



TRAINING CONTRACTORS FOR TARGETED INTERVENTIONS ON LOW-VOLUME ROADS IN MOZAMBIQUE



MONTHLY REPORT

APRIL 2011

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Scott
Wilson

TRAINING CONTRACTORS FOR TARGETED INTERVENTIONS ON LOW-VOLUME ROADS IN MOZAMBIQUE

Contract n°

SUMMARY OF CONTRACT DETAILS

EMPLOYER		CONSULTING ENGINEER
 ADMINISTRAÇÃO NACIONAL DE ESTRADAS		 
Administração Nacional de Estradas		Scott Wilson Mozambique Lda
File Ref:		File ref: M1024
Contract Commencement Date	1 January 2011	
Contract Period	4 months	
Contract Completion Date	31 May 2011	
Extension of Time Granted	None	
Extended Contract Completion Date	None	
Anticipated Contract Completion Date	31 May 2011	

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1 Introduction

The National Roads Administration (ANE) of Mozambique has embarked on a Regional Roads Investment Programme (RRIP) whose objective is to improve the standard of important unpaved low-volume roads through the “targeted interventions” (spot improvements) approach, with an overall budget of US\$10 million over three years starting in 2008.

The programme is being managed by ANE Directorate of Maintenance (DIMAN) in Maputo. Projects are being administered by provincial delegations of ANE (DPANE) who, together with provincial consultants in the various provinces, are also responsible for design and supervision of the works. Support is being provided for the design of the road sections and technical monitoring of the performance of the roads by TRL Limited of UK. Scott Wilson Mozambique were engaged as the Training Consultant to Support the Execution of Targeted Interventions on Low Volume Rural Roads in Mozambique.

The pilot projects and the current contractor training are financed by the Swedish International Development Agency (SIDA) through the SDMRR-2 Project. The African Community Access Programme (AFCAP), a DFID-funded programme, is assisting ANE with the implementation of the pilot projects.

The list of projects and contractors in the programme is shown in Appendix 1: List of Projects in Programme.

Training activities carried out by the consultant are given in this report.

2 Project Objective

The overall objective of the project is capacity building in the local construction industry for the construction of targeted interventions on low traffic roads, including earthworks, pavement layers, drainage works, bitumen stabilised road bases and thin bituminous seals. It is expected that tangible improvement in the quality of works will be the major output of this assignment.

3 On-Site Visits and Training

Visits were made to sites and training activities carried out as outlined in Appendix 2: Weekly Reports. Reports on the site visits, detailing the observations and recommendations made on issues of project construction and management, are included in Appendix 3: Site Visit Reports.

4 Problems Encountered

4.1 Procurement

The tender procurement process has now been concluded for all 2011 projects. All except three are under construction, and the Niassa and Zambezia projects have already been completed. The three that are yet to commence are Marromeu-Caijai, N302 Matema-Furancungo structure at 55,5km and N322 Madamba-Mutarara structure (by Victoria Construções).

4.2 Construction activities

Problems and issues that were noted on various projects are summarised below and detailed in project visit reports that are given in Appendix 3: Site Visit Reports.

4.2.1 Marracuene-Macaneta

The contractor has not made much progress and is seriously behind schedule. The contractor now has equipment to execute ETB construction but has not yet got into full swing.

4.2.2 Macaneta - Machubo

As previously reported, the project is also seriously behind schedule. It is unlikely that the project will be completed at the end of May 2011 as previously stated by the contractor.

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4.2.3 Chinhacanine-Nalazi

Progress on this project is also behind schedule. Indications are that sources of pavement materials have now been decided and stockpiling is in progress. However, the source of surfacing materials, including for armouring, are still to be finalised.

4.2.4 Cumbana-Chacane

Construction has commenced and is progressing reasonably well.

4.2.5 Inhacufera-Machaze

Construction is in progress.

4.2.6 Beira-Savane

Construction progress on this project is continually interrupted by rains, and the project is behind schedule. There is a need to formulate a workable strategy to implement this project.

4.2.7 Grácio-Milhana

Work has not yet resumed. The contractor has reportedly started mobilization of equipment.

4.2.8 Namuno-Montepuez Structure

Construction of the detour and rehabilitation work is well underway. Cement for construction of structure is still to be delivered to site.

4.2.9 N322 Madamba-Mutarara: Bridge over Thoera River; km 181+300

Work on concreting of the deck is reportedly in progress.

4.2.10 Bene-Fíngoé Phase 3: Culvert at Chikata River, Km 84

The contractor is also reportedly doing concreting of the deck of the structure.

4.2.11 Niassa Structures

Remedial work on the approaches to the structures is yet to be done.

5 Seminar for Contractors in Nampula Province

A seminar was held in Nampula on 28 April 2011 for contractors in Nampula province. The seminar discussed training of contractors, tendering process, classification of contractors, quality control and testing, project implementation and funding. Messrs Kenneth Makubika and Gerard Kabwibwi of Scott Wilson made presentations to the seminar on quality control and testing, evaluation of transitability, project mobilisation and planning, and project inspection. Presentations on the other topics were done by ANE staff.

The seminar was attended by the following:

- Director of Public Works
- ANE Delegate and staff
- All contractors in Nampula province
- Scott Wilson

The presentation started at 9:00 hours and lasted till 12:00 hours. The total number of attendants was 49, including ANE and Scott Wilson staff.

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6 Assessment of Training and Contract Performance

Key issues related to on-site training were outlined and presented in the last report. They have been updated and given in Appendix 4: Assessment of Training and Contract Performance.

As previously reported, there have been improvements on some projects, while on others there have not been much improvement on issues that have been pointed out and discussed. The biggest areas of concern continue to be:

- Lack of preparation of realistic construction programmes
- Inadequate attention to project management requirements
- Lack of qualified and experienced personnel on sites
- Failure to adhere to specifications
- Delays in contract implementation

7 Training Required

It is felt that training is still required for most contractors in the following areas:

- Construction programming
- Construction control and progress monitoring
- ETB construction – computation of emulsion proportion, method of mixing, moisture control and compaction
- Setting and keeping site records
- Surfacing work
- Materials testing

8 Recommendations

Recommendations that have been made to contractors and consultants are reiterated as follows:

- 1) Realistic construction programmes must be prepared for all projects, and construction progress must be monitored
- 2) Contractors can and should set up simple systems of site records– box files of Bills of Quantities, construction programme, drawings, correspondence, site diaries, plant and labour returns, materials test results etc.
- 3) Contractors should provide all the required resources – appropriate equipment, qualified and experienced key staff, labour and materials – to carry out the work
- 4) Site staff should continue to be aware of the importance of compaction, proper method of construction and adherence to specifications
- 5) Contractors should call for compaction and other materials tests as often as necessary to ensure proper monitoring of work
- 6) Consultants should prepare and provide all the required project construction details and information

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Appendix 1: List of Projects in Programme

