

Palabora Asset Management Projects	Technical Specification
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Title:	PC Waste Tyre Processing System
Division:	Environmental
Area:	Dump 4 and Tyre Bay
Project No:	O.0071493
Name:	Signature:
Client: Engineer	Joseph Maloma
Client: Manager	Mark Surmon
Client Specialist	Jacques Moller
Project Leader:	Michael Mbele
Projects Supt:	Rowan Van Rensburg
Chief Engineer:	Anthony Galante
	Date:
	21/06/2019
	20/06/2019
	20/06/2019
	19/06/2019
	19/06/2019
	20/06/2019

**1. GENERAL:**

Content:

The bidder, being an expert in his field, will accurately evaluate the needs of the contract by visiting the Site/s, studying the relevant drawings and Technical Specifications for this Contract, and tender accordingly.

Should there be any discrepancies or omissions in the tender information supplied, the bidder will immediately inform the Project Leader accordingly. The Project Leader will then rectify the situation and will inform all other bidders to ensure that comparable bids are received.

Claims for extra work, as a result of tender omissions, will not be entertained.

Materials:

Materials shall be first class grade, new and shall conform to the relevant specifications.

Equipment:

All related equipment and machinery which is used in the contractual discipline to achieve the scope of work must be available from the awarded contractor being the expert in the field. The equipment, machinery and tools must be of a very high quality and in suitable order to achieve top level work expected in each engineering discipline.

Queries:

All queries, as well as any requests for deviation from this Technical Specification, shall be directed to the Project Leader.

Name:	Michael Mbele	Tel No:	071 361 8721
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Palabora has appointed the following Project Inspector, who will be responsible for construction supervision and safety on the Contract.

Name:	Rajan Govender	Tel No:	083 456 9969
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Contract Clearance Requirements:  
 It is a requirement that all contract clearances are obtained prior to commencing work on site. The Project Inspector will assist the Contractor to complete the clearance procedure correctly and without delay.

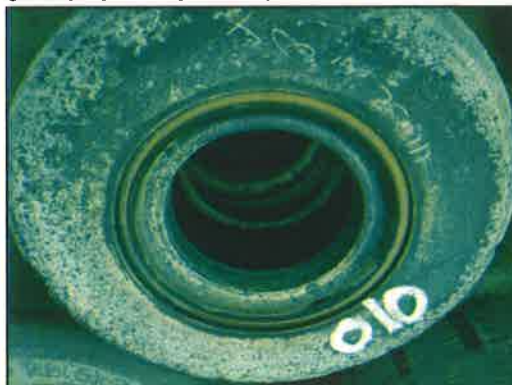
## 2. Scope of work:

### 2.1 Overview:

To provide proven technology to Palabora Copper (PTY) Ltd for the effective processing/breakdown of all Palabora Copper (PTY) Ltd waste tyres, from initial state to rubber –crumb/chips, steel bead/wire and nylon mulch or in the case of steel belted tyre, rubber-crumb/chips and clean steel, or other components relevant to the bidder's technology.

### 2.2 Details:

Palabora has a large number of OTR waste tyres arising from the mining operations (both historic and tyres for which the mandatory tyre levy has been paid). Historic tyres have been stockpiled on-site in line with the 2017 Waste Tyre Regulations. The stockpile also carries with it the PC Waste Tyre Abatement Plan (WTSREG0020LIM), which needs to be updated and aligned with a new waste tyre processing strategy for Palabora and ultimately with the new Integrated Industry Waste Tyre Management Plan. Tyres for which the tyre levy have been paid have also been stockpiled separately. The majority of the OTR tyres are of 26.5 size, has a steel bead and nylon-weave carcass.



