

PART C3: SCOPE OF WORKS

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PART C3

SERVICE INFORMATION

MAINTENANCE OF RAILWAY TRACK WITH ON-TRACK MACHINERY

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MAINTENANCE OF RAILWAY TRACK WITH ON-TRACK MACHINERY

3.1. EMPLOYERS OBJECTIVE

Permanent track, Country-wide are to be maintained by mechanized means and or on-track machinery to ensure safe, reliability and stability of permanent way infrastructure.

Any clause in this specification contradictory to requirements elsewhere in this contract except for particular specifications part **C3.24.2**, shall take preference.

Any reference in this Specification to “Contractor” will imply the Principal Machine Contractor, any subcontractor appointed by the Principal contractor for support of the contractor.

Where reference is made to any output which may be subcontracted by the principal contractor or Labour controlled by the principal contractor, this will also imply to the control of the output, performance or labour from a nominated sub contractor where and if such a nominated subcontractor is separately appointed for support service for a principal machine contractor.

3.2 DESCRIPTION OF THE WORK

The contract covers the maintenance of permanent track by the Contractor with on-track machinery, which he shall provide, maintain and operate subject to the terms of the succeeding clauses, and the specifications and schedules embodied in the contract.

3.3 EXTENT OF THE WORK

The Contractor would be required to maintain the permanent track anywhere in the Country on any lines owned or maintained by Transnet Freight Rail for the period as specified in the Contract Data. Maintenance of permanent track will be required on open lines, tunnels, platform lines, and loop and yard lines. It will be required that all different types of activities are performed as prescribed in the various particular specifications.

3.4 LOCATION OF THE WORK

3.4.1 The Technical Officer where the Work shall be performed. Maintenance of permanent track will be required on open lines, tunnels, platform lines, and loop and yard lines. This shall include, but not limited to, the Coalline, Ore line, Natal mainline, Western mainline, Eastern mainline, Cape mainline, Port Elizabeth mainline, Beitbridge corridor, and any branch line.

3.4.2 The Contractor may be required to work in areas where varying degrees and types of security situations are prevailing such as may occur in remote rural areas through to densely populated metropolitan areas. This could require the contractor to work inside any of the Infrastructure Depot areas at any time of the year for any period of time.

3.4.3 The Technical Officer shall make the necessary arrangements to move the machinery by rail from one work site to another, and shall give the Contractor written notice of the date and time of departure. Major movements will be planned and the time allowed should be a minimum of 14 days or such shorter period as agreed.

3.4.4 Any delay to an announced move caused by the Contractor will render the machinery non-available for the period of such delay, excluding overnight stops.

3.5 CARE OF MATERIAL SUPPLIED BY TRANSNET FREIGHT RAIL

3.5.1 Any material supplied by Transnet Freight Rail shall be used in the most economical way, and the Contractor shall take all reasonable care to prevent loss or damage thereof. Any material lost or damaged through negligence on the part of the Contractor or his employees shall either be made good by the Contractor or Transnet Freight Rail will replace it.

3.5.2 The value of the material replaced by Transnet Freight Rail, including the cost of transport at normal tariffs applicable to the public, will be deducted from any money due to the Contractor or recovered in any other way.

3.5 PROPERTY PROVIDED BY TRANSNET FREIGHT RAIL

Transnet Freight Rail will provide the following free of charge: -

3.6.1 Water to operate the machinery, where available. The quality of water cannot be guaranteed.

3.6.2 Where available, at campsites as in clause 3.6.1, water for drinking and domestic purposes and hot water for ablutions.

3.6.3 Free traffic consignment notes for the conveyance by rail from one area of operation to another or from the Contractor's workshop or depot to the area of operation and vice versa will be issued for the machine (whether under own power, coupled to a train or loaded onto a railway truck), spares, caravans used with the machine and either of one spares trailer or one light delivery vehicle.

3.6.4 Transnet Freight Rail will be responsible for the safety of the machinery in so far as train working is concerned and will provide a qualified employee for each machine or group of machines, who will be in charge and who will -

- travel in the cab of the machinery whenever it moves as a train outside occupation areas.
- arrange protection for and supervise the operation of the machinery within the zone of protection, whether it is working, moving or standing idle.
- supervise all on-tracking and off-tracking operations and ensure that the machinery is made secure when parked at the staging point.
- The Contractor shall appoint one suitably qualified person as his representative at each occupation.

- 3.6.5 Before work is commenced, the Technical Officers Deputy's will enter in the work book the approximate positions of underground or hidden electrical conductors that may affect, or be affected by, the Work to be done under the Contract, or alternatively, endorse in the work book that no such conductors exist.
- 3.6.6 Nothing contained here in shall detract from the Contractor's obligation to exercise care in all respects in carrying out his duties under the Contract.
- 3.6.7 Any rail wagons that may be provided by Transnet Freight Rail will provide in terms of any specific requirement as specified I the Particular Specifications C3.24.2

3.7 TO BE PROVIDED BY THE CONTRACTOR

- 3.7.1 Except where otherwise specified the Contractor shall at his own cost provide all machinery, labour, transport, consumable stores, equipment, tools, services, materials, spare parts and ingredients of every description required for the performance and completion of his contractual obligations.
- 3.7.2 The Contractor shall provide and deliver to the place of Work all fuels and water required for the machine operations.
- 3.7.3 The Contractor shall maintain and operate the machinery, direct his own personnel and perform all work required.
- 3.7.4 During track occupations, the Contractor shall ensure that sufficient mechanics, operators and labour are present to ensure efficient operation of the machinery.
- 3.7.5 At least one qualified and experienced mechanic shall be in attendance at all times during track occupations and when the machinery travels as a train.
- 3.7.6 The Contractor shall appoint one suitably qualified person as his representative at each occupation.
- 3.7.7 The Contractor and the Technical Officer shall notify each other in writing of the names of their representatives who will be present during track occupations. These as well as any changes in the personnel, shall be recorded in the workbook.
- 3.7.8 Failure to comply with the provisions of 3.7.1 to 3.7.7 shall render the machinery non-available.

3.8 MACHINERY AND EQUIPMENT REQUIRED

- 3.8.1 Mechanical and motive aspects
- 3.8.1.1 All machinery provided by the Contractor shall be in good mechanical condition and he shall maintain the machinery in good mechanical condition for the duration of the Contract.
- 3.8.1.2 Axle loads shall not exceed 20 tons.

- 3.8.1.3 The machine shall be self-propelled.
- 3.8.1.4 The machine shall have service brakes and independent emergency brakes capable of providing minimum retardation of 12,5% and 6% of gravitational acceleration respectively, on dry rail.
- 3.8.1.5 At the start of each occupation the Contractor shall, in the presence of the Technical Officer's Deputy's, perform the daily tests laid down by the Technical Officer. The brakes shall be briefly applied at low speed when traveling on level track or upgrade. If in the opinion of the Technical Officer's Deputy the brakes do not function satisfactorily, the machinery shall be removed immediately to a staging point. Machinery staged due to defective brakes will be regarded as non-available.
- 3.8.1.6 At approximately one-month intervals, the Technical Officers Deputy will test the brakes with a brake efficiency test meter and record the results in the workbook.
- 3.8.1.7 The machine shall actuate all signalling equipment used by Transnet Freight Rail for traffic control.
- 3.8.1.8 Regular checks shall be made for pressure loss on brake cylinders and circuits, wear and set of brake shoes, proper functioning of sirens and mechanical locks on hydraulic components.
- 3.8.1.9 The machine shall have an adequate lighting system for operation at night. Lights shall be provided for traveling in both forward and reverse directions. The trailing end headlights and leading end red lights shall not be switched on during motion.
- 3.8.1.10 The machine shall be capable of being hauled in both directions as the last vehicle of a train if required to clear the section after breakdown. The Contractor shall provide towing equipment.
- 3.8.1.11 Where specified, machinery shall have off-tracking equipment suitable for use on either of the off-track stand types shown in Annexure D. Should these stands not be suitable, Transnet Freight Rail will construct stands to the Contractor's requirements and at his cost, subject to the particulars of such requirements being submitted with his tender.
- 3.8.2 Wheel flanges, tyres and axles
- 3.8.2.1 The condition of the flanges and treads of wheels of all machines shall be carefully examined. Should any appear to be excessively worn, they shall be tested by means of the wheel flange thickness and skid limit gauge and the tyre wear limit gauge.
- 3.8.2.2 Wheels shall comply with the following requirements:
- The thickness of a flange shall not be less than the minimum indicated by the wheel flange thickness gauge.
 - Hollow wear on the tread shall not exceed 6mm.

- The flange height shall not exceed 35mm.
- The angle of the flange shall not be less than 15° and the radius at the tip of the flange not less than 6mm.

3.8.2.3 Axles shall comply with the following requirements:

- Ultrasonic testing: to specifications laid down by Transnet Freight Rail, done for new axles and every time an axle is replaced after fitting new wheels.
- Distance between wheel flanges: 988mm ± 2mm.

3.8.3 Fuelling and maintenance

3.8.3.1 The Contractor shall not re-fuel, service or repair the machinery, during track occupations.

3.8.3.2 The Contractor may repair and adjust the machinery during stoppages caused by Transnet Freight Rail. The machinery will be regarded as available during such repairs or adjustments, provided that the required working of the machine is not delayed thereby.

3.8.4 Recording instruments

3.8.4.1 Each machine shall be fitted with an approved tacho-graph, a mechanically operated event recorder and a speedometer.

3.8.4.2 The Contractor shall be responsible for inserting recording cards in the tacho-graph and event recorders, and for synchronising these instruments.

3.8.4.3 The Technical Officers Deputy will be responsible for setting the event recorder.

3.8.4.4 The Technical Officers Deputy will test the tacho-graph and event recorders at least once a week in the presence of the Contractor. The Contractor shall either repair or replace any device, which is inaccurate by more than 1%. Failure to repair or replace an inaccurate device within 72 hours of the test will render the machinery non-available.

3.8.4.5 Should the tacho-graph or the event recorder break down, the Technical Officers Deputy will keep a complete written record of the starting and ending times of all events occurring during a track occupation. The Contractor shall sign this record if he agrees, and if he disagrees, he shall indicate on the record the reasons for the disagreement and then sign the document. Such disagreement shall be settled by negotiation between the Technical Officer and the Contractor.

3.8.5 Radio equipment

3.8.5.1 During track occupations the Contractor shall provide a cellular telephone for communication between the Work place and the controlling office on either side of the Work place or the area CTC office.

The cellphone for the official use of Transnet Freight Rail shall be provided with a talk time contract of not less than 500 talk minutes per month. If this allowed talk time is exceeded, Transnet Freight Rail shall pay the excess. This excess shall only be paid after all previous monthly account credits have been brought into consideration. The Technical Officers Deputy shall certify detail account excess.

This Cellphone shall also be available for the use of the Transnet Freight Rail signal's or electrical technician involved if required for work directly related to the tamping work. Use of this phone by any other Transnet Freight Rail official than the Track inspector with the machine, may only be with his permission. The Track inspector with the machine shall be responsible for controlling the number of calls on this phone.

- 3.8.5.2 The Contractor shall provide and maintain walkie-talkie radio transceivers with a minimum range of 5km in open country. The Technical Officer, in consultation with the Contractor, will allocate suitable frequencies within the 450MHz to 470MHz band for configuration of the radio equipment. The Contractor will be given seven day's written notice when additional radios are required.
- 3.8.5.3 All of the above-mentioned radio equipment shall operate on 12,5kHz channel spacing, and shall comply with specification SABS-1069.
- 3.8.5.4 The Contractor may operate the radio equipment only for trackside protection. The use of the allocated frequencies must be terminated when the contract expires.
- 3.8.5.5 When walkie-talkie communication fails due to faulty equipment, the machinery will be deemed as non-available.
- 3.8.5.6 When radio and or cellular telephone communication between the place of Work and the controlling stations or the protection flagmen fails, the Contractor shall remove the machinery from the track as soon as possible.
- 3.8.5.7 Transnet Freight Rail will provide, install and maintain a radio in the cab of the machine for train control purposes. The Contractor shall indicate the position in which the radio shall be installed, and provide a suitable power supply point for the radio equipment when requested. The machine will not be allowed to operate without this radio.

3.8.6 Warning devices

- 3.8.6.1 The machine shall be fitted with a hooter for use during traveling.
- 3.8.6.2 The machine shall be fitted with a separate warning system used solely for and on the approach of a train. The pitch and intensity shall make it discernable from other sounding devices and easily heard above the working of the machine anywhere within 100m from the machine. The warning system shall be activated by an appointed employee of the Contractor.

3.8.6.3 The Contractor's appointed employee shall be in continuous radio communication with Transnet's protection flagmen who will warn the Contractor's employee of approaching trains on adjacent lines.

3.8.6.4 A rotating amber flashing light shall be fitted to the top of the machine's cab, for use during travel.

3.8.7 Machinery Specifications

Machinery shall be suitable for use under the following conditions and dimensional limitations: -

3.8.7.1 Vehicle gauge: 1,065mm gauge track shown in Annexure 2 (Sht 1 of 2). Should the machinery exceed the vehicle gauge in any respect, this shall be clearly indicated by the Contractor by means of suitable drawings.

3.8.7.2 Track gauge: nominal 1,065mm, with a range of - 10mm to + 45mm.

3.8.7.3 Minimum structure gauges: as shown in Annexure 1 (Sht 1, 2, 3 and 5 of 5).

3.8.7.4 Single lines or multiple lines with a minimum distance of 4m between track centres.

3.8.7.5 Maximum track gradient: 1 in 30.

3.8.7.6 Minimum curve radius: 125m.

3.8.7.7 Work place altitude range: 0 to 2,000m above sea level.

3.8.7.8 Ambient temperature range: - 5°C to + 50°C.

3.8.7.9 Mass of rail: 60kg/m, 57kg/m, 48kg/m, 40kg/m, 30kg/m or 22kg/m.

3.8.7.10 Maximum mass per sleeper: Sets - 750kg; other - 300kg.

3.8.7.11 Types of sleepers in track: timber, steel, monolithic or tie-bar concrete.

3.8.7.12 Sleeper spacing: 500mm to 900mm.

3.8.8 Unknown / Alternative / Substitute Machines

3.8.8.1 Transnet Freight Rail will, in the case where alternative or substitute machines or machines with characteristics which are unknown to Transnet Freight Rail are offered by Tenderers or the Contractor, require that such machines, before they are accepted, be subjected to trials under the prevailing working conditions of the contract area(s) to demonstrate their compliance with the contract specifications. Machines that do not comply with the specifications will not be accepted.