Project	Phase	Contractor	Start Date	Completion Date
Southern Region				
Maputo Province:				
Marracuene - Macaneta	2	ECMEP Sul	Aug 2009	Terminated
Marracuene - Macaneta	3	SEMPRE	Oct 2010	Mar 2011
Calanga - Checua	1	Adilson Construções		Complete
Cruz Km16/ Boane	1	Infra Engineering		Complete
Macaneta-Machubo	3	PROBRA	May 2010	
Gaza Province:				
Guija-Chicualacuala	1	Max Construções		Dec 2009
Guija-Chicualacuala)	2	Adilson Construções	Sept 2009	
R441 Chinhacanine-Nalazi	3	BRIDE Construções	Jul 2010	Nov 2010
Inhambane Province:				
Cumbana-Chacane	2	SINOHYDRO	Dec 2009	Mar 2010
Cumbana-Chacane	3	CBC Construções	Feb 2011	
Central Region:				
Manica Province:				
Inhacufera - Machaze	2	Tarcon	Jul 2009	Complete
Inhacufera - Machaze	3	EREPTZ	Feb 2011	
Sofala Province:				
Cruz N6 - Savane	2	TCO	Jan 2010	Jan 2011
Marromeu-Caia	3	ECMEP Centro		
Tete Province:				
Drift de Nhimbe	1	ECMEP Centro	Sept 2008	Feb 2009
Subida de Cachombo	3	Nhango Construções	Mar 2011	

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Calçada da km 55+700	2	ZIAD Construções	Jun 2009	Complete
Subida de Furancungo; Revestimento com pedra	2	Repairs; No funding in 2011		
N302 Matema-Furancungo: 1 No. Calçada at 40km	3	ECMEP Centro	Mar 2011	
N302 Matema-Furancungo: 1 No. Calçada at 30km	3	Meno Construções	Mar 2011	
N302 Matema-Furancungo: 1 No. Calçada at 55,5km	3	ECONIL Construções		
N322 Madamba-Mutarara: 3 span bridge	3	EREPTZ	Dec 2010	Feb 2011
N322 Madamba-Mutarara Calçada	3	VICTORIA CONSTRUÇÕES	Mar 2011	
Bridge(3 span) at Chikata Km 84 (Bene-Fingoé Road)	3	EREPTZ	Dec 2010	Feb 2011
Ruas da Sede Distrital Marávia	3			In progress
Zambezia Province:				
Zero - Mopeia	2	CETA	Dec 2009	Complete
Zero - Mopeia	3	EREPTZ Construções	Sept 2010	Complete
Northern Region				
Cabo Delgado Province:				
Xitaxi – Muidumbe - Mueda	2	Construção A Varinda	Feb 2010	Complete
Montepuez - Namuno Structure	3	Sinobell		
Nampula Province:				
Nagemá - Chocas Mar	2	SMS Construções	Sept 2009	Complete
R1159 Mecane - Pilivili	2	BLM Construções	Aug 2009	Complete
R1159 Mecane - Pilivili	2	SMS Construções	Sept 2009	Complete
R698 Grácio-Milhana – Cruz R696: 2 No. bridges	3	ECRAM Construções	Jul 2010	
Niassa Province:				

Mavago – M’sawize	2	Piramide	Jul 2009	Complete
Mavago – M’sawize	2	Acol	Jul 2009	Complete
Cuamba - Lichinga	1			Complete
R725 Nipepe–CheiaCheia: 3 No. bridges	3	EREP Construções	Jul 2010	Complete
R725 Nipepe–CheiaCheia: 2 No. bridges	3	Tumbine Empreendimentos Lda	Jul 2010	Complete
Mavago-M’sawise Stone paving	3	AC Construções	Jul 2010	Complete
Mavago-M’sawise Otta Seal	3	Construções CASAMA	Jul 2010	Complete

Appendix 2: Weekly Reports

A. On-Site Visits and Training Record

Week Ending: 9 April 2011

Date	Project	Contractor	Present	Activities in Progress/Training Done/Problems and Solutions
Maputo Province				
	Marracuene-Macaneta	SEMPRE	N/A	Work is in progress but very slow
	Macaneta-Machubo	PROBRA	N/A	Contractor has resumed work and plans to complete project in May 2011.
Gaza Province				
	Chinhacanine-Nalazi	BRIDE Construções	N/A	Work is in progress but may have problems with plastic base material
Inhambane Province:				
	Cumbana - Chacane	CBC Construções	N/A	Work is in progress
Manica Province				
	Inhacufera – Machaze Phase 3		N/A	Work is in progress
Sofala Province				
	Cruz N6 Savane	TCO	N/A	Work is in progress
Tete Province				
	Subida de Cachombo Phase 3	Nhango Construções	N/A	Commencement scheduled for March 2011
	Subida de Farancungo; Revestimento com pedra Phase 2		N/A	Repairs required to defective work by PAP; No funding available this year
	N302 Matema-Furancungo: 3 No. Calçadas Phase 3	ECMEP Centro	N/A	Commencement scheduled for March 2011
	N322 Madamba-Mutarara: 3-span bridge over Thoera River; km 181+300	EREPTZ	N/A	Work is in progress

Date	Project	Contractor	Present	Activities in Progress/Training Done/Problems and Solutions
	N322 Madamba-Mutarara Calçada Phase 3	VICTORIA CONSTRUÇÕES	N/A	Commencement scheduled for March 2011
	Calçada sobre rio Chikata Km 84 na estrada Bene-Fíngoé Phase 3	EREPTZ	N/A	Work is in progress
	Ruas da Sede Distrital Marávia		N/A	
Zambezia Province				
	Zero Mopeia Phase 3	EREPTZ	N/A	Complete
Cabo Delgado Province				
	Xitaxi-Mueda	Construção A. Varinda (CAV)	N/A	Project is complete.
	Namuno-Montepuez Multi-Cellular Box Culvert	SINOBELLI	N/A	Work is in progress
Nampula Province				
	R698 Gracio-Milhana – Cruz R696	ECRAM Construções	N/A	Work is in progress
Niassa Province				
	R725 Nipepe–CheiaCheia: 3 No. bridges	EREPS Construções	N/A	Contractor will be required to complete the approaches to the structure.
	R725 Nipepe–CheiaCheia: 2 No. bridges	Turbine Empreendimentos Lda	N/A	Contractor will be required to complete the approaches to the structure.
	Mavago-M'sawise Stone paving	AC Construções	N/A	Project is complete
	Mavago-M'sawise Otta Seal	Construções CASAMA	N/A	Otta seal- 200m; Project is complete

A. On-Site Visits and Training Record

Week Ending: 16 April 2011

Date	Project	Contractor	Present	Activities in Progress/Training Done/Problems and Solutions
Maputo Province				
	Marracuene-Macaneta	SEMPRE	N/A	Work is in progress; ETB not yet resumed
	Macaneta-Machubo	PROBRA	N/A	Work hampered by heavy rains over the weekend.
Gaza Province				
	Chinhacanine-Nalazi	BRIDE Construções	N/A	Work on culverts is in progress; No gravel stockpiling being done
Inhambane Province:				
	Cumbana - Chacane	CBC Construções	N/A	Work is in progress
Manica Province				
	Inhacúfera – Machaze Phase 3		N/A	Work is in progress
Sofala Province				
	Cruz N6 Savane	TCO	N/A	Work is in progress
Tete Province				
	Subida de Cachombo Phase 3	Nhango Construções	N/A	Commencement scheduled for March 2011
	Subida de Farancungo; Revestimento com pedra Phase 2		N/A	Repairs required to defective work by PAP; No funding available this year
	N302 Matema- Furancungo: 3 No. Calçadas Phase 3	ECMEP Centro	N/A	Commencement scheduled for March 2011
	N322 Madamba- Mutarara: 3-span bridge over Thoera River; km 181+300	EREPTZ	N/A	Deck concreting is in progress
	N322 Madamba- Mutarara Calçada Phase 3	VICTORIA CONSTRUÇÕES	N/A	Commencement scheduled for March 2011
	Calçada sobre rio	EREPTZ	N/A	Deck concreting is in progress