Photos: LHD Tyres make up the majority of the waste tyre stockpiles

Tyre Type	Historic Stockpile (Tyre Bay)	Redisa Stockpile (Tyre Bay)	Redisa Stockpile (Dump 4)	Total
LHD	3,616	336*	1,126	5,078
Haul Trucks	215	0	0	215
Front-end loaders	60	0	0	60
Grader	120	0	0	120
**Other	488	0	0	488

\* To be moved to Dump 4  
 \*\* Other is made up of different sizes of smaller tyres

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The current surface area of the Palabora waste tyre stockpile available at the Tyre Bay for the storage of waste tyres is 19 818 m<sup>2</sup> and 10 100 m<sup>2</sup> at the Tyre Overflow facility respectively (this is within the prescribed 30 000 m<sup>2</sup> maximum area).

a) Stockpile plans

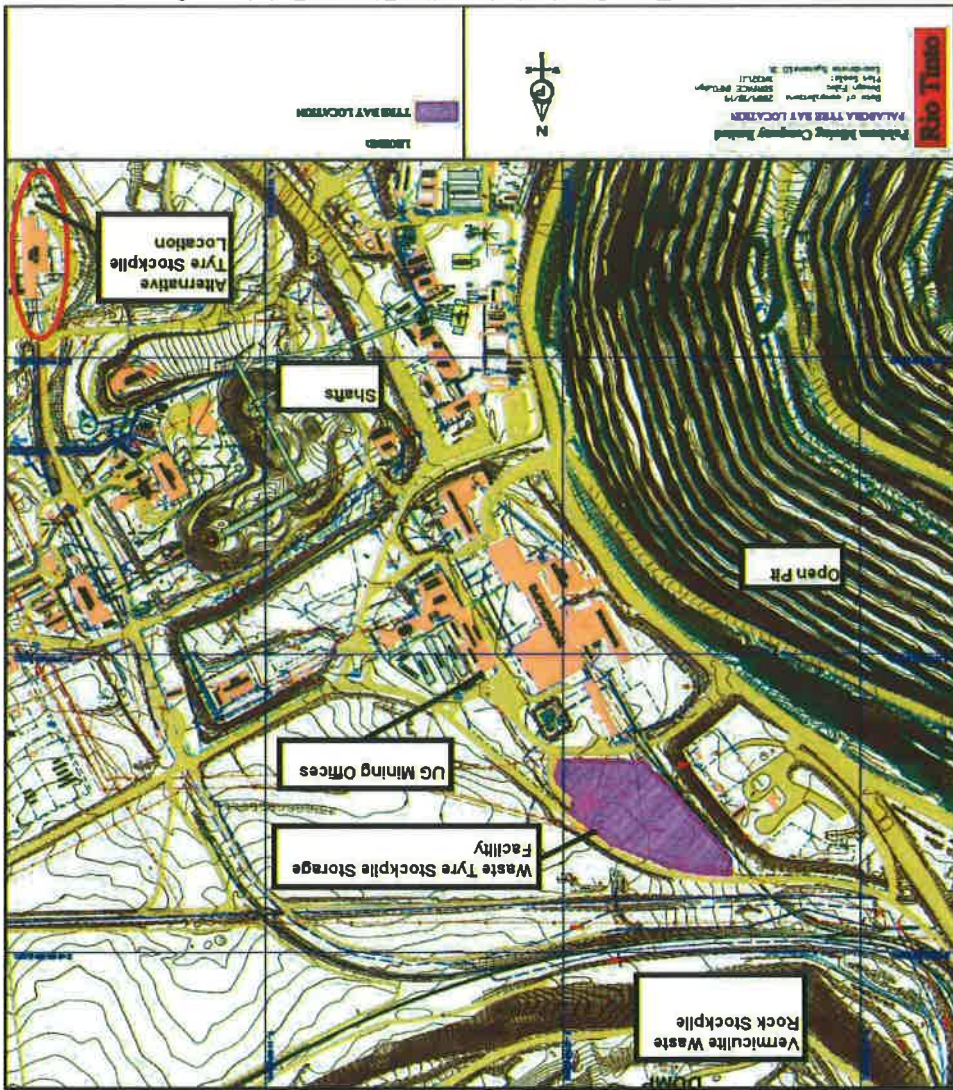


Figure 1 – Palabora Copper Waste Tyre Stockpile in relation to the Waste Tyre Stockpile Overflow facility

