SCOPE OF WORK

A. OVERVIEW:

Sentech State Owned Company (SOC) Welverdiend site T96 access road requires repairs of potholes and slurry seal. Located in Carletonville, Johannesburg. GPS Coordinates: 26 26 47 S; 27 14 55 E.

B. LOCATION: Welverdiend Sentech site T96, Carletonville, JOHANNESBURG,2499

REGION	SITE NAME & CODE	Road Type	Site GPS Coordinates
Northern Region	Welverdiend T96	Tarred road	26 26 47 S; 27 14 55 E

C. SCOPE OF WORK:

Sentech Welverdiend site T96 access road requires repairs: removal of grown grass in the road and edge breaks, poisoning of grass repairs of potholes and slurry seal applications.

The distance of the road is 2.2 km x 3.5 m wide x 3mm to 6mm thick slurry seal when dry.

Notes to bidders:

A. The scope of works for Welverdiend road repairs task includes but is not limited to:

1. Preparations

- Site establishment

  As per South African roads maintenance works standards and regulations not limited to Sentech operations standards specified under contract data sheet.

  Key areas: Road assessment (detailed assessment of the road to understand its current condition and map out the repair areas), Temporary facilities, Utilities and services, site clearance, safety measures, and Infrastructure.

  All above are required to address Health & Safety, Efficiency, Compliance and foundation for success of the required service.

- Sawing asphalt to the areas affected by growing grass on the road for patching (not exceeding 50mm)
- Removal of the growing grass by all roots on the road.
- Supply and application of poison to an area where grass is removed to prevent further growth on the road before repairs and final coat of slurry seal.

2. Road Repairs

- **Patching identified potholes** as per Technical Recommendations for Highways (TRH3 2007 Design and construction of surfacing seals) from South African Road Agencies {TRH 3, Pretoria, South African Version 1.5 May 2007} Section 6, page 53 to 67.

- **Repairing edge breaks** as per road condition at the given 2.2 km.

- **Supply and application of Slurry** seal as per Technical Recommendations for Highways (TRH3 2007 Design and construction of surfacing seals) from South African Road Agencies {TRH 3, Pretoria, South African Version 1.5 May 2007} Section 7, page 68 to 112. **Recommend the fine slurry seal with a minimum of 3mm to 6 mm when dry.**

  Summary: A slurry is a homogenous mixture of fine aggregate, stable-mix grade emulsion (anionic or cationic) or a modified emulsion, water and filler (cement or lime). Slurry seals are used as maintenance treatments and for new surfacing on roads and airfields. They are also used to provide a homogenous texture to the existing surface prior to resealing.

  The design of the slurry is such that:

  - The mixture is easily applied by hand by rubber squeegees or by mechanical spreaders i.e. the mixture will have a creamy consistency, which will allow it to flow readily into the surface voids and interstices.
  - The hardened product will have sufficient binder not to ravel but stable enough to carry the wheel loads without bleeding or deformation.

3. Materials (Slurry seal)

- Aggregates (the most suitable aggregates are crusher dust. The grading of the material depends on and is determined by where the slurry is to be applied and on its purpose. Table 8-5 and Table 8-6 from (TRH3 2007 Design and construction of surfacing seals) 8-6 give some guidance on suitable aggregate grading. Based on the road condition we recommend 2mm to 4.7 mm aggregate with crusher dust.

- Fillers (Portland Cement or similar approved product)

- Water (as per recommendations and specifications) as a guide 160 L of water per cubic meter of dry aggregate.

- Emulsion (Base Bitumen Quick setting cationic or modified cationic emulsion)

4. Batch mixing

- Batch mixing can be done in concrete mixer, of either the tilt or non-tilt type. Small quantities may be mixed in a wheelbarrow. For large quantities where thick layers of slurry are required, i.e. more than 3mm, mechanical equipment and spreader boxes are used.

- The sequence of filling the concrete mixer is:

  a) Aggregate is put first.

  b) Active filler is added slowly; care being taken to ensure that no lumps of cement/lime are added. Mixing continues until a uniform mix of aggregates and filler is obtained.

  c) Water is added until all particles have been coated with water- there should be no dry fines in the mix. If this is done efficiently, the risk of balling of mix is avoided.

  d) Lastly, the emulsion is added. It may be prudent to dilute this emulsion before it is introduced to the mixer.

e) If necessary, water is added to obtain the required consistency.

B. WORKMASHIP

workmanship will not be tolerated in any state, and the contractor will be liable to rectify any findings which do not meet Sentech standards. It is important therefore for the contractor to keep Sentech team informed of inspections intervals to avoid shortcomings. The contractor will not proceed with any application of slurry before demonstration or sample done with the presence of Sentech representative on site following the above (4 batch and mixing) recommended batching procedure. Inspections will be conducted by any Poor construction team member as and when approved by the team leader and the manager.

C. OBJECTIVES

The Welverdiend T96 Access Road is one of Sentech's most important Infrastructure responsible for effective access to the transmission site and it is in line with the organizational resources for revenue generation. It is therefore important that it should be maintained and taken care of.