Date	Project	Contractor	Present	Activities in Progress/Training Done/Problems and Solutions
	Chikata Km 84 na estrada Bene-Fíngoé Phase 3			
	Ruas da Sede Distrital Marávia		N/A	
Zambezia Province				
	Zero Mopeia Ph 3	EREPTZ	N/A	Complete
Cabo Delgado Province				
	Xitaxi-Mueda	Construção A. Varinda (CAV)	N/A	Project is complete.
	Montepuez - Namuno Multi-Cellular Box Culvert	SINOBELLI	N/A	Work is in progress; Commencement of work on structure waiting delivery of materials
Nampula Province				
	R698 Gracio-Milhana – Cruz R696	ECRAM Construções	N/A	Structures are complete; Embankment construction yet to resume.
Niassa Province				
	R725 Nipepe– CheiaCheia: 3 No. bridges	EREPS Construções	N/A	Contractor will be required to complete the approaches to the structure.
	R725 Nipepe– CheiaCheia: 2 No. bridges	Tumbine Empreendimentos Lda	N/A	Contractor will be required to complete the approaches to the structure.
	Mavago-M'sawise Stone paving	AC Construções	N/A	Project is complete
	Mavago-M'sawise Otta Seal	Construções CASAMA	N/A	Otta seal- 200m; Project is complete



A. On-Site Visits and Training Record

Week Ending: 23 April 2011

Date	Project	Contractor	Present	Activities in Progress/Training Done/Problems and Solutions
Maputo Province				
21 April 2011	Marracuene-Macaneta	SEMPRE	<p><u>SEMPRE</u>: H Matos (Director), M Pinto (Encarregado) <u>Consultec</u>: J Chissico (S Fiscal), C Alfeu (J Fiscal) <u>ANE DIMAN</u>: N Leta <u>Scott Wilson</u>: E Gumbie</p>	<p>1. Contract commenced on 27 September 2010. Project involves red sand base and slurry seal in the first section, and embankment construction and pavement of sand/clay blend in the section after Incomáti river</p> <p>2. Work in Progress:</p> <ul style="list-style-type: none"> a. Construction of road side drains by hand in section 5-14km <p>3. Training Covered: N/A</p> <p>4. Training Required:</p> <ul style="list-style-type: none"> • ETB construction • Slurry seal <p><u>Issues/Problems</u>:</p> <ul style="list-style-type: none"> a. Culvert length near end of project (about 13km) is too long. Discussed with consultants determination of correct culvert lengths and reference to standard drawings b. Setting out and profile of side drains being done by hand looked alright. c. It is essential for the contractor to do ETB construction.
21 April 2011	Macaneta-Machubo	PROBRA	<p><u>PROBRA</u>: - <u>Consultec</u>: J Chissico, A Albano (J Fiscal) <u>ANE DIMAN</u>: N Leta <u>Scott Wilson</u>: E Gumbie</p>	<p>1. Contract commenced in May 2010; Project involves embankment construction, culverts, pavement of sand/clay blend and concrete block paving in last 1,5km to Machubo administrative post.</p> <p>2. Work in progress:</p> <ul style="list-style-type: none"> • Excavation for additional culverts in section 0-2km. <p>3. Training Covered: N/A</p> <p><u>Issues/Problems</u>:</p> <ul style="list-style-type: none"> a. A vehicle was bogged down while trying to bypass the first culvert excavation on section 0-2km. There is need to make proper arrangements to accommodate traffic during construction of the culverts. b. There was no work on concrete block paving. There is no reason why this cannot be resumed.

Date	Project	Contractor	Present	Activities in Progress/Training Done/Problems and Solutions
Gaza Province				
	Chinhacanine-Nalazi	BRIDE Construções	N/A	Work on culverts is in progress; No gravel stockpiling being done
Inhambane Province:				
	Cumbana - Chacane	CBC Construções	N/A	Work is in progress
Manica Province				
	Inhacúfera – Machaze Phase 3		N/A	Work is in progress
Sofala Province				
	Cruz N6 Savane	TCO	N/A	Work is in progress
Tete Province				
	Subida de Cachombo Phase 3	Nhango Construções	N/A	Commencement scheduled for March 2011
	Subida de Farancungo; Revestimento com pedra Phase 2		N/A	Repairs required to defective work by PAP; No funding available this year
	N302 Matema-Furancungo: 3 No. Calçadas Phase 3	ECMEP Centro	N/A	Commencement scheduled for March 2011
	N322 Madamba-Mutarara: 3-span bridge over Thoera River; km 181+300	EREPTZ	N/A	Deck concreting is in progress
	N322 Madamba-Mutarara Calçada Phase 3	VICTORIA CONSTRUÇÕES	N/A	Commencement scheduled for March 2011
	Calçada sobre rio Chikata Km 84 na estrada Bene-Fíngoé Phase 3	EREPTZ	N/A	Deck concreting is in progress
	Ruas da Sede Distrital Marávia		N/A	

Date	Project	Contractor	Present	Activities in Progress/Training Done/Problems and Solutions
Zambezia Province				
	Zero Mopeia Phase 3	EREPTZ	N/A	Complete
Cabo Delgado Province				
	Xitaxi-Mueda	Construção A. Varinda (CAV)	N/A	Project is complete.
	Namuno-Montepuez Multi-Cellular Box Culvert	SINOPELLI	N/A	Work is in progress; Commencement of work on structure waiting delivery of materials
Nampula Province				
	R698 Gracio-Milhana – Cruz R696	ECRAM Construções	N/A	Structures are complete; Embankment construction yet to resume.
Niassa Province				
	R725 Nipepe–CheiaCheia: 3 No. bridges	EREPS Construções	N/A	Contractor will be required to complete the approaches to the structure.
	R725 Nipepe–CheiaCheia: 2 No. bridges	Tumbine Empreendimentos Lda	N/A	Contractor will be required to complete the approaches to the structure.
	Mavago-M'sawise Stone paving	AC Construções	N/A	Project is complete
	Mavago-M'sawise Otta Seal	Construções CASAMA	N/A	Otta seal- 200m; Project is complete