3.9 COMPLIANCE WITH STANDARDS OF WORKMANSHIP AND ACCURACY

- 3.9.1 The Contractor shall work to the track dimensions required by the Technical Officers Deputy. These dimensions shall either be marked with chalk marks on the sleepers by the measurement gang of the contractor or by means of the approved measurement system operated on the high speed machines.
- 3.9.2 The Contractor shall continuously monitor and evaluate measurements of the track and shall ensure compliance with the specified standards of workmanship and accuracy.
- 3.9.3 Where, in the opinion of the Contractor, the condition of the track or any site condition is such that the specified performance standards cannot be achieved, he should record all relevant information before and after working in conjunction with the Technical Officers Deputy. The Technical Officers Deputy may, if he concurs with the Contractor's contentions, adapt the specified standards of workmanship and conformance to suit the track and/or site conditions.

3.10 PROCUREMENT

3.10.1 Definitions and interpretation

In this Contract, unless inconsistent with the context: -

ACTUAL PREPARATION TIME (T_p) means the period between the actual commencement of the track occupation and the actual commencement of the work by the machinery, plus the period of time between the actual end of the work by the machinery and the actual time when the machinery is secured at its staging point, clear of the occupied track. Preparation time excludes all periods of delay by Transnet Freight Rail.

ANNUAL HOLIDAYS means the annual holiday with duration of 15 consecutive working days plus statutory public holidays, Saturdays and Sundays that may fall within in this period, when no Work will be performed by the Contractor.

AVAILABLE means when required to do work, a machine is able to produce work to the standards specified.

BREAKDOWN TIME (T_b) means all periods during which the machinery is non-available.

CANT means the difference in elevation between the running surfaces of the two rails.

CURVE LOCATION POINTS means the four points, which locate the transitions of the curve, or the two points, which locate the circular curve, where no transitions are provided.

DAY shall mean a calendar day. Where a specific number of days is allowed in the Contract for the performance of any act or is stipulated for the extinction of any right or the duration of any event or circumstance the days between the commencement and last day of the Annual Holidays (both days included) and

the day from which the period is stated or agreed to commence, shall be excluded from the calculation of the number of days concerned.

DOUBLE SHIFT WORKING means the working of two consecutive shifts of 8 hours, which may each be non-continuous and scheduled at any times during a 24 hour day.

EXECUTIVE OFFICER means the person appointed by Transnet Freight Rail from time to time as the EXECUTIVE OFFICER to act according to the rights, powers held by, and obligations placed upon him in terms of the Contract. In terms of this contract the EXECUTIVE OFFICER is the employer representative.

FREE-ON-RAIL implies allowing the contractor to move an On Track machine from one track destination to another with no track usage cost levied on the contractor. Transnet provides the right of passage and the pilot required for the machine to the contractor, without cost and at times whereby such a passage and pilot can be made available by Transnet. Free-on-rail passage will normally be allowed for at the start of a contract to deliver a machine to the starting place of work and at the end of the contract to return a machine to the contractor's depot if required by the contractor. Free-on-Rail movement of a machine during a contract for major workshop repairs required of a machine may only occur if specifically agreed to by the Project Manager. Such a move shall then occur in the contractor's time.

IDLE TIME (T_i) means all periods of 15 consecutive days or longer during which Transnet Freight Rail does not require work to be performed by the machinery. This excludes the stoppage of work during the annual holiday.

JOINT ASSEMBLIES means all types of joints, including flash-butt and thermit welded, fishplate and block joints.

LINE means the maximum rate of deviation of the running edge of one rail from a straight line between two points on the same rail of tangent track. Measurements will be taken 15mm below the top of the rail, against the gauge side of the rail used by the machine as a datum for aligning.

MACHINERY means the on-track machinery provided complete with all fittings, accessories and ancillary equipment including trailers, caravans and spare parts, as may be required to comply with the requirements of the specifications.

MAXIMUM OCCUPATION TIME (T_{om}) means the total occupation time, non-continuous, on a normal working day, not exceeding a total net period stated in the particular specifications.

MONTH means the continuous period from the first day to the last day of any calendar month, both days included.

MONTHLY WORKING TIME (T_{wm}) means the targeted average monthly working time.

MOVING TIME (T_m) means the period required to move the machinery from work site to work site as a train, as part of or on a train. Moving time will commence at the announced time of departure and will end when the staging point at the new work site is reached. Periods of overnight stops when the machinery is traveling as a train, as part of or on a train will be excluded from moving time. Moving time will be included in occupation time for payment purposes.

NIGHT SHIFT ALLOWANCE means an allowance paid for any time worked between 19h00 and 05h00 (Night shift allowance is additional to either overtime or normal shift time, if applicable)

NON-AVAILABLE means when required to do work, the machinery or the operation thereof is unsafe, or the machinery is not able to produce work to the standards specified, due to any reason other than a stoppage of work caused by Transnet Freight Rail.

NORMAL WORKING DAY means a total shift of 8 hours, which may be non-continuous, out of every 24 hours for 5 consecutive days out of every 7-day period, or for 10 consecutive days out of every 14-day period. The Technical Officers Deputy will determine the daily starting time, which may vary to suit seasonal changes or train timetables.

The Technical Officers Deputy shall decide when 10/14-day work shifts will be worked. When a machine works further than 600km away from the machine's base depot, the contractor may request working a 10/14-day shift if occupation conditions allow. Transnet Freight Rail will consider such working shifts and the additional Saturday and Sunday shift payments will then apply.

OCCUPATION means a closure of the line on which work is to be performed for a specified period.

OCCUPATION DAY (T_o-day) means any day that the machinery will be required by the Technical Officers Deputy to be available.

OCCUPATION TIME (T_o) means the period(s) between the announced commencement time of an occupation and the time when the machinery is secured at its staging point for the last time.

OVERTIME means any time worked in excess of the hours of a normal working day and any time worked on Saturdays, Sundays and statutory public holidays in excess of 5 consecutive days out of 7-day period or in excess of 10 consecutive days out of 14-day period, all on the written instruction of, or as approved by the Technical Officers Deputy.

PLAIN TRACK means all track excluding sets and restricted track.

SERVICE MANAGER means the person appointed by Transnet Freight Rail from time to time as the Service Manager to administer the Contract according to the powers and rights held by and obligations placed upon him in terms of the Contract. Any reference made in any document of this contract of Project Manager shall imply or refer to the Service Manager.

PARTICULAR SPECIFICATION means any document titled Particular Specification, Special Conditions and Specifications, or Special Conditions, forming part of the documents constituting the Contract and which stipulates the special contract provisions and specifications pertaining to the Contract.

QUOTED PREPARATION TIME (T_q) means the combined period, as quoted by the Contractor in the Schedule of Machinery (for one complete cycle), to move the machinery from its staging point, travel to the point of work, to prepare it for work, and on completion of the work to return and secure it at the staging point, clear of the occupied track.

RESTRICTED TRACK means that portion of plain track where locking bars, guard rails and check rails are not removed prior to working or where sleepers are skewed by more than 75mm (measured at the rail's centre line) or where Dowty retarders and boosters are fitted which prevent the machine from producing work at the scheduled rates as defined in the Special Conditions and Specifications.

SETS mean all types of turnouts, including crossings, single and double slips.
SHIFT ALLOWANCE (normal) means an allowance paid for time worked on a Saturday, Sunday or statutory paid public holiday when working 5 consecutive days out of 7-day period or 10 consecutive days out of 14-day period (Payment for shift allowance ceases when overtime is paid).

SPLICE JOINT means a prefabricated rail expansion device. The thermit welds at either end demarcate the extremities of the splice joint.

SPLIT OCCUPATION means an occupation on any one-day, divided into 2 periods, the sum of which does not exceed 9 hours, with a 2 hour break in between and the total period not exceeding 11 hours.

STANDING TIME (T_s) means a stoppage of work caused by Transnet Freight Rail.

TECHNICAL OFFICER means the person appointed by the SERVICE MANAGER from time to time as the Service Manager's representative on a depot to administer the Contractor's performance and execution of the Work according to the powers and rights held by and obligations placed upon the Technical Officer in terms of the Contract.

TECHNICAL OFFICERS DEPUTY or TECHNICAL OFFICER means the person appointed by Transnet Freight Rail under the control of the TECHNICAL OFFICER from time to time to take occupations for the machines for the contract, pilot machines to and from site and to supervise the execution of the workload and ensure safe and quality work being done by the contractor and the machine.

TIME WORKED IN (T_{wi}) means any day a machine is agreed to be available and works outside of and in lieu of a normal working day. Such T_{wi} as well as production statistics and all relevant times must be reflected against the day for which the time was worked in.

TOP means a change of gradient of one or both rails.

TRACK means and includes plain track, restricted track, sets, splice joints and all joint assemblies.

TRAVELLING TIME (T_t) means the time for the machinery to travel between work site and staging point.

TWIST means the algebraic difference between adjacent cant measurements.

VERSINE means the offset measurement at midpoint of a 10m chord taken at any location on curved track. Measurements will be taken 15mm below the top of the rail, against the gauge side of the rail used by the machine as a datum for aligning.

WORK means the work to be carried out in terms of the Contract.

WORKING TIME (T_w) means the periods during which the machinery is actually engaged on the operation or function for which it was provided.

3.10.2 Subcontracting procedures

No part of the contract may be sub-contracted without written approval from Transnet Freight Rail

3.11. AVAILABILITY

3.11.1 The machinery shall be available, warmed up and at the place of Work on the date and at the time indicated by the Technical Officers Deputy.

3.11.2 Machinery will be regarded as available when moving from one Work place to another.

3.11.3 Moving to effect initial delivery, and final removal after completion of the Work, as well as moving requested by the Contractor (i.e. for maintenance or temporary storage of the machine at locations other than the Work place) will not be included when determining availability.

3.11.4 The Technical Officers shall give the Contractor a minimum of 14 days written notice to stop work temporarily for a period exceeding 14 consecutive days and a minimum of 14 days written notice to resume work after such temporary stoppage. Such idle time shall not be included in measurements for availability.

3.12 NON-AVAILABILITY

3.12.1 The Contractor shall advise the Technical Officers as soon as possible when any machinery is not available for work at its appointed place of Work and shall indicate the estimated time when it will be available for work.

- 3.12.2 Should any of the specified components or functions of the machine be non-available, the machine will be regarded as non-available.
- 3.12.3 Machinery will be regarded as available after breakdown when it is declared available and placed on the track for the purpose of testing, resetting or working, unless after the period of testing and resetting the machinery is still non-available. In the latter case, breakdown time will commence from the time that the machinery previously became non-available.
- 3.12.4 The provisions regarding productivity and standards of workmanship and accuracy shall apply during periods of testing or resetting.
- 3.12.5 When the machine is not available at all for Work on a day because of a breakdown on the previous day, occupation time and non-availability will both be equal to Tom hours.
- 3.12.6 Should a single stoppage of Work due to a breakdown of a machine exceed or be likely to exceed 60 minutes, the Technical Officers Deputy may require the machine to be removed to a staging point as soon as possible. Such traveling, whether from or returning to the point of breakdown, will not be included in Tt, but will be included in Tb.
- 3.12.7 If the Contractor is instructed to work either overtime or more than Twm, non-availability due to breakdown occurring in such time will not be penalised. Occupation time will also not be measured during such breakdown.

3.13 UNSATISFACTORY PERFORMANCE OF THE MACHINERY

- 3.13.1 The Service Manager or Technical Officers may terminate the Work and/or order the machinery to be moved to another place of Work and/or order the removal of mechanic(s) and/or operator(s), and/or order the temporary or permanent removal and replacement of a machine under the following conditions:
- When the output of the machinery is less than 70% of the required minimum productivity for a period of two consecutive months, or
 - when the percentage availability of the machinery (as described in the Special Conditions of Contract and Specifications) is less than 75% for a period of two consecutive months.
- 3.13.2 The Contractor may substitute, either temporarily or for the duration of the Contract, other machinery in place of that listed in the Schedule of Machinery offered. The substitute machinery shall be subject to all the terms and conditions of the Contract and shall in no way be inferior to the original machinery. The Service Manager and Technical Officers shall be advised of any proposed substitution, which shall be subject to his approval.
- 3.13.3 Should the Service Manager or Technical Officers at any time, be of the opinion that the machinery provided by the Contractor is performing defectively or is incapable of achieving the specified output and availability the Service Manager or Technical Officers may notify the Contractor in writing, but the Contractor shall not be relieved of any of his contractual obligations if such notification is not given.

3.13.4 The Contractor shall there-upon take steps to improve the output and availability of the machinery to specified performance levels or to replace the machinery with machinery capable of achieving the specified performance, failing which the Employer may act in terms of **Clause Z.5.9 of Contract Data**.

3.14 MACHINE MOVEMENTS

3.14.1 The Contractor shall deliver the machinery in full operational condition, with all operatives, to the initial place of Work, as directed by the Service Manager or Technical Officer.

3.14.2 The Contractor shall not place the machinery onto the track or remove it there from, or use it in any way, except when authorised to do so by the Technical Officer or his deputy.

