and some photocopied pages are too faint for reading;	The report format is standard provided but if there are any amendments recommended we shall adopt accordingly.	UNRA to follow up.
vi)	The Consultant hinted on a possibility of a variation to raise levels of some road sections; this is because the	The Auditor's view about variations on maintenance contracts is correct. However, this	Proper planning and designing of roads are

	Auditors' view is that there should be minimum variations on maintenance works. This is based on the assumption that the stations are well acquainted with the roads in question and so all details should have been included in the BoQ at design stage.	project should have been referred to as upgrading project and not periodic maintenance. During the preparation of the BoQ, the road was partially accessible. Therefore, all details were not able to be included in the BoQ at the design stage.	essential for preparation of accurate BoQs. It is not proper to use inaccurate BoQs as a basis of contract.
	<p>d. Quality of Works</p> <p>The auditors visited and made visual assessment of the road on 8th October 2009</p> <p>Not much of permanent work had been done by the date of the audit. The contractor was dumping poor quality material as fill (heavy clay) which had not been approved by consultants. Same material was used as backfill for culverts installed. Some sections of the road had too much sand. There are many low lying areas that will need special attention.</p>	The material used for road works is from approved borrow pits and stockpiles. The contractor was notified about the poor quality material and this was stopped and rectified. The sand in the sandy sections was removed (loaded to spoil) before gravelling the sections. The low-lying areas are the ones proposed for fill.	Proper supervision is needed to avoid possibilities of contractors dumping poor materials.
	Status of road		



Poor quality clayey material dumped as fill material along fill sections

<p>e.</p>	<p>Quantities Verification The most recent certificate was issued on 9th November 2009 and comments on the works certified are outlined under the above observations.</p>		
<p>f.</p>	<p>Supervision of Works Supervision of works is being done by Tamp Blessed-3MS Jv Ltd. The progress reports prepared contain substantial information for monitoring of the progress but lack, the program vs progress chart, status of payments to contractor, and progress photographs.</p>	<p>The Consultant has been informed to include the missing information in the subsequent reports.</p>	<p>UNRA to follow up.</p>
<p>g.</p>	<p>Value for Money The average cost per km is UGX 54,671,428.57 which is high compared to similar works in the region.</p>	<p>The regional relationship in average cost per Km is not comparable because:</p> <ul style="list-style-type: none"> • Moyo – Obongi road is upgrading project and not periodic maintenance project • Drainage system was non-existent 	

		<ul style="list-style-type: none"> A number of low lying areas were raised/filled. 	
h.	<p>Payments</p> <p>At the time the audit was conducted, the contractor had only submitted 2 invoices. The first certificate had been paid and the second was in the process of being paid.</p>		
i.	<p>Recommendations</p>		
i)	The contractor has to devise means of accelerating the works so as finish on time.	<p>Recommendations by Audit Team are noted and they will be implemented.</p>	<p>UNRA to follow up.</p>
ii)	Only approved materials (including fill materials) should be used in the permanent works.		
iii)	Quantity of mitres requirement for the road and fill material should be re-checked prior to production of final certificate		
iv)	The low lying areas should be raised and sufficient culverts installed to avoid wash outs during rains.		
v)	The Consultant should use of own headed papers for letters he writes related to the project.		
vi)	Anticipated variations for fill should be carefully evaluated considering the already certified quantities.		
vii)	A detailed culvert inventory should be prepared to account for 2m long culverts at some sections.		

4.2.10 Periodic Maintenance of Arua-Manibe-Wandi (10km), Manibe-Koboko (50km) and Koboko-Oraba (19km) (Total 79km)

Civil Works Contract No: *UNRA/PM/08/09/18*

Consultancy Contract No: *UNRA/SERVICES/2008-09/0021/08/03*

a. Contract Details



Client	Uganda National Roads Authority
Design Consultant	<i>UNRA</i>
Supervising Consultants	<i>Tamp Blessed-3MS JV LTD</i>
Consultant Contract Date	14 th August, 2009
Consultant Contract Amount	UGX 303,340,000 (Selected National Roads)
Works Contractor	Ms Zzimwe Enterprises, Hardwares and Construction Ltd.
Letter of contract award date (Bid acceptance)	5 th December, 2008
Works Contract sign date	23 rd February, 2009
Commencement date	9 th March 2009
Contract Duration	9Months
Completion date	9 th December 2009
Contract amount	UGX 1,877,959,000/=
Amount Certified to date	Certificate No.1 , UGX 154,711,086
% of progress reported	5.7% as of end of October 2009



b. Scope of works

The works under this contract included heavy grading to camber and cross-fall, re-gravelling with a 150mm thick and 6m wide natural base course and, installation of drainage structures including limited stone pitching of drains. The works were divided into 3 sections: Manibe-Koboko (50km), Arua-Manibe-Wandi (10km) and Koboko-Oraba (19km).

SNo	Observation	Management Response	Auditors Opinion
c.	<p>Document review</p> <p>The documents reviewed included, the Progress report from the Station Engineer, the Progress report from the Consultant, the Contractors' contract, the Consultants' contract, the Certified Interim certificate No.1.</p> <p>The following was observed from the document review activity:</p>		
i)	<p>The Contractor started work 21 days after the actual commencement date and the works progress as of the date of the audit was far behind the program. No works were going on at the site and the contractor's staff at site claimed that their management was not putting efforts to complete the works.</p>	<p>It is true that the contractor took long to mobilize and report to site. After commencing work, he was again too slow. Most times, the personnel and equipment was idle because of lack of fuel and operational funds.</p>	<p>Delayed completion of works resulting into financial loss, poor quality of work and denial of the public to use the road;</p>
ii)	<p>Two motor cycles and one vehicle meant for supervision of the project had not been delivered to site despite the payments for the same having been done under pay item No. 1.7 in IP Certificate No.1.</p>	<p>Payment had been made for one vehicle only but the two motorcycles had not been paid for. The vehicle has since been delivered and the number is UAJ 305X.</p>	<p>Aggregation of such contracts, road maintenance and vehicle procurement should be avoided.</p>
iii)	<p>The Consultants' Contract was signed on 14th August 5 months after commencement of works and 4 months to project completion;</p>	<p>This is true and will be improved in future.</p>	<p>It is recommended that consultants are always deployed before contractors, to ensure smooth and efficient</p>

			management of contracts.
iv)	No physical progress activity had been reported from June to August 2009 when the Supervision Consultants' Contract was signed;	This is correct.	This shows that the consultant was not working and should not have been paid for no work done. There is need to recover money paid for the period.
v)	The Consultant reported that the Contractor had basically abandoned the site (progress report for the month ending October 2009);	It is true that the contractor had stopped work for so long but the staff and equipments were on site. It is true that some of the key staff never visited the site especially the top management.	UNRA should invoke the relevant clauses of the contract.
vi)	The receipt for the purchase of a double cabin pick-up and two motor cycles for supervision (Bill item 1.7) was not attached to the certificate as a back-up document;	The two motor cycles have not been purchased by the contractor as yet. Payment for the vehicle was effected before reimbursement though the certificate was made.	UNRA should plan to procure vehicles outside road maintenance contracts.
vii)	The total certified quantity for Bill Item No. 4.2, for Manibe-Koboko section is 70,000m ³ (Certificate No. 1, Certified in June 2009) and the audit field measurements estimated 18,900m ³ (8 th October 2009).	This is an item of grading and reshaping and actually 10 Km (70,000 m ²) had been done. At the time of the Audit, the road had deteriorated so much.	Response noted, but query stands. There is need to quantify how much was wrongly paid and this amount should be refunded.
d.	Quality of Works The auditors visited and made visual assessment of the road on 8 th October 2009.	By the time of the audit, some of the works done had deteriorated. The actual works executed include:	Delays that lead to deterioration of completed works should

<p>The works that had been done by the date of the audit looked good. A good stock of concrete pie culverts was seen at the contractor's site yard. Actual works done by the time the Auditors visited the road on the different sections of the roads are:-</p> <ul style="list-style-type: none"> ○ Arua-Manibe-Wandi; Grading and gravelling 2.7Km of 10Km in contract; ○ Manibe-Koboko; Grading of 20Km of 50Km in contract; ○ Koboko-Oraba; about 2.5 Km grading done of 19Km provided in contract; 	<ul style="list-style-type: none"> ○ Arua-Manibe-Wandi; Grading 5.3Km and gravelling 2.7Km of 10Km in contract; ○ Manibe-Koboko and Koboko-Oraba were as per the audit findings. 	<p>be discouraged. It was noted that the contractor is fond of such delays and later claiming project prolongation costs.</p>
Status of the road		
Arua- Manibe		
		
<p><i>Abandoned plant yet road works behind schedule</i></p>	<p><i>Uncompleted culverts. Headwalls.</i></p>	
Manibe-Koboko		

							
<p><i>Culvert at apex, excavated material likely to cause silting of the culvert</i></p>	<p><i>Poor state of the Road surface.</i></p>						
<p>e.</p>	<p>Quantities Verification The most recent certificate was issued on 11th June, 2009. The approved quantities for some work items compared to the quantities certified vide BoQ.</p>						
<p>Pay Item</p>	<p>Work activity (Manibe – Koboko)</p>	<p>Unit</p>	<p>Certified Qty</p>	<p>Estimated by Auditors</p>	<p>Remarks</p>		
<p>4.2</p>	<p>Shape the road surface by heavy grading to camber to and cross fall including side drains, all inlets outlets of the drainage using motor grader and compact to at least 95% MOD AASHTO</p>	<p>M²</p>	<p>70,000</p>	<p>18,900</p>	<p>The certified Qty was found to be more than actual on site by audit time</p>		
<p>f.</p>	<p>Supervision of Works Supervision of works is being done by Tamp Blessed-</p>		<p>This is true. Consultant will be informed to improve.</p>			<p>UNRA to follow up..</p>	

	3MS Jv Ltd. The progress reports prepared contain substantial information for monitoring of the progress but lack, the program vs. progress chart, back ground/introduction, and progress photographs. The report is generally not structured well.		
g.	Value for Money The average cost per km of UGX 23,771,633 is within range of costs for similar works in the country.		
h.	Recommendations	Recommendations by Audit Team are noted and they will be implemented	UNRA to follow up.
i)	The delivery of the purchased vehicle and motorcycles for supervision should be expedited and ownership after project completion clarified.		
ii)	The client should consider termination of the contract as the delay experienced to-date can not be covered.		
iii)	The works done by the contractor should be jointly evaluated by the Consultant and UNRA station Engineer so as to harmonise the progress reported.		
iv)	UNRA management should in future ensure that a Consultant is deployed to works prior to the Contractor's commencement of the works. Engaging the Consultant five months after the commencement of works for a		

	nine months duration Contract as for this case is not acceptable and could have contributed to the Contractor's abandonment of the works;		
v)	Quantities certified for payment should be commensurate to works done;		
vi)	It was reported that the Contractor had abandoned site, therefore the period of abandonment should be monitored or reviewed and appropriate closes for termination of contract invoked i.e. Clauses 59.2(a) and 60.1 respectively.		

4.2.11 Shoulder and pothole repairs of Nansana – Busunju (48km)

Civil Works Contract No.: UNRA/PM/08/09/002

Consultancy Contract No.: UNRA/SERVICES/2008-09/0021/08/07

a. Contract Details





Client	Uganda National Roads Authority
Design Consultant	UNRA
Supervising Consultants	Trio- Consultants Ltd
Consultancy Contract sign date	14 August 2009
Consultancy Contract amount	UGX 238,025,000
Works Contractor	Ms. Nicontra Ltd
Letter of contract award date	5 December 2008
Works Contract sign date	27 February 2009
Commencement date	10 March 2009
Contract duration	8 Months
Completion date	9 November 2009
Works Contract amount	UGX 2,974,392,100
Amount certified to-date	UGX 1,667,761,351
% Progress reported	48% (November 2009)


b. Scope of works

The scope of works consisted of shoulder and pothole repairs by grading, gravelling and drainage improvement for 48Km. the scope did not include road markings and furniture in the works contract.

SNo	Observation	Management Response	Auditors Opinion
c.	<p>Document review</p> <p>The documents reviewed included the works contract, progress reports, interim payment certificates, and quality control tests results.</p> <p>The following was observed from the document review activity:</p>		
i)	<p>The drawings provided were not representative of the type of works to be done i.e. the drawing provided as a typical cross – section of the road represented a cut and fill on a slope thus not relevant for shoulder rehabilitation.</p>	<p>The drawings provided were for standard cross sections indicating carriageway and the shoulder widths.</p>	<p>Wrong drawings compromise quality of work. Appropriate and specific drawings and documents should be given to the contractor.</p>
ii)	<p>The material test results in the 2nd progressive report, Annex 6, were not for Nansana – Busunju road but for Kayunga –Kalagi Road, whereas the 3rd progressive report provided to the auditors did not have any material tests attached. This may be an indication that the tests were actually not done.</p>	<p>The test results for Nansana – Busunju road were done and are available on contract file. The quality of the progressive reports was not good at the time of the audit but it later improved by carrying out quality checks.</p>	<p>Results tests not availed.</p> <p>UNRA to follow up.</p>
iii)	<p>The item on HIV and OHS sensitisation was not included in the BOQ.</p>	<p>It is true the item on HIV and OHS sensitisation was not included in the BOQ, however it will be included in future maintenance contracts</p>	<p>As a policy, the item should not be excluded in such contracts.</p> <p>UNRA to follow up.</p>
iv)	<p>The figures in the measurement sheets were too small</p>	<p>Its true figures in the measurement sheets were</p>	<p>UNRA to follow up.</p>

	and hard to read.	too small and hard to read however the font was later on increased.	
v)	The quality test results seen were done on compaction and grading only despite other materials such as stabilised gravel being used on site.	Test results for stabilised gravel were done and are available on contract files	The test results were not availed. Query stands.
vi)	The quantity of BOQ items 4.2.1 and 4.2.11 in IPC No.4 was varied by 46.3% and 476.5% of the original BOQ quantity respectively.	The quantity of BOQ items 4.2.1 and 4.2.11 varied considerably due high rate of pavement deterioration. The road pavement has aged and need strengthening yet the available budget was limited. The road project was designed to cater for road safety improvement by sealing shoulders.	The actual BoQs in bidding documents and subsequently the contract should have been based on a proper plan and designs.
	<p>d. Quality of Works</p> <p>The auditors carried out a reconnaissance visit of the road on 13 January 2010.</p> <ul style="list-style-type: none"> The project bill board was seen at the beginning of the road but was not showing the supervising consultant. The on-going works during the site visit were priming and surfacing of shoulders. The quality of works is fair though the workmanship has not been good as there are cases of differences in levels at the edge of the carriageway and shoulder with a meandering edge to the carriageway 	<ul style="list-style-type: none"> The project bill board did not show the supervising consultant because the project implementation was done by UNRA Station Engineer. The consultant came on board later. In order to improve workmanship the Contractor will be instructed to trim carriageway edges before shoulder sealing. 	UNRA to follow up.

	<ul style="list-style-type: none"> The lined side drains lack access slabs to the settlements along the road. The Head and wing walls are of different designs. Some sections of the reconstructed shoulders have been primed but left without a seal for a long period of time. Minor defects were observed on the parts of the reconstructed shoulders. 	<ul style="list-style-type: none"> It is true lined side drains lack access foot slabs however these will be provided in the future maintenance contracts It is true some primed shoulders had been left without a seal for a long period but the contractor was instructed to make good and all other defects at his own cost before effecting payments. 	
	 <p><i>Eroded road edge. The repairs should be done properly before sealing of shoulders</i></p> <p><i>Lined drains being constructed. A need for slabs for use by residents to access their homes</i></p>		
	 <p><i>Road side erosion noted at</i></p> <p><i>Shoulder sealing works.</i></p>		

	<i>various areas. A need for more lined drains</i>	<i>Quality of works looks good</i>		
				
	<i>A section of shoulder already sealed but stripping</i>			
e.	<p>Supervision of Works</p> <p>The supervision of works was done in-house by UNRA staff up to the 14th August 2009. The Consultant M/S Trio Consultants Ltd supervised the works, with 48.1% physical progress and 109% time progress. The contractor has applied for a 90 days extension of intended completion time. The contractor was facing constraints due to increased work quantities, inclement weather and "lack of construction materials such as MC 30 for prime coating".</p> <p>The progress reports No.2 and No. 3 were not meeting the required standards, when on three counts quoted that 3 hard copies and 1soft copy were provided and in a later section of the report quoted the requirement being 9 hard copies and 9 soft copies, whereas in Annex 1, the attached TOR required 5hard copies. The reports also lacked the Station Engineers address and did not have details on the insurance obligations of the</p>		<ul style="list-style-type: none"> It is true the initial progress reports were not meeting the required standards however the subsequent progress reports were controlled to the acceptable standards. 	Standard templates and reporting formats should be availed to the consultants. UNRA to follow up.