A1. On-Site Visits and Training Record

Week Ending: 30 April 2011

Date	Project	Contractor	Present	Activities in Progress/Training Done/Problems and Solutions
Maputo Province				
	Marracuene-Macaneta	SEMPRE	N/A	Work is in progress
	Macaneta-Machubo	PROBRA	N/A	
Gaza Province				
	Chinhacanine-Nalazi	BRIDE Construções	N/A	Work is in progress
Inhambane Province:				
	Cumbana - Chacane	CBC Construções	N/A	Work is in progress
Manica Province				
	Inhacufera – Machaze Phase 3		N/A	Work is in progress
Sofala Province				
	Cruz N6 Savane	TCO	N/A	Work is in progress
Tete Province				
26-29 Apr 2011	Subida de Cachombo Phase 3	Nhango Construções	N/A	It has been reported that the contractor has mobilised. The training team could not get to site due to vehicle breakdown.
	Subida de Farancungo; Revestimento com pedra Phase 2		N/A	Repairs required to defective work by PAP; No funding available this year
28 Apr 2011	N302 Matema-Furancungo: Phase 3 Calçada at km 40+000	ECMEP Centro	<p><u>ECMEP Centro:</u> Constantino Armando, Quilino Salicuchepa Salpai</p> <p><u>Scott Wilson :</u></p> <p>Emmanuel Munatsi, Leonel Bomba Pedro,</p> <p><u>Técnica:</u></p> <p>Milione João Milione</p>	<ol style="list-style-type: none"> Contract commenced with site handover on 13 April 2011; Project involves construction of a 5 x 5m span bridge and related earthworks to complete the link of the new structure and the existing road. Work in Progress <ul style="list-style-type: none"> Mobilization, with the Camp construction underway on the day of visit. Training Covered <ul style="list-style-type: none"> N/A Training required <ul style="list-style-type: none"> Works planning and programme preparation

Date	Project	Contractor	Present	Activities in Progress/Training Done/Problems and Solutions
				<ul style="list-style-type: none"> • Drawing interpretation and taking off quantities. • Setting out • Concrete mix design and volume batching. <p><u>Issues / Problems</u></p> <ol style="list-style-type: none"> a. Contract duration of sixty days may not be sufficient for the planned works b. A works programme should be prepared and approved by the consultant. c. The consultant's representative said they would review clarify details on foundation drawings. d. The contractor was advised to collect and send material to the laboratory for mix designs and testing.
28 Apr 2011	N302 Matema-Furancungo: Phase 3 Calçada at km 30+000	MENO Construções,	<p><u>MENO Construções:</u> Nhatua Capasseco Domingos <u>Scott Wilson :</u> Emmanuel Munatsi, Leonel Bomba Pedro <u>Técnica:</u> Milione João Milione</p>	<ol style="list-style-type: none"> 1. This site was handed over to the contractor on the 3rd of March 2011 and the contractor started mobilising on the 11th of March 2011. 2. Work in progress <ul style="list-style-type: none"> • Foundation construction (1.90m deep, 1.40m wide for abutment footings and 1.2m wide pier footings), each footing has a thickness of 600mm in mesh reinforced concrete sitting on top of a 500mm thick rock fill, the mesh is not specified but is located 200mm from the bottom. • Construction of abutments and the central pier on top of the said foundations. 3. Training Covered <ul style="list-style-type: none"> • N/A 4. Training Required <ul style="list-style-type: none"> • Works planning and programme preparation • Drawing interpretation and taking off quantities. • Setting out • Concrete mix design and volume batching <p><u>Issues / Problems</u></p> <ol style="list-style-type: none"> a. Foundation detail on the drawing is not clear

Date	Project	Contractor	Present	Activities in Progress/Training Done/Problems and Solutions
				b. A works programme needs to be prepared and approved.
	N302 Matema-Furancungo: Phase 3 Calçada at km 55+500	ECONIL Construções	N/A	Despite having handed over the site to the contractor, the contractor has not yet mobilised and there was no one on site.
	N322 Madamba-Mutarara: 3-span bridge over Thoera River; km 181+300	EREPTZ	N/A	Work is in progress since December 2010. Now deck concreting is in progress. The training team could not get to site due to vehicle breakdown.
	N322 Madamba-Mutarara Calçada Phase 3	VICTORIA CONSTRUÇÕES	N/A	Commencement scheduled for March 2011
	Calçada sobre rio Chikata Km 84 na estrada Bene-Fíngóé Phase 3	EREPTZ	N/A	Work is in progress since December 2010. Now deck concreting is in progress. The training team could not get to site due to vehicle breakdown.
	Ruas da Sede Distrital Marávia		N/A	
Zambezia Province				
	Zero Mopeia Phase 3	EREPTZ	N/A	Complete
Cabo Delgado Province				
	Xitaxi-Mueda	Construção A. Varinda (CAV)	N/A	Project is complete.
	Namuno-Montepuez Multi-Cellular Box Culvert	SINOBELLI	N/A	Work is in progress; Commencement of work on structure waiting delivery of materials
Nampula Province				
	R698 Gracio-Milhana – Cruz R696	ECRAM Construções	N/A	Structures are complete; Embankment construction yet to resume.
Niassa Province				
	R725 Nipepe–CheiaCheia: 3 No. bridges	EREPS Construções	N/A	Contractor will be required to complete the approaches to the structure.
	R725 Nipepe–CheiaCheia: 2 No. bridges	Tumbine Empreendimentos Lda	N/A	Contractor will be required to complete the approaches to the structure.



Date	Project	Contractor	Present	Activities in Progress/Training Done/Problems and Solutions
	Mavago-M'sawise Stone paving	AC Construções	N/A	Project is complete
	Mavago-M'sawise Otta Seal	Construções CASAMA	N/A	Otta seal- 200m; Project is complete

A2. Other Activities

25 April 2011:

Meeting with ANE Delegate Nampula and staff, and Scott Wilson provincial staff to discuss provincial contractors' seminar presentations on

28 April 2011:

Seminar for provincial contractors on training, tendering process, classification of contractors, quality control and testing, project implementation and funding. .

The seminar was attended by the following:

- Director of Public Works
- ANE Delegate and staff
- All contractors in Nampula province
- Scott Wilson

The presentation started at 9:00 hours and lasted till 12:00 hours. The total number of attendants was 49.

Appendix 3: Site Visit Reports

RRIP: TRAINING CONTRACTORS FOR TARGETED INTERVENTIONS ON LOW-VOLUME ROADS IN MOZAMBQUE

SITE VISIT REPORT

Date: 21 April 2011

Project: Marracuene-Macaneta Road

Contractor: SEMPRE

<u>Present:</u>	<u>Consultec:</u>	Jorge Chissico (Fiscal Senior)	Tel. 82 610 9320
		Carlos Alfeu (Fiscal)	Tel. 82 354 2643
	<u>ANE DIMAN:</u>	Nkululeko Leta	Tel: 82 820 7659
	<u>Scott Wilson:</u>	Eric Gumbie	Tel. 82 654 4973

Mr. Pinto of SEMPRE was on site supervising the drain construction works, and Mr. Humberto Matos of SEPMPRE attended the meeting following the site visit.

1. **Work in Progress**

- a. Section 0-700m (before Incomáti River):
No work in progress
- b. Section 0-9,4km (distances measured from Incomáti River):
Excavation and shaping road side drains

2. **Observations**

2.1 **Construction Activities**

- a. Excavation and shaping of road side drains in section 5-7km:
Excavation and shaping of the right hand side drain was being done by hand in section 5-7km. The soil is soft damp sand and easy to work by hand, and the profile of the drain that was produced looked alright.
- b. Culvert construction in section 8-9km
Construction of culverts was not in progress on the day of the visit, reportedly due to shortage of cement. One culvert had just been completed near the end of the project, at about 8+700km. The set invert level was alright. However, the outlet needs to be opened up to take water away. Also, the length of this culvert was longer than necessary, being 8m in a section with a road width of 5m. Lengths of subsequent culverts will be corrected.