3.14.3 The Contractor is responsible for movement of his machines in the occupation area.

3.14.4 Machinery shall not be operated as a train unless a representative of Transnet Freight Rail, appointed by the Technical Officer, who is authorised to give instructions regarding the movement of the machinery, travels on the machinery to its destination. The Contractor shall assist Transnet Freight Rail in all matters concerning the safety of trains, persons and the machinery.

3.14.5 The Contractor shall ensure that the off-tracking rails are correctly placed and fastened before lowering or moving the machinery onto them.

3.14.6 The Contractor shall point out to the Technical Officers deputy any part of the track or off-track stand where conditions may constitute a danger to the machinery and its ancillary equipment, and record this in the work book. The Contractor shall however repair off-track platforms where work can reasonable be expected to be done by the labour provided with the machine as per the schedule of labour.

3.14.7 The Contractor shall load and unload all machinery to be transported by rail truck and shall be responsible to properly secure all machinery to be so transported.

3.15 MEASUREMENT AND PAYMENT

3.15.1 The quantities in the Price List are estimated and may be more or less than stated. The Technical Officer will measure all the work done and certify payment therefore in accordance with the Price List. The absence of stated quantities is no guarantee that none will be required.

3.15.2 Payment for establishment of a machine at the commencement of the Contract will only be made after the machine has attained the required minimum availability over a period of one month.

- 3.15.3 Should the Contract not be completed for any reason whatsoever, due to the Contractor, he shall refund to Transnet Freight Rail a percentage of the establishment cost. The refund shall be proportional to the uncompleted period of the Contract.
- 3.15.4 In the case of unknown, alternative or substitute machines, establishment payments will only be made after successful completion of the trials and only for the initial machine establishment.
- 3.15.5 Measurement and payment for the hire and operation of the machinery will be made as specified in the Particular Specification. The following general payment provisions shall apply:
- 3.15.5.1 A machine-hire rate per day for each production machine that is available and operational. The rate shall include for all accessory labour, tools, equipment, etc., and every thing whatsoever pertaining to the operation and maintenance of the machine.
- 3.15.5.2 A production-rate for each unit of time worked or work produced by the machine during actual working time. The rate shall include for all labour, fuels, consumables, materials, etc. and every thing whatsoever, pertaining to the production output of the machine. The rate shall apply to all work performed on a "normal working day" as defined and to all Double-Shift working.
- 3.15.5.3 An extra-over payment will be made for overtime worked or production units produced during overtime working, i.e. time worked in excess of the maximum daily occupation time (Tom) on a normal working day and on Saturdays, Sundays and statutory public holidays. The overtime payment will not apply to Double Shift working.
- 3.15.5.4 Contractor shall submit, with their tenders, full particulars of the labour task crews, allowed for in the rates tendered in respect of **clause 3.15.5.1 and 3.15.5.2**, to undertake the tasks and functions specified in the Particular Specifications. Such particulars shall include the details of crew strengths i.e. numbers of labourers and supervisors or technicians, etc. Additional payment will be made when the machine is required to work outside the contract area described in the particular specifications.
- 3.15.5.5 No payment whatsoever will be made for periods of non-availability.
- 3.15.5.6 No payment will be made if a machine is unable to work as a result of an accident to the machine, regardless of the cause of such accident.
- 3.15.5.7 When two or more machines work in tandem and as an interdependent production system, the entire group of machines will be deemed to be non-available if the non-availability of one or more machines renders the entire production system substantially unproductive.
- 3.15.5.8 The Contractor shall be paid at the hourly rates in the Labour Payment Schedule when the Technical Officer approves a temporary increase in labour to perform the tasks and functions specified in the particular specification, at particular workplaces.

3.16. PAYMENT CERTIFICATES

- 3.16.1 On or about the last day of each month, the Technical Officer will make a progress measurement of the work done in conjunction with the Contractor.
- 3.16.2 Thereafter the Service Manager will issue a certificate authorising payment of such sum of money as he may consider represents the value of the work referred to in **clause 3.16.1**.
- 3.16.3 The Contractor shall be entitled to receive payment of the amount authorised in the said certificate within 30 days from the date of measurement or receipt of the Contractor's VAT-invoice, whichever is the later. Such payment will be regarded as an open payment, and both the certificate and payment will be subject to revision and adjustment by the Service Manager if at any time he is of the opinion that the certificate does not represent accurately the value of work completed or to correct previous over or under payments.
- 3.16.4 In the event of failure by Transnet Freight Rail to make payment within the time stipulated in **clause 3.16.3**, he shall pay to the Contractor interest at prime overdraft rate as certified by the Contractor's bankers upon all overdue payments of such certified amounts, from the date on which such payments should have been made. Interest payments shall not be applicable to corrections made in respect of previous over or underpayments.
- 3.16.5 The Service Manager shall, within 28 days after completion of the Contract, authorise the release of Performance Bond, and submit for approval by the Employer a final payment certificate which, after approval by the latter, shall be issued to the Contractor, thereby certifying both the final completion of the Contract Work and the amount due to the Contractor. The Service Manager may deduct from the Final Payment Certificate any money then due by the Contractor to Transnet Freight Rail under the Contract, and for such provisions for the resolution of any disputes which may at the time exist between the Contractor and Transnet Freight Rail, as is deemed necessary by him.
- 3.16.6 The Service Manager shall, within 14 days after approval by the Employer and subject to **clause 3.16.5**, send the final payment certificate to the Contractor who, by countersigning thereof, shall certify his acceptance of the amount shown due to him as being full and final payment, subject only to the resolution of outstanding disputes.
- 3.16.7 Within 30 days after the receipt of the Contractor's certification, Transnet Freight Rail will remit to the Contractor the balance of all money so due under the Contract in terms of the final payment certificate.
- 3.16.8 Where the Contractor fails to certify the final payment certificate or has not disputed the correctness thereof within three months after its receipt by him, Transnet Freight Rail will deem the Contractor to be in agreement with the final payment certificate and will effect payment in terms thereof.

- 3.16.9 Transnet Freight Rail will not consider or admit any claim arising from the final payment certificate or in connection with the Contract, which has not been lodged with the Service Manager within a period of three months after receipt by the Contractor of the final payment certificate, and the Contractor accepts and acknowledges that by his failure to lodge a claim within the above-stipulated period of three months, he waives such claim and relieves Transnet Freight Rail of responsibility for such claim.
- 3.16.10 Neither the issue of the final payment certificate nor any payment made there under shall release the Contractor from any liability to indemnify Transnet Freight Rail against, and to reimburse it in respect of, any claim made or to be made against it by a third party for damage or loss sustained by such third party in consequence of any wrongful act or omission of the Contractor, or his employees or agents.

3.17 DAILY RECORDS AND INSTRUCTION BOOK

The Contractor shall submit such returns as may be required by the Technical Officer. He shall also provide and keep on each machine a duplicate carbon copy book, A4 size, the Workbook, in which instructions and events concerning the contract work shall be recorded, signed and dated by the Technical Officer or his deputy, and the Contractor.

3.18 FORMAT OF COMMUNICATION

- 3.18.1 The Contractor and the Technical Officer shall notify each other in writing of the names of their representatives who will be present during track occupations. These, as well as any changes in the personnel, shall be recorded in the workbook.
- 3.18.2 Before work is commenced, the Technical Officer's deputy will enter in the work book the approximate positions of underground or hidden electrical conductors that may affect, or be affected by, the Work to be done under the Contract, or alternatively, endorse in the work book that no such conductors exist.
- 3.18.3 The Technical Officer shall make the necessary arrangements to move the machinery by rail from one work site to another, and shall give the Contractor written notice of the date and time of departure. Major movements will be planned and the time allowed should be a minimum of 14 days or such shorter period as agreed.
- 3.18.4 The Technical Officer shall give the Contractor a minimum of 14 days written notice to stop work temporarily for a period exceeding 14 consecutive days and a minimum of 14 days written notice to resume work after such temporary stoppage. Such idle time shall not be included in measurements for availability.
- 3.18.5 The Contractor shall point out to the Technical Officer any part of the track or off-track stand where conditions may constitute a danger to the machinery and its ancillary equipment, and record this in the work book. The Contractor shall however repair off-track platforms where work can reasonable be expected to be done by the labour provided with the machine as per the schedule of labour.

3.18.6 Should the tachograph or the event recorder break down, the Technical Officer's deputy will keep a complete written record of the starting and ending times of all events occurring during a track occupation. The Contractor shall sign this record if he agrees, and if he disagrees, he shall indicate on the record the reasons for the disagreement and then sign the document. Such disagreement shall be settled by negotiation between the Technical Officer and the Contractor.

3.18.7 The Contractor shall provide and maintain walkie-talkie radio transceivers with a minimum range of 5km in open country. The Technical Officer, in consultation with the Contractor, will allocate suitable frequencies within the 450MHz to 470MHz band for configuration of the radio equipment. The Contractor will be given seven day's written notice when additional radios are required.

3.19 KEY PERSONNEL

3.19.1 Service Manager is the person appointed by the Employer (Transnet Freight Rail) from time to time to administer the Contract according to the powers and rights held by and obligations placed upon him in terms of the Contract.

3.19.2 Machinery shall not be operated as a train unless a representative of Transnet Freight Rail, appointed by the Technical Officer, who is authorised to give instructions regarding the movement of the machinery, travels on the machinery to its destination. The Contractor shall assist Transnet Freight Rail in all matters concerning the safety of trains, persons and the machinery.

3.19.3 At least one qualified and experienced mechanic shall be in attendance at all times during track occupations and when the machinery travels as a train.

3.19.4 The Contractor shall appoint one suitably qualified person as his representative at each occupation.

3.19.5 The Contractor and the Technical Officer shall notify each other in writing of the names of their representatives who will be present during track occupations. These, as well as any changes in the personnel, shall be recorded in the workbook.

3.19.6 At the start of each occupation the Contractor shall, in the presence of the Technical Officer's deputy, perform the daily tests laid down by the Technical Officer. The brakes shall be briefly applied at low speed when traveling on level track or upgrade. If in the opinion of the Technical Officer's deputy the brakes do not function satisfactorily, the machinery shall be removed immediately to a staging point. Machinery staged due to defective brakes will be regarded as non-available.

3.19.7 The warning system shall be activated by an appointed employee of the Contractor. The Contractor's appointed employee shall be in continuous radio communication with Transnet's protection flagmen who will warn the Contractor's employee of approaching trains on adjacent lines.

3.20 MANAGEMENT MEETINGS

3.20.1 On or about the last day of each month, the Technical Officer will make a progress measurement of the work done in conjunction with the Contractor.

3.21 FORMS OF CONTRACT ADMINISTRATION

3.21.1 The Service Manager shall, within 28 days after completion of the Contract, authorise the release of Performance Bond, and submit for approval by the Employer a final payment certificate which, after approval by the latter, shall be issued to the Contractor, thereby certifying both the final completion of the Contract Work and the amount due to the Contractor. The Service Manager may deduct from the Final Payment Certificate any money then due by the Contractor to Transnet Freight Rail under the Contract, and for such provisions for the resolution of any disputes which may at the time exist between the Contractor and Transnet Freight Rail, as is deemed necessary by him.

3.22 PROFESSIONAL INDEMNITY INSURANCES

3.22.1 The Contractor shall take every precaution not to cause damage to property or injury to any person as a result of his execution of the work.

3.22.2 Transnet will insure in the joint names of Transnet Freight Rail and the Contractor against all legal liabilities which may arise from the accidental death of or injury to third party persons and/or accidental loss of, or damage to third party property in the course of the Contractor's execution of the Work.

3.22.3 The insurance policy will be for an indemnity limit as stated in the policy and will be maintained in force during the entire period of the Contract.

3.22.4 The Contractor shall in the case of a liability arising out of a negligent act or omission on the part of the Contractor is responsible for payment of the amount(s) stated in the policy as being the deductible.

3.22.5 The insurance to be provided in terms clause 6.2.2 of Contract Data will have a cross liabilities cover in respect of which each party shall be separately indemnified in respect of claims made by any one of them against the other as though a separate policy has been issued to each of them.

3.22.6 The Contractor shall insure against loss of or damage to his own machinery, tools, equipment, materials and site establishments and any consequential financial losses arising from such damage. This insurance is to be maintained in force during the entire period of the Contract. The Contractor shall likewise arrange his own insurances in respect of motor vehicle liabilities and employer's common law liabilities of the Contractor.

3.23 HEALTH AND SAFETY REQUIREMENT AND PROCEDURE

3.23.1 The Contractor shall comply with all applicable legislation and the Transnet safety requirements. The cost of such compliance shall be borne by the Contractor and shall be deemed to have been allowed for in the rates and prices in the Contract.

3.23.2 The Contractor shall, in particular, comply with the following Acts: -

3.23.2.1 The Compensation for Occupational Injuries and Diseases Act, (Act 130 of 1993); The Contractor shall produce proof of his registration and good standing with the Compensation Commissioner in terms of the Act.

3.23.2.2 The Occupational Health and Safety Act (Act 85 of 1993); The Contractor is in terms of section 37(2) of Act 85 of 1993, deemed to be an employer in his own right with duties as prescribed in the Act and agrees to ensure that all work will be performed or machinery and plant used in accordance with the provisions of the Act in respect of all persons in his employ, other persons on the premises or the site or place of the Work or on the Work to be executed by him and under his control in terms of the Contract. The agreements in this Contract and all documents attached or referred to, form an integral part of the arrangements and procedures stipulated in the aforementioned section.

3.23.3 The Contractor shall comply with the current Transnet Specification E.4E, Safety Arrangements and Procedural Compliance with the Occupational Health and Safety Act, Act 85 of 1993 and Regulations as applicable, and shall, before commencement with the execution of the Contract, submit to the Technical Officer,

- documentary proof of his procedural compliance with the Act and
- particulars of his Health and Safety Policy and Programme to be implemented on the Work in accordance with Specification E.4E.

The Contractor's Health and Safety Policy and Programme will be subject to the agreement of the Technical Officer, who may order supplementary and/or additional safety arrangements and/or different safe working methods to ensure compliance by the Contractor with his obligations as an employer in terms of the Act.