Stockpile number	Stockpile name	GPS Coordinates S	GPS Coordinates E
1	Primary Stockpile (Tyre Bay)	23°59'7.43"	31° 8'10.01"
2	Overflow Stockpile (Dump 4)	24° 0'32.98"	31° 9'2.38"

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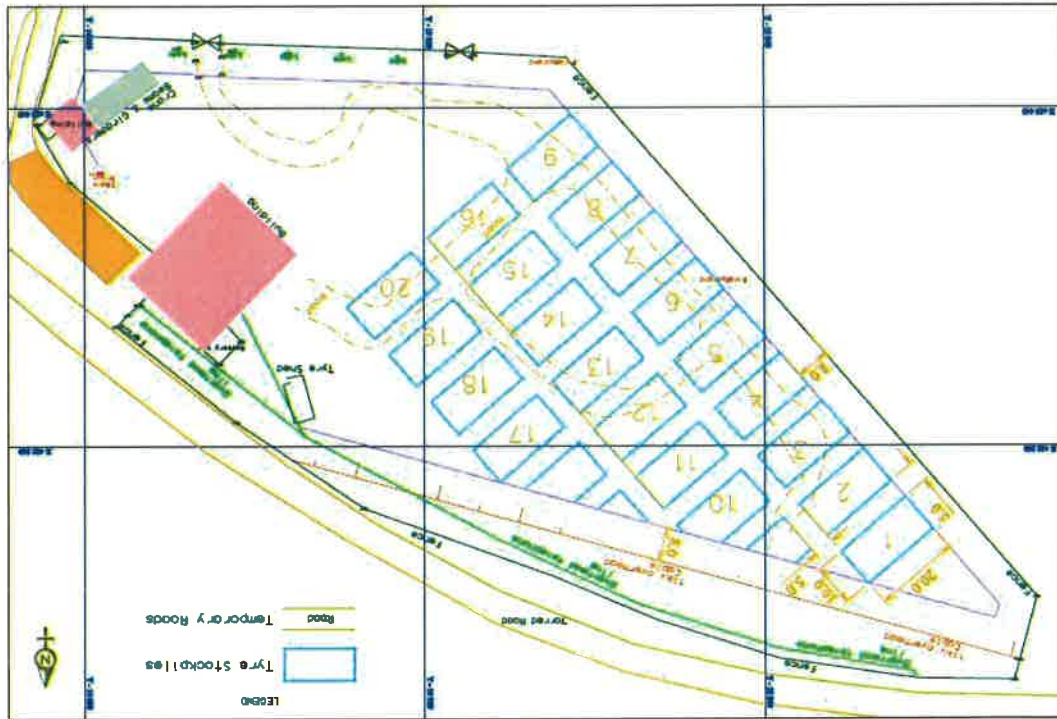
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**Figure 2 - Waste Tyre Stockpile Locality Plan at Palabora Copper.**

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**Figure 3 - Waste Tyre Stockpile Plan**



**Figure 4 - Aerial photo of Waste Tyre Stockpile (taken in 2013)**



**Figure 5 : Map – Waste Tyre Stockpile Overflow(Dump 4)**

**2.3 Supply, fabrication, installation and operation of:**

1. Mobile on-site tyre processing plant complete with;
  - Tyre cutter mechanism(if required)
  - Tyre shredder mechanism
  - Powering system
  - Automatic control system
  - Cutter cooling system(if applicable)
  - Adjustable tyre receiver(magazine) system for various tyre sizes
  - Tyre positioning/feeding system
  - Required chute-work
  - Dust control system
  - Steel wire(bead removal) separation mechanism
  - Conveyance system for shredded rubber and steel
  - Ground stabilizing mechanism(during operation)
  - Associated monitoring instrumentation(incl. temperature, level and flow)
  - Lubrication system
  - Lubrication drip trays/collection pans
  - Access platforms, walkways, stairs and hand railing
  - Operational spares
2. Transport mechanism(handler/forklift) of tyres from stockpile to processing plant
3. Lifting/hoisting mechanism of tyres into position (1<sup>st</sup> stage)