2.2 Construction programme

The new construction programme with the new completion date of the end of May 2011 was yet to be approved.

2.3 Site Camp

As previously reported, a reasonable site camp has been built that is adequate for the project.

2.4 Procurement of Construction Materials

- a. There was no work on stockpiling of fill and pavement material for the section after Incomáti River on the day of the visit.
- b. More materials are required to complete the culverts

2.5 Materials Testing

There have been no tests yet for concrete. Results of ETB compaction are awaited.

2.6 Site Records

There are no site records on this site.

2.7 Site support

Site support remains poor on this project. Some effort is being put to improve this.

3. Construction Equipment

- a. There was no equipment on site except a tractor/trailer being used for transport, and a TLB that was broken down.
- b. The contractor still intends to mobilise the required equipment, particularly the following for ETB:
 - 1x12T vibratory roller
 - 1xDisc harrow
 - 1x350l concrete mixer

4. Key Staff

While the contractor is receiving advice and assistance from a qualified and experienced engineer, experienced site staff are still required to execute works on site. Mr. Humberto Matos indicated that he has a technician available for the project.

5. Labour

There seems to be adequate labour for the project.

6. Training Done

There was no activity in progress for which training was required.

7. Training Required

The following training will be required on site:

- i. ETB construction
- ii. Slurry seal mixing and construction

8. Recommendations

In addition to previous recommendations,

- i. The contractor still needs to prepare a realistic construction programme
- ii. Site support in terms of staff and equipment is still required.
- iii. Culvert lengths must be determined correctly, with reference to standard drawings.
- iv. Concrete tests must be done in order to judge the quality of the concrete work. The fiscal is to arrange for concrete cubes to be taken.
- v. It is essential for the contractor to do ETB construction without further delay. The contractor should submit a method statement detailing, among other things:

-
- a. Sequence of activities from the first day and first activity
 - b. Computation of emulsion proportion
 - c. How the work will be done, and equipment to be used
 - d. How moisture control is to be achieved
 - e. Compaction control
 - f. Testing procedures
 - g. Proposals for remedial work on failed ETB sections
 - vi. Also, as stated in previous reports, completion of the embankment and pavement construction across the Incomáti river is still required
 - vii. A simple system of site records of box files should be put in place.

RRIP TRAINING CONTRACTORS FOR TARGETED INTERVENTIONS ON LOW-VOLUME ROADS IN MOZAMBIQUE

SITE VISIT REPORT

Date: 21 April 2011

Project: Macaneta-Machubo Road

Contractor: PROBRA

<u>Present:</u>	Consultec: Jorge Chissico	Tel. 82 610 9320
	PROBRA: -	
	ANE DIMAN Nkululeko Leta	Tel. 82 820 7659
	Scott Wilson: Eric Gumbie	Tel. 82 654 4973

1. Work in Progress

- a. Section 0-2km
Excavation for pipe culverts
- b. Section 5-8km:
No work in progress at present

2. Observations

2.1 Construction Activities

- a. Section 0-2km:

Excavation was in progress for the first of additional pipe culverts instructed by the engineer. The soils in this section are very poor and the water table is very high, making construction conditions very difficult. It was recommended to the contractor at an earlier meeting that the culvert foundations be stabilised using stones rammed into the soil similar to what is being done on other projects.



A vehicle was bogged down while trying to bypass the culvert excavation, indicating the need to make proper arrangements to accommodate traffic during construction of the culverts.

- b. Section 5-8km:

There was no work being done on the concrete block paving at Machubo Administrative Post.

2.2 Construction Programme

A construction programme was discussed with the contractor, but this is yet to be finalised and approved.

2.3 Site Camp

As previously reported, a reasonable site camp has been built that is adequate for the project

2.4 Procurement of Construction Materials

- i. Delivery of pipe culverts to site has commenced.
- ii. There is gravel stockpiled for the concrete block paving

2.5 Materials Testing

N/A at present

2.6 Site Records

There are no site records on this site.

2.7 Site Support

When work has been in progress, there has been reasonable supply of equipment and materials.

3. Equipment

Equipment on site was as follows:

- 2x Excavators (one broken down)

4. Key Staff

When work was in progress, there were experienced staff on site.

5. Labour

Work has not yet completely resumed and there is no labour on site at present.

6. Training Done

There was no activity in progress for which training was required.

7. Training Required

- Culvert foundation construction technique
- Concrete block paving construction
 - consistency of the sand bedding for the concrete block paving
 - camber

8. Recommendations

- i. There is need to make proper arrangements to accommodate traffic during construction of the culverts in section 0-2km.
- ii. Culvert foundations must be stabilised. A proposed technique is shown below.
- iii. Section 0-2km is in very bad condition and needs some grading
- iv. There is no reason why block paving at Machubo Administrative Post cannot be done. This work must resume.
- v. There is still the need to have works accelerated

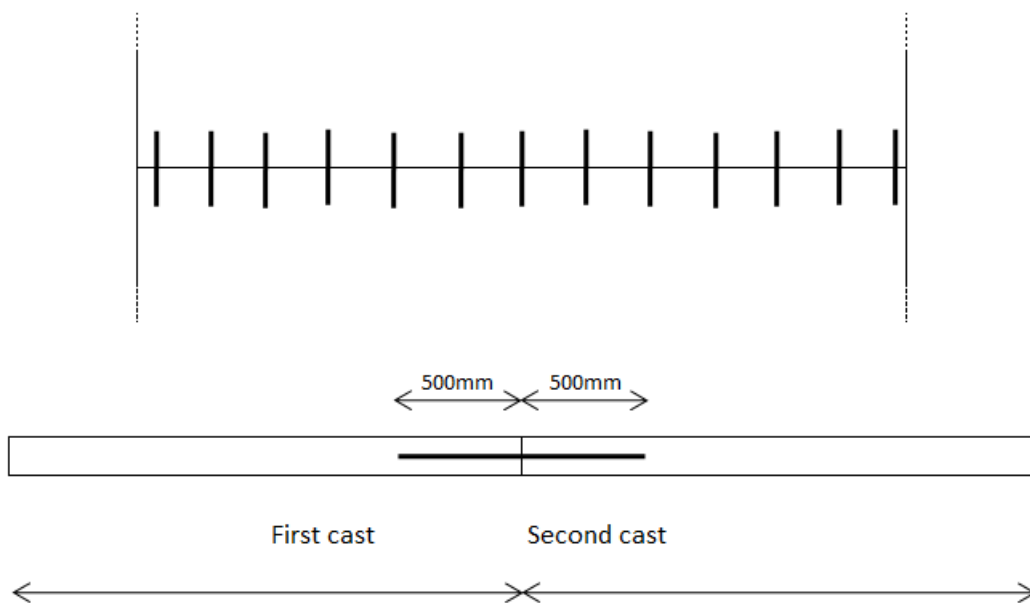
MACANETA – MACHUBO PROJECT: CULVERT INVERT SLAB CONSTRUCTION

1. Construct layer of stones first to strengthen muddy foundations. Cover top with sand to fill voids in stone and prevent loss of cement mortar into the stone layer during concreting.