3.23.4 The Contractor shall comply with the current Specification for Work On, Over, Under or Adjacent to Railway Lines and near High Voltage Equipment - E7/1, where applicable, and shall take particular care of the safety of his employees working on or in close proximity to a railway line during track occupations as well as under normal operational conditions.

3.23.5 He shall also comply with all other safety requirements, regulations and guidelines of Transnet applicable to the nature of Work carried out under the Contract and shall obtain the particulars thereof from the Technical Officer.

3.23.6 In addition to compliance with clause 3.23.2 hereof, the Contractor shall report all incidents contemplated by Section 24 of the Act in writing to the Technical Officer. Any incident resulting in the death of or injury to any person on the WORK shall be reported within 24 hours of its occurrence and any other incident shall be reported within 48 hours of its occurrence.

3.23.7 The term "safety rules" is used in a generic sense and refers to all Transnet arrangements, procedures and requirements, pertaining to safety, specified or incorporated by reference in the contract documents, such as the Specification for Work On, Over, Under or Adjacent to Railway Lines and near High Voltage Equipment, E7/1, the Electrical Safety Instructions - High Voltage Equipment. (Copies of these documents are available for inspection at the offices of Transnet Freight Rail.)

3.24 PARTICULAR SPECIFICATIONS

Works specification

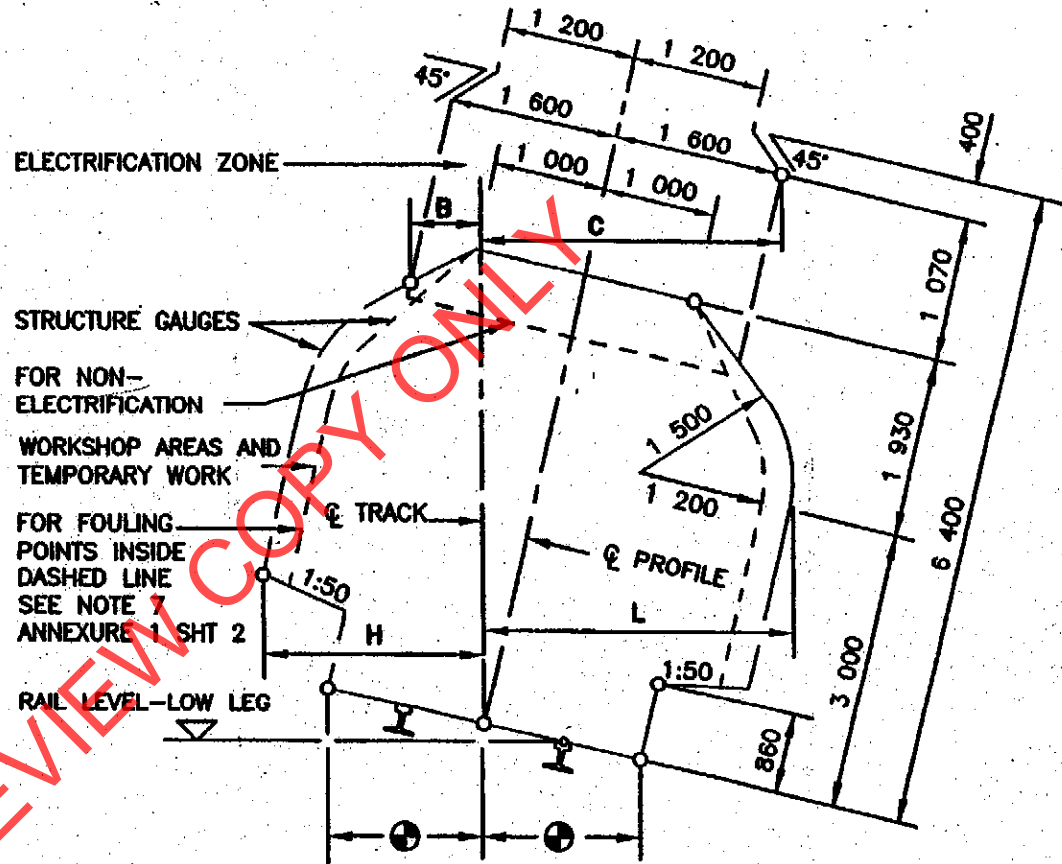
3.24.1 Generic specifications:

- E4B(November 1996): Minimum communal health requirements in areas outside the jurisdiction of Local Authority.
- E4E(August 2006) – Safety Arrangements and Procedural Compliance with the Occupational Health and Safety Act.
- Addendum No.1 to the E7/1 (July 1998) specification.
- Specification E7/1(July 1998) for works on, over, under or adjacent to railway lines and near high voltage overhead lines.

3.24.1 Project specifications

- Particular specifications for Machines and service required

RADIUS (m)	WITH CANT		NO CANT	WITH CANT	
	H (mm)	L (mm)	H & L	B (mm)	C (mm)
90	2 730	3 090	2 780	1 130	2 100
100	2 700	3 030	2 750	1 140	2 050
120	2 650	2 970	2 700	1 160	2 010
140	2 620	2 920	2 660	1 175	1 990
170	2 590	2 870	2 630	1 190	1 970
200	2 570	2 820	2 600	1 205	1 950
250	2 550	2 790	2 580	1 230	1 920
300	2 540	2 760	2 560	1 250	1 900
350	2 530	2 730	2 540	1 270	1 890
400	2 520	2 710	2 530	1 290	1 875
500	2 510	2 680	2 520	1 320	1 850
600	2 500	2 660	2 510	1 340	1 830
800	2 490	2 620	2 500	1 365	1 790
1 000	2 480	2 600	2 490	1 380	1 760
1 200	2 480	2 580	2 490	1 200	1 730
1 500	2 480	2 550	2 480	1 415	1 700
2 000	2 480	2 500	2 480	1 440	1 660
3 000	2 470	2 470	2 470	1 500	1 600
>5 000	2 460	2 460	2 460	1 600	1 600



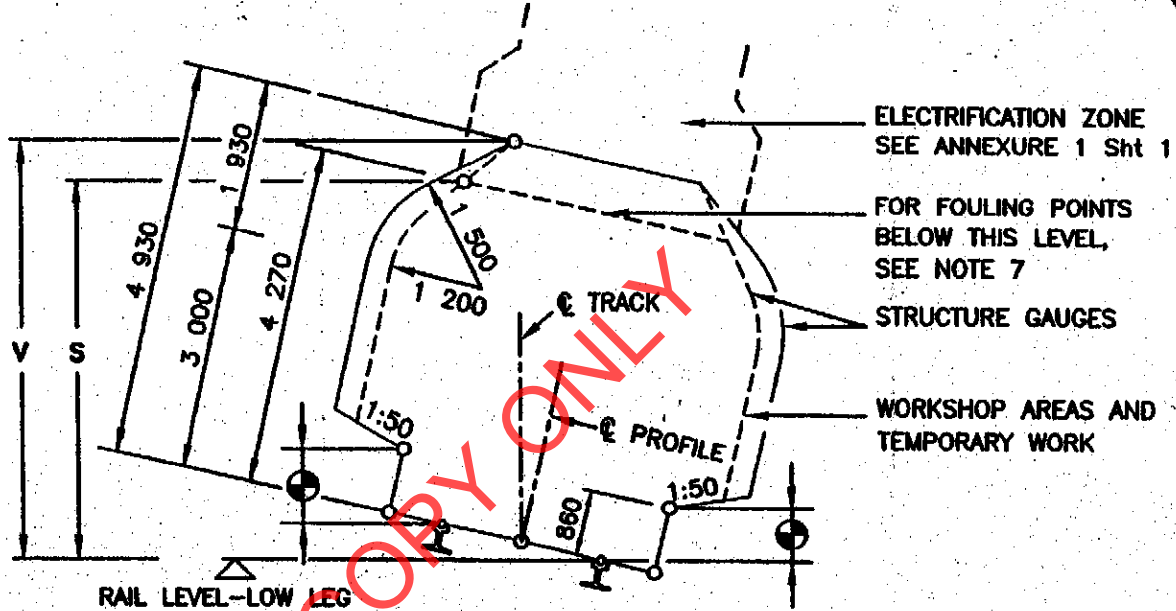
ANNEXURE 1
SHEET 1 of 5
AMENDMENT

HORIZONTAL CLEARANCES :
1 065mm TRACK GAUGE

REMARKS:

1. H AND B IS THE REQUIRED HORIZONTAL CLEARANCE ON THE OUTSIDE OF THE CURVE BASED ON MINIMUM CANT.
2. L AND C IS THE REQUIRED HORIZONTAL CLEARANCE ON THE INSIDE OF THE CURVE BASED ON MAXIMUM CANT.
3. INTERMEDIATE VALUES MAY BE INTERPOLATED BY THE ENGINEER IN CHARGE.
4. FOR WORKSHOP AREAS AND TEMPORARY WORK, CLEARANCES H AND L MAY BE REDUCED BY 300mm.
5. Ⓢ SEE ANNEXURE 1 SHEET 3 FOR PLATFORM CLEARANCES.
6. ALSO REFER TO REMARKS 4 TO 8 OF ANNEXURE 1 SHEET 2.

LOCATION	RADIUS (mm)	NOT ELECTRIFIED S (mm)	ELECTRIFIED (PRESENT OR FUTURE)	
			3kV & 25kV V (mm)	50kV V (mm)
ALL AREAS OTHER THAN THOSE INDICATED BY * BELOW	100	4 470	5 050	5 400
	300	4 410	5 020	5 370
	600	4 370	5 000	5 350
	1 000	4 350	4 990	5 340
	1 500	4 310	4 960	5 310
	2 000	4 290	4 940	5 290
	>3 000	4 270	4 930	5 280
* OVER OR NEAR POINTS AND CROSSING IF REQUIRED BY ELECTRICAL IRRESPECTIVE OF RADIUS			5 650	6 000



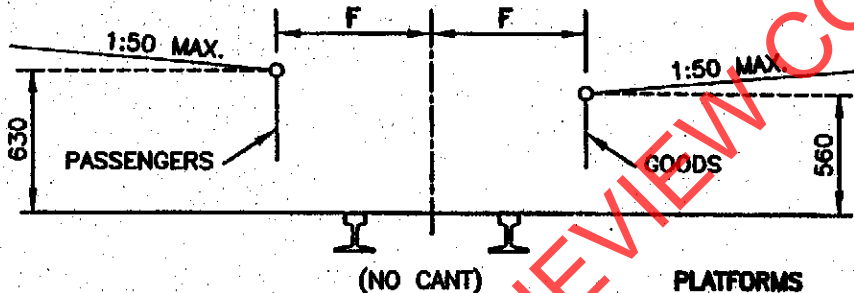
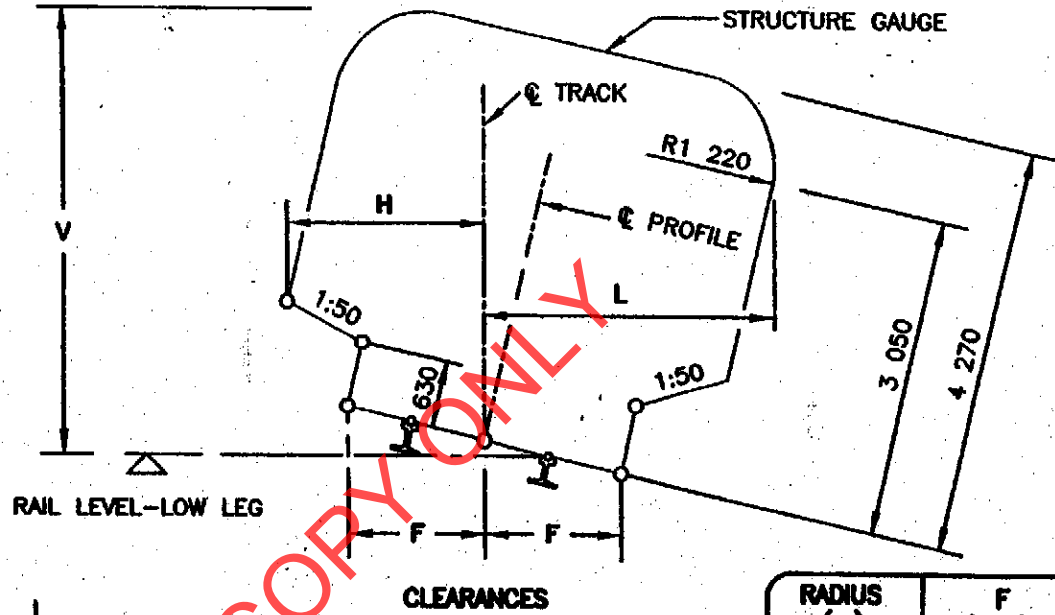
ANNEXURE 1
SHEET 2 of 5
AMENDMENT

VERTICAL CLEARANCES :
1 065mm TRACK GAUGE

REMARKS:

1. V IS THE REQUIRED VERTICAL CLEARANCE EXCEPT WHERE REDUCED CLEARANCE S APPLIES.
2. S IS THE MINIMUM VERTICAL CLEARANCE FOR STRUCTURES AND TEMPORARY WORK OVER NON-ELECTRIFIED LINES.
3. INTERMEDIATE VALUES MAY BE INTERPOLATED BY THE ENGINEER IN CHARGE.
4. FOR APPLICATION AT CURVES
 - 4.1 APPLY INCREASED CLEARANCES FOR CURVES TO POINTS 3m BEYOND THE ENDS OF THE CIRCULAR CURVE.
 - 4.2 REDUCE CLEARANCES AT A UNIFORM RATE OVER THE REMAINDER OF THE TRANSITION CURVE.
 - 4.3 FOR NON-TRANSITIONED CURVES REDUCE AT A UNIFORM RATE OVER A LENGTH OF 15m ALONG STRAIGHTS.
5. NEW STRUCTURES: SEE BRIDGE CODE.
6. TUNNELS: SEE DRAWING BE 82-35.
7. FOULING POINTS: SEE CLAUSE 8.1.
8. CLEARANCES ARE BASED ON 15m BOGIE CENTRES AND 21,2m VEHICLE BODY LENGTH.
9. SEE ANNEXURE 1 SHEET 3 FOR PLATFORM CLEARANCES.