	<p>contractor.</p> <p>Despite the fourth progress report having improvements, it contained a few sections that had similar statements as those observed in the previous reports. It was also indicated that two labs i.e. Kireka Central Materials and Tec laboratories did the testing but only tests from one lab were availed.</p> <p>Borrow pits, field density and compaction tests were reported as carried out and results were not seen, since different results for a different road were attached in Progress report No.2. Progress report No 3 and No 3 did not have material test results attached.</p> <p>Although there was a contractor's work schedule attached in the 2nd progress report, the third progress report did not have one attached. The contractor's work schedule in both reports did not show progress vis-à-vis work schedule.</p>	<ul style="list-style-type: none"> All subsequent progress reports after No. 4 for the different roads had material test results attached. <p>Emphasis was made to ensure that all progressive reports are well prepared and had the progress vis-à-vis work schedule included</p>	UNRA to follow up.
f.	Recommendations		
i)	Closer supervision should be sought in order to improve the progress.	The Contracts Manager has insured closer supervision and the progress by end of January 2010 was 71% against a time progress of 100%. Liquidated damages Clause GCC 49.1 has now been invoked for delayed completion.	UNRA to follow up.

ii)	The quality of the progress reports should be assured before handing them over to avoid inconsistencies	The quality of the progress reports has now improved	UNRA to follow up.
iii)	The right material test results should always be attached to reports.	The right material test results are now attached to progress reports.	
iv)	HIV and OHS items should be included on all road projects because of the impact road projects have in the area of implementation.	HIV and OHS items will be included in future road maintenance projects	UNRA to follow up.
v)	Proper drawings should always be part of the works contract.	Specific drawings instead of standard drawings will be used in future maintenance projects	UNRA to follow up.
vi)	The contractor should avoid using the "lack of MC30" as an excuse for slowing progress, since experience shows that MC30 can be achieved by cutting back the bitumen 80/100 using diesel or paraffin after carrying out relevant lab tests.	Contractor's time extension claim due to lack of MC30 was indeed rejected	
vii)	The contractor's workmanship needs to be improved for production of quality work most especially at the carriageway edges.	In order to improve workmanship the Contractor will be instructed to trim carriageway edges before shoulder sealing.	UNRA to follow up.
viii)	Clear and visible measurement sheets should be printed for attachment on to certificates.	Clear and visible measurement sheets are now prepared	

ix)	More results on the lime content and CBR as well as results from the second lab, should form part of the report and be the basis of quality control and assurance of the project.	This recommendation shall be implemented in future maintenance projects	UNRA to follow up.
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4.2.12 Periodic Maintenance of Masaka - Bukakata – Kyakanga – Lambu (43 km)

Civil Works Contract No.: UNRA/PM/08/09/005

Consultancy Contract No.: Contract not availed

a. Contract Details

Client	Uganda National Roads Authority
Design Consultant	UNRA
Supervising Consultants	UNRA Station Engineer – Masaka / Kagga
Consultancy Contract sign date	Not availed
Consultancy Contract amount	Not availed
Works Contractor	Ms. Multiplex Ltd
Letter of contract award date	5 th December 2008
Works Contract sign date	13 th February 2009
Commencement date	26 th February 2009
Contract duration	6 Months
Completion date	26 th August 2009
Works Contract amount	UGX 2,159,243,900
Amount certified to-date	UGX 2,105,262,532
% Progress reported	95%

b. Scope of works

The project under this contract was for periodic maintenance of 43km of gravel road. The works included heavy grading (7m wide), re-gravelling (6m wide and 150mm), and drainage improvement.

SNo	Observation	Management Response	Auditors Opinion
c.	<p>Document review</p> <p>The documents reviewed included the contract, and the corresponding interim payment certificate No. 4, substantial completion certificate, and quality control tests results.</p> <p>The following was observed from the document review activity</p>		
i)	Drawings in the contract document are not appropriate for the project	Drawings included are for unpaved and paved roads.	Drawings should specifically relate to the particular unpaved road in the contract. Unnecessary drawings mean extra cost and can cause confusion leading to claims by the contractor.
ii)	A substantial completion certificate was issued on the 24 th August 2009, by the Station Engineer, Masaka. The snag list was provided to the contractor.		
iii)	450mm culverts were used. They could be a future maintenance problem.	The 450mm culverts are indeed difficult to clean and a decision has been made to use 600mm as minimum.	UNRA to follow up.
iv)	From the measurement sheets it was seen that lengths	It is true mitre drains of lengths 100m and 133m	

	of 100m and 133m of mitre drains were constructed on 50 m sections on the LHS of the road between Ch. 22 + 500 to 22+550 and Ch. 23 + 500 to 23+550 respectively.	were excavated on 50m sections in order to carry away as much water as possible along the existing flat terrain.	
v)	Specifications provided for in the contract document include sections relevant to bitumen surfaced roads despite this project being for a gravel road.	Special specifications for maintenance included were for both paved and unpaved roads.	Specifications (and all other contract documents) should have specifically related only to this particular road. Unnecessary documents mean extra cost and can cause confusion leading to claims by the contractor.
vi)	The measurement sheet for item 4.3.3 in IPC4 shows that the gravel thickness was 150mm between Km 0+000 to 12+000 and Km 30+750 to 38+000 and yet the snag list shows the sections between Km 2+900 to 3+700 and 34+600 to 35+000 had 25mm and 50mm respectively. The sections were paid for despite being included in the snags.	The gravel thickness in sections between 2 + 900 to 3 + 750 and 34 + 600 to 35 + 000 was rectified 150mm before issuance of the maintenance certificate and release of retention monies.	No further evidence regarding this was provided.
d.	Quality of Works The auditors carried out a reconnaissance visit of the road on 1 st October 2009. From the visual inspection the quality of the works completed was seen to be		

	good.		
			
	<i>A bit of cleaning up on the road needed</i>	<i>Junction from Masaka to Lambu and Bukakata-Fair road works</i>	
e.	<p>Supervision of Works</p> <p>The supervision of works was done in-house by the UNRA- Masaka station staff up to the end of the defects liability period. Quality control tests were carried out and results were included in the progress reports. The progress report attached to IPC 4 does not include the staff who supervised the contractor nor the contractors' staff and any minutes for site meetings done during the construction period. No photographs are included in the report. The auditors were informed that a consultant, M/s Kagga and Partners were deployed for supervision of the road up to the end of the defects liability period.</p>		
f.	<p>Value for Money</p> <p>The average cost per km of UGX 50,214,974 is considered high for such works.</p>		

	Recommendations		
i)	The Station Engineer should verify the quantities of mitre drains claimed to have been constructed in the mentioned chainages above.	The quantities of mitre drains along the flat terrain were verified correct.	No further evidence regarding this was provided.
ii)	Progress reports should be produced on monthly basis and not only when an IPC has been raised.	Monthly progress reports are now mandatory	UNRA to follow up.
iii)	Use of 450mm culverts should be avoided due to maintenance problems.	Use of 450mm culverts has been suspended due to maintenance problems	UNRA to follow up.
iv)	Proper drawings should be provided in the contract and not typical cross sections.	Proper drawings shall be provided in the contract and not typical cross sections.	UNRA to follow up.
v)	The progress report should specify which borrow pits were used for the gravel wearing course on the road and ensure that the approved material was used for the gravel wearing course.	The progress report shall specify which borrow pits were used for the gravel wearing course on the road and ensure that the approved material was used for the gravel wearing course.	UNRA to follow up.
vi)	It is appropriate to pay for sections which certify the specifications to avoid losses to the client. Recovery of the payment for the sections in item 4.3.3 for sections included in the snag list should be made if the snags were not completed with necessary documentation.	The gravel thickness in sections between 2 + 900 to 3 + 750 and 34 + 600 to 35 + 000 was rectified 150mm before issuance of the maintenance certificate and release of retention monies.	No further evidence regarding this was provided.

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4.2.13 Upgrading of Busunju – Kiboga (67km)

Civil Works Contract No.: RDP/HW/C005

Consultancy contract No: RDP/HW/CS005; RDP/HW/CS005A; RDP/HW/CS005B

a. Contract Details

Client	Ministry of Works, Housing and Communications
Design Consultant	Details not availed.
Supervising Consultants	Ms Renardet SA Ingenieurs Conseils (Sub-consulting – Universal Engineering Services Ltd) Ms Universal Engineering Services Ltd Ms Gibb Africa
Consultancy Contract sign date	Ms Renardet: 21 December 2000 Ms Universal Engineering Services Ltd: 28 February 2005 Ms Gibb Africa: 1 July 2005
Consultancy Contract amount	Ms Renardet: USD 580,204 ; UGX 488,171,134 and VAT of UGX 602,914,793 Universal Engineering Services Ltd: USD 105,000 Ms Gibb Africa: USD 587,555; UGX 174,854,208.75 and WHT of UGX 174,854,208.75
Works Contractor	M/S. Stirling International Civil Engineering Ltd
Letter of contract award date	31 May 2001
Works Contract sign date	28 June 2001
Commencement date	17 July 2001
Contract duration	900 days (30months) 365 days (1year) defects liability
Completion date	December 2003
Works Contract amount	UGX 27,216,008,012
Amount certified to-date	No payment certificates seen
% Progress reported	No progress report seen




b. Scope of works

The works under this contract was upgrading of the road to class II bituminous standards with a design speed of 80Km/hr (6m carriageway and 1.5m shoulders both sides). The works included surface water drainage, road marking/signage, and improvement of the sub-grade

material, provision of natural gravel sub-base, crushed stone base, and surfacing by asphalt concrete on the carriageway with a single surface dressing on shoulders.

SNo	Observation	Management Response	Auditors Opinion
c.	<p>Document review</p> <p>The documents reviewed by the auditors included the civil works contract (Vol. I and II) and three consultancy contracts. Neither the progress reports, corresponding interim payment certificates, correspondences between the client and contractor, quality control tests results nor payment vouchers were availed to the auditors.</p> <p>The following was observed from the document review activity:</p>		
i)	<p>The consultant Ms Renardet was given a 30 months period for supervision including the Kiboga -Hoima section.</p>		
ii)	<p>The contract between M/S Universal engineering services Ltd and the client was signed on the 28th February 2005 and yet his performance period was between 3rd Jan 2005 and 15 Feb 2005. The appendices in the contract document did not contain any CVs for key personnel to be used for supervision.</p>		
iii)	<p>The contract with the consultant M/S Gibb Africa was for 18months excluding defects liability period, but it was uncertain on how long the contract would last due</p>		

	to the poor performance of the contractor.		
iv)	By the time M/S Gibb Africa took over the contract, the works contract had gone on for over 36 months and the progress was only 40%.		
v)	The Government of Uganda received an extension to the closing date of an existing credit from the International Development Association (IDA) from 1 st January 2005 to 31 st Dec 2006. The credit had expired on 31 December 2004.		
vi)	The detailed engineering design was prepared in 1999 by an un-named consulting firm		
d.	<p>Quality of Works</p> <p>The auditors visited the road on 5th October 2009. The road is holding very well. Road edges are being eroded at some sections mostly at populated areas. The road marking and road signs are good despite most of the signs missing reportedly vandalised. Drainage facilities inspected looked intact but blocked in some areas due to lack of adequate maintenance.</p>		

		<div style="background-color: yellow; width: 100%; height: 100%;"></div>	
<p><i>Edge failures at populated areas. Need for road kerbs</i></p>	<p><i>Blocked side access culverts need cleaning</i></p>		
		<div style="background-color: yellow; width: 100%; height: 100%;"></div>	
<p><i>Completed section with good quality sealing works</i></p>			
<p>e. Supervision of Works The supervision of works was done by three firms. Reasons for changing of the firms were not known as some of the relevant documents, were not availed. No progress reports for any of the consultants were seen to monitor verify on the status of the project.</p>		<div style="background-color: yellow; width: 100%; height: 100%;"></div>	
<p>f. Value for Money The average cost per Km could not be established since the relevant documents showing the final total cost for</p>		<div style="background-color: yellow; width: 100%; height: 100%;"></div>	

	the project were not provided.		
	g. Recommendations		
	i) Sensitisation of the community leaving along the road to safe guard the traffic signs should be done to avoid further losses.		

4.2.14 Emergency repairs of Hoima – Kazirafumbi – Kabale (51.2km)

Civil Works Contract No.: GOU/HW/004

a. Contract Details

Client	Uganda National Roads Authority
Design Consultant	UNRA
Supervising Consultants	UNRA Station Engineer – Hoima
Consultancy Contract sign date	N/A
Consultancy Contract amount	N/A
Works Contractor	M/S. Dott Services Ltd
Letter of contract award date	25 April 2008
Works Contract sign date	11 July 2008 Addendum No 1: 2 June 2009
Commencement date	22 July 2008; Addendum No 1: 7 March 2009
Contract duration	6 Months; Addendum No 1: 3 ½ Months
Completion date	22 January 2009; Revised completion is 5 May 2009
Works Contract amount	UGX 4,960,292,892.5. Revised to UGX 5,287,407,525
Amount certified to-date	UGX 4,829,615,848
% Progress reported	100%




b. Scope of works

The project under this contract was for emergency repairs a 51.2 Km of gravel road. The works included site clearance, heavy and medium grading, full scale re-gravelling (150mm thick and 7m width), and drainage improvement. The scope was revised with addition of construction of a box culvert.

SNo	Observation	Management Response	Auditors Opinion
c.	<p>Document review</p> <p>The documents reviewed by the auditors included the works contract, the progress reports, the interim payment certificate No. 4, substantial completion certificate, and quality control tests results.</p> <p>The following was observed from the document review activity:</p>		
i)	<p>Two dates are mentioned in the progress report (January 2009-February 2009) as substantial completion dates. Under Chapter 1 paragraph 4, it shows that the road was substantially completed on the 19 February 2009 where as in Chapter 3, subsection 3.1; it is mentioned to be 19 January 2009.</p>	<p>It is true that two dates were mentioned in the progress report (January 2009-February 2009) as substantial completion dates. This was an error. The correct substantial completion date is 19 January 2009.</p>	<p>Harmonised reporting is essential for proper contract management.</p>
ii)	<p>The Variation Order No.1, was for UGX 327,432,525 (6.6% of the original contract value) meant for the construction of the box culvert.</p>	<p>It is true that Variation Order No.1 was for UGX 327,432,525 (6.6% of the original contract value) meant for the construction of the box culvert.</p>	<p>Justification for the costing (BoQs and drawings) of the box culvert to the tune of shs.327,432,525 was not provided.</p>
iii)	<p>Contradicting information on test results have been noted in the supporting documents for IPC No. 3. While in the summary sheet for the in-situ test results refers to in-situ field tests results for the formation layer (Ch 15 + 000 to Ch 22 + 000) the attached test result forms indicate in-situ tests on the gravel wearing</p>	<p>Contradicting information on test results were noted in the supporting documents for Certificate No.3:</p> <ul style="list-style-type: none"> ▪ It is true that the summary sheet for test results refers to results for Formation Layer 	<p>UNRA to follow up.</p>

	<p>course. The same test results forms do not indicate the lab where the tests were done.</p>	<p>(Ch 15 + 000 to Ch 22 +000). The same term is indicated on the attached test result forms with regard to Tested Layer. This layer is the top layer after reshaping and re-compaction of the existing surface before placing of the new gravel wearing course material. However there is an anomaly noted on the attached test result forms with reference to the Tested Material which was called Gravel Wearing. The tested material should have been called Existing Wearing Course Material. The anomaly will be corrected in the future testing forms.</p> <ul style="list-style-type: none"> ▪ The testing was conducted by the MoWT Regional Laboratory, Fort Portal, Hoima Station Branch. While the Regional Laboratory was indicated on the summary sheets for the tests carried out on the wearing course, with regard to the test results for the formation layer Hoima UNRA station was indicated on the forms. In future UNRA will ensure that the laboratory that carries out the tests is indicated on the results forms and summary sheets for all tests. 	
iv)	<p>In IPC No. 3 the measurement for item 2.2.4 was calculated in cubic metres and not in linear metres as per the BOQ. It is not clear how the quantity certified</p>	<p>It is true that in IPC No.3 the measurement for item 2.2.4 was calculated in cubic metres and not linear metres as per BOQ. The correct unit in the contract is cubic metre (see attached copy of</p>	<p>UNRA to follow up..</p>

	for payment under this IPC was arrived at.	extract from contract BOQ in annex RM9). However there was a typing error in Addendum/Variation Order No.1 on which IPC No.3 was based where the unit for this item was printed as m (without a superscript 3) instead of m ³ . The quantities calculated in cubic metres and paid for at the contract rate of Shs. 21,500 under the IPC No.3 are the correct quantities. The error in the unit entry in the summary sheet was corrected when preparing IPC No.4 (see attached annex RM10).	
v)	No drawings were seen in the contract documents.	It is true that the contract documents did not include drawings. This was an isolated anomaly/omission in the two emergency contracts for the oil roads that were procured at the same time. Such an omission has not happened again since.	UNRA to follow up.
d.	Quality of Works The auditors carried out a reconnaissance visit of the road on 6 October 2009. From the visual inspection the quality of the works completed was seen to be good. The box culvert was well constructed. The carriageway was found to have an average width of 6.7m. However, on some sections the particle size of the gravel used for wearing found to be more than 40mm. The road is also planned for future upgrading because	It is true that that on some sections the particle size for wearing course was found to be more than 40mm. This was in isolated spot and the particles have since been removed.	

	of the oil refining.		
			