2. If slab is constructed in halves to accommodate traffic, join the two halves of the invert slab with steel dowels:

Dowel bars @ 300mm spacing:



RRIP: TREINAMENTO DOS EMPREITEIROS PARA INTERVENCOES DIRIGIDAS NAS ESTRADAS DE BAIXO VOLUME DE TRAFEGO EM MOCAMBIQUE.

RELATORIO DE VISITA A OBRA

Data: 28 de Abril 2011

Projecto: Estrada Matema – Furancungo, Construção de uma calçada sobre o rio no km 30+000

Empreiteiro : MENO Construções

<u>Presente:</u>	Técnica:	Milione João Milione	
	MENO :	Nhatua Capaceco Domingos (Encarregado)	
	ANE Tete	Não foi representado	
	Scott Wilson:	Emmanuel Munatsi	Tel. 82 6863 573
		Leonel Bomba Pedro	Tel. 84 222 0116

1. Trabalho em Curso

Até ao dia da nossa visita a obra, a obra estava ainda na fase de construção de fundações e especificamente as sapatas e parte inferior de pilares e encontros. No dia da visita não havia nenhuma actividade e a obra se encontrava parada há duas semanas por causa de atraso de ensaios de estudo de misturas de betão.

2. Observações

2.1 Actividades de Construção.

- a. Fundações da Estrutura.
 - i. Não foi possível verificar o estado de fundações da estrutura como já se encontravam cobertas mas de acordo com o encarregado, fizeram, com profundidade de 1.90m e as larguras de 1.40m para encontros e 1.20m para o pilar. As sapatas eram de 0.60m de espessura por cima de enrroncamento de pedra de 0.50m e com uma malha simples de varões Ø12mm afastados ao 150mm ambos os sentidos.
 - ii. Notamos o uso de desenho tipo que não tem pormenores suficientes das fundações e falta de uma instrução específica para o empreiteiro que indica realmente qual é o pormenor para seguir. A laje inferior estava em construção com uma malha de varões de Ø16mm afastados ao 200mm ambos os sentidos.
 - iii. Para permitir um local seco para trabalhar, o empreiteiro fechou o rio e criou uma barragem de água na montante, que agora serve para garantir a propria consreução.
 - iv. De acordo com a informação do empreiteiro, depois de construir as sapatas e parte inferior de encontros e pilare, construíram muros de ligação na jusante e montante entre quais tiraram todos solos e substituíram com saibro compactado em camadas antes de enrroncamento que se ve nom local abaixo da malha de Ø16mm afastados ao 200mm ambos os sentidos.
 - v. Quando se espera betonagem da laje inferior, notamos que no inicio haverá perca de muita betão para os vazios entre as perdras, para que sugerimos que devia enche-lo com areia limpa e alizar por cima com uma betonilha fina antes de se colocar a malha e betonagem da laje.



b. Encontros e Pilares

Apenas a parte abaixo da laje inferior é que estava feita. Para subir mais, o empreiteiro estava a espera de definição de traço para betão da laje inferior pelo laboratório e betona-la antes de levantar os encontros e pilar.

c. Produção de betão.

Antes de definição de traço pelo laboratório, o empreiteiro usou o traço de 1:2:3 para betão de fundações. Notamos entretanto que o empreiteiro tinha problemas de dosagem como havia uma duvida de uso de um recipiente contra sacos de cimento ao medir volumes de material para dosagem. Aconselhamos o empreiteiro para adoptar uma maneira muito simples e usar um recipiente de tamanho mais facil para trabalhar com ela (balde do pedreiro ou melhor que seja uma caixa de medição feita para o efeito)

2.2 Programa de actividades.

Não tivemos acesso a cópia de programa de actividades desta obra. O empreiteiro não preparou o tal para aprovação. Sem programa de actividades torna-se difícil controlar se a obra está avançada, de acordo com o plano ou atrasada e quais são as medidas correctivas a tomar. De acordo com o empreiteiro, ela tem até 18 de Maio como prazo estabelecido para conclusão de actividades e entrega da obra.

2.3 Acampamento

Tem estabelecido um acampamento perto do local da obra, feito de material local, tem o mínimo para funcionamento no local da obra mas notamos problema de armazenamento de material e maquinaria.



2.4 Ensaio de material de construção.

- Foi levado material para ensaio no laboratório para verificar as suas propriedades e definição de traços para argamassa e betão.
- Maior preocupação foi o atraso do laboratório no levantamento do material e devulgação de resultandos de ensaios. A obra se encontrava parada desde dia 12 de Abril em que foi solicitadao o laboratório para levar material. Fomos informados que o pessoal do laboratório so apareceram e levaram material no dia 26 de Abril (14 dias depois da solicitação)

3. Equipamento

No local da obra tinha equipamento a seguir:

- 1 x camioneta de 1.5 toneladas,
- 1 x placa vibradora.
- 1 x vibrador de betão.
- 1 x betonera de 350 litros
- 1 x motobomba
- 1 x tanque de água de 2000 litros



4. Pessoal Chave.

O encarregado Nhatua Capasseco Domingos e seu director da obra / director da empresa estavam presente mostram um certo nivel da experiencia na construção de estruturas dessa natureza.

5. Recomendações

- i. Melhor participação do laboratório em termos de definição de traço de betão a ser aplicado de acordo com o material existente no local e verificação de betão feito.
- ii. Elaboração e submissão de plano de trabalho para aprovação e uso no controlo de progresso da obra. Assistência ao empreiteiro na elaboração deste programa de actividades.
- iii. Melhorar em termos de dosagem na altura de fabrica de betão, adoptar uma maneira mais facil como usar um recipiente uniforme para todo material, (pode ser balde do pedreiro ou uma caixa feita para o efeito (*batching box*)) e colher amostraas na altura para posteriormente sujeitar o betão a um ensaio de fresistencia a compressão.

RRIP: TREINAMENTO DOS EMPREITEIROS PARA INTERVENCOES DIRIGIDAS NAS ESTRADAS DE BAIXO VOLUME DE TRAFEGO EM MOCAMBIQUE.

RELATORIO DE VISITA A OBRA

Data: 28 de Março 2011

Projecto: Estrada Matema – Furancungo, Construção de uma calçada sobre o rio no km 40+000

Empreiteiro : ECMEP CENTRO

<u>Presente:</u>	ECMEP CENTRO:	Constantino Armando	
		Quilino Salicuchepa Salpai	
	ANE Tete	Não foi representada	
	TECNICA	Milione João Milione	
	Scott Wilson:	Emmanuel Munatsi	Tel. 82 6863 573
		Leonel Bomba Pedro	Tel. 84 222 0116

1. Trabalho em Curso

Coincidiu que no dia de visita à obra o empreiteiro se encontrava a mobilizar. Estava uma equipa a limpar o local de construção de acapmamento e na mesma altura a transportar material para mesmo efeito.

2. Observações

2.1 Actividades de Construção.

Era antes de se iniciar qualquer actividade de construção no local. Nem a limpeza do local de trabalho não tinha iniciada.



Local de trabalho sem nenhuma actividade ainda em curso

2.2 Programa de actividades.

De acordo com o representante do empreiteiro no local, como iniciaram mobilização no dia 28 de abril, tinha plano de iniciar pesquisa de pedra no dia seguinte e transportar a partir do dia 30 de abril para o local de trabalho. Dizeram que procurava pedra solta que é mais fácil explorar. A implantação da obra iniciara depois de transportar pedra para o local.