RADIUS (m)	WITH CANT		NO CANT	V (mm)
	H (mm)	L (mm)	H & L (mm)	
50	2 370	2 490	2 400	4 320
70	2 310	2 420	2 330	4 310
100	2 260	2 370	2 280	4 310
140	2 220	2 340	2 250	4 310
200	2 200	2 300	2 220	4 300
300	2 190	2 270	2 200	4 300
500	2 180	2 230	2 190	4 290
700	2 170	2 200	2 180	4 270
1 000	2 170	2 170	2 170	4 270
>2 000	2 160	2 160	2 160	4 270

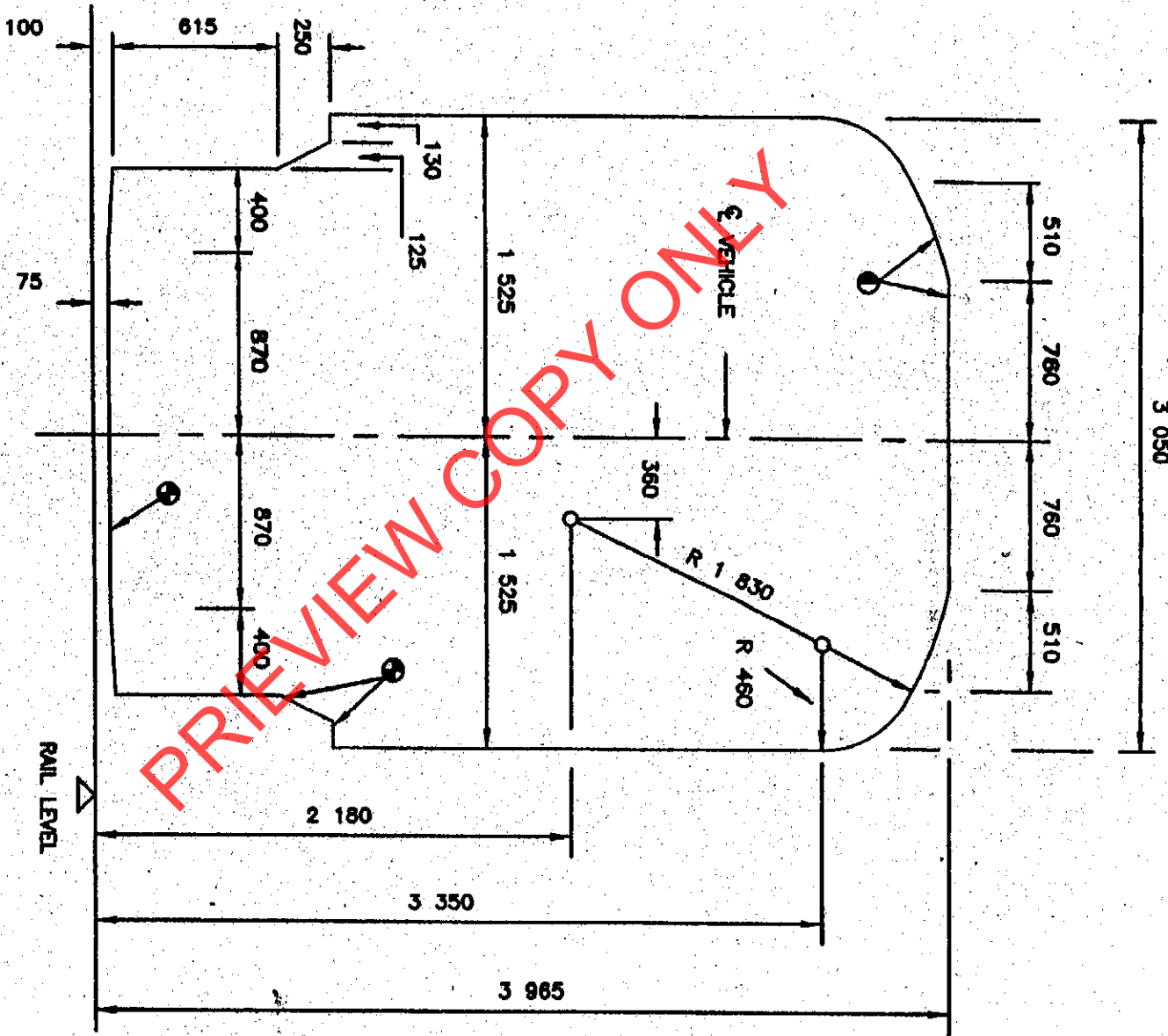


RADIUS (m)	F (mm)
50	1 550
60	1 510
80	1 480
100	1 430
120	1 410
140	1 390
170	1 380
200	1 370
250	1 360
300	1 350
600	1 330
1 000	1 320
>2 000	1 320
STRAIGHT	1 310

REMARKS:

- H IS THE MINIMUM HORIZONTAL CLEARANCE ON THE OUTSIDE OF THE CURVE BASED ON MINIMUM CANT.
- L IS THE MINIMUM HORIZONTAL CLEARANCE ON THE INSIDE OF THE CURVE BASED ON MAXIMUM CANT.
- V IS THE MINIMUM VERTICAL CLEARANCE.
- FOR APPLICATION AT CURVES:
 - 4.1 APPLY INCREASED CLEARANCES FOR CURVES TO POINTS 2m BEYOND THE ENDS OF THE CIRCULAR CURVE.
 - 4.2 REDUCE CLEARANCES AT A UNIFORM RATE OVER THE REMAINDER OF THE TRANSITION CURVE.
 - 4.3 FOR NON-TRANSITIONED CURVES REDUCE AT A UNIFORM RATE OVER A LENGTH OF 18m ALONG STRAIGHTS.
- INTERMEDIATE VALUES MAY BE INTERPOLATED BY THE ENGINEER IN CHARGE.
- ALSO REFER TO REMARKS 5, 6 AND 7 OF ANNEXURE 1 SHEET 2.
- CLEARANCES ARE BASED ON 9 700mm BOGIE CENTRES AND 13 700mm VEHICLE BODY LENGTH.
- SEE ANNEXURE 1 SHEET 3 FOR STRUCTURES ON PLATFORMS.

VEHICLE GAUGE :
1 065mm TRACK GAUGE

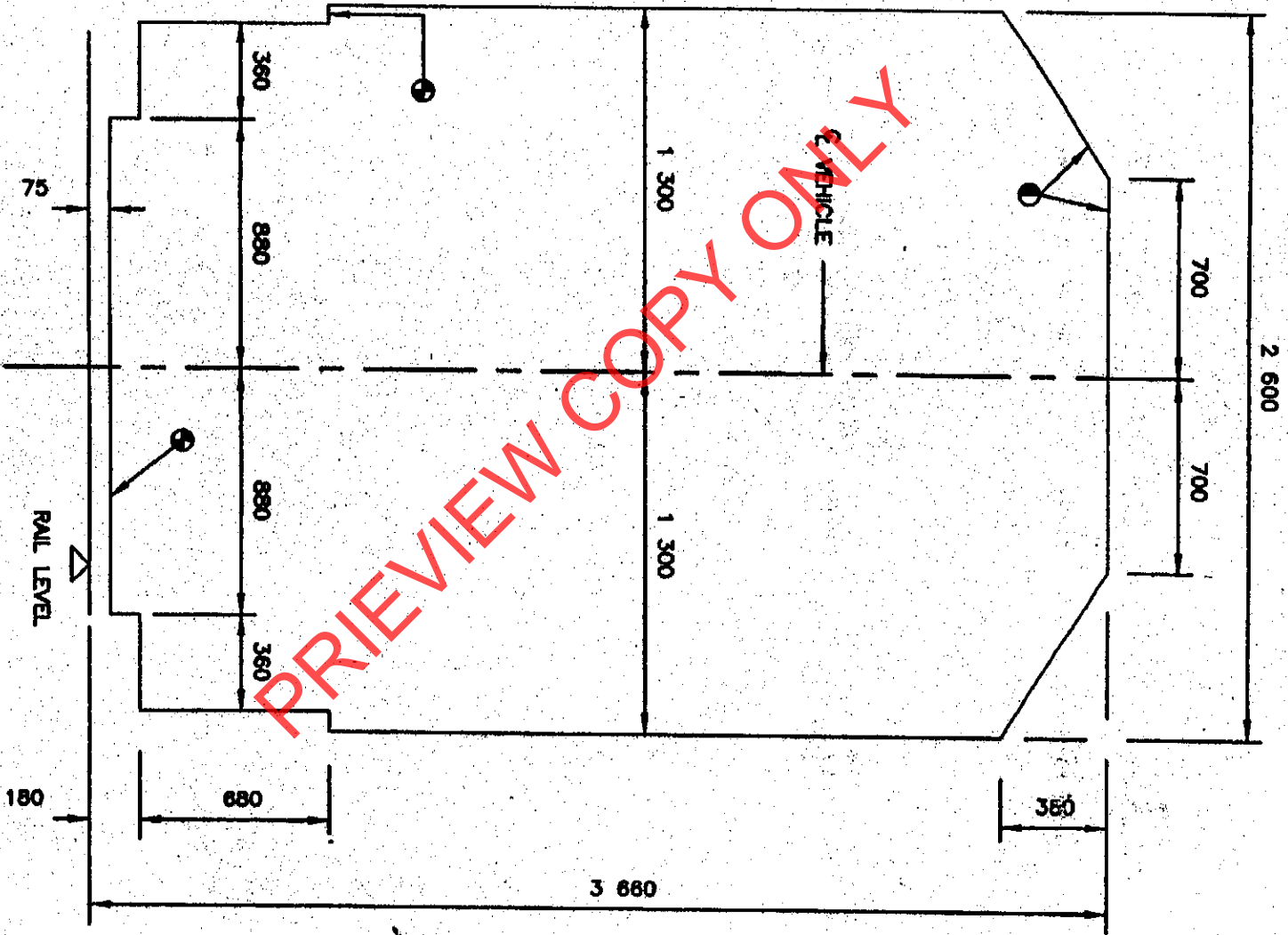


REMARKS:

1. ⓪ WITHOUT LOAD AND WITH NEW TYRES, VEHICLE MUST NOT BE HIGHER THAN THIS OUTLINE.
2. Ⓛ WITH FULL LOAD AND WORN TYRES, VEHICLE MUST NOT BE LOWER THAN THIS OUTLINE.

ANNEXURE 2
SHEET 2 of 2
AMENDMENT

VEHICLE GAUGE :
610mm TRACK GAUGE

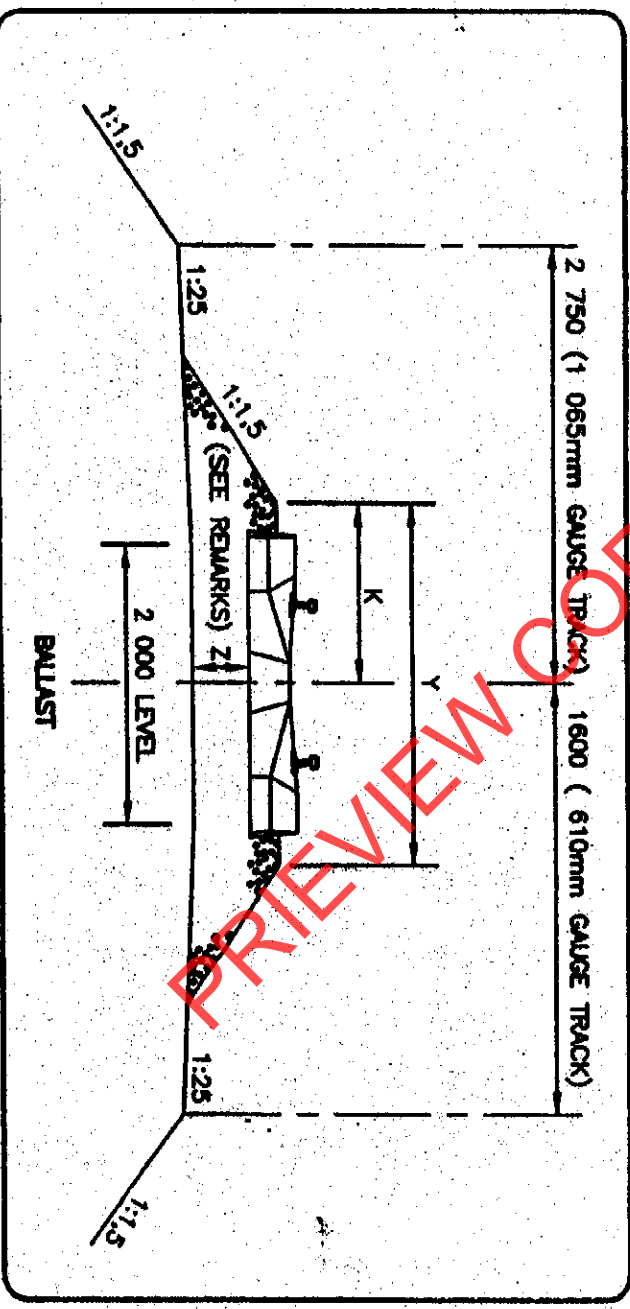
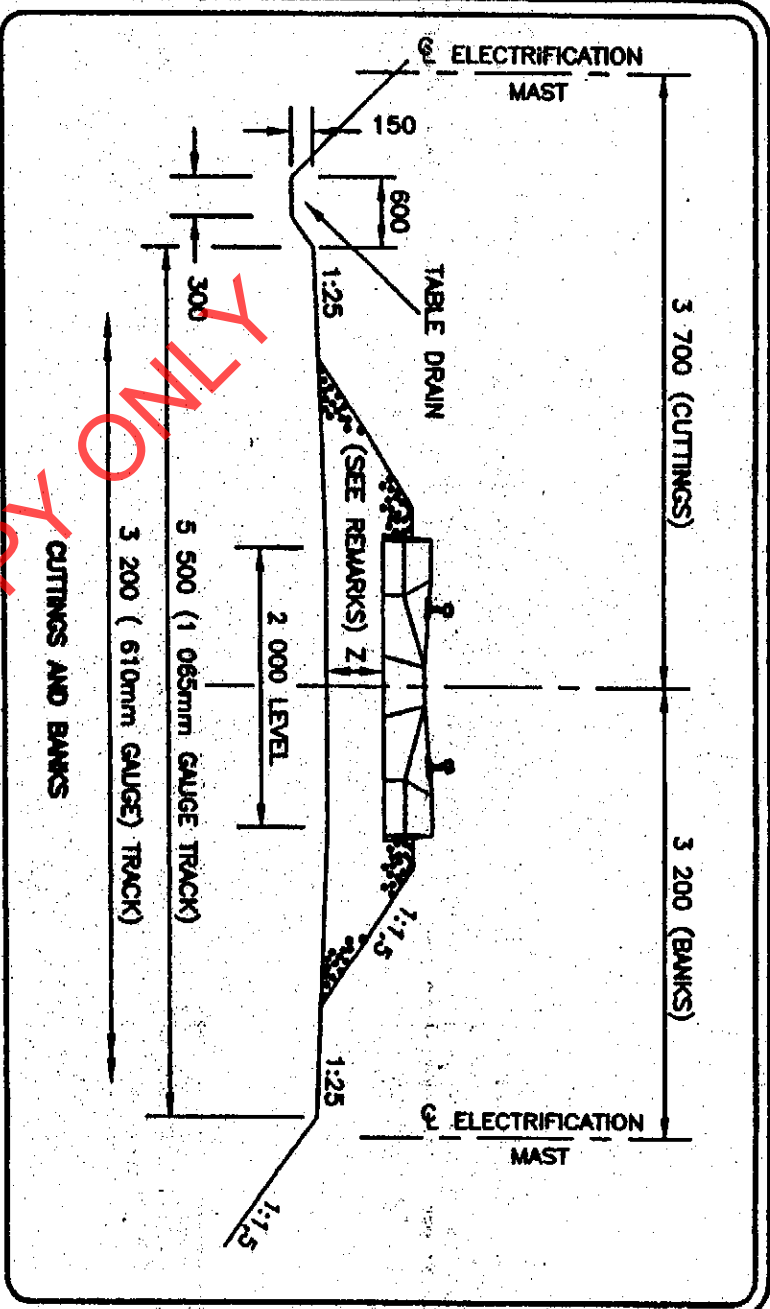