	<i>Auditors inspecting the road</i>	<i>A box culvert in good condition. Requires protection of the slopes.</i>	<i>A well-finished section of the road</i>
e.	<p>Supervision of Works</p> <p>The supervision of works was done in-house by the UNRA –Hoima station staff up to the end of the defects liability period. Quality control tests were carried out and results were included in the progress reports. The progress report attached to IPC 3 includes neither the staff who supervised the contractor nor the contractors’ staff. No photographs were included in the report. The progress report is also so brief and yet reporting on two projects. The UNRA – staff who was supervising the project was a holder of an advanced certificate in road maintenance.</p> <p>The progress report did not include the status on the construction of the box culvert.</p>	<ul style="list-style-type: none"> • It is true that the progress report referred to, covering two projects, includes neither the staff who supervised the contractor nor the contractor’s staff nor photographs and is brief. Also it did not include status on the construction of the box culvert. This is a status report that, however, detailed the physical progress on the road works, financial progress, constraints and variations that pertained to the contract. The omission of both supervisory and contractor’s staff and progress on the box culvert is noted. Preparation of reports has recently improved and the necessary details are being captured. • It is true that one of the people who supervised the project is a holder of an Advanced Certificate in road maintenance. 	<p>UNRA should ensure that qualified staff supervises projects.</p>

		<p>This person, a Road Overseer, was the full time personnel on site. He was however not the main supervisor. The main supervisor was the Station Engineer assisted by the Assistant Engineer in charge of contracts, giving instructions and approving works. The Road Overseer's role was limited to daily site inspection and recording of site events for information to the Station Engineer.</p>	
f.	<p>Value for Money The average cost per km of UGX 96,880,720.5 is considered too high for this type of works.</p>	<p>The average cost per km for this project of UGX 96,880,720.5 is higher than the average unit cost for ordinary regravelling works due to the factors below:</p> <ul style="list-style-type: none"> • These were emergency works that were absolutely necessary to facilitate movements of wide and heavy trucks to the oil exploration areas around L. Albert in Hoima District in preparation for Early Production Scheme (EPS) that was scheduled for third quarter of 2009. The gravity of the urgency was expressed in the correspondences to UNRA from the Permanent Secretary Ministry of Works and Transport, Minister of State for Works and Transport (W) and in other correspondences in the same connection between the three concerned Ministries of Energy, Works and Transport and Finance, Planning and 	<p>UNRA should always clearly indicate scope of works with engineers' estimates before proceeding with works.</p>

		<p>Economic Development as well as one of the oil exploration companies (M/S Tullowoil). These correspondences are available on file and copies have been submitted to the Auditors. The oil exploration companies wished to get the road open to trucks of the sizes they were anticipating to use the route commencing in July 2008.</p> <ul style="list-style-type: none"> • As such the works contract was procured expeditiously by direct procurement to address the urgency. Procurement through competitive bidding would take long to procure and also mobilization of whoever would win the job could not be guaranteed to beat the urgency to deliver. Therefore a contractor who had adequate capacity and would mobilize easily and at short notice had to be identified. The identified contractor was M/S Dott Services. This contractor had finalized the major works on Kafu-Masindi road and had his equipment available in the area. Documents that relate to the contract procurement are available and copies have been submitted to the Auditors. • The scope of work was not ordinary regravelling. It was involved upgrading because: 	
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		<ul style="list-style-type: none"> • A big part of the existing road, from Km24.5 (Kiziranfumbi) to Km51.2 (Kabaale), which was a district road, was narrow, with width varying between 4m and 5m. The widening that was done to achieve a wider carriageway involved substantial clearing and earthworks. • The existing road was characterized by a number of low spots that required raising/filling in order to facilitate drainage and very sharp summit curves that required some cutting to improve on visibility. These are not common items under the ordinary regravelling works contracts. • The existing road seriously lacked drainage facilities, culverts, miter drains. A lot of these facilities were provided under the contract in order to protect the new road from early damage by storm water. 	
g.	Recommendations		
i)	The progress reports should contain sufficient information to enable the management to follow up the implementation of the project. An independent report should have been prepared for each project.	AS mentioned under supervision above preparation of reports has already improved capturing the important data. For the two oil roads independent reports are being prepared.	UNRA to follow up.
ii)	Proof of the use of appropriate gravel for wearing course should always be made available in the	Proof of the use of appropriate gravel for wearing course shall always be made available in the	UNRA to follow up.

	progress.	progress reports relating to the works executed including test results. As mentioned under Quality of Works above the test results for the gravel used are available and will be included in the next/completion report.	
iii)	Measurement for pay item 2.2.4 should be done according to the unit in the BOQ and any corrections made.	As mentioned under Document Review the error made in the unit of measurement for item 2.2.4: in V.O. No.1 and was carried over to IPC No.3 was corrected under IPC No.4.	UNRA to follow up.
iv)	The drawings on road cross-sections should always be included and form part of the contract.	As mentioned above under Document Review omission of drawings in the contract document has been noted and such an omission has not happened again since. UNRA will ensure that there are no such omissions in future contracts.	UNRA to follow up.
v)	Supervision of such projects should be done by more qualified and competent personnel.	Supervision of such projects should be done by more qualified and competent personnel. UNRA is also to consider the Audit recommendation to engage more qualified personnel, at least those with O.D. in Civil Engineering, for any supervisory role.	UNRA to follow up.

4.2.15 Spot Repairs and Resealing of Busega – Mityana (27 km)

Civil Works Contract No.: MPIGI/01/019/07/08

a. Contract Details




Client	Ministry of Works and Transport/ Uganda National Roads Authority
Design Consultant	UNRA
Supervising Consultants	UNRA Station Engineer – Mpigi
Consultancy Contract sign date	N/A
Consultancy Contact amount	N/A
Works Contractor	Ms. Spencon Services Ltd
Letter of contract award date	24 September 2007
Works Contract sign date	20 November 2007
Commencement date	18 th January 2008
Contract duration	12 Months
Completion date	18 January 2009
Works Contract amount	UGX 4,127,071,929
Amount certified to-date	UGX 4,127,038,502
% Progress reported	100%

b. Scope of works

The works under this contract were for Spot Repairs, Resealing carriageway and drainage improvements of 27Km road length including shoulder repairs, pothole patching/ base reconstruction, drainage improvement and surface dressing.

SNo	Observation	Management Response	Auditors Opinion
c.	<p>Document review</p> <p>The documents reviewed included the works contract, progress reports and the interim payment certificates, correspondence between the client and contractor.</p> <p>The following was observed from the document review activity:</p>		
i)	No drawings are included in the contract.	It was an omission not to include drawings however they were later on provided to the contractor	Proper drawings should be part of the contract to guide the contractor.
ii)	No materials tests or quality control certificates were seen.	The quality control test results were carried out to ascertain conformity to the required specifications. Some of the test results are herewith attached as Annex RM8	
iii)	In certificate No.7, pay item 4.2.11 was paid considering a uniform premix thickness was 50mm. The paid quantity in the BOQ was increased by 150% of the original BOQ quantity.	The quantity of BOQ item 4.2.11 varied considerably due high rate of pavement deterioration. The road pavement has aged and needed strengthening yet the available budget was limited. The road project was designed to cater for road safety improvement carrying out potholes, edge and/or base repairs.	The variations should have been properly documented and approved.
iv)	The measurement sheets for item 4.1.3, 4.2.5 and 4.2.9 show a uniform depth of gravel paid for as 0.1m and 0.15m respectively; however experience shows	The basis for payment of this bill item is based on instructions given depending on the condition of given section. Instructions issued detailed a depth	Actual measurements should taken by the supervisor against which

	that this can not be uniform as the depth of the pot holes defers.	of either 100mm or 150mm.	certificates are prepared.
v)	The lime content in item 4.2.6.1 was paid at the maximum percentage of 5% according to the measurement sheets, yet the specifications were ranging from 3-5%. Tests should have been performed to ascertain the exact percentage of lime to use.	Due to the varying quality of lime on the market, it was safer to adopt the upper limit of 5% of lime content.	The practice is irregular. Payments should have been on the basis of actual amount (%) of lime applied.
vi)	'As-Built' drawings were not seen.	As-Built' drawings shall in future be mandatory	UNRA to follow up.
vii)	There was no item on HIV and OHS sensitisation included in the P&G bill.	Item on HIV and OHS sensitization shall be included in the P&G bill for future maintenance projects.	This should be taken as a policy and included in all contracts. UNRA to follow up.
viii)	A completion certificate was issued on 18 January 2009, to the contractor despite not having attended snags on the road.	A completion certificate was issued on 18 January 2009, after the contractor had attended to the snag list.	A number of snags were still outstanding at the time of audit inspection.
	<p>d. Quality of Works</p> <p>The auditors carried out a reconnaissance visit of the road on 22 September 2009. The auditors found out that the road was under reconstruction under a new contract. The sections which had been surface dressed looked good. One head wall was failing due to the poor quality of bricks used.</p>	Despite the fact that good work was done on shoulders the failing headwall was rectified by the contractor before release of retention monies.	UNRA to follow up.

	 <p><i>Old potholes patched while new ones surface</i></p>	 <p><i>Poor quality bricks used, not to specifications</i></p>	 <p><i>Good work on repair of shoulders</i></p>
<p>e.</p>	<p>Supervision of Works The supervision of works was done in-house by UNRA- Mpigi station staff. The Station Engineer was the Project Manager for this project. Quality control tests were reported as carried out but the results were not provided/ attached. The completion report was too brief, highlighting just a few issues about the project.</p>	<p>The quality control test results were carried out to ascertain conformity to the required specifications. Some of the test results are herewith attached as Annex RM11</p>	
<p>f.</p>	<p>Value for Money The average cost per km of UGX 152,853,278 is high.</p>		
<p>g.</p>	<p>Recommendations</p>		
<p>i)</p>	<p>More detailed reports should be made for projects of this magnitude.</p>	<p>More detailed reports shall be made for projects of this magnitude.</p>	<p>UNRA to follow up.</p>
<p>ii)</p>	<p>Drawings should always be part of the contract.</p>	<p>Drawings shall always be part of the contract.</p>	<p>UNRA to follow up.</p>

iii)	Material test certificates should be included in the reports to ensure that there were quality control measures taken.	Material test certificates shall be included in the reports to ensure that there were quality control measures taken.	UNRA to follow up.
iv)	Physical checks on the thickness of the premix (50mm), and base material used for sealing potholes should be ascertained before payment of IPCs.	The 50mm thickness of premix is controlled by ensuring that potholes are filled and compacted leaving a 50mm gap beneath the existing road levels.	
v)	Proof should always be shown that the final product of the lime (item 4.2.6.1) stabilised material (item 4.2.3) was actually 5% for the whole road.	This recommendation will be implemented in future.	UNRA to follow up.
vi)	As-built drawings should always be submitted and kept by the authorities for future references.	As-built drawings shall be submitted by contractors on substantial completion	UNRA to follow up.
vii)	A completion certificate should have been issued after clearing the snags, thus a substantial certificate was more suitable in this case.	A completion certificate is always issued after clearing all the snags.	UNRA to follow up.

4.2.16 Urgent repairs of Malaba and Busia Parking yards

Civil Works Contract No: **UNRA/WORKS/2008-09/00002/05/01**





a. Contract Details

Client	Uganda National Roads Authority
Design Consultant	UNRA
Supervising Consultant	UNRA
Consultant Contract Date	N/A
Consultant Contract Amount	N/A
Works Contractor	Ms. BCR General Limited
Letter of contract award date	26 th February 2009
Works Contract sign date	8 th May 2009
Commencement date	8 th May 2009
Contract duration	4 months
Completion date	8 th September 2009
Contract amount	UGX 2,329,309,209
Amount Certified to date	Certificate No. 2, on the 30/10/09, Certified amount UGX 1,751,514,893
% of progress reported	84% for Malaba and 80% for Busia (progress report of November 2009)

b. Scope of works

The Project is for improvement of the Malaba and Busia Border posts parking yards. The works include site clearance, heavy grading drainage system and provision of pavements made of rock-fill, crushed stone base and gravel wearing course.

SNo	Observation	Management Response	Auditors Opinion
c.	<p>Document review</p> <p>The documents reviewed included the contractors' contract, one progress report, and the 2nd interim payment certificates and quality control tests results.</p> <p>The following was observed from the document review activity:</p>		
i)	The contract duration of 4 months has expired and works are 84% complete. No extension of time has been provided and reasons for the delay have not been explained;	The contract is substantially completed.	No reasons for delay were given.
ii)	The measurement sheets in the IPCs are not detailed enough to show the areas where works were done during the period.	The details on the areas where works have been carried out and the drawings are available for verification.	The measurement sheets should be detailed enough.
iii)	The rate of reinforced concrete for head/wing walls is inclusive of steel There are no detailed drawings showing the quantity and spacing of steel, so one wonders how the Contractor priced for the cost of reinforced concrete;	The detailed drawings are available for verification.	
iv)	The drawings contained in the contract document are for road works and do not reflect the pavement intended for the parking yard.	The drawings for the parking lot works are available for verification.	

v)	The Contractor's staff at site are different from those approved as per contract	The class of Concrete used for drainage works is C25.	Staff of the contractor should not change without approval.
d.	<p>Quality of Works</p> <p>The auditors visited the road on 23rd September 2009. The quality of pavement works from visual inspection looked OK but the drains were found to be unnecessarily too deep.</p>		
Status of works at Malaba Parking Yard			
<div style="display: flex; justify-content: space-around;"> <div>  <p><i>Cross-sectional 300mm thick rock fill</i></p> </div> <div>  <p><i>Crushed stone base placement in process</i></p> </div> </div>			
Status of works at Busia Parking Yard			
<div style="display: flex; justify-content: space-around;"> <div>  <p><i>The drainage channel which was found to be too deep</i></p> </div> <div>  <p><i>The unnecessary culvert that was installed which was also responsible for the deep channel.</i></p> </div> </div>			
e.	Supervision of Works		

	The supervision of works is being done by UNRA. The progress reports prepared contain substantial information for monitoring progress but lack, the program vs progress chart, status of payments to contractor, minutes of site meetings and progress photographs.		
f.	Value for Money The cost per CuM of concrete is UGX 680,000. This is high compared to similar works in the region.		
g.	Recommendations		
i)	The Tender documents should include detailed drawings to enable the Contractor to price for the works realistically and for quality control during construction (e.g. ensure appropriate reinforcement is provided);		
ii)	The measurement sheets should be detailed enough to capture the actual works done		
iii)	Re –evaluate the actual quantities of the gravel layer which is expected to be half of the quantity for rock fill		
iv)	Further checking of adherence to specification is necessary especially on thicknesses of pavement layers		

4.2.17 Periodic Maintenance of Ngetta – Lira Border road (64km)

Civil Works Contract No. **UNRA/PM/08/09/17**

Consultancy Contract No. **UNRA/SERVICES/2008-09/0021/-8/03**



a. Contract Details

Client	Uganda National Roads Authority
Design Consultant	<i>Document not seen</i>
Supervising Consultants	Ms.Tamp Blessed-3MS JV LTD
Consultant Contract Date	6 th August 2009
Consultant Contract Amount	UGX 303,304,000
Works Contractor	Ms. Mulwooza and Brothers Ltd
Letter of contract award date (Bid acceptance)	5 th December, 2008
Works Contract sign date	26 th January 2009
Commencement date	10 th February 2009
Contract duration	8 Months
Completion date	11 th October 2009
Contract amount	UGX 2,390,670,000
Amount Certified to date	Certificate No. 4, on 6/11/09,Certified amount UGX 1,515,649,475(VAT exclusive)
% of progress reported	63% as per progress report (month ending October, 2009)

b. Scope of works

The works under this contract included drainage improvement works, heavy grading and provision of 150mm thick gravel.