Notamos os seguintes das perguntas que lançamos aos responsáveis do empreiteiro:

- A obra terá prazo de dois meses (60 dias)
- Ainda não tem cronograma elaborada e submetida à fiscalização para aprovação
- Não tem material no local como estavam a iniciar mobilização mas tinha na sede e pronto para trazer na obra 200 sacos de cimento, não tinha mais nada em termos de material.

2.3 Acampamento

Ainda em construção com inicio no dia da visita à obra.



Local de acampamento ainda na fase de limpeza



Ferramentas que o empreiteiro, parte de mobilização

2.4 Ensaio de material de construção.

- Até na altura de visita, não havia nenhuma material levada para o laboratório para verificação da sua qualidade e estudo de misturas de argamassa ou betão.

3. Equipamento

- No local da obra tinha equipamento a seguir:
 - Tractor com atrelado
 - 1 x carinha landcruiser 4x4
- Não havia equipamento para corte e dobragem de ferro e de mistura e vibração de betão. Foi alertado o empreiteiro sobre as vantagens de ter esse equipamento na obra.



Tractor e atrelado



Carinha Land Cruiser 4x4

4. Pessoal Chave.

Os dois que representaram o empreiteiro não haviam mais ninguém da equipa técnica do empreiteiro. Foi chamada atenção a ECMEP CENTRO para disponibilizar a equipa técnica como consta na sua proposta técnica para garantir acompanhamento da obra até a sua entrega após conclusão.

5. Recomendações

- iv. Elaboração e aprovação do cronograma de actividades
- v. Estudo de mistura baseado na qualidade de material para argamassa e betão
- vi. Cumprimento com os prazos estabelecidos
- vii. Esclarecimento de detalhes de fundações da estrutura.



Appendix 4: Assessment of Training and Contract Performance

Item/Project	Marracuene-Macaneta	Macaneta-Machubo	Chinhacanine-Nalazi	Cumbana-Chacane	Cumbana-Chacane	Inhacufera-Machaze	Cruz. N6-Savane
RRIP Phase	2	3	3	2	3	3	2
Contractor:	SEMPRE	PROBRA	BRIDE	SINOHYDRO	CBC	EREPTZ	TCO
Contract Administration							
• Construction programming	Poor; Needs attention by contractor	Poor; Needs attention by contractor	Fair but can improve	Poor	Poor; Needs attention by contractor	Poor; Needs attention by contractor	Poor; Needs attention by contractor
• Site office	None	None	Shed	Good	Shed	Shed	None
• Site Establishment	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Poor
• Documents on site	None; Requirements indicated	Some drawings on site; Requirements indicated	Fair	Fair	None; Requirements indicated	None; Requirements indicated	None; Requirements indicated
• Works programme on site	None; Requirements indicated	None; Requirements indicated	Acceptable	None seen; Requirements indicated	None; Requirements indicated	None; Requirements indicated	None; Requirements indicated
• Site records.	None; Requirements indicated	None; Requirements indicated	Fair	None; Requirements indicated seen	None; Requirements indicated yet	None; Requirements indicated	None; Requirements indicated
• Progress monitoring and control	Very poor; No system; Requirements indicated	Poor; No system; Requirements indicated	Fair, but no system observed	Reasonable	Poor to date; No system; Requirements indicated	Poor to date; No system; Requirements indicated	Poor; Requirements indicated
• Head Office support	Poor; Needs attention by contractor	Contractor makes effort	Fair	Good	Fair	Good	Very good
2. Construction Operations							
• Gravel extraction	Poor control; Needs attention	Fair control; Areas of improvement indicated	Fair control; Areas of improvement indicated	Good – simple source	Good – simple source	Fair control; Areas of improvement indicated	

Item/Project	Marracuene-Macaneta	Macaneta-Machubo	Chinhacanine-Nalazi	Cumbana-Chacane	Cumbana-Chacane	Inhacufera-Machaze	Cruz. N6-Savane
RRIP Phase	2	3	3	2	3	3	2
Contractor:	SEMPRE	PROBRA	BRIDE	SINOHYDRO	CBC	EREPTZ	TCO
• Compaction knowledge and control	Poor; Needs attention by contractor	Fair after awareness raised	Improved after awareness raised, in Nov 2010	Good	Poor start; Contractor made aware	Not yet commenced	Fair
• Materials Testing	Not frequent enough	Not frequent enough	Good –requests done by site	Good	Not yet required	Not yet required	Poor; Requirements indicated
• Dumping control	Poor; Needs attention	Fair	Fair	Good	Poor; Site staff made aware	Fair but can improve; Discussed on site	Good
• Adherence to specifications	Very poor; Needs attention by contractor	Has improved since beginning	Has improved since beginning	Good	Project just commenced	Project just commenced	Fair
• Materials blending procedure	Poor; Recommendations given on site in Nov 2010	Poor; Discussed on site	N/A	Acceptable	Not yet required	N/A	N/A
• ETB	Poor; Discussed on site and recommendations made in March 2011	N/A	N/A	N/A	N/A	N/A	Poor; Discussed on site and recommendations made in March 2011
• Knowledge and performance of surfacing – Otta, slurry seal etc	N/A	N/A	Contractor considering subletting	Poor; Not done well but completed	Not yet discussed	Contractor considering subletting as done on other project	
• Concrete knowledge and control	Fair	No concrete work done yet	Poor control; Requirements indicated	N/A	Not yet assessed; Project just commenced	Not yet assessed; Project just commenced	
3. Resources							
• Adequacy of equipment on site	Very poor; Using labour approach which may not be	Fair, but problem of “stop-start”	Good, but sometimes taken off-site for no	Good but surfacing equipment poor; Had to hire	Good so far	Very good	Ok for now; Poor for ETB



Item/Project	Marracuene-Macaneta	Macaneta-Machubo	Chinhacanine-Nalazi	Cumbana-Chacane	Cumbana-Chacane	Inhacufera-Machaze	Cruz. N6-Savane
RRIP Phase	2	3	3	2	3	3	2
Contractor:	SEMPRE	PROBRA	BRIDE	SINOHYDRO	CBC	EREPTZ	TCO
	appropriate		apparent reason	pneumatic roller			
<ul style="list-style-type: none"> Equipment maintenance capability on site 	Reasonable for little equipment on site	Reasonable – manages to keep equipment operational	Reasonable – manages to keep equipment operational	Good	Project just commenced	Reasonable arrangements for access to mechanic	Good
<ul style="list-style-type: none"> Adequacy and experience of key personnel to carry out required work 	Inadequate; Temporary assistance obtained for ETB	Fair	Fair	Poor surfacing knowledge	Fair; Surfacing capability to be discussed	Fair	Good for road works but poor for ETB
4. Construction Output							
<ul style="list-style-type: none"> Progress achieved 	Very poor; Discussed with contractor	Poor; Discussed with contractor	Behind schedule but reasonable	Completed	Late commencement	Late commencement	Fair initially, but fallen seriously behind
<ul style="list-style-type: none"> Effort of contractors' staff 	Site staff make effort	Site staff make effort	Site staff make effort	Complete	Project just commenced	Project just commenced	Fair to good