PRIEVIEW COPY ONLY

REMARKS:

1. ⦿ WITHOUT LOAD AND WITH NEW TYRES, VEHICLE MUST NOT BE HIGHER THAN THIS OUTLINE.
2. ⦿ WITH FULL LOAD AND WORN TYRES, VEHICLE MUST NOT BE LOWER THAN THIS OUTLINE.

FORMATION AND BALLAST :
MINIMUM REQUIREMENTS



CLASS OF LINE	Z (mm)	Y (mm)	K (mm)	QUANTITY (m ² /m)		WOOD
				P ₁ /F ₁	P ₂ /F ₂	
S	300	2 800	1 400	1 600	-	-
N1	280	2 700	1 350	1 500	1 400	-
N2	200	2 700	1 350	-	1 200	1 100

REMARKS:

1. Z TO BE MEASURED UNDER THE LOW LEG RAIL ON CURVES.
2. DEPTH OF BALLAST (Z) ARE TO BE MEASURED IN THE CONSOLIDATED STATE, THAT IS AFTER 100 000 GROSS TON TRAIN TRAFFIC.

DESTRESSING AND WORKING
TEMPERATURE RANGES

SECTION	DESTRESSING RANGES		WORKING RANGES FOR RAIL LAYING		
	THROUGH LINES	YARD TRACKS	A	B	C
KLERKSDORP - * POTCHERSTROOM	20 - 35	25 - 30	20 - 40	15 - 45	15 - 50
POTCHERSTROOM - * KRUGERSDORP	20 - 40	25 - 35	15 - 45	15 - 55	15 - 55
KRUGERSDORP - JOHANNESBURG	15 - 40	20 - 35	10 - 45	10 - 55	10 - 55
JOHANNESBURG - OLIFANTSFONTEIN	20 - 40	25 - 35	15 - 45	15 - 55	15 - 55
POTCHERSTROOM - VERENIGING	20 - 40	25 - 35	15 - 45	15 - 55	15 - 55
VERENIGING - GERLUSTON	20 - 40	25 - 35	15 - 45	15 - 55	15 - 55
VOLKSRUST - * STANDERTON	15 - 35	20 - 30	10 - 40	10 - 50	10 - 50
STANDERTON - * HEIDELBERG	20 - 35	25 - 30	15 - 40	15 - 50	15 - 50
HEIDELBERG - GERLUSTON	20 - 40	25 - 35	15 - 45	15 - 55	15 - 55
BALFOUR NORTH - * GROOTVLEI	20 - 35	25 - 30	15 - 40	15 - 50	15 - 50
GROOTVLEI - REDAN	20 - 40	25 - 35	15 - 45	15 - 55	15 - 55
FIRHAM - VREDE	20 - 35	25 - 30	15 - 40	15 - 50	15 - 50
VOLKSRUST - BREYTEN	15 - 40	25 - 35	10 - 45	15 - 55	15 - 55
BETHAL - SPRINGS	20 - 40	25 - 35	15 - 45	15 - 55	15 - 55
SPRINGS - KATDIE	20 - 40	25 - 35	15 - 45	15 - 55	15 - 55
MIDWAY - HOUTHELMEL	20 - 35	25 - 30	15 - 40	15 - 50	15 - 50
BANK - LANGLAAGTE	20 - 35	25 - 30	15 - 40	15 - 50	15 - 50
MARKENG - * KRUGERSDORP	25 - 40	30 - 35	20 - 45	20 - 50	20 - 55
APEX - WITBANK	20 - 35	25 - 30	15 - 40	15 - 50	15 - 50
DELMAS - HANDEKIP	20 - 35	25 - 30	15 - 40	15 - 50	15 - 50
SENTRARAAND AREA	15 - 35	20 - 30	10 - 40	15 - 50	10 - 50
JOHANNESBURG CENTRAL METRO AREA	15 - 40	20 - 35	10 - 45	10 - 55	10 - 55
OLIFANTSFONTEIN - * BREKE	15 - 40	20 - 35	10 - 45	10 - 55	10 - 55
RENE - PRETORIA	20 - 40	25 - 35	15 - 45	15 - 55	15 - 55
PRETORIA - * WARABATHS	20 - 40	25 - 35	15 - 45	15 - 55	15 - 55
WARABATHS - * POTJETERSRUS	20 - 45	25 - 40	15 - 55	15 - 60	15 - 60
POTJETERSRUS - BETERBROE	20 - 45	25 - 40	15 - 55	15 - 60	15 - 60
* PRETORIA - * WATERVAL BOVEN	20 - 40	25 - 35	15 - 50	15 - 55	15 - 55
WATERVAL BOVEN - * NELSPRUIT	20 - 45	25 - 40	15 - 55	15 - 60	15 - 60
NELSPRUIT - KONAIFPOORT	25 - 45	30 - 40	20 - 55	20 - 60	20 - 60
HERCULES - MAGALESBURG	20 - 40	25 - 35	15 - 45	15 - 55	15 - 55
PRETORIA - BRITS	20 - 40	25 - 35	15 - 45	15 - 55	15 - 55
RUSTENBURG - * THABAZIMBI	20 - 40	25 - 35	15 - 45	15 - 55	15 - 55
RUSTENBURG - * ELSRUS	25 - 40	30 - 35	20 - 45	20 - 55	20 - 55
THABAZIMBI - ATLANTA	20 - 40	25 - 35	15 - 45	15 - 55	15 - 55
NTLSTROOM - VALLWATER	20 - 40	25 - 35	15 - 45	15 - 55	15 - 55
MABOKSPRUIT - ZEBEDELA	20 - 40	25 - 35	15 - 45	15 - 55	15 - 55
PENWANSRIVER - IANBELE HALL	25 - 40	30 - 35	20 - 45	20 - 55	20 - 55
RAYTON - CILLMAN	25 - 45	30 - 40	20 - 50	20 - 60	20 - 60
GROENBURG - KAAPLUIDEN	25 - 45	30 - 40	20 - 50	20 - 60	20 - 60
HOTSPRUIT - PHALABORWA	20 - 45	25 - 40	15 - 50	15 - 60	15 - 60
* KAAPLUIDEN - BARBERTON	20 - 35	25 - 30	15 - 40	15 - 50	15 - 50
* NELSPRUIT - GVSROOP	20 - 45	25 - 40	15 - 45	15 - 55	15 - 55
CIRUS - PLUSTON	20 - 40	25 - 35	15 - 45	15 - 55	15 - 55
BELFAST - STELPOORT	20 - 40	25 - 35	15 - 45	15 - 55	15 - 55
DERVENT - ROOSSEKVAL	20 - 40	25 - 35	15 - 45	15 - 55	15 - 55
PRETORIA CENTRAL METRO AREA	20 - 40	25 - 35	15 - 45	15 - 55	15 - 55
SALDANHA - BAMBOESBAAI	20 - 50	25 - 45	15 - 55	15 - 60	15 - 60
* BAMBOESBAAI - SISHEN	25 - 40	30 - 35	20 - 45	20 - 55	20 - 55
RICHARDSBAY - ULUNDI	20 - 45	-	20 - 55	-	15 - 55
* ULUNDI - PET RETEF	20 - 40	25 - 35	20 - 50	15 - 55	15 - 55
PET RETEF - * SHEEPMORE	20 - 40	25 - 35	20 - 50	15 - 55	15 - 55
SHEEPMORE - ERWELD	15 - 35	20 - 30	15 - 45	10 - 50	10 - 50
* ERWELD - BROODSNIERSPLAAS	15 - 40	20 - 35	15 - 50	10 - 55	10 - 55
BROODSNIERSPLAAS - OGIES	15 - 40	20 - 35	15 - 50	10 - 55	10 - 55

REMARKS:

1. RAIL TEMPERATURES IN DEGREE CELSIUS.
2. USE A RAIL TENSOR WHEN THE DIFFERENCE IN THE 'A' RANGE IS 10° CELSIUS OR SMALLER.
3. * DENOTES "EXCLUDED".

PART C 3.24

PARTICULAR SPECIFICATION

Maintenance of Track by Ballast regulating with Heavy on Track Machines.

- A) Ballast Regulating area A (Iron Ore line and Mostly West)**
- B) Ballast Regulating area B (Coal line and Mostly East)**

Section No.	Description
1.	SCOPE
	1.1 Nature of work
	1.2 Contract area
	1.3 Duration of contract
2.	DEFINITIONS
3.	TYPE OF MACHINE AND SUPPORT REQUIRED
	3.1 Regulating/Profiling functions
	3.2 Mechanical and motive aspects
	3.3 Preparation work for regulating operation
	3.4 Traction and Signal Bonds
	3.5 Training of contractor's staff and compliance with safety requirements.
4.	STANDARDS OF WORKMANSHIP AND ACCURACY
5.	MEASUREMENTS FOR COMPLIANCE WITH STANDARDS
6.	EVALUATION OF MACHINE PERFORMANCE
7.	PROVIDED BY THE CONTRACTOR, PLANNING OF WORK AND EMERGENCY STANDBY
	7.1 To be provided by the Contractor
	7.2 Planning of normal working
	7.3 Emergency work standby during December break
8.	RECTIFICATION
9.	PRODUCTIVITY AND UTILIZATION OF REGULATOR
10.	BREAKDOWN TIME
11.	PROVISION OF ELECTRONIC DATA TO TFR

APPENDIX A (Track standards)



Maintenance of Track by Ballast regulating with Heavy Duty on Track Machines.

- C) **Ballast Regulating area A (Iron Ore line and Mostly West)**
- D) **Ballast Regulating area B (Coal line and Mostly East)**

1. SCOPE:

1.1.1 Nature of work

This Contract includes the maintenance of permanent way track by the Contractor with 2 high production, heavy duty, and on-track ballast-regulating/profiling machines.

1.1.2 Tenderers may tender for both or any of the machines required to achieve the planned capacity.

1.1.3 The total equivalent km regulated/profiled that is required is as shown in table 1 below. This is an average of 6km finalised per working day.

1.1.4 Any clause in this project specification C3/B, contradictory to requirements elsewhere in this contract shall take preference.

1.2 Contract area

1.2.1 The Contract area will be the track owned or maintained by Transnet Freight Rail. The 2 machines will be required to the following areas:

Table 1: Ballast regulating work areas and capacity required.

Machine and/or type of output required	Planned contract area	Estimated working time per month (Tw) (hrs)	Planned equivalent length of track to be profiled/regulated (Ekm) for the contract duration
A: Heavy duty, high production ballast profiling machine	Ore line, Western & Central Zones	82	3780
B: Heavy duty, high production ballast profiling machine	Coal line And Eastern & Central Zones	78	3000

* Refer to Part C2 Payment Data for calculation of Ekm.

The contract area for each machine is stated above, but the each machine may be required to work in different geographical areas.

1.2.2 TFR shall compile the schedule of work for the ballast profiling machine.

- a) Deployment of the capacity of the ballast profiling machine and the priority of the work site shall be determined by TFR.



b) The capacity distribution of as per table 1 is an indication and is intended as a basis for the calculation of time to be expected to execute the workload per depot. TFR may change this allocation to balance capacity offered and awarded with workload.