SNo	Observation	Management Response	Auditors Opinion
c.	<p>Document review</p> <p>The documents reviewed included the Supervising Consultants' contract, 4th Progress report from the Consultant; civil works contract and Certified Interim certificate No. 4 Of dated 4th November 2009.</p> <p>The following was observed from the document review:</p>		
i)	The works contract is titled Ngetta- Kitgum border road while the Consultants contract refers same road as Ngetta -Lira border road;	This is the same road. The confusion is a result of the creation of Pader district. This problem will be rectified with the permanent road link referencing exercise ongoing.	UNRA to follow up.
ii)	Variations are being proposed for extra works to cater for drainage improvement in low lying and flood prone areas within the original contract period. Details for these variations and the costs were not seen;	The Variation is available. Copy attached as Annex RM 9	
iii) iv)	<p>The Contract period has expired but only 63% of work has been done (progress report for the month ending 30th October, 2009). The slow progress was attributed to continued break down of Contractors equipment;</p> <p>The contractor has not been awarded time extension but he is still on site working (Consultants' report month ending October);</p>	<p>This was correct. However the contractor has since mobilized additional equipments and the works are now complete.</p> <p>The Contractor did not qualify for time extension because of lack of compensation event.</p>	The work was not completed on schedule and yet no liquidated damages were charged.

v)	Contractors key staff for the project as per contract were absent on site for most of the month of October apart from the drainage foreman. No reasons were explained in the report;	This was correct. The contractor was instructed to avail staff as per contract which he did.	UNRA should ensure the approved key staff are on site.
vi)	Some of the works are not done to specifications and the contractor has been instructed to re-do the works (compaction);	This is correct and it is an obligation of the contractor to provide compliant work	UNRA to follow up.
d.	Quality of Works The auditors visited and made visual assessment of the road on 1 st October 2009 The following was noticed:-		
i)	Drainage is a challenge, many side lined drains have failed;	New catch water drains were excavated and critical sections of the side drains were lined.	Consultant should have advised on right course earlier to reduce on possible extra project costs.
	  <p><i>Good standing road section</i> <i>Road being eroded by surface water</i></p>		

e.	<p>Quantities Verification</p> <p>The most recent certificate was issued on 4th November 2009. The approved/certified quantities for most of the work items compared well to in the BoQ.</p>		
f.	<p>Supervision of Works</p> <p>The supervision of works is being done by Ms. Tamp Blessed-3MS JV LTD. The progress reports prepared contain very little information for monitoring progress and lacks, the program vs progress chart, progress photographs, names of consultants' supervision team, and weather reports. Most of the pages are too faint and can't be read. The consultant is producing one report document for three road projects.</p>	<p>This is a correct observation. The primary information exists and we have continually guided the consultant on the content of the reports. There is improvement.</p>	<ul style="list-style-type: none"> • This shows weak supervision by the consultant. The consultant's ability to deliver should be evaluated with a view to decide, if they are competent or not. • Noted that this consultant had many other projects to supervise at the same time.
g.	<p>Value for Money</p> <p>The average cost per km is UGX 42,166,734 which is considered to be on a high as compared to similar works in the region.</p>	<p>The project involved raising/ filling some low-lying areas. This project was procured under open competitive bidding.</p>	<p>UNRA should put in place mechanisms of cost control even when projects are procured under competitive bidding.</p>
h.	<p>Recommendations</p>		
i)	<p>Proper preparation for projects tender documents should be done to avoid variation of works which can be fore seen, e.g. extra works on swamps and low</p>	<p>Recommendations by Audit Team have been noted and will be implemented.</p>	<p>UNRA to follow up.</p>

	lying areas;		
ii)	The liquidated damages should be applied too the contract as the contract duration has expired and the contractor is still working.		
iii)	The Consultant should improve the quality of the progress reports and produce separate reports for each of the projects he is supervising.		
iv)	Quality assurance should be enhanced to ensure that the contractor performs according to specification.		

4.2.18 Gravelling, grading and drainage improvement of Nyakahita – Rushere – Rwakitura (45km)

Civil Works Contract No. MBARARA/01/020/07/08



a. Contract Details

Client	UNRA / Ministry of Works and Transport
Design Consultant	<i>Document not seen</i>
Supervising Consultants	UNRA
Consultant Contract Date	<i>Not applicable</i>
Consultant Contract Amount	<i>Not applicable</i>
Works Contractor	Ms. BCR General Limited
Letter of contract award date	20 th August 2007
Works Contract sign date	5 th October 2007
Commencement date	29 th October 2007
Completion date	29 th April 2008
Contract amount	UGX 1,925,119,125
Amount Certified to date	Certificate No. 7, on the 18 th May 2009, Certified amount UGX 2,021,753,810
% of progress reported	100%

b. Scope of works

The contract is a term maintenance type with the scope of works that include:-

- i. Full width medium grading;
- ii. Construction of 100mm natural base course;
- iii. Spot re-gravelling; and
- iv. Drainage improvement works.

SNo	Observation	Management Response	Auditors Opinion
c.	Document review The documents reviewed by the auditors included the contractor's contract and all the certificates.		
i.	The contract was initially signed on 5 th October 2007 with MoWT as the Client; a DEED of assignment was signed on 23 rd October 2008 and the MoWT transferred the contract management to UNRA.	Agree, for information	Noted.
ii.	No progress report was availed to the auditors for review.	The term contract by Coil ltd has just commenced i.e. 16 Nov. 2009 to run for twenty four months. Progress reports will be prepared for review by auditors.	UNRA to follow up.
	d. Quality of Works The auditors visited the road on 23 rd September 2009; the road was in good condition and well maintained. The following pictures show the condition of the road;	Agree, for information.	
	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p><i>Good road condition</i></p> </div> <div style="text-align: center;">  <p><i>Maintenance works on-going</i></p> </div> </div>		

e. Quantities Verification									
The last certificate was issued on 30 th October 2009.									
Pay Item	Work activity	Unit	BoQ Qty	Variation	Total done	Rate (000')	Implication (000')		
3.6	Excavate in soft material for pipe culverts	M ³	450	0	112.5	6.5	(2,193.75)		
3.8.2	600mm diameter	M	30	20	50	225	4,500		
3.11	Construct solid masonry	M ³	50	0	0	204	(10,200)		
3.12	Supply and Construct grouted stone pitching	M ²	500	0	0	42	(21,000)		
4.3.3	Provide, transport natural base material, spread water and compact	M ³	20,000	1,010	21,010	18.5	18,685		
4.3.4	Widen road to width not exceeding 10meters in selected sections	Hrs		920	920	106.37	97,860.4		
f. Supervision of Works									
The supervision of works is being done by UNRA				Agree, for information.					
Value for Money									
The average cost per CM of concrete is UGX 680,000 is on high side for concrete to be used for headwalls and wing walls.				The cost of concrete is as spelt out in the contract. It may not be possible to change this rate at this stage as it may lead to disputes and claims.				UNRA should have had engineers estimates to guide in awarding the contract.	

4.2.19 Upgrading of Kafu – Masindi road (43.272km)

Civil Works Contract No. No contract number seen

Consultancy Services Contract No. Contract not seen

a. Contract Details

Client	Ministry of Works and Transport/Uganda National Roads Authority
Design Consultant	<i>Document not provided</i>
Supervising Consultants	SABA Engineering Plc.
Consultant Contract Date	<i>Document not provided</i>
Consultant Contract Amount	<i>Document not provided</i>
Works Contractor	Ms. General Nile Company for Roads and Bridges / Ms Dott Services Ltd Joint Venture
Letter of contract award date	26 th October, 2004
Works Contract sign date	29 th October ,2004
Commencement date	21 st December 2004
Contract Duration	Original:- 18Months Revised:- 41Months
Completion date	Original:- 20 th June, 2006 First Revised to:- 31 st December,2007 Final Revised to:- 31 st May, 2009
Contract amount	UGX 25,100,987,800
Amount Certified to date	Certificate No. 12, on the 11/08/09,Certified amount UGX 31,474,934,850 excluding UGX 16bn recommended by the Consultant for EoT claims
% of progress reported	88.3% as of End of May 2009

b. Scope of works

The works under this contract included, upgrading of 43.272km road length from the existing gravel road to class II paved road with Double Seal Surface Treatment/Dressing (DST), consisting of 6 meters wide carriage way, 1.5m wide shoulders (on each side) and an over all road reserve width of 30 meters (15 meters on either side).

The pavement is made of, 250mm thick lime stabilised sub base, and 150mm crushed stone base.

SNo	Observation	Management Response	Auditors Opinion
c.	<p>Document review</p> <p>The documents reviewed by the auditors included the civil works contract, progress report (May, 2009) which includes some correspondences between the client and contractor and some quality control tests results, and the interim payment certificate (Interim Certificate No.12 of Aug '09), Consultancy Contract was not availed to the auditors</p> <p>The following was observed from the document review activity:-</p>		
i)	The supervising Consultant's Contract was not signed by Ministry of Works and Transport;	<p><u>MoWT response:</u></p> <p>It is not true that the Supervising Consultant's Contract was not signed by Ministry of Works and Transport, the contract was signed between the then Ministry of Works, Housing and Communications and Saba Engineering Private Limited Company. (A copy of the Contract is attached as (Annex...))</p>	Signed contract seen
ii)	The works Contract document seen by the Auditors is not well organised, lacks general conditions of contract and specifications (both general and specific);	UNRA is not able/in position to respond to the observations/remarks made on the works contract documents reviewed by the Auditors because all the stated documents were authored in/by MoWT.	

iii)	The Consultant's progress report lacks key information like, programme vs progress, Consultant's staff, test results carried out and weather reports;	<p>The works contract was assigned to UNRA in March 2009 when all works had been executed and were in defects liability. UNRA basically settled outstanding payments to the contractor on the approval of MoWT.</p> <p><u>MOWT responses:</u></p> <p>It is not true that the Works Contract document lacks general conditions of contract and specifications, Volume II of the contract document 'General specifications' (Parts 1 & 2) is herewith provided as (Annex...)</p> <p>It is not true that the Consultant's progress report lacks key information like, programme v/s progress, consultant's staff, test results carried out and weather reports. The document which the auditor took as a progress report was just a brief account of the works, which was prepared to guide the Audit Team. The last monthly Progress Report is dated 31st May, 2008 and contains all elements referred to as lacking. (A copy is attached as Annex)</p>	<p>General conditions of contract seen</p> <p>Last progress report not provided</p>
iv)	The Contract duration was increased by 128% (from 18 months to 41 months), reasons given are inclement weather, increased scope of works, fuel shortage.	<p>It is true that the construction period was extended twice first by 18 months and then by 5 months giving the final completion date of 31st May, 2008.</p> <p>Time extensions were granted for the following</p>	Excessive delays by the contract which should have been foreseen and minimised at the time of contracting.



		<p>reasons.</p> <ul style="list-style-type: none"> a) Unprecedented design changes; b) Delays in setting compensation and relocation issues; c) Change in material source for base course; d) Fuel shortage; e) Ungazetted public holidays; and f) Exceptionally inclement weather conditions. 	
v)	There are no PPDA clearance seen for the 5 variation orders in respect of increased costs and time extensions;	It is true that there are no PPDA clearances for the five variation orders in respect of increased costs and time extensions; this is because the variations did not cumulatively exceed 25% clauses 261 and 262 of PPDA Regulations allow for variations of contracts as long as the cumulative variations don't exceed 25% of the original contract sum. Sum such variations don't require recourse to PPDA.	
vi)	The Contractor submitted a claim for financial compensation for prolonged stay on site worth UGX 18,667,015,993 which is 74.37% of the original Contract amount. The Consultant has evaluated the claim and	The Contractor's claim for financial compensation for prolonged contract period was subjected to thorough examination, analysis and discussions	This excessive compensation could have been minimised if proper

	approved UGX16.676bill. This amount appears to be on a high side and should be subjected to thorough review before payments are made.	lasting for a year. Award of UGX16.676 billion was approved and paid to the contractor. (See Annex...)	planning had been done before signing the contract.
vii)	The 5% lime content by weight as per design was increased to 11% which is 220% increase. This rate is very high compared to the applicable rates for such works;	It is not true that the 5% lime content by weight was increased to 11%. What is correct is that the lime stabilization of sub-base was carried out at lime application rate of 11% by volume which represents 3.5% by weight.	Excessive increase
viii)	The unit rate for crushed stone base was raised from UGX 43,000 to UGX 80,517 which raised the value of the contract sum by UGX 2,503,189,145.28 (10% of the original Contract amount). The price of the cost of stone pitching was also increased from UGX 27, 000 the approved contract rate to UGX 54,210. The rationale for revising unit rates in this contract is not seen and it is not correct to change unit rates in an on going contract;	It is true that the unit rate for crushed some base was raised from UGX 43,000 to UGX 80,517. The adjustment was made because the quantity was increased by about 50% due to design change of shoulder from lime stabilized to GCS. The rock quarry source was also changed from CH 9 + 900 to 13Km from Masindi Town. Clause 52.2 of the particular conditions of contract provides for change in rate when the quantity of a pay item increases or decreases by 7 more than 20%. Similarly the unit rate for stone pitching was in the process of being adjusted from UGX 27,000 to UGX 54,210 per sqm. Stone pitching was however not carried out in the rural section of the road due to	Increase in quantise does not directly translate into increase of unit rates. Negotiations should have been carried out with the contract to reduce the rates with the increased quantities

		funding constraints.	
ix)	The rate for surface dressing was revised from 17kg/m ² to 19kg/m ² for the first seal and from an unspecified rate (BoQ) to 16kg/m ² for the second seal. This in turn increased the cost of surface dressing to approximately UGX 4bn. These rates of application are higher than the applicable rates on similar road works in the country;	It is true that the surface dressing was revised resulting into an increase of the cost of surface to approximately Shs. UGX 4 bn. Application rates for surface dressing are normally determined by conducting trial tests on a particular site (otherwise application rates would be uniform for all roads in Uganda) as per General Specifications for Road and Bridge Works recommendations. The spray and spread rates adopted for this particular road were the optimum rates from the trial tests. Inevitably they affected the contract price.	
x)	The revised rate of chipping spray for the second seal that is 16kg/m ² is higher than 11kg/m ² which is recommended by the Ministry of Works and Transport (General specifications for Road and Bridge Works) for 10mm nominal size aggregates;	No MoWT response	
xi)	The rate of spread of bitumen for the first seal was increased from 1.1Lt.m ² to 1.3Ltm ² which increased the contract sum by UGX 84,000,000 without any technical justification;	No MoWT response	

xii)	The rate of spread of bitumen for the second seal and seal coat was increased from 1.3Lt.m2 to 1.4Lt.m2 which resulted in a total increment of UGX 63,000,000 without any technical justification;	No MoWT response	
xiii)	The substantial completion was declared while the following works had not been completed:- <ul style="list-style-type: none"> • Construction of access roads/junctions within the rural section • Interceptor Ditches • Stone pitching for Side Drains • Road Furniture and Ancillary works (specifically delineator posts, guard rails, kilometre posts, marking of edge lines and parking lanes between CH. 38+845-43+272 	It is true that substantial completion was declared while some works were yet to be completed. Clause 48.3 of General Conditions of contract provides for issue of substantial completion certificate after satisfactory completion of permanent works prescribed before completion of the whole of the Works. Upon the issue of such certificate, the contractor is deemed to have undertaken to complete with due expedition any outstanding work in that part of the Permanent Works during the Defects Liability Period.	The items are major work activities of the contract to be worked on during the defects liability period. In case of any defects these items are not fully covered by the defects liability period.
xiv)	It is not clear as to who owns the project equipment and furniture (such as vehicles, office equipment, etc) that had been supplied for the use by the Consultant and paid by the client through the contract as there was no hand over report.	It is not true that there is lack of clarity as to who owns project equipment and furniture. Ownership of equipment and furniture that are supplied for use by the Consultant is spelt out in Sub clause 1405 j(d) of the General Specifications for Road and Bridge Works which states that "The ownership of all offices, laboratories, vehicles and other items provided by the Contactor shall, when they are no longer required by the engineer, revert to the	Some of this equipment could be retained by the Ministry to build its own capacity, especially in quality control.