Assessment of Training and Contract Performance – cont'd

Item/Project	N322 Structure	Chikata Structure	N302 Culvert at 40km	N302 Culvert at 30km	Xitaxi- Mueda	Montepuez Structure	Gracio-Milhana
RRIP Phase	3	3			2	3	2
Contractor:	EREPTZ	EREPTZ	ECMEP Centro	Meno Construções	CAV	SINOHELL	ECRAM
1. Contract Administration							
• Construction programming	Poor; Needs attention by contractor	Poor; Needs attention by contractor	Poor; Needs attention by contractor	Poor; Needs attention by contractor	Fair; Needed too much coercion from the Trainer	Good, but still lacking coordination with management	Fair; Project manager does all planning without involving the Foremen
• Site office	Shed	Shed	Still mobilising	None	Good; Rented premises	Good; Rented premises	Fair; Constructed out of pole and grass
• Site Establishment	Acceptable	Acceptable	Underway	Not quite as desirable	Good; Rented premises	Good; Rented premises	Fair; Constructed out of pole and grass
• Documents on site	None; Requirements indicated	None; Requirements indicated	Have drawings from consultant, need updating	Have drawings from consultant, need updating	Parts of the contract document, the BoQ	Parts of the contract document, the BoQ	Parts of the contract document, the BoQ
• Works programme on site	None; Requirements indicated	None; Requirements indicated	None; Requirements indicated	None; Requirements indicated	Yes	No; Project Manager keeps the programme	No; Project Manager keeps the programme
• Site records.	None; Requirements indicated	None; Requirements indicated	None; Requirements indicated	None; Requirements indicated	Keeps a site record book and a file for letters and instructions	Keeps a site record book and a file for letters and instructions	Keeps a site record book and a file for letters and instructions
• Progress monitoring and control	Poor; No system; Requirements indicated	Poor; No system; Requirements indicated	Poor; No system; Requirements indicated	Poor; No system; Requirements indicated	Fair	Fair	Fair
• Head Office	Fair	Fair	Fair	Good	Good	Good	Good

Item/Project	N322 Structure	Chikata Structure	N302 Culvert at 40km	N302 Culvert at 30km	Xitaxi- Mueda	Montepuez Structure	Gracio-Milhana
RRIP Phase	3	3			2	3	2
Contractor:	EREPTZ	EREPTZ	ECMEP Centro	Meno Construções	CAV	SINOHELL	ECRAM
support							
2. Construction Operations							
• Gravel extraction	N/A	N/A	N/A	N/A	Good; Used retro excavators and 5 ten tonne tippers	Good; Used retro excavators and 2 ten tonne tippers	Good; Used retro excavators and 2 ten tonne tippers
• Compaction knowledge and control	N/A	N/A	N/A	N/A	Very Good, as shown by the quality achieved	Fair; Required a lot of coercion from the consultant to bring a water bowser and compactor	Fair; Required a lot of coercion from the consultant to bring a suitable compactor, having brought a towed non-vibrating roller
• Materials Testing	No tests done yet	No tests done yet			Good; Calls for ANE Laboratory for tests to confirm of quality	Good; Calls for ANE Laboratory for tests to confirm of quality	Good; Calls for ANE Laboratory for tests to confirm of quality
• Dumping control	N/A	N/A	N/A	N/A	Good; Did not have sufficient knowledge for calculations but has since been taught	Good; Did not have sufficient knowledge for calculations but has since been taught	Good; Did not have sufficient knowledge for calculations but has since been taught
• Adherence to specifications	Poor; Issue raised with consultant and contractor	Poor; Issue raised with consultant and contractor	Not yet started working	Fair; working to specification so far	Good; Tries very hard	Fair; A lot of effort still required	Fair; Did not seem to think it was important until the completion of the structures
• Materials blending procedure	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Item/Project	N322 Structure	Chikata Structure	N302 Culvert at 40km	N302 Culvert at 30km	Xitaxi- Mueda	Montepuez Structure	Gracio-Milhana
RRIP Phase	3	3			2	3	2
Contractor:	EREPTZ	EREPTZ	ECMEP Centro	Meno Construções	CAV	SINOHELL	ECRAM
• ETB	N/A	N/A	N/A	N/A	N/A	N/A	N/A
• Knowledge and performance of surfacing – Otta, slurry seal etc	N/A	N/A	N/A	N/A	Fair, did not have any experience in surface dressing and it is not clear if the procedure was well understood	Has not yet done surfacing and shall be taught on the job when relevant activity starts	Has not yet done surfacing and shall be taught on the job when relevant activity starts
• Concrete knowledge and control	Poor appreciation of steel reinforcement; Recommendations given	Poor appreciation of steel reinforcement; Recommendations given	Fair	Fair	Fair	Shall be instructed during the construction of the box culvert	Knowledge developed during the construction of the Katamassi River Bridge applied on the Milhana Swamp structures
3. Resources							
• Adequacy of equipment on site	Reportedly had concrete mixer	Concrete mixer on site	Still mobilising; No equipment on site	Fair; Has concrete mixer and poker vibrator, plate compactor and water pump.	Good; Had all the equipment necessary	Poor; Still struggling to bring sufficient equipment.	Had problems in the beginning but has since brought enough equipment
• Equipment maintenance capability on the sites	N/A	N/A	N/A	Poor storage; No system in plan	Good; Had in place a planned maintenance system and repair response	Unclear; Contract just started therefore no sufficient time to access	Good; Has no planned maintenance system in place but has a good response to equipment breakdowns
• Adequacy and experience of key	Not convincing	Not convincing	Average	Average	Good	Poor, the contractor has a	The project manager is



Item/Project	N322 Structure	Chikata Structure	N302 Culvert at 40km	N302 Culvert at 30km	Xitaxi- Mueda	Montepuez Structure	Gracio-Milhana
RRIP Phase	3	3			2	3	2
Contractor:	EREPTZ	EREPTZ	ECMEP Centro	Meno Construções	CAV	SINOPELL	ECRAM
personnel to carry out required work						project manager but no foremen	supported by a foreman and an assistant foremen who in turn have artisans with sufficient experience
4. Construction Output							
<ul style="list-style-type: none"> Progress achieved 	Poor and slow; Issue raised with contractor	Poor and slow; Issue raised with contractor	No assessment yet; Just starting	Still in the foundation stage; Awaiting concrete mix design results to continue.	Project complete well after the contract end date	The project started at the beginning of March and progress is beginning to fall behind	About 85% complete with one month to go. The project shall require an extension principally due to additions done to the scope of works
<ul style="list-style-type: none"> Effort of contractors' staff 	Fair	Fair	Fair	Fair	Fair	Fair	Good so far but lack of communication due to remoteness of site causes some disruptions.

Appendix 5: List of Meetings

Date	Meeting	Present
Liaison Meetings:		
1 April 2011	Macaneta-Machubo project planning	PROBRA: H Banze Scott Wilson: E Gumbie, L Bomba-Pedro
5 April 2011	Project Review Meeting	ANE DM: F Manheche, D Patel dos Santos, A Mutowo ANE DIMAN: Nkululeko Leta Scott Wilson: Eric Gumbie
25 April 2011	Contractor Seminar Meeting	ANE: Nampula Delegate and staff Scott Wilson: K Makubika