1.2.3 Occupation times will be arranged to allow the contractor to achieve the planned Ekp for the contract duration. The Contractor shall utilise the occupation time TO as indicated in table 1 to achieve the planned Ekp for the contract duration.

1.2.4 More work than planned may be done per depot per machine per year, only if instructed to do so by the Technical officer and confirmed as allowable within the total value of the contract by the Service Manager or Project Manager.

1.3 Duration of contract

1.3.1 The contract is intended to commence on 1 September 2009 or as soon as possible after that. Tenderers shall specify in their tender submission the earliest commencement date after the award of contract. The actual Contract commencement date shall then be arranged by Transnet Freight Rail and be as stated in the letter of acceptance of tender.

1.3.2. The contract period shall be for Thirty Six (36) months.

1.3.3. The planned work days for each machine including travel days shall be 235 TO-days. This implies 48 work weeks per year including the allowance of an estimated 25 days for travel and or a days for which occupations may not be called for.

1.3.4. The work shifts should be for a normal 8-hour shift for either be 5 consecutive days out of every 7 days or where the work and staff requirements justify, 10 consecutive days out of every 14 days. The annual break shall be for a period of at least 15 work days and shall normally be arranged for over the December holiday period.

1.3.5. The expected practical Tw work time utilisation of each daily shift and occupation to achieve the workload shall be between of 50% and 60 %

1.3.6. Travelling time to the initial place of work at the start of the contract and from the final place of work at the end of the contract shall be free on rail but the time shall not be part of the contract period and shall be at the expense of the contractor.

2. DEFINITIONS

The following definitions shall apply in addition to those of the Contract Data.

Regulate. To place the correct quantity of ballast between and around the sleepers to form the required profile by profiling of the ballast according to track standards (Annexure 4 of old E.160 Technical)

Profiling. Forming of the ballast profile by means of adjustable ploughs.

Brooming/ Cleaning sleepers

Finishing off the top surface of the ballast profile to ensure that ballast does not protrude above the sleepers. For this contract the use of rubber tines to clear excessive ballast of sleepers that was not removed by regulating blades or will not be removed by train vibration is required to be cleaned to ensure that fastenings are open and visible. The rubber tines shall not damage fastenings.

Ballast. Broken stone used to support sleepers.

* Ekp - Equivalent km of track regulated/profiled (Open track profiling of shoulders only)

All other regulating / profiling different from Ekp shall be converted to Ekp with applicable factors calculated in Item 2.1 of PART C2 PRICING DATA.

Rpro1 – Rate of profiling of shoulders only in meters/hour

Rpro2 – Rate of profiling of centre only in meters/hour

Rpro3 – Rate of profiling of centre and shoulders in meters/hour

3. TYPE OF MACHINE AND SUPPORT REQUIRED

3.1 Regulating functions

- 3.1.1 The Contractor shall, in his submission, shall specify the optimum profiling rate for each different type of profiling (Rpro1, Rpro2, Rpro3)
- 3.1.2 The machine shall be able to correct the ballast profile of the track to the required dimensions by:
- . moving ballast from either side of the track to the other
 - . moving ballast from either side of the track to between the rails, or vice versa
- 3.1.3 Booming / cleaning of ballast is required so that the ballast profile does not protrude above the sleepers and the rail fastenings are clear of ballast. The Contractor shall qualify how this is to be achieved. This cleaning is considered to part of any one of the profiling processes described. (Rpro1, Rpro2, Rpro3)
- 3.1.4 All ploughs shall be hydraulically operated from inside the cab of the machine to enable adjustment of the ballast profiles according to the available ballast volume without stopping the machine.
- 3.1.5 Where obstructions occur within the required ballast profile the machine shall stop short thereof and continue regulating the ballast on the other side of the obstruction.
- 3.1.6 Signalling and electrical equipment (such as axle counters, cables and bonds) and rail lubricators will generally not be removed for regulating.
- 3.1.7 Tenderers shall clearly qualify at what rates the machine offered can regulate ballast as required in the schedule of machine in Part C2.

3.2 Motive and other aspects

3.2.1 Off tracking equipment will normally not be required for this contract. Contractors to, however, qualify whether machine offered is equipped with this facility.

3.2.2 The machine cab shall provide sufficient space for the Contractor's staff as well as seating for one member of Transnet Freight Rail staff.

3.2.3 The Cab shall be positively pressurised and ventilated sufficiently so as to ensure keeping dust created from the regulating out of the cab to ensure effective functioning of the operator and Transnet Freight Rail Supervisor's deputy.

3.2.4 The machine shall have sufficient power to travel between work sites at the minimum speed as required in the schedule for the machine.

3.2.5 The machine shall also have sufficient power to provide sufficient production and profile a sufficient length of ballast per working hour. The power output and capacity of the machine to profile ballast will be considered in the award of the contract.

3.3 Preparation work for regulating operation.

3.3.1 All the Contractor's staff on or near the track shall at all times wear reflective clothing similar to that worn by Infra Maintenance's own staff.

3.3.2 Flagmen for the protection of the machines:

- a) The Contractor shall include allowance for flagmen for the duration of the contract and deploy flagmen as and when required. The Supervisor will specify when flagmen are required during pre – planning meetings.
- b) Payment of the flagmen will be included in the rate for profiling as per the schedule of quantities.
- c) The flagmen shall be equipped with two-way radios, linked to a third radio at the regulator.
- d) The flagmen shall also be equipped with all the necessary flags and reflective clothing.
- e) The contractor shall also provide transport to the staging site.
- f) Transport to the placing position and removal of the flagmen after completion of the shift, shall be done by the machine where practical.

- g) Instructions for the protection duties for the day, the method of protection to be used for the day and the control of the flagmen during the occupation, will be the responsibility of the Transnet Freight Rail "officer-in-charge of the occupation". (Track master or Track Inspector)
- h) Transnet Freight Rail shall provide detonators. Control of the use and training in the safe handling of detonators will be required.
- i) Training of the flagmen can be arranged as specified in clause 3.5 of this specification, through the Supervisor. The effective functioning of the flagmen must be monitored regularly.

3.3.3 Labour with the regulator

- a) The following labour shall form part of the standard labour required for the regulator:
 - i) Direct assistance for the operator as required by the contractor.
 - ii) Two flagmen to support the machine
 - iii) A bonder to remove, replace and re-fix damaged bonds.
 - iv) Labour to support bonding.
 - v) Tenderers shall qualify the strength of labour and transport allowed for in the tender submitted.
- j) This support will form part of the price for the machine.
- k) Where additional labour is required, the Supervisor will request this labour at least one month before the date required. Additional labour shall only be allowed if approved by the Project Manager.
- l) Additional labour will be paid for as day labour.
- m) Where vehicle is required for conveyance of additional labour, this vehicle shall also be part of the approval as per paragraph k) above. Additional transport and or supervision will be provided for and paid for under the provisional day rates.

3.4 Traction and Signalling bonds.

3.4.1 Allowance must be made in this contract for the provision of a bonder.

3.4.2 The bonder must be supported by labour and tools required. If, where the contractor cannot immediately repair a bond or if the contractor may not repair the bond, the Transnet Freight Rail bonder shall immediately be informed of damaged bonds.

3.4.3 In some cases, where the bond is not removed and is visible, the contractor may be required to lift ballast ploughs over bonds or cables. Where such cables or bonds are then accidentally damaged or broken because of late lifting of the ballast ploughs or because of them not being visible, the bonder must still repair the bonds.

- 3.4.4 The bonder is required to be available full time and must be utilised for the full working day to do work such as the removing and replacement of certain bonds so as to properly profile ballast where the bond is located. The replaced bond must then be re-placed according to the correct standard method, such as bury the cable underground and tying the cable to the sleeper.
- 3.4.5 The technician or trade hand used to do the bond repairs (referred to as the “bonder”) shall be properly trained and shall ensure that only those bonds which he is allowed to work on, be repaired by him. Certain bonds and damaged cables (Signalling and Electrical (Red bonds)), may only be repaired by a Transnet Freight Rail technician.
- 3.4.6 The equipment required for the bonder to repair damaged bonds, shall include a drill and reamers.
- 3.4.7 The contractor and bonder must arrange with Transnet Freight Rail for material (bolts, cables, etc.) before the start of each sections work where bonding is required from the contractor. Thereafter Transnet Freight Rail shall supply all the material required for repairing of broken bonds and cables on a one-to-one exchange basis (used material for new material) according to a schedule prepared well in advance.
- 3.4.8 The Contractor shall report daily to the Supervisor's deputy, the mast pole number and location of all bonds / cables damaged or broken off during regulating, that could not be repaired, or not repaired to the required standard. This shall be followed up in writing in the duplicate site dairy book at the end of each days shift.
- 3.4.9 Where possible and where within the capacity that can reasonably be accepted as the capacity of the bonder, bonds damaged or broken by the machine shall be repaired with bolts. The method of bonding shall be an approved method for the line and rail involved. The position of the bond to the rail shall also be to Transnet Freight Rail specification to ensure being clear of any lifting wheels of on-track machine.
- 3.5 Training of contractors staff and compliance with safety requirements
- 3.5.1 General.
- a) The Contractor shall ensure that all staff working on or with the contract are adequately qualified and trained, so as to comply with any relevant safety and quality requirements. This applies for both the contractors own staff or any staff of a sub contractor employed by the contractor.
 - b) This responsibility of the Contractor's to ensure that his staff is qualified and trained implies that:
 - I. Specific graded staff shall be qualified and sufficiently experienced and in possession of a qualified certificate for the required position or responsibility.
 - II. All staff shall also possess any other relevant induction or safety qualifications.
 - III. The contractor shall ensure that a complete up to date record is kept of safety qualifications or training and certification of all staff for all the relevant qualifications and safety requirements.

- IV. The record of the qualifications and or training kept by the contractor shall also be available on site.
- V. All relevant requirements for refreshment training shall be adhered to and the contractor shall ensure that the refreshments training and certification required is provided for the relevant staff.
- c) At the commencement of the contract, Transnet Freight Rail shall assist the contractor with the initial on-the-job training for the staff as specified below, so as to assist the Contractor to qualify the worker's / staff. The assistance for training shall apply only for the types of training listed in the Training Table 1, inserted below.
- d) The contractor shall ensure that all qualifications, training, and certification for all other requirements such as Machine Operators, Technicians / Fitters, Track Masters or Machine Track maintenance supervisors, Drivers, Crane and Earthmoving operators, Rail disc cutter operators, etcetera, are in place and are valid and that record is kept of such qualifications. This implies that the contractor shall ensure that proof of qualifications are kept when required.
- e) Where training is required by the Contractor for other than normal track work functions and Transnet Freight Rail has undertaken to provide this training, the following shall apply:
- The number of staff requiring training for a specific qualification or activity is to be provided by the contractor in good time to allow for arranging such training.
 - Training will normally only be provided only at a depot's headquarters
 - Arrangements for the training and/or testing must be made with the appropriate depot Technical officer or Transnet Freight Rail depot Production manager (Perway or Electrical)
- f) For critical work outputs as well as specific activities, the contractor shall ensure that he has a core group of workers with sufficient previous experience to take the lead in undertaking maintenance tasks to ensure experience of safe and productive working.
- g) Where any training is provided by Transnet at a depot or centrally at Esselen Park, the contractor shall be responsible for transport, accommodation and meals. Where the training is provided by Transnet, the lecture hall with facilities and handout material will be provided by Transnet.
- h) Where the contractor will be required to provide an accredited trainer, paid for by Transnet under the "Day Labour" rate, or where the contractor arranges his own staffs re training or refreshing training, Transnet will make available, free of charge, any of the existing depot venues if so required by the contractor. Arrangements for the venue for training shall be made by the contractor with the depot through the Technical Officer.
- i) When training is conducted by a representative of the contractor, the basic specifications and content of what is required to conduct the training, will be supplied by Transnet. Where Transnet cannot supply duplicate copies of this content, the copies may be duplicated by the contractor with the approval of the Technical Officer. The cost of the copies will then be re-funded to the contractor after the approval of the invoice. Payment will be made under the Lump Sum item in the contract.

3.5.2 Training to be provided by Transnet Freight Rail or by hired accredited trainers:

- a) The intention is that Transnet shall provide, where required, the training for the qualifications or certification as listed below at the start of this contract. Where Transnet cannot provide the training, the required accredited trainer shall be hired by the contractor and be paid for under the provisional day labour item.
- b) During the course of the contract any required alternative or follow up or refreshment training for new recruits or replacement staff, shall be undertaken by the contractor as part of the contract responsibility and at the cost of the contractor.
- c) For the purpose of pricing, where an accredited trainer is required to be provided by the contractor, the following assumption must be used:
 - o The content of Training course material required by Transnet will be provided by Transnet.
 - o The trainer will need to be sufficiently qualified and then be tested by Transnet and be accredited by Transnet to conduct the training and testing and certification of candidates trained. Such a testing of a trainer shall be done by Transnet free of charge as part of a group of contracts but transport and accommodation cost of such a trainer shall be for the account of the contractor.
 - o Depot facilities such as venues for training may, on appointment with the depot, be used free of charge by such a trainer to conduct training for the contract.
 - o For any training, the Transport, accommodation and meals of any candidates being trained, shall be for the account of the contractor. This shall also apply at the start of the contract.

Training: Table 1: Training on TFR contracts: List of types of training

Type of Training	Staff required to undergo training	Estimated duration of training	Location of training	Trainer to conduct training at start of contract	Alternative trainer to conduct training at contract start	Future Refreshment training
Induction	All contract staff including new entrants. Start of work at any new depot	+/- 2 hours	Depot where work starts	TFR Technical officer or Track inspector	New recruits: Contractors accredited representative	Contractors accredited representative.
Electrical awareness	All contract staff including new entrants	+/- 2 hours	Depot where work starts	TFR Depot's electrical officer or accredited trainer	New recruits: Contractors accredited representative	Contractors accredited representative.
PWC (Electrical)	Supervisors, Operators, fitters, Technicians & Workers supporting fitters, working in risky OHTE areas.	2 days	Depot where work starts	TFR, Esselen Park or Depot accredited trainer, or TFR hired accredited trainer : By appointment at depot*	Replacement/ new staff: Contractors accredited representative	Contractors accredited representative.