		<p>Contractor”</p> <p>Sub Cause 1402 of the Special Provisions to the General Specifications for Road and Bridge Works also states that “On completion of the Contract, the ownership of the Engineer’s office, house and laboratory buildings and furniture and equipment will be revert to the Contractor”.</p> <p>Sub clause 1406 of the special provision to the General Specifications for Road and Bridge Works states that “On completion of the Contract, the ownership of the vehicle will revert to the Contractor”.</p> <p>These facilities were provided to the Consultant by the Construction Contract; the intention being that all facilities were to be handed over back to the Contractor on completion of the Contract.</p> <p>Accordingly, all equipment, furniture and vehicles that have been used by the Supervising Consultant have reverted to the Contractor.</p>	
	<p>Quality of Works</p> <p>The auditors visited and made visual assessment of the road on 7th October 2009. The following was noticed on the road:-</p>	<ul style="list-style-type: none"> UNRA is not able/in position to respond to the observations/remarks made on the quality of work by the Auditors because as stated under Document Review above the works contract was assigned to UNRA in March 2009 when all works 	<p>UNRA to follow up and make improvements</p>

i)	Dangerous drainage system in Masindi town- too deep for pedestrians;	<p>had been executed and were in defects liability period. Therefore all decisions with regard to specifications, designs, quantities and approvals had been made in/by MoWT.</p> <ul style="list-style-type: none"> • However UNRA will look at the areas that require action/improvement like drainage systems and road safety measures; UNRA has already in place a programme for installation of traffic calming facilities on Masindi Township section <p>No MoWT responses</p>		
ii)	Though the specs requires use of 20mm size aggregates for 1 st seal and 10mm for 2 nd seal, this was not the case and the 20mm aggregates were seen on top;			
iii)	Carriage way is 6m on average in rural areas while it was 7m in Masindi town with 1.5 shoulders on each side.			
iv)	The road was holding well and no signs of bleeding/failures was seen			
v)	There were no speed control measures applied at populated areas; this is a safety hazard			
	 <p><i>Too deep and dangerous</i></p>	 <p><i>Though large 20mm size</i></p>		

	<i>open drainage done to what specs and drawings?</i>	<i>aggregates were used for second seal specifications are for 10mm.</i>					
d.	Quantities Verification The most recent certificate was issued on 11 th August 2009. The actual works done for some work items compared to the quantities certified vide interim certificate No 12.			See comments under Documentation Review and Quality of Works above. No MoWT responses			
	Pay Item	Work activity	Unit	Qty in the BoQ	Qty certified in PC No12 of 11/08/09	Estimated Qty	Remarks
	43.03 (a)	20mm Aggregate	Kgs	nil	556,381.96	7,399,512	
	43.03(b)	10mm Aggregate	Kgs	nil	2,358,477.18	4,480,000	
e.	Supervision of Works The supervision of works is being done by SABA Engineering Plc. The supervision consultancy contract was not availed to the auditors to check the consultants' compliance with the contract terms of reference. The progress reports prepared contain substantial information for monitoring progress but lack, the program vs progress chart, consultants and contractors organogram progress photographs, test records, and weather reports.			See comments under Documentation Review and Quality of Works above. No MoWT responses			
f.	Value for Money The average cost per km of UGX 823,754,509 will shoot to			See comments under Documentation Review and Quality of Works above.			

	UGX 1.12bn, if the UGX 16bn compensation for time extension is approved by the client.	No MoWT responses	
g.	Recommendations		
i)	Management should provide justifications for design changes especially in the rates of application for lime and aggregates for surface dressing;	For recommendations (i), (ii) and (iii) See/refer to comments under Documentation Review and Quality of Works above.	
ii)	Tests should be undertaken to ascertain whether the rate of application for lime was 11% on the sub base;		
iii)	Need for improvement of road safety-provision of speed control humps and covering side drains in the town centre;		
iv)	There is need for critical assessment of the consultants recommendation and approval of the UGX 16bn as compensation to Contractor for time extension;	Compensation (UGX 16bn) to the contractor for time extension was approved and settled.	
v)	The defects liability period for the works to be completed after substantial completion should be extended beyond contractual defects liability period so as to monitor there performance for the same duration as the main works.	See/refer to comments under Documentation Review and Quality of Works above.	

4.3 Category C projects– Brief literature review and visual assessment

4.3.1 Periodic Maintenance of Bumbobi/Bubulo/Bududa (44km)

The road was inspected on 30th September, 2009

Contract Details		
Contractor	Ms Rocktrust Contractors (U) Ltd	
Contract No.	UNRA/PM/08/09/011	
Contract Award Date	Document not availed	
Contract Sign Date	Document not availed	
Commencement Date	9 th March, 2009	
Contract Duration	Original: 6 Months	Revised: 8 Months
Completion Date	Original: 16 th September, 2009	Revised: 16 th November, 2009
Works Contract Amount	Original: UGX 1,206,666,230	
Last payment certificate	No.: 4, submitted on 10 th November, 2009 Cumulative Amount: UGX 879,346,606/=	73% of the Original Contract sum
Consultancy Contract	Document not availed	
Engineer Estimate	Not seen	
Physical progress reported	78% physical progress against 100% time progress	
Consultant	UNRA- Consultant Arch Design Ltd in association with Otieno Odongo & Partner was signed late i.e. after most works had been done and without a reported justified need.	
Consultancy contract amount	Document not availed to Auditors	
Engineers Estimate	Not seen	
Type of pavement	Gravel	
Major works in BoQ	Heavy grading, re-gravelling, culvert installation and reinstatement of the drainage system.	
Current completed road condition(good/poor/bad)	Good	Comfortable driving speed
Existing drainage condition:	Side and mitre drains	Culverts:
Last progress report	Month: October, 2009	Completeness: Sufficient for monitoring progress but lacks information like site meeting minutes, weather report and photographs.
Observation	Management Response	Auditors Opinion
Poor at the beginning – need re-shaping	The works are	Response

<ul style="list-style-type: none"> • Consultant arrived when Contractor had done much of the work, needs further investigation. Delay due to non payment. • Gravel failed test but laid from 16+000 onwards. 	<p>substantially completed</p>	<p>Supervising consultants should be engaged before the works commence</p>
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Board showing project details





Side drain silted

4.3.2 Emergency Repairs of the Approaches to Awoja Bridge on Soroti -Kumi Road (48km)

The road was inspected on 24th September, 2009




Contract Details		
Contractor	Ms Spencon Services Ltd	
Contract No.	SOROTI/05/030/07/08	
Contract Award Date	Document not availed	
Contract Sign Date	Document not availed	
Commencement Date	11 th September, 2008	
Contract Duration	Original: 9 Months	Revised: 12 Months
Completion Date	Original: 11 th June, 2009	Revised: 21 st September, 2009
Works Contract Amount	Original: UGX 2,771,515,501	Revised: 3,167,038,361
Last payment certificate	No.: 6, submitted on 10 th November 2009 Cumulative Amount: UGX 3,087,826,932/=	111% of the Original Contract sum
Consultant	UNRA	
Consultancy Contract	Not applicable	
Consultancy Contract Amount	Not applicable	
Engineer Estimate	Not seen	
Physical Progress	100% against 100% time progress, progress report dated 27 th Aug, 2009	
Last progress report	Month: August 2009	Completeness: Sufficient for monitoring progress but lacks information like site meeting minutes and weather.
Type of pavement	Paved	
Major works in BoQ	Scarifying, swamp raising, installation of Armco culverts and concrete pipe culverts, surface dressing for 3km and, pothole re sealing of potholes and 48 km of road edges.	
Current completed road condition(good	Good	Comfortable driving speed

/poor/bad)		
Existing drainage condition:	Side and mitre drains	Culverts:
Significant bridges or other structures:	Awoja Bridge	
Field Observations	Management Response	Auditors Opinion
<ul style="list-style-type: none"> Shoulders not sealed as per contract requirements Design plans not available Grass on embankments not planted 	The works are substantially completed. The grass on the slopes of embankments is to be planted by UNRA Force Account Unit at the end of the defects liability Period. Sealing of shoulders was not provided for under the contract. However, the shoulders will be sealed under the rehabilitation contract planned to commence next FY 2010/11.	UNRA to follow up.
 <p><i>Un-protected shoulders</i></p>		 <p><i>Grass not planted on the embankments, embankments being eroded</i></p>

4.3.3 Periodic Maintenance of Lokapel-Nabilatuk- Angatun Road (45km)

The Auditor's visited the road on 29th September, 2009

Contract Details	
Contractor	Kark Technical Services Limited
Contract No.	UNRA/WORKS/2008-09/00018/06/06
Contract Award Date	8 th May, 2009
Contract Sign Date	5 th June, 2009
Commencement Date	25 th May, 2009
Contract Duration	Original: 6 Months
Completion Date	Original: 25 th November, 2009

Works Contract Amount	Original: UGX 1,804,008,000	
Last payment certificate	No.: 3, submitted on 16 th October, 2009 Cumulative Amount: UGX 1,474,880,350/=	82% of the Original Contract sum
Consultant	UNRA up to September Arch Design JV with Otieno Odongo (Started on 8 th September)	
Consultancy Contract	Not applicable	
Consultant Contract Amount	Not applicable	
Engineers Estimate	Not seen	
Physical Progress	78% against 60% time progress, progress report dated 28 th August, 2009	
Last progress report	Month: August , 2009	Completeness: Sufficient for monitoring progress but lacks information like site meeting minutes and weather.
Type of Pavement	Gravel	
Major works in BoQ	Heavy grading, gravelling, culvert installation and constructing of mitre and side drains	
Current completed road condition(good/poor/bad)	Good	Comfortable driving speed
Existing drainage condition:	Side and mitre drains	Culverts:
Field Observation	Management Response	Auditors Opinion
<ul style="list-style-type: none"> Consultant supervised the Lokapel-Nabilatuk portion only! (21km) Consultant reportedly appeared only once in September and was not present on site at the time of audit 	The works are substantially completed.	There was inadequate supervision by the consultant.
		
<i>Gravelling activity on going</i>	<i>Weak soils prone to erosion</i>	<i>Very dry environment</i>

4.3.4 Routine Mechanised Maintenance of Kanawat-Apaan-Kaputh Road (39km)

The Auditors visited the road on 30th September, 2009




Contract Details		
Contractor	Ms Minimax Enterprises Ltd	
Contract No.	UNRA/RMM/08/09/026	
Contract Award Date	1 st April, 2009	
Contract Sign Date	22 nd May, 2009	
Commencement Date	25 th May, 2009	
Contract Duration	Original: 5 Months	Revised: Nil
Completion Date	Original: 25 th October, 2009	Revised: Nil
Works Contract Amount	Original: UGX 270,249,116	Revised: Nil
Last payment certificate	No.: 2, submitted on 16 th September 2009 Cumulative Amount: UGX 166,125,400	62% of the Original Contract sum
Consultant	UNRA	
Consultancy Contract	Not applicable	
Consultant Contract Amount	Not applicable	
Engineers Estimate	Not seen	
Physical Progress	65% against 78% time progress, progress report dated 3 rd September, 2009	
Last progress report	Month: August, 2009	Completeness: Sufficient for monitoring progress but lacks information like site meeting minutes and weather reports.
Type of Pavement	Gravel	
Major works in BoQ	Grading, gravelling, culvert installation and constructing of mitre and side drains	
Current completed road condition(good/poor/bad)	On going at the time of Auditors field visit	Comfortable driving speed
Existing drainage condition:	Side and mitre drains Planned	Culverts: Planned (6 lines diameter 600mm)
Field observation:	<ul style="list-style-type: none"> • Sandy material • Dry environment • Compaction impossible 	



4.3.5 Periodic Maintenance of Lira- Kitgum Border

The Auditor's visited the road on 1st October, 2009



Contract Details		
Contractor	Kark Technical Services Limited	
Contract No.	KITGUM/01/016/07/08	
Contract Award Date	<i>Not seen</i>	
Contract Sign Date	<i>Not seen</i>	
Commencement Date	23 rd June, 2008	
Contract Duration	7 Months	
Completion Date	23 rd January, 2009	
Works Contract Amount	UGX 1,126,862,000	
Last payment certificate	No. 5 of Oct 2009	
Consultant	UNRA	
Consultancy Contract	Not applicable	
Consultant Contract Amount	Not applicable	
Engineers Estimate	Not seen	
Physical Progress	Completed	
Last progress report	Month: n.a	Completeness:
Type of Pavement	Gravel	
Major works in BoQ	Heavy grading, gravelling ,culvert installation and construction of mitre and side drains	
Current completed road condition(good /poor /bad)	poor	Comfortable driving speed

Existing drainage condition:	Side and mitre drains: insufficient	Culverts: insufficient
Field Observation	<ul style="list-style-type: none"> No design plans, drainage is a challenge Road in poor condition, erosion created gullies in the road, there is need for intervention. Culverts insufficient 	
		
Repaired bridge over river	Lack of good drainage system	Lack of drainage

4.3.6 Periodic Maintenance of Mpigi-Kanoni Road (60km)

Site visited on 7th October, 2009

Contract details		
Contractor	Ms Valley Technical Services Ltd	
Contract No.	UNRA/WORKS/2008-09/00002/01/03	
Contract Award Date	Document not availed	
Contract Sign Date	Document not availed	
Commencement Date	20 th February, 2009	
Contract Duration	Original: 8 Months	
Completion Date	Original: 20 th October, 2009	
Works Contract Amount	Original: UGX 1,367,521,100	
Last payment certificate	No.: 7, submitted on 29 th October, 2009 Cumulative Amount: UGX 1,311,900,087	96% of the Original Contract sum
Consultant	UNRA for six months and Trio Consultants Ltd for two months	
Consultancy Contract	14 th August, 2009	
Consultancy Contract Amount	Document not availed	
Engineers Estimate	Not seen	
Physical Progress	100% against 100% time progress, progress report October, 2009	
Last progress report	Month: October, 2009	Completeness: Sufficient

		for monitoring progress but lacks information like weather reports.
Type of Pavement	Gravel	
Major works in BoQ	Medium grading, re-gravelling, and drainage improvement	
Current completed road condition(good/poor/bad)	Good	Comfortable driving speed Above 60km/hr
Existing drainage condition:	Side and mitre drains Ok	Culverts: Some culverts had already cracked at the time the auditors visited the road
Observation	<ul style="list-style-type: none"> • There were no single personnel from the consultant's team on site • The quality of the head walls was not of good standard. 	
	 <p><i>Water-trap not built to standard</i></p>	 <p><i>Cracked culverts</i></p>

4.3.7 Periodic Maintenance of Kanoni - Maddu- Kisozi-Katonga Road (60km)

Contract Details		
Contractor	Sobetra Uganda Limited Construction and Engineering Company	
Contract No.	UNRA/PM/08/09/004	
Contract Award Date	Document not availed	
Contract Sign Date	Document not availed	
Commencement Date	9 th March, 2009	
Contract Duration	Original: 8 Months	Revised: Nil
Completion Date	Original: 9 th November, 2009	Revised: Nil
Works Contract Amount	Original: UGX 1,731,480,000/=	Revised: Nil
Last payment certificate	No.: 2, submitted on 26 th November 2009 Cumulative Amount:	81% of the Original Contract sum

	UGX 1,399,416,320	
Consultant	UNRA for 5 months and Trio Consultants Ltd for 3 months	
Consultancy Contract	UNRA/SERVICES/2008-09/0021/08/07	
Consultant Contract Amount	UGX 238,025,000	
Engineers Estimate	Not seen	
Physical Progress	67% against 88% time progress, progress report October, 2009	
Last progress report	Month: October, 2009	Completeness: Sufficient for monitoring progress but lacks information like weather reports.
Type of Pavement	Gravel	
Major works in BoQ	Medium grading, gravelling and drainage points	
Current completed road condition (good/poor/bad)	Good	Comfortable driving speed: Above 60Km
Existing drainage condition:	Side and mitre drains Ok	Culverts: Not installed by the time the auditors inspected the road.
Significant bridges or other structures:	Nil	
Field observations:	<p>The auditors visited the road on 7th October, 2009 and the following was noted</p> <ul style="list-style-type: none"> • The contractor spent 6 months gravel works, 7months grading, 48km have been graded and 36km re-gravelled and 86% of the total contract period used. Behind schedule • After Maddu road narrows • Medium grading not so efficient 	

Pictures



Recently gravelled section failed (poor Camber)





Poor drainage works affecting the road

4.3.8 Maintenance and Rehabilitation of Myanzi-Kassanda- Bukuya-Zanyiro Road (45km)

Site visited on 8th October, 2009

Contract Details	
Contractor	Ms Kato Investments Ltd
Contract No.	MOWT/CL/025/08/09
Contract Award Date	4 th September, 2008