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### 3. Drawings:

Design, supply, manufacturing and installation of material and equipment to conform to PMC's Drawings as listed below:

No	Description	Dwg No.	Rev:
1	None		

### 4. Contractor Inclusions/Exclusions:

*Contractor inclusions;*

- Complete turnkey system
- Tyre processing description with layouts, drawings, services required and size of area required for all operational activities (include photos of current operational plant).
- References of where plant is currently in use and some performance statistics. A successful and operational plant is key to progress in this bid.
- Indication of the time required for site establishment up to day of start-up.
- How many OTR tyres can be processed per day (day-shift only)?
- Maintenance strategy and who will be implementing this strategy (if not the bidder).
- Buy-back / payment of crumbed rubber and scrap steel – Rates per kg or tonne.
- Transport of crumbed rubber to secondary processing plants in SA with certification.
- References of secondary processing facilities and whether or not they are licensed as per relevant SA legislation (safe disposal certificates etc).
- Minimum contract period for the lease of the plant.
- Consideration of supplier development and indication of BEE status.
- If the plant is to be operated off-site, state logistic arrangements for tyres to get to the processing site.
- Registration with the Department of Environmental Affairs – Waste Management Bureau (WMB).
- Trained, certified and deemed competent personnel and management component required to operate the plant.
- Insurance cover for the equipment.
- Applicable licences and permits.
- Any site establishment civil works (if required).
- Water supply from PMC battery limit only (if required).
- Additional ablation facilities for operators (if required).
- Supply of fuel, gas or any other form of fuel requirement.
- And any other requirements to operate the plant safely.
- Discerning the costing of all of the above, which will be for Palabora's account and which will be for the bidder's account?

*Contractor exclusions;*

- Any power supply from mine source to equipment point of connection.

### 5. Project Schedule:

Palabora wishes to complete the work by: Project Completion Date:                     end 2019                    

A detailed schedule must be submitted by the contractor within **7 days** of receipt of order.

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<b>Appendix 1</b>		<b>Schedule of Quantities</b>	
<b>Project Title:</b>	PC Waste Tyre Processing System	<b>Project No:</b>	O.0071493

Description:	Unit	No. of Tyres	Mass [kg]	Rate [R/kg]	Total Amount [R]
1. Operating and Processing of historic tyres (day-shift only)	kg	3616	1 988 800		
2. Operating and Processing of Redisa tyres (day-shift only)	kg	1462	804 100		
3. Buy-back of crumbed rubber	kg	5078	2 716 730		
4. Buy-back of scrap steel	kg	5078	76 170		
5. Transport of historic tyres to Secondary Processing Facility	kg	3616	1 934 560		
6. P & G's	sum	1 Lot			
7.					
8.					
<b>Total</b>					



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Filter		X	
Boilermaker			
Electrician		X	
Instrument Technician		X	
Rigger		X	

<b>After receiving an official order:</b>	
X	Attend scope clarification meeting with project personnel.
X	Submit method statement to Project Inspector
X	Submit HIRA for job
X	Submit project schedule
X	Obtain contract clearance from Projects
X	Obtain HIRA approval from Project Engineer
<b>Before starting work:</b>	
X	Report to CMC for tool, equipment, personnel and competency and certification checks
X	Attend site specific induction by client supervisor
X	Obtain daily permit to work from client operations supervisor and sign off at end of shift.
X	Obtain hot work permit from client supervisor if required
X	Obtain confined space permit if required.
	Obtain excavation permit if required.
	Attach personal locks to equipment locked out by client isolation officer and supervisor if required, and remove when job is complete.