Repairs are carried out in compliance with Sentech's infrastructures preventative maintenance policy and South African Bureau of Standards (548: 1972, 309: 1972) South African Bitumen and Tar Association (SABITA manual 10 of 1992). Potholes repairs, sawing of asphalts, removal and poisoning of grass, repairing edge breaks, backfilling and slurry seal application are a very important part of Sentech's preventative road maintenance strategy for:

- Protecting further growth of grass on the road which destroys the integrity of road infrastructure.
- Prevent or mitigate the deterioration of roads to manage risk of road safety.
- Improve or maintain the original state of the road as part of service level agreement to Sentech clients.

D. PROCEDURE

1.METHOD STATEMENT

SURFACE PREPARATION

The use of guideline derived from South African Road Agencies {TRH 3, Pretoria, South African Version 1.5 May 2007} Section 6, page 53 to 67. The listed equipment on Figure 11-1 to 11-10 and list under section 11.4.1 are recommended for Labour-intensive surfacing.

2.SAFETY REQUIREMENTS

- Appointed service provider will be required to compile a health and safety file in line with Sentech requirements which will be communicated upon appointment, and such should be submitted to the Sentech OHS Specialist within 3 days of an appointment.
- Medical fitness – Valid certificate of fitness (medical) issued by Occupational Medical Practitioner only for all employees to be assigned to the project
- Work method – Detailed safe working methodology on undertaking assigned task in line with the requirements
- Public liability – valid construction/project public liability insurance
- Health and safety compliance assurance – Company's Health and Safety compliance undertaking by the CEO/Managing Director
- COID / FEM registration for injury on duty cases

. COMMUNICATION PROTOCOL

SITE HAND OVER MEETING

- This is the official handover of the site to the contractor for the duration of the contract. This is the first meeting on site of all the relevant parties who will be involved in the contract for its entire duration.

PROGRESS MEETINGS

- The intervals of progress meetings should be decided at the first site hand over meeting. The Infrastructure Services Manager shall carry out additional intermediate site inspections.

SENTECH LINE OF REPORTING PROBLEMS

- Any problem which may arise during the contract should be reported immediately to the Infrastructure Services Manager.
- If the Infrastructure Manager is not available, it should be reported directly to the Operations Manager.

3. QUALITY ASSURANCE

- Quality assurance inspection will be carried out at all the key dates and milestones established at the site handover meeting.
- The Infrastructure Services Manager or Sentech trade tested construction artisan shall carry out site inspections for quality assurance of the works at any stage or time of the contract.

4. EXECUTION PROGRAMME

- Timeous completion of the project is of utmost importance for Sentech.

- To ensure and to assist the contractor to monitor his or her own progress, he or she will be required to provide Sentech with a detailed execution schedule when providing a quotation.

- This schedule should be in the Bar Chart format.

- It should highlight the following key information but not limited to:

  - NAME OF SITE
  - ACTIVITY DESCRIPTION
  - ACTIVITY DURATION
  - DATES FOR KEY MILESTONES DURING THE EXECUTION OF THE PROJECTS.

- The key milestones are of paramount importance. Key dates will determine the dates on which Sentech's responsible Infrastructure Services Manager and local Sentech Artisan will conduct site Inspections.

- Milestones will include times such as but not limited to:

  Milestone 1:
  - When the surface preparation has been completed.

  Milestone 2:
  - Quality inspection must be conducted on commerce of Slurry seal task, sample or demonstrations will be compulsory.

  Milestone 3:
  - As soon as its final coat of applications of resurfacing potholes, a quality inspection should be conducted.

5. SENTECH HOUSE RULES

It is the responsibility of the contractor to familiarize himself with Sentech House Rules for external contractors working on a Sentech site.

6. SPECIAL CONDITIONS

- Permission granted to stay on site in tents (to be verified with OC Manager and the Security Division)
- Provide own food & water
- Provide own portable toilet from 1st day of site establishment
- Provide own power
- No sub-contracting of work
- All material must be SABS approved
- Remove all rubble & waste off site
- No chemical spillage on Sentech landscaping and infrastructures
- Sentech will not be held liable for bad weather
- Duration of not more than **30** working days
- Initial and finial handover to be attended by site Supervisor / Manager / Business owner
- **One year warranty on material and workmanship**.
- No fires on site
- Specifications and quality standards, procedures and guidelines to be always adhered to.
- Working hours – to be confirm by Operations Manager JHB

- Provision to allow Sentech vehicles and personnel for emergency work – as discussed at site meeting
- **Quotes to be forward to SCM at Sentech on the deadline simultaneously, otherwise it would lead to automatic disqualification.**

E. Sentech Site Welverdiend TS 96 Road Repairs Pricing schedule table

ITEM NO	DESCRIPTION	QUANTINTY	RATE	AMOUNT
1	Removal of growing grass and poisoning	1	R	R
2	Sawing and Patching with premix asphalts on affected areas	1	R	R
3	Potholes repairs	1	R	R
4	Edge Breaks Repairs	1	R	R
5	Slurry seal application	1	R	R
6	Site establishment	1	R	R
7	Preliminary and General	1	R	R
8	Contingency @ 10%	1	R	R
Subtotal				R
V.A.T @ 15%				R
Grand Total				R

F. SUMMARY

No	Item Description	Total
1	Road repairs and slurry seal task	R
2	Preliminary and General	R
	Total	R
	Total excluding VAT	R
	VAT (15%)	R
	Total including VAT	R