Contract Sign Date	30 th January, 2009	
Commencement Date	19 th December, 2008	
Contract Duration	Original: 6 Months	Revised: 9 Months
Completion Date	Original: 19 th June, 2009	Revised: 13 th September, 2009
Works Contract Amount	Original: UGX 1,090,201,416	Revised: Nil
Last payment certificate	No.: 3, submitted on 19 th October, 2009 Cumulative Amount: UGX 1,040,565,076	95% of the Original Contract sum
Consultant	UNRA	
Consultancy Contract	Not applicable	
Consultant Contract Amount	Not applicable	
Engineers Estimate	Not seen	
Physical Progress	100% against 101% time progress, progress report dated 19 th October, 2009	
Last progress report	Month: October, 2009	Completeness: Sufficient for monitoring progress but lacks information like site meeting minutes and weather reports.
Type of Pavement	Gravel	
Major works in BoQ	Heavy grading, full re-gravelling, and drainage activities	
Current completed road condition (good/poor/bad)	Good	Comfortable driving speed: Above 60 km/hr
Existing drainage condition:	Side and mitre drains	Culverts:
Field observations:	<ul style="list-style-type: none"> • Water logged on both sides of the road in mist swampy sections weakening the road. • Most crossing culvert not skewed to allow easy flow of water • Too much water in Urban areas but no stone pitching provided for in the drains • Delay caused by transition from works to UNRA • Extra culverts required 	
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p><i>Poor quality workmanship</i></p> </div> <div style="text-align: center;">  <p><i>Drainage needs improvement</i></p> </div> </div>		

4.3.9 Periodic Maintenance of Kyapa-Kasensero Road (41km)

The road was inspected on 30th September, 2009

Contract Details		
Contractor	Otada Construction Company Ltd	
Contract no.	UNRA/PM/08/09/007	
Contract Award date	5 th December, 2008	
Contract sign date:	20 th February, 2009	
Start Date:	6 th March 2009	
Contract Duration	Original: 6 Months	Revised: 8Months
Completion Date:	Original: 6 th September, 2009	Revised : 21 st October, 2009
Contract Amount:	Original: UGX1,196,708,500	Revised: UGX1,315,596,200
Last payment certificate	No.: 5(final), submitted on 3 rd November 2009 Cumulative Amount: UGX 1,282,705,555/=	97.5% of Contract sum
Consultant	UNRA- Consultant Kagga & Partners was signed late i.e. after most works had been done and without a reported justified need.	
Consultancy contract amount	Document not availed to Auditors	
Engineers Estimate	Not seen	
Physical progress reported	96% as per substantial completion certificate	
Type of Pavement	Gravel	
Major Works in BoQ	Heavy grading, re-gravelling, culvert installation and reinstatement of the drainage system.	
Current completed road condition (good/poor/bad)	Good	Comfortable driving speed:
Existing drainage condition:	Side and mitre drains Fair	Culverts Good
Significant bridges or other structures:	None, though there is a bridge where river training was done	
Last progress report	Month: October, 2009	Completeness: Sufficient for monitoring progress but lacks information like weather report and photographs.
Remarks:	<ul style="list-style-type: none"> • A fair job done though more quantities on drainage re instatement for low lying areas prone to flooding. • Need for variation to cater for access to fish factory. • There were no Engineers' Estimates • Defects liability for works done in the defects liability period for major works should be extended. 	



Fairly gravelled section





Questionable if headwalls was constructed according to design and specifications

4.3.10 Periodic Maintenance Fort Portal – Bundibugyo road (74km)

The road was inspected on 24th September, 2009 and the following was noted

Project Title: Periodic Maintenance of Fort Portal Bundibugyo Road		
Works Contract:-		
Contractor		Kasese Nail & Wood Industry Ltd
Contract no.		UNRA/PM/08/09/20
Contract Award date		11 th December, 2008
Contract sign date:		13 th February, 2009
Start Date:		27 th February, 2009
Contract Duration		9 Months
Completion Date:		26 th November, 2009
Contract Amount:	Civil works:	Consultancy (Initial & Revised) Not applicable
Engineers Estimate: Not seen	Initial: UGX 1,420,462,000	
Consultant: UNRA		
Status of Works (Ongoing/Completed)	On going but grading and gravelling works substantially complete, drainage works pending. Approximately 85-90% done.	
Type of Pavement	Gravel	
Major Works in BoQ		
Current completed road condition (good/poor/bad)	Completed	Comfortable driving speed: OK
Existing drainage condition:	Side and mitre drains OK	Culverts OK
Significant bridges or other structures:	Some Culverts	

Last progress report	Month: Year:	Completeness:
Last payment certificate	No.: Year: Cumulative Amount:	% of Contract sum
Remarks:	<ul style="list-style-type: none"> • Completed 2 months before actual or proposed completion date • There were no Engineers' Estimates, but very good work • Drainage problem at 9.6km due to poor supervision 	
<div style="display: flex; justify-content: space-around;">   </div>		

4.3.11 Force on Account Implemented Roads

The following roads were inspected by the audit team during the reconnaissance visits. The works implemented on these roads were by force on account.

- i) Spot repairs and pothole patching of Tororo-Mbale Road
- ii) Spot Repairs and pothole patching of Mbale-Kumi Road
- iii) Routine Maintenance of Kaputh-Kaabong Road
- iv) Routine Maintenance of Kaabong-Kapedo- Road

The scope of works on the paved roads i.e. Tororo-Mbale and Mbale-Kumi included pothole patching and drainage repairs. The road pavement for both roads is old and has served its design life. The roads are due for rehabilitation. The works were performed by use of force on account managed by respective UNRA Station Engineer.

The scope of works on the un-paved roads i.e. Kaputh-Kaabong and Kaabong-Kapedo included medium grading, spot re-gravelling and minor drainage improvements. The works were found to be of good quality and the costs involved were minimal.

5	VALUE FOR MONEY		
SNo	Observation	Management Response	Auditors Opinion
	<p>In assessing whether the projects will provide 'value for money' the following factors were considered:-</p> <ul style="list-style-type: none"> • Design standards • Scoping of works • Comparison between the cost of the works and the cost of similar works in Uganda or in the region • Comparison between the certified completed works (and payments made) and actual works done. <p>The opinion of the auditors on this subject is as follows:</p>		
a)	For some of the roads the initial designs and sometime the re-designs have been of higher standard than necessary with no justifiable reasons. Such roads include the following		
i)	Up-grading of Busunju – Kiboga – Hoima road: Double surface dressing should have sufficed for the wearing course. Money not wisely spent	The road was subjected to a feasibility study and the design Consultant compared different options to arrive at that particular surface dressing. UNRA will check the reasons why asphalt surfacing was chosen.	UNRA should be assessing the design options before tendering processes commence and the choice should be of the

			most ideal option (cost effective and consideration of maintenance requirements).
ii)	Upgrading of Soroti – Dokolo and Dokolo – Lira roads: The stabilisation of the gravel with 5% of cement for use as base course. The very high levels of CBR attained by the stabilised gravels (more than 250%) show that the gravel was good and there was no need for applying 5% of cement as lesser quantity would have sufficed. This is a case of lost value for money.	<p>The Specifications require materials incorporated in the works to meet minimum CBR and plasticity standards. During the design investigations, it was found out that gravels along the project road characteristically have high plasticity. The subsequent investigations for chemical improvement of the gravels showed that achieving the plasticity requirements rather than the CBR requirements controlled the design. It was concluded that the gravels could best be treated with cement at an application rate of 4%.</p> <p>Nonetheless, the investigations also showed that similar results could be achieved using lime but using a higher application rate of 6%. In similar large projects, it has been noted that the costs of using identical application of either stabilizing agent are similar. Accordingly, the use of 6% lime to achieve the same results was the more expensive option. Hence the choice of cement was recommended.</p> <p>But experience with the use of lime on similar UNRA projects of Busunju-Kiboga-Hoima and Kampala Northern Bypass has other practical problems that have hindered progress and resulted in increased costs of</p>	The type of materials to be used in road construction should be investigated thoroughly and efforts made to use the locally available materials as far as possible. The final rates of applications of stabilising agents should be determined at sites when works commence and may not be necessarily be the same as what the design consultants had recommended.

		<p>justifiable claims. The experience shows that local producers lack the capacity to produce lime to the quality of Ugandan specifications and are unable to meet the supply rates of demand of large projects. This has resulted in the use of imported lime with cost implications and to the disadvantage of the local economy.</p> <p>On the contrary, experience with the Soroti-Lira project shows that the supply of cement never hindered progress thus vindicating the choice of cement. Therefore, value for money was not lost.</p> <p>In this regard UNRA is reconsidering the adoption of specifications involving the use of lime on large projects with tight time schedules, i.e. along major corridors, to avoid the associated logistical and contractual issues. This is also supported by the experience on projects where the use of lime was substituted with the use of graded crushed stone for Sub-Base construction.</p>	
iii)	<p>Upgrading of Kafu – Masindi: The decision to increase the spread rate of the aggregates for the 2nd layer of surface dressing from 16kg/sqm to 19kg/sqm. It is not clear as to what were the reasons for this increase as the difference in the application rates is seen as too big. The amount of bitumen applied (1.1l/sqm) is not sufficient to hold this much of aggregates. There was</p>	<p>Explanation will be referred to MoWT from where the contract was supervised and concluded.</p>	<p>UNRA to follow up</p>

	no indication that the application rate was actually increased. The initial rate of 16kg/sqm has worked in many other roads in the country. This is also a case of lost value for money.		
b)	Scoping of works: Shoulder repairs on Nansana – Busunju road: The contract should have included the surfacing of the entire road with at least a single seal of surface dressing to prevent water from penetrating to the lower pavement as the existing wearing course has aged and potholes are developing at a faster rate. Shoulder repairs alone will not save the road. Value for money will not be realised	The focus at the time of formulation of the contract was on road safety as the section between Nansana and Busunju was the only portion of Kampala-Busunju-Hoima road whose shoulders were not sealed. Moreover this section of the road is very busy and highly populated. At the time of scoping, the carriage way surface was fairly in good shape and given the budget constraints, it was decided to address the shoulders first. We shall include the resealing of the carriage way in the 2010/11 budget. Value for money will be realized in improved road safety and better protection of the shoulders.	Proper scoping should have been carried out to determine the works required before engaging the contractor.
c)	Comparison of projects costs against the costs for other similar works indicate that the rates vary by great margins without proper justification. For example,	The difference in the rates per km is due to:	
i)	The rate per kilometre for Soroti Dokolo road is shs 1.1Bn while that of Dokolo Lira is shs 1.4Bn. both roads are being constructed by the same contractor:	<ul style="list-style-type: none"> • Dokolo-Lira works were tendered three months after the Soroti-Dokolo works • The length of swamp crossings is about 10 Km compared to about 5 km on the Soroti-Dokolo section • The alignment of Soroti-Dokolo section closely follows the alignment of the old gravel road but for 	

		<p>Dokolo-Lira section the alignment from km 89 to km 119 was shifted by 15 meters to the right, to avoid the Lira water supply mains from Kachung Water Works.</p> <ul style="list-style-type: none"> The Dokolo-Lira section includes about 4.5 km of the Lira Bypass section, which goes through the suburbs of Lira town. 	
ii) iii)	<p>The rate per kilometre Kyapa Kasensero is 29 million while that of Masaka-Bukakata -Lambu is shs 50 million yet these roads are in the same locality. This is an indication that there is lack of cost control during tendering and award of contracts.</p>	<p>In general, the complexity of works differs from road to road. Some works were erroneously called periodic maintenance works when they were more related to rehabilitation or new construction works.</p> <p>These rates came about following awards to the best evaluated bidders following an open competitive process. In such cases the contractors determine their rates and yet the PPDA guidelines do not allow for negotiation of rates obtained through a competitive process.</p> <p>We are however in consultation with PPDA on the possibility of the use of Fixed Budget Selection for simple Road Maintenance works to address this problem.</p> <p>The possibility of setting lower and upper thresholds (+/- of a given percentage of the engineers estimate) will also be explored.</p>	<p>It is critical to ensure that the project's cost estimates are realistic and are not derived from immediate past overall project costs. A unit rates analysis study should be undertaken and the outcome used to prepare the estimates.</p>

6	General Observations and Recommendations		
SNo	Observation	Management Response	Auditors Opinion

6.1	<p>Adoption of standard 'General Conditions of Contract' and 'General Specifications'</p> <p>It has been observed that three types of 'General Conditions of Contract (GCC)' and three types of 'General Specifications (GS)' are used by UNRA. The GCC used for some projects are the FIDIC 1987 Fourth Edition reprinted in 1992 while the EDF General Conditions of Contract. The GS applicable for some projects are those published in November 1992 by Ministry of Works, Transport and Communications while in other projects the GS published in 2005 by the Ministry are used or at times both versions are referred to. Yet again in other projects the GS version published in 1997 whose source could not be seen is referred to.</p> <p>It is important that same types of GCC and GS be applied for all projects in the country. The use of the recently published 'Multilateral Development Banks' (MDBs) Harmonised Conditions of Contract – 2006 Edition' which has been prepared based on FIDIC 1999 First Edition should be pursued.</p>	<p>At the moment the use General Conditions of Contract and General Standards are guided by the funding agencies and PPDA Act and Regulations. The use of the recently published 'Multilateral Development Banks' (MDBs) harmonized Conditions of Contract – 2006 Edition' which has been prepared based on FIDIC 1999 First Edition will be explored but may not be easy to introduce due to the many stakeholders involved.</p>	<p>UNRA should liaise with the other stakeholders (funding agencies and PPDA) and agree on use of one type of the GCC and GS</p>
6.2	<p>Design and Preparation of Tender Documents</p> <p>Some of the designs for the audited projects were found to be of unnecessarily high standards (e.g. use of asphalt concrete in place of surface dressing and construction of bridges in place of culverts). The design should always take into account the end use of the road and adopt the</p>	<p>We shall improve our standard bidding documents and standard designs that can be modified for particular projects.</p> <p>We shall where feasible include separate drawings and specifications for paved and</p>	<p>UNRA to follow up.</p>

	<p>use of the most appropriate and economical solution.</p> <p>Some of the anomalies observed in the contracts are a result of improperly prepared tender documents. Lack of drawings for works and underestimation/overestimation of works quantities are examples of the shortcomings of the tender documents and eventual constructions of culvert headwalls of different shapes and sizes. UNRA should take particular attention to the preparation of the tender documents. This could be solved by adopting standard bidding documents with standard designs that can be modified for particular projects.</p>	<p>unpaved roads.</p> <p>More quality control has been instituted in the preparation and issuing contract documents. The bidding documents for example have to be checked and endorsed by the Head, PDU and Secretary before being reproduced for issuing.</p>	
6.3	Contracts Management by UNRA		
a)	<p>The UNRA staff both at HQ and at the District stations is stretched with increased workload due to increased network length and increased budgets. The District offices have a lean structure with few engineers and few technicians to be able to supervise many works at the same time. It is important to have sufficient and capable staff at both HQ and at the District stations to effectively manage the increasing projects.</p>	<p>We shall continue to undertake more capacity building training to improve the capacity of UNRA to manage contracts. We are also developing the capacity of the local consultants by giving them more opportunities. <i>The need for more staff is under constant review especially with the increased workload of about 10,000 Km.</i></p>	UNRA to follow up.
b)	<p>Small-Medium Local contractors and consultants are mostly ignorant when it comes to contractual issues and UNRA should have staff that are competent enough to</p>	<p>The limited capacity of contractors and consultants is acknowledged. However there is continuous improvement as we</p>	UNRA to follow up.



	help them.	progress on with the work. The next group of contract and consultancy contracts will definitely operate in a better manner.	
c)	There is a need for establishment of organisations in the country which will assist in the development and regulating of the local construction industry.	The Local Construction Industry Policy which is now before cabinet will address most of the issues within the industry.	UNRA to follow up.

6.4	<p>Advance Payments</p> <p>Due to use of different types of GCCs the limits for advance payments differ from project to project. In some instances it was noted that the amount of advance payment was not stated and the bidders were informed that the amount would be stated in the 'Letter of Acceptance'. This uncertainty of getting the advance payment could lead to bidders putting a mark up on the rates to accommodate non receipt or payment of low amounts for advances thereby increasing the contract amounts. It is recommended that a standard limit of advance payment be applied and bidders made aware during the bidding period.</p>	<p>The mode of payment of advance payment is normally reflected in the bidding document which specifies the percentage of the contract price, type of guarantee required, and how it will be recovered. We shall standardize this as much as possible.</p>	UNRA to follow up.
6.5	<p>Award of Works Contracts prior to engagement of consultant</p> <p>It has been noted that some of civil works contracts have been awarded without first having the supervising consultant in place. Contract management aspects are better handled when the supervising consultant is first in place and has reviewed the contract documentation. It is recommended that supervision consultants be engaged prior to award of works contracts and wherever possible participate in finalization of the civil works tender documents and bids evaluation.</p> <p>Upon award of civil works contract, the consultant and contractor should develop a quality assurance plan, which</p>	<p>The issue of award of Works Contracts prior to engagement of consultant will in future be discouraged. Consultants will be procured ahead of the works contracts. The use of quality assurance plan will be adopted.</p>	UNRA to follow up.

	<p>will be reviewed and approved by the Client. The quality assurance plan (QAP) is a check list that will be followed at every step of the contract implementation in terms of approval of material, equipment, and the laboratory results, which are needed for moving from one step to the other during the contract implementation. QAP is primarily an understanding between the consultant and contractor on how to enforce quality during the contract implementation.</p>		
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6.6	<p>Considerable Variance of Unit Rates for Same Work Items</p> <p>It has been observed that the rates being quoted by contractors for same work items for similar projects differ considerably (in some cases, up to 300%); for example, the cost of installing a 600mm diameter culvert is quoted as UGX 186,000 for Rakai – Mbarara Border project while the same culvert size installation is quoted at UGX 705,000 for Hoima-Kizirafumbi project, a variance of 279%. A table with examples of unit rates quoted for same work items for the similar projects is appended as Annex1. The reasons for this could not be known but lack of a source for established unit rates could be one of the reasons. It is important that a study on unit rates be undertaken and results be disseminated to the industry. This will also help in preparation of the cost estimates to be used for budgeting purposes.</p>	<p>We shall carry out the following to address the issue of wide variations of contract prices and rates:</p> <p>6.6.1 Come up with the latest unit rate of activities based on current market rates;</p> <p>6.6.2 Pursue the possibility of using the Fixed Budget Selection Method;</p> <p>6.6.3 Look at the possibility of setting upper thresholds of the Engineers Estimate</p>	UNRA to follow up.
6.7	<p>Scarcity of Road Building Materials</p> <p>In some areas of Uganda there is lack of adequate and suitable materials such as gravel and aggregates. Transportation of such materials over long distances is a big cost to the projects. It has been noted that on some projects there has been significant removal of soils from the road way which is referred as 'unsuitable material' It is known and it has been proved that many of the tropical soils including black cotton soils may safely be used in construction of roads if appropriate methods for their use</p>	<p>We shall continue with exploring the use of locally available materials. At the moment the contract for Mattuga-Kapeka is undertaking some trials.</p> <p>UNRA has also put down a standard procedure for trying out the new innovations. The proposing entity will be given a stretch of a road where the method will be tried over a given distance and a</p>	UNRA to follow up.

	<p>are applied. More research is required in the use of the locally available materials. It is recommended that UNRA and consultants pursue the on-going regional initiatives on use of locally available materials on low volume roads and seriously consider their findings for use in Uganda. .</p>	<p>control similar distance. Evaluation and monitoring will then be done over a reasonable period of time. The method can then be duplicated if found successful.</p>	
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<p>6.8</p>	<p>Decision Making</p> <p>It has been noted that delays are experienced in making decisions in response to issues raised by supervising consultants/contractors. These delays impact negatively on the smooth implementation of works and eventually could lead to claims. It is recommended that timely decisions be made by the appropriate authorities (Consultants/UNRA) to avoid unnecessary delays and eventual cost implications.</p>	<p>We shall ensure that decisions are taken in a timely manner. We shall closely review the Contract Management Reports which now come monthly to pick issues that may be outstanding. To assist the process, the Contracts Committee now sits more frequently (Sometimes twice a week)..</p>	<p>UNRA to follow up.</p>
<p>6.9</p>	<p>Road Safety Measures</p> <p>As is always the case when a road has been improved traffic tends to move at higher speeds than normal. This has been observed on improved gravel roads. This is a big problem where the roads pass through populated areas. Beside the environmental issue of dust, peoples' lives are endangered. It is recommended that UNRA liaises with traffic police to devise appropriate measures such as speed control humps to force the traffic to reduce speed in such areas. There is also a need to sensitise the communities living alongside the roads on road safety. This will help in reducing the thefts/vandalism of road signs and other road furniture. The sensitisation could be done in the same way as the HIV/AIDS campaigns have been done. UNRA should also explore the possibility of using material not prone to thefts/vandalism such as cast iron or concrete instead of aluminium for road signs.</p>	<p>We have started taking care of road safety measures. At the moment we have 4 ongoing periodic road marking contracts. We are exploring the introduction of road Committees. These committees would be introduced at LC III level and would consist of some officials and notable citizens. Issues to do with HIV/AIDS. Road Safety Measures, and anti theft/vandalism campaigns will be addressed through these committees.</p> <p>UNRA also intend to buy sign posts which will be installed by force account as and when there is a need.</p>	<p>UNRA should explore the possibility of using materials not prone to thefts/vandalism for road signs. (see photo below of concrete sign posts used in Tanzania)</p> <div style="display: flex; justify-content: space-around;">   </div>

6.10	<p>Axle load Control</p> <p>The audit team did not see adequate efforts in strict control of axle loads when they visited the roads both during the reconnaissance and detailed assessment visits. There were many heavy vehicles plying on some of the roads and some looked overloaded. The overloading on the roads causes premature failure of the roads and eventual loss of heavy investment put in them. There is need to institute proper control of axle loads using the recent technologies including computerization and networking to prevent the corrupt practices that have always undermined the principal objectives of weighbridges.</p>	<p>Operations of Axle Road Control were suspended by the Hon. Minister of Works and Transport with a view of coming up with recommendations to improve the operations.</p> <p>In the meantime the following improvements have been made:</p> <ol style="list-style-type: none"> 1. The software has been re-installed and configured in all weigh bridge stations; 2. Calibration has been made by UNBS of all weighing scales; 3. Four new mobile bridges have been received 4. Construction of platforms for mobile weigh brigdes has been done at Lukaya, Mubende, Busitema and Mbale <p>The Hon. Minister is expected to announce the resumption of the operations soon.</p>	<p>The decision of suspending operations of axle load control should not have been made but rather the ministry should have made improvements when the existing operations were going on.</p> <p>The axle load control operations should be reinstated.</p>
6.11	<p>Performance of Force Account Units</p> <p>The quality of works done through force account was</p>	<p>Use of Force Account does indeed</p>	<p>UNRA should liaise with</p>

	<p>found to be good and better than some of the works done by contractors on some projects. The fact that there is weak contracting capacity in the country calls for strengthening of the force account units to cope with the increasing demand for timely maintenance of the roads especially the gravel roads. Many of the equipment seen in the district stations were very old and their efficiency levels are very low.</p> <p>It is certain that the private sector will not pick up soon and UNRA will have to depend on force accounts for a while. It is therefore important to strengthen the force account units and institute business principles in their working so that they continue to maintain the roads cost effectively until such time when the private sector will be ready to take this role entirely.</p>	<p>contribute greatly to our road maintenance activities. The purchase of equipment is constrained by the fact that this item has not been allowed for funding under the Maintenance Budget. Indeed the Road Fund will not finance the purchase of equipment budget.</p> <p>We have however managed to procure a number of items from the current budget.</p>	<p>other stakeholders and solve the problem of availability of equipment. Probability of utilising monies from Road Fund should be discussed with the Road Fund Board.</p>
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6.12	<p>Strengthening of UNBS</p> <p>Tests for roads works were analysed from two laboratories i.e. Uganda National Bureau of Standards and Dar es Salaam. The process of testing results delayed the audit exercise because of lack of appropriate capacities at UNBS. The UNBS needs to be strengthened to handle major tests for road works as a counter check laboratory in addition to MoWT – Kireka laboratory.</p>	<p>The idea of strengthening UNBS will be followed up with the parent Ministry.</p>	<p>UNRA should also increase its capacity in this area as quality control is key to long lasting roads.</p>
6.13	<p>Overstretched Contractors and Consultants</p>		
a)	<p>The auditors noted that some of the contractors and consultants are delivering while others are failing in terms of equipment and human resources. Cases of contractors 'abandoning the sites' were noted e.g. Zzimwe Hardwares & Construction Ltd had abandoned works on Arua-Manibe-Koboko at the time of this audit. This contractor was also executing works for Fort Portal – Kyenjojo road. In addition, the same contractor had various contracts with other agencies like Kampala City Council. The contractor was overstretched in terms of equipment and personnel.</p>	<p>This problem is a result of the poor Local Construction Industry. UNRA now requires the bidder to declare all ongoing contracts irrespective of the client. This information together will be utilized to assess the capacity of the bidder in awarding the contracts. The situation where a bidder is awarded more than one contract will be avoided as much as possible.</p>	<p>UNRA to follow up.</p>
b)	<p>There are also cases of Consultants having more than one contract with UNRA of which in some instances for each contract there are up to 4 roads being supervised. It was found out that the Consultants are overstretched in terms of human resource personnel on the various sites.</p>	<p>The issue of awarding more than one contract and packaging will be addressed.</p>	<p>UNRA to follow up.</p>

c)	UNRA is encouraged to perform due diligence on Contractors and Consultants while undertaking tender evaluations to confirm the availability of the necessary equipment and personnel to execute the works.	This recommendation is noted for implementation.	UNRA to follow up.
d)	There is a need to expedite the formulation of the National Construction Policy which is intended for addressing the above issues among others.	The National Construction Policy is currently before cabinet for consideration	UNRA and other stakeholders need to follow up.

6.14	<p>Implementation of the National Road Sector Master Plan</p> <p>The auditors noted that there is no clear linkage between UNRA activities with the National Road Sector Master Plan. There is no roadmap for implementation of this plan.</p>	<p>Clear linkages will be established as soon as the Plan formally commences.</p>	<p>UNRA to follow up.</p>
6.15	<p>Contractor's, Consultant's and UNRA Personnel</p> <p>It was noted that some personnel found on various sites for both the Contractors and Consultants were different from those that were proposed during the bidding process. In other cases the personnel to levels of Site Agent/Supervisors for Contractors and Road Inspectors for Consultants lacked the requisite qualifications and experience. Furthermore, some sites were being managed by Engineers not registered with the Institution of Engineers and the corresponding Registration Board. The auditors also noted over 90% of UNRA Station Engineers were not registered with the Institution of Engineers and the Registration Board as required by the Law.</p> <p>The above inadequacies are direct cause of defective works sighted during the audit visits and undermine ethical conduct.</p>	<p>The issue of personnel indeed poses a big challenge. We are however now more vigilant.</p> <p>The problem is compounded by the fact that the time between the bidding and award of contract is quite long, over 6 months which makes it difficult to keep some of the original staff. However there is a provision for confirming the available staff at the time of negotiations for consultants. The contractors confirm their personnel schedules at the time of commencement. We shall ensure that the replacements where necessary confirm to the required qualifications.</p>	<p>Efforts should be made by all parties involved to reduce the bidding period and be able to get the personnel who have been proposed for the works/services. When the proposed names of key staff are doubted then the contractors/consultants should be asked to bring along the staff during the contract negotiations stage.</p>
a)	<p>The proposed Contractor / Consultant senior personnel should be registered and the other level of supervisors should possess requisite qualifications and experience to</p>		

	perform the works.		
b)	UNRA should ensure that proposed personnel for various works are the one to manage the sites.		
c)	UNRA should ensure that at least all Station Engineers and those above this rank are registered.	The UNRA Station Engineers have been advised to register and warned that it will not be possible to renew their contracts unless they do so.	UNRA to follow up.
6.16	Payments being made for price adjustments have been found to be excessive on some projects (about 30% of contract amount). Rationale and accuracy of application of price adjustment clause/formula (monthly and use of prices rather than indices and sources) not clear and need to be reviewed, For example for Soroti – Dokolo road the amount paid for VoP amounted to UGX 18bn/- as of September '09 (26% of contract sum). The anticipated amount for VoP was UGX 3.2bn and for Dokolo – Lira road the amount for VoP amounted to UGX 11bn as of September 2009 (13% of contract sum).	<p>The high VOP costs are due to the long period between receipt of bids and the award of contract. .</p> <p>The Contractors proposed the use of prices of suppliers as proxy indices, which was accepted for use in the contracts since Uganda Bureau of Statistics (UBOS) was not publishing construction indices. Now UBOS is publishing indices and these will be used.</p> <p>UNRA has engaged an independent consultant to review the VOP computations on the Contracts</p>	It is not proper to use prices instead of indices. The application of the formula on monthly basis is irregular as the price indices are updated on quarterly basis. (the price fluctuations at monthly intervals are minimal to warrant the application of the formula)

Annex 9.1 a – Summary of Unit Rates Analysis for Paved Roads

S/N	Project Name	Contractor	Road Length (Km)	Contract Amount (Ushs)	Rate / Km	Unit Rates for Major Items of Work								HIV AIDS&OSH per month	Remarks
						Crushed stone base/m ³	Cement-base	Lime-base	Prime coat/litre	Bitumen	1st SD per l //l/m ²	2nd SD per l //l/m ²	DBM/m ³		
1	Kampala-Gayaza-Zirobwe	Energo Projekt	44.2	69,499,914,926	1,572,396,265	108,733			4.484//3.939		7,302	5,188			MC70/MC30
2	Soroti-Dokolo Road	China Road & Bridge Corp	65.0	73,585,667,877	1,132,087,198	139,292			3,469		4.728//1.2	6.346//0.9			
3	Kawempe-Luwero Road	Energo Projekt	66.0	28,500,000,000	431,818,182	75,793			3.279//3.205		6.879 // 1.0 both				1st & 2nd layers!
4	Luwero-Kafu Road	Energo Projekt	100.0	30,400,000,000	304,000,000	53,244			//2855		7.280 // 1.5&1.0				Details!
5	Fort Portal- Hima	CICO	55.0	29,946,750,277	544,486,369				2,660		2429//1.4	2667//1.4			
6	Olwiyo-Pakwach Road	CICO	57.0	28,787,648,210	505,046,460	54,550					3,830	3,090			
7	Kampala-Jinja	Multiplex	80.0	13,108,057,200	163,850,715	73.350/100.000			3200//3200		11.000//1.5&1.0			800,000	Spot repairs
8	Jinja-Bugiri	Reynolds/Sonitra	72.8	112,094,898,363	1,539,765,087	74,000			1.964		3,716	3,026	351,672	415.790/466.158	Explain two values!
9	Kafu-Masindi	General Nile Co. For Roads& Bridges +Dott-Services	44.0	32,382,946,027	735,976,046	43,000			2100/2.250		2.727//1.1	2.192//1.3			Time extension questionable?+variati ons. Projects report!! Companies??
10	Fort Portal- Kyenjojo	Zzimwe	10.0	3,610,182,800	361,018,280	237,000			6,286		3.333//1.2	3.636//1.1			Aggregates paid for separately/spread rate makes no sense!
11	Busega-Mityana	Spencon	27.0	4,127,071,929	152,854,516		7,190		5,604		3180//1.2	3498//1.1			no consultant, arithmetic confusing [report]
12	Nansana-Busunju	Nicontra	48	2,974,329,100	61,965,190				8,929		4750//1.2				Repairs
13	Soroti-Kumi Road	Spencon	48	3,167,038,501	65,979,969										Repairs
14	Mbale-Kumi	FA													
15	Tororo-Mbale	FA													
16	Ntungamo-Kabale-Katuna	Spencon	84.5	17,309,293,108	204,843,705				5,700		16200//1.0both layers				March 2009 -no separation
17	Matugga-Semuto-Kapeeka	CICO	41.2	37,524,144,105	910,780,197										
18	Mbarara Municipality	?													
19	Kyotera Town Council	?													
20	Busunju-Kiboga	Stirling	69	27,216,395,939	394,440,521										
21	Kiboga-Hoima	Stirling	77	33,925,828,882	440,595,180				1,327				198,900		
22	Backlog: Masaka-Kyotera	??	Various												5,300,000
23	Dokolo-Lira	China Road & Bridge Corp	60.4	82,068,227,664	1,358,745,491										
24a	Kampala-Masaka (sec 1)	Reynolds/	51.6	82,550,265,868	1,599,811,354	109,508			2,520		4648//1.1		421,489	497,539	
24b	Kampala-Masaka (sec 2)	Reynolds	11.5	26,865,213,200	#VALUE!	115,640			2,716		4592//1.1		478,604	557,648	
24c	Kampala-Masaka (general)	Reynolds	63.1	126,517,487,852	2,005,031,503										111,980,316

Notes:

- Under surface dressing, the second number gives the spread of bitumen in litres per square meter.
- For double surface dressing the cost per km is between 304m for Luwero-Kafu to 1570 m for 1359 for Soroti-Dokolo Road
- Kampala-Gayaza-Zirobwe cost 1572 m per km; the larger part is double surfacing
- For roads with asphalt concrete the price per km varies between 1540 million for Jinja Bugiri to 2336 million on Kampala-Masaka (Sec 2)
- The prices for asphalt concrete and Gayaza Zirobwe road compare with those of a road with 200 mm thick concrete slab!
- The cost of HIV AIDS varies between 5,3million to 112.0 million per month! For unpaved this is 1.2 million!
- Nos 7,11,12,13,16 are spot repairs

Annex 9.1 b – Summary of Unit Rates Analysis for Un-paved Roads

S/N	Project Name	Contractor	Road Length (Km)	Contract Amount (Ushs)	Rate / Km	Unit Rates for Major Items of Work						Murrum and fill material (m ³)	murrum m ³ /km	HIV AIDS&OSH	Remarks
						Medium Grading	Heavy Grading	cost per m ³ Murrum	Concrete Culverts						
									600mm	900mm	1200mm				
1	Lokapel-Nabilatuk	Kark	45.0	1,804,008,000	40,089,067		1,800	27,000		550,000		40,500	900		6 mo.
2	Moroto-Lokitanyala	Kark	44.0	2,160,920,000	49,111,818		1,500	27,000	450,000	550,000	750,000	39,600	900		6 mo.
3	Kamuli-Bukungu	Kark	68.0	2,226,950,000	32,749,265	1,000		24,500	320,000	400,000		61,200	900		9 mo.
4	Fortportal-Bundibugyo	Kasese Nail&Wood Ind	74.0	1,159,108,641	15,663,630	480		22,000	220,000	350,000		45,000	608		9 mo.
5	Fortportal-Kamwenge	Kato Investments	77.0	1,616,620,000	20,995,065	450		16,800	170,000	280,000	350,000	69,300	900		9 mo.
6	Rakai-Mbarara Border	Assured	50.0	1,125,549,700	22,510,994	450		20,000	186,000	330,000	463,000	45,000	900		6 mo.
7	Nadunget-Aksim	JW Opolot	74.0	1,657,130,000	22,393,649		1,100	14,000	180,000	240,000		66,600	900		9 mo.
8	Pabbo-Atiak-Nimule	Mulwooza & Bro	70.0	3,323,572,500	47,479,607		1,000	24,000	300,000	450,000		90,300	1290		9mo
9	Katunguru-Ishasha	Mulwooza & Bro	87.0	1,520,144,000	17,472,920	400		25,000	280,000			45,500	523		8 mo.
10	Kotido- Kanawat-Abim	EXCEL	70.0	1,152,910,747	16,470,154		639	22,890	296,000	396,000	512,500	31,500	450		6 mo.
11	Isingiro-Rakai	Assured	56.0	1,096,991,500	19,589,134	350	620	20,000	186,000	330,000		39,200	700		7 mo
12	Kitgum-Lira Border	Kark	54.0	1,126,862,000	20,867,815	400		20,000	250,000	400,000		32,400	600		6 mo.
13	Ngetta-Kitgum Border	Mulwooza & Bro	64.0	2,698,671,000	42,166,734		900	27,000	300,000	420,000		57,960	906		Variation! 8 mo
14	Obongi-Moyo	Universal Engineering	56.0	3,061,600,000	54,671,429	400	500	20,000	200,000	300,000		112,500	2009		8mo
15	Myanzi-Kasanda	Kato Investments	45.0	1,090,201,416	24,226,698		2,550	2,700	38,706			30,100	669		6mo
16	Kyapa-Kasensero	Otada	41.0	1,196,708,708	29,188,017		835	21,990	210,500	330,000		36,900	900		6mo
17	Masaka-Bukakata	Multiplex	43.0	2,159,243,900	50,214,974		1,200	40,000	200,000			41,400	963		6mo
18	Kanoni-Maddu...	Sobetra	60.0	1,731,480,000	28,858,000	800		25,000	220,000			54,000	900		8mo
19	Arua-Manibe...	Zzimwe	79.0	1,877,959,000	23,771,633		410	18,500	400,000	500,000		45,000	570		
20	Kaputh-Kaabong	Force Account													
21	Kaabong-Kapedo	Force Account													
22	Hoima-Kizirafumbi	Dott Services	51.2	4,960,292,893	96,880,721	4,000	4,900	21,000	705,000	850,000		68,000	1328	1,200,000	
23	Malaba&Busia Park	BCR General Limited		2,401,344,700				28,500		393,800					
24	Nyakahita-Rushere	BCR General Limited	45	1,925,119,125	42,780,425	690		18,500	225,000						18 mo
25	Bumbobi/Bubulo/..	Rocktrust	44	1,206,666,230	27,424,233		970	19,992	162,000	252,000		40,140	912		
26	Mpigi-Kanoni Road	Valley Tech Services	41.2	1,367,521,000	33,192,257										
27	Kanawat-Apaan	Minimax	39	270,249,116	6,929,465										
28	Hoima---Kaiso Road	Sterling	85.2	7,087,456,750	83,186,112	69,678	6,800	17,000	250,000	350,000		153,705	1804		revised from 6 to 9.5 months

Notes:

Per Km from 15,7 million to 96.9million but in exceptional cases it shot up to 96.9 milliondepending on other factors

Medium grading from 350 to 4000 per m²

Heavy grading from 410 to 6800 per m²

The cost of culverts of diameter 600 mm range from 170,000 to 705,000

The cost of culverts of diameter 900 mm range from 240,000 to 850,000

Murrum rate ranges from 14,000 to 27,000 per m³

Murrum from 450 to 2009m³ per km

Annex 9.2 a - People Present during Detailed Field Assessments

Station	Road Name	Audit Witness	Firm / Institution	Designation	Date of Audit
Masaka	Rakai – Mbarara Border	Kyeyune Francis	UNRA	Station Engineer	22/10/2009
		Kirinnya Francis	UNRA	Assistant Station Engineer	
		Mugarura Benon	Assured Eng. Services Ltd	Contractor / Managing Director	
Mbarara	Isingiro – Rakai/Mbarara Border	Munyambanza C.	UNRA	Station Engineer	22/10/2009
		Eng. Easter Santos	Prome Consult Ltd	Resident Engineer	
		Mugarura Benon	Assured Eng. Services Ltd	Contractor / Managing Director	
Kasese	Strengthening of Kasese – Kikorongo road section	Godfrey Ssambwa	UNRA HQ	Project engineer	23/10/2009
		Ssonko George	UNRA	Assistant Station Engineer	
		Ntwirenabo Coleb	UNRA	Road Inspector	
Fort Portal	Strengthening of Fort Portal – Hima road section	Rubahamya Marcelliano	UNRA	Station Engineer	23- 24/10/2009
		Ssonko George	UNRA	Assistant Station Engineer/ Kasese	
		Opio Simon	UNRA	Road Inspector	
	Widening & re-sealing of Shoulders and Access roads on Fort Portal – Kyenjonjo road (Kmo-Km10)	Rubahamya Marcelliano	UNRA	Station Engineer	24/10/2009
		Kaddu David	Tech Consults / Trio	Materials Technician /Consultant	
		Busiinge Mike	Zzimwe Enterprises	Site Agent	
	Semikoze David	Zzimwe Enterprises	D/ Site Agent		
Hoima	Emergency repairs to Hoima – Kaiso road	Wazimba J.	UNRA	Station Engineer	26/10/2009
		Sooka Nelson	UNRA	Assistant Station Engineer	
		Kabiru Ephraim	Sterling Civil Eng. Ltd	Site Supervisor	
		Kiggundu S. Daniel	Sterling Civil Eng. Ltd	Contract Manager	
	Upgrading of Hoima – Kiboga road	Wazimbe J.	UNRA	Station Engineer	27/10/2009

Station	Road Name	Audit Witness	Firm / Institution	Designation	Date of Audit
	section	Byaruhanga A.	UNRA	Road Inspector	
		Mawanda John Paulus	Gibb Africa	Consultant Road Inspector / Surveyor	
		Kabiru Ephraim	Sterling Civil Eng. Ltd	Site Supervisor	
Kampala	Upgrading & Strengthening of Kampala – Gayaza – Ziobwe road	Ssambwa Godfrey	UNRA	Project Manager / UNRA	30/10/2009
		Torstein Kravik	NorConsult AS	Resident Engineer	
		Sagar Reddy	NorConsult AS	Materials Engineer	
		Mabonga Wetala Michael	NorConsult AS	Assistant Resident Engineer	
		Arsic Dejan	Energoproject Niskogradnja	Project Manager /Contractor	
	Rehabilitation / Re-sealing of Kawempe – Luwero Road Section	Bruno S. M.	UNRA	Regional Manager / UNRA	31/10/2009
		Hanekon Schalk		Consultant	
		Kaabi William		Consultant	
Masindi	Rehabilitation / Re-sealing of Luwero – Kafu Road Section	Bruno S. M.	UNRA	Regional Manager /UNRA	2/11/2009
		Eng. Remegie Girukwishaka		Resident Engineer	
		Ntanyungura Denis		Measurement Engineer	
		Goran Brasmo		Site Agent	
Gulu	Upgrading of Olwiyo – Pakwach road	Bigabwa John	UNRA	Station Engineer	3/11/2009
	Periodic Maintenance of Gulu-Atiak-Nimule	Bigabwa John	UNRA	Station Engineer	4/11/2009
Ssemambo E.		Muloowoza & Brothers Ltd	Headman / Contractor		
Moroto	Periodic Maintenance of Nadunget – Akism road	Kafifi Wilson	UNRA	Station Engineer	6/11/2009
		Mwidi George	UNRA	Assistant Station Engineer	
		Kwesiga Daniel	J. W. Opolot Constrn Ltd	Site Agent	
		Onyango Emmanuel	J. W. Opolot Constrn Ltd	Foreman	
Kotido	Periodic Maintenance of Kotido – Kanawat – Abim road	Opuchi Chris	UNRA	Station Engineer	7/11/2009
		Darshan Singh	Excel Construction Ltd	Site Agent	
		Koms Mark	Excel Construction Ltd	Foreman	

Station	Road Name	Audit Witness	Firm / Institution	Designation	Date of Audit
Jinja	Rehabilitation of Jinja – Bugiri road	Higenyi John	UNRA	Project Engineer / UNRA	9/11/2009
		Inyensiko George	UNRA	Station Engineer	
		Musoke Gerald	Egisbceom International	Deputy Resident Engineer	
		Kato Issa	Egisbceom International	SLT / IOW	
		Jan Paaskesen	Reynolds Construction Company (NIG) Ltd and Sonitra	Materials Engineer	
	Periodic Maintenance of Kamuli – Bukungu road	Inyensiko George	UNRA	Station Engineer	10/11/2009
		Kiganda Bennice	UNRA	Assistant Station Engineer	
		Baireghaka Benedicto	UNRA	Road Inspector	
		Mugolo Kaporiri	Kark Technical Services Ltd	Site Engineer / Contractor	
		Mugambwa Robert	Kark Technical Services Ltd	Site Agent	
Kampala	Improvement of Black Spots along Jinja – Kampala road	Kabanda Herman	UNRA	Assistant Engineer / UNRA	11/11/2009 & 17/11/2009
		Mwase Valentine Byansi	Phoenix Eng. & Research Ltd	Project Manager / Consultant	
		Kyobe Richard	Multiplex Ltd	Engineer / Contractor	
		Ssekatemwa Edward	Multiplex Ltd	Engineer / Contractor	
		Luyimbazi Dan	Multiplex Ltd	Engineer / Contractor	

Annex 9.2 b – List of People Met during Meetings and Reconnaissance Visits

S/Nr.	Name	Organisation	Position
1	Eng Torsten Kravik	NorConsult AS	Project Eng (Kampala Gayaza-Zirobwe)
2	Eng Watala	NorConsult AS	Ass Proj Eng (Kampala-Gayaza-Zirobwe)
3	Gereson Ochieng	J.Burrow Limited	Project Engineer (Soroti-Dokolo)
4	Eng R Girukwishaka	Phoenix Engineering & Research Ltd.	Proj Eng (Luwero-Kafu)
5	Henry Davis	Comptran Eng Ass.	Proj Eng Soroti-Dokolo
6	Isaac Wagatya	Arch Design/Otieno Odong	Resident Engineer
7	Fred Kumali	Rocktrust Construction Company	Site Agent (Bumbobi-Bubulo-Bududa)
8	Peter Ssebanakitta	UNRA	Executive Director
9	Chris Opuch	UNRA	Station Engineer
10	Eng G. Obara	UNRA	Project Engineer
11	Wilson Kafifi	UNRA	Station Engineer Moroto
12	Eng John Bigabwa	UNRA	Station Engineer Gulu
13	Eng Vincent Otim	UNRA	Project Engineer Soroti Dokolo& Dokolo-Lira
14	George Inyensiko	UNRA	Station Engineer Jinja
15	Steven Kisubi	UNRA	Station Engineer Mbale
16	Stephen Sikuku	UNRA	Station Engineer Soroti
17	Steven Seninde	UNRA	Station Engineer Tororo
18	Isaac Wani	UNRA	Station Engineer Kitgum
19	Eng Saul Mulondo	UNRA	Station Engineer Lira
20	Joseph Lusiba	UNRA	Ass Eng Mubende
21	Tom Bwambale	UNRA	Road Overseer Mubende

22	Francis Munu	UNRA	Ass Proj Manager Mpigi
23	H. Mpamire	UNRA	Road Inspector Mpigi
24	Raphael Ssemakula	UNRA	Site representative Mpigi
25	Eng James Okiror	UNRA	Director Projects
26	Eng Valentine Mugisha	UNRA	Project Manager
27	Eng Charles Naita	UNRA	Project Manager
28	Eng Godfrey Ssambwa	UNRA	Project Manager
29	Eng Luswata Buzibwa	UNRA	Project Engineer
30	Eng Joseph Otim	UNRA	Project Engineer
31	Eng Geffrey Obara	UNRA	Project Engineer
32	Eng Ssebugga Kimeze	UNRA	Director Operations
33	Eng Justine O. Odongo	UNRA	Road m'tnce Manager
34	Eng W. Musumba	UNRA	Road M'tnce Manager
35	Eng Godfrey Kaaya	UNRA	Regional Manager
36	Eng Bruno Musoke	UNRA	Regional Manager
37	Eng Charles Sabiiti	UNRA	Regional Manager
38	Eng Charles Assedri	UNRA	Regional Manager
39	Eng Fredrick Kalegga	UNRA	Regional Manager
40	Eng Joseph Kumbya	UNRA	Regional Manager
41	Eng Charles. Assedri	UNRA	Reginal Manager
42	Herman Kabanda	UNRA	Assistant engineer
43	Gerald Ndaula	UNRA	Human Res Manager
44	Samuel Muhoozi	UNRA	Station Engineer Masindi
45	Samuel Liiki	UNRA	Station Engineer Moyo
46	C. Munyambaza	UNRA	Station Engineer Mbarara
47	J.K. Kasawuli	UNRA	Station Engineer Kasese
48	Ronald Lwome	UNRA	Station Engineer Luwero

49	Marceleano Rubahamya	UNRA	Station Eng. Fort Portal
50	Jonathan Wazimbe	UNRA	Station Engineer Hoima
51	Asaph	UNRA	Station Engineer Kabale
52	Francis Kyeyune	UNRA	Station Engineer Masaka
53	Joe Ssemungoma	UNRA	Director F&A
54	Atai I Musana	UBOS	Principal Statistician
55	Peter Opio	UBOS	Principal Statistician
56	Ben P. Mungyereza	UBOS	D. Executive Director
57	Deusdedit Mubangizi	UNBS	Manager
58	John Okumu	UNBS	Manager
59	Prof Dr Jackson Mwakali	Trio Consultants Ltd	Project Manager
60	Keto Nyapendi Kayemba	OAG	Ass Auditor General
61	Charles Kateregga	OAG	Director
62	James Bantu	OAG	Director
63	Edward Akol	OAG	Ass Director
64	Robert Kamukama	OAG	Principal Auditor
65	David Kasule	CAA	Director Airports
66	David Mpango Kakuba	CAA	D/Managing Director
67	Eng Valentine Byansi Mwase	Phoenix Engineering & Research Ltd	Resident Engineer (Kampala-Jinja)
68	Richard Kyobe	Multiplex	Engineer

Annex 9.3 – Terms of Reference