Competency (Electrical)	Supervisors (Follow up training in PWC)	1 day	Depot where work starts	TFR, Esselen Park or Depot accredited trainer, or TFR hired accredited trainer : By appointment at depot*	Replacement/new staff: Contractors accredited representative	Contractors accredited representative.
Flagmen Training	Flagmen and standby flagmen	5 days		TFR, Depot neighboring depot accredited trainer, or TFR hired accredited trainer : By appointment at depot	Replacement/new staff: Contractors accredited representative	Contractors accredited representative.
Bonder Training	Bonder	5 days		TFR, Esselen Park or Depot accredited trainer, or TFR hired accredited trainer : by appointment at depot*	Replacement/new staff: Contractors accredited representative	Contractors accredited representative.

3.5.3 Track maintenance (Workers):

If required at the commencement of the contract, assistance with the training, to qualify the Contractors workers to perform the following tasks shall be given. This assistance shall be limited to showing the contractors Track master how work is to be done. Tools and repeat training must be provided by the contractor

- a) Track work as mentioned in the appropriate clause (Level crossing's and blocks, cattle guards, sleeper & Clip replacement / fastening, lubricators, ballast boxing etc.).
- b) Quality measurements as required per the quality control clause.

3.5.4 Training of Track Inspectors, Track Masters and or Trade hands (Perway):

- a) This training shall be solely the responsibility of the contractor. Only qualified people, qualified for the type of work required for the support required for the contract, shall be used by the Contractor for these positions. The Contractor shall ensure that staff used, do comply with requirements for the industry for the type of work required for the contract.
- b) The Contractor's Track Master/Track Inspector shall take full charge of the Contractor's resources on the work site. Such a contractor's Track Master or Track Inspector shall be responsible to ensure performing Track work safely and to the standard of the industry for the relevant type of work and line traffic conditions. An employee / agent appointed by the contractor, will not act as, or be allowed to take on any responsibility as, the person-in-charge-of-the-occupation. The function of person-in-charge-of-the-occupation is restricted to any currant standard Transnet policy in place at the time of the work being performed. At present this is restricted to a competent Transnet Freight Rail Track Masters and or Track Inspectors used for On Track contract work.



- c) The person-in-charge-of-the-occupation for an On Track machine shall be a competent Transnet Freight Rail employee, reporting to the Transnet Freight Rail Depot Engineer. This person shall be responsible for the following on a work site:
- Taking occupations
 - Placing and controlling the flagmen
 - Declaring the track safe for the passage of trains
 - Cancelling the occupation and recalling the flagmen
 - Communication with train traffic control with regard to occupation matters.
 - The issue and control of all flags, warning boards and detonators

3.5.5 Training of Flagmen:

- a) Flagmen used, may be either Transnet Freight Rail employees or employees of the Contractor.
- b) For this contract, flagmen are required to be provided by the contractor.
- c) Any flagmen provided will be subject to control testing by the Track Inspector of the section to ensure compliance of protection duties relevant for the section of track to be worked as well as the activity required to be performed, e.g. protection of Tamper work. The testing of flagmen proficiency by Transnet Freight Rail Track Inspectors is only a safety and quality control and does not exonerate the contractor of the responsibility to ensure the proficiency of the any flagmen used.
- d) The appropriate training for the flagmen can be provided once off for the contract by Transnet Freight Rail. Any extra training of Flagmen as well as any refreshment training required shall be paid for or be provided by the contractor.
- e) Where Transnet Freight Rail requires flagmen to be trained, the pre-requisites for such persons to qualify to be trained, shall be basic literacy skills and Basic English language ability as well as any physical requirements required for this work such as good sight and hearing ability..
- f) Flagmen must be officially trained, evaluated and certified competent, (Transnet Freight Rail 407 – Item Number 37/270451 - "Certificate of Competency") by a designated competent person, before being used on protection duties. This certificate of competency shall remain valid for one (1) year only after, which re-testing and re-certification of competency will be required.
- g) In cases where a person was not performing flagmen duties for a period of 6 months or longer, he must be re-tested and again be re-certified competent, before he may be re-used for Protection Duties.
- h) The Transnet Freight Rail Depot Engineer remains ultimately responsible in terms of the requirements of Act 85 for the safe working environment of his own personnel as well as contractor's personnel within the track maintenance environment on his depot.

The Depot Engineer is therefore also responsible for ensuring that any changes in the Protection Procedures that may occur over time are effectively communicated to any flagmen prior to them being used for Protection Duties. Where such a change occurs and is communicated to a contractor, the contractor shall ensure that flagmen used by him are informed and trained to carry out the changed requirements.

3.5.6 Training of bonders.

- a) Bonders removing, replacing or repairing damaged bonds, shall be trained to ensure that only work, which they are trained and allowed to do, is done by them.
- b) The initial initialization training of bonders for this contract can be arranged for with the Transnet Freight Rail accredited electrical trainer, through the technical officer as specified above in this clause.
- c) Bonders shall be required to be trained for Electrical Permanent Way Competency and be trained to do WHAM bonding and bonding according to electrical specifications, instructions and drawings manual CEE 0059.84 and CEE0060.84, where applicable.
- d) Follow up training of bonders shall be responsibility of the contractor.

3.5.7 Electrical awareness, Educational and competency training:

- a) The following training shall be arranged for the following Contractors staff:

Course	Objective	Duration & trainer	Grade to attend
A) Awareness (Electrical)	To inform all contractors staff working near a machine and on the line on electrified sections of the dangerous situations of high voltage OHTE.	Two-hour on-the-job lecture and training. Accredited Electrical trainer / Depot's Electrical technical officer.	<ul style="list-style-type: none"> • All workers and staff working on the contract
B) PWC Educational (Electrical)	For the safe working on and with On-track machinery in the vicinity or near exposed High voltage OHTE.	Lecture room training = 1,25 d On-the-job training = 0,25 d Criterion test = 0,5 d Total = 2 days Accredited Electrical trainer	<ul style="list-style-type: none"> • Workers working on a machine (High risk area's) • Operators • Machine fitters • Area supervisors • Contract supervisors
C) COM Competency (Electrical) (to follow A) (PWC)	Work permits safe working procedures under the direct supervision of a responsible representative.	Lecture room training = 0,25 d On-the-job training = 0,25 d Criterion test = 0,50 d Total = 1 day Accredited Electrical trainer	Supervisor (Responsible person in charge at machine working)

- b) The electrical awareness training must be arranged for beforehand on-the-job.
- c) The electrical educational and competency training may be arranged for at either a depot's lecture room's (Transnet Freight Rail property), or at a venue of the Contractors choice (Contractors cost).



- d) The Accredited Electrical trainer from Transnet Freight Rail required at the start of the contract, will be provided by Transnet Freight Rail at Transnet Freight Rail cost, provided that an arrangement for the training session required, is done beforehand and will fit in with the trainers training program for the year. This shall not include transport, accommodation and meals for candidates to be trained

4. STANDARDS OF WORKMANSHIP AND ACCURACY

The required standards are given in Appendices A and B.

- 4.1 The standards will not apply within 5m of obstructions that prevent the machine from profiling to the required ballast profile, or where insufficient ballast occurs.
- 4.2 No ballast shall remain beyond the toe of the ballast profile, such that the depth of ballast stones remaining is more than 60mm. This will not be applicable where there is ballast infill between multiple tracks.
- 4.3 Where excess ballast is encountered it shall be distributed on the profile shoulders as follows:
Tangent track:
Symmetrical Curves: Excess ballast placed on high leg, to a maximum of 300mm preference, after which further excess is placed symmetrically.
- 4.4 All ballast and muck accidentally spilt by the regulator shall be removed from drains, (concrete lined or earth). This excludes ballast and muck that fouled the drains before start of work on the section.
- 4.5 When the Supervisor specifies a different ballast profile, similar tolerances to that shown in Appendices A and B will apply as standards
- #### 5. MEASUREMENT FOR COMPLIANCE WITH STANDARDS
- 5.1 The Contractor is responsible for achieving the required standards. Measurements by the Supervisor (as described below) will only be as a check, once the Contractor is ready to hand over the track.
- 5.2 Compliance with the Sc standards will be evaluated after operation of the machine. Should any measurement exceed the Sc standard the machine shall immediately rectify the fault.
- 5.3 Compliance with the Sf standards will be evaluated within the first 100 000 gross tons of traffic but always within 24 hours after submission for hand-over.
- 5.4 Ballast profiles will be measured by means of a template and tape, as shown in Appendix B. The template shall be provided by the Contractor and be available at the work site at all times.
- #### 6. EVALUATION OF MACHINE PERFORMANCE
- 6.1 Machine performance will be evaluated by measurement of the ballast profile behind the machine operation. Defective machine performance is indicated by a measurement that fails to meet the specified standard i.e. a "failed measurement".

- 6.2 The performance of the machine will be acceptable if the number of failed measurements does not exceed the specified number shown in Appendix A. Plain track and restricted track will for this purpose be divided into 500m sections.

If the terms of clauses 4.1 or 4.5 exclude a portion of track from measurement, or the 500m section is not complete (for example if a set occurs within the section), the tolerance will be reduced proportionally.

- 6.3 Should any measurement exceed the Sc-standard, the machine shall immediately rectify the fault.

- 6.4 The Supervisor's deputy will decide, if re-working shall be done in case of non-conformance to clauses 5.2 or 5.3.

In all instances where re-working is required, the working time will not be added to the monthly total of Tw, for the duration of such re-working.

- 6.5 Should re-working according to clause 5.4 not be possible because of a lack of occupation time, then fifty percent of the Tw for the portion of track under consideration, taken at scheduled rates, will be subtracted from the monthly total of Tw.

- 6.6 The tachograph will be marked by the Supervisor's deputy to indicate where re-working was done.

7. PROVIDED BY THE CONTRACTOR, PLANNING OF WORK AND EMERGENCY STANDBY.

- 7.1 To be provided by the contractor

The Contractor shall in addition to what is stipulated in Part C3 / A General Technical Specification, Maintenance of Track with On Track Machinery (Old E 160), provide the following facilities and support for the:

- 7.1.1 Lighting of the Work Site.

- a) The Contractor shall provide lighting on and with a machine should the machine be required to work at night. Where a machine is required to work at night, the contractor will be required to provide lighting for the support labour required to work with the machine. This will apply to all workplaces in tunnels and other work places where work is to be taking place during darkness hours between 18:00 and 06:00. Transnet Freight Rail will notify the Contractor at least one week prior of lighting arrangements to be made. The lighting shall be of intensity and spread to satisfy safe work and efficiency requirements.
- b) The Contractor's lighting will not be required on the workplaces where Transnet Freight Rail labour is employed. The Contractor may also utilise the existing lighting power supplies (where available) to assist him in lighting the workplace.

7.1.2 Flagmen.

The contractor shall provide two flagmen to ensure protection of the site at all times for occupations. The flagmen shall be included in the rates tendered for the machine. In the event that additional flagmen are required for a separate worksite if required for a stabilizer working independently, the contractor shall also provide these additional flagmen. These additional flagmen will then be paid for under day rates.

7.1.3 Support labour and tools:

7.1.4 The contractor or his subcontractor shall provide all equipment, tools and support required to support the tamping activity, including the control measurements to control quality and safety of work.

7.1.5 Accommodation and other use of Transnet Freight Rail wagons.

7.1.2.1 The intention is to discontinue the use of wagons unless absolutely essential. The intention is to have a machine move from one staging site to the other under its own power and to not have the need to move camps separately by train. Where it is however essential or impractical or not possible to implement such a change over with the start of this contract, TFR may consider a period of changeover.

7.1.2.2 Wagons that may be considered as essential for a contract.

No such wagons are foreseen to be part of a ballast regulating contract.

7.1.2.3 Wagons that may required for the contract but are not absolutely essential

These are wagons that may be critically important for the execution of the contract but can be replaced by road transport at relatively high cost and or effectiveness. Any such wagons if provided or allowed as part of the contract shall under all circumstances be limited. Examples of such wagons are:

- a) Fuel bowser wagon.
- b) Storage wagons for machine parts of large contracts.
- c) Critical accommodation wagons with contract such as:
 - i. Caboose on grinder as part of grinder.
 - ii. Wagon or caboose for guards with train to ensure security of machines when moving, stopping and when staged
- d) Any other critically required wagon specifically being part of a machine package. (Tenderers to clearly specify what wagon and for what critical process used as well as consequence if wagon is not available.)

7.1.2.4 Transition period for use of wagons already part of existing contracts.

Certain wagons may at present be used as part of an existing contract. If a follow up or new contract is awarded to a contractor and the contractor requires the use of such wagons to enable a continuous service, the use of the wagons may be considered for such a transition period. Such wagons may form part of the non – essential group of wagons. The wagons may then be used for the interim period until such time as when other alternative housing and or vehicles and other equipment can be provided to replace accommodation wagons.

If applicable, tenderers shall list and define these wagons and qualify tenders stating when they can be replaced and what the difference in costs shall be at the date at which the replacement will occur.

7.1.2.5 Only wagons linked to contracts at present in use may be available. Tenderers shall indicate in the schedule of wagons, what wagons are required as essential and motivate each wagon required as well as what the implication would be in the event that the wagon is not made available for this contract or not allowed to be used for the contract. Any of the wagons intended to be used in a contract shall be qualified in the tenders submitted, providing wagon number, type and intended use.

7.1.2.6 Cost of wagons:

Tenderers are required to clarify tenders to clearly indicate what cost has been allowed for and the difference in cost to Transnet of all possible options included in the pricing for any of the following or any other allowed for wagon usage options allowed for in the submitted tenders:

- i) Transition period for some non essential wagons: Wagons Transnet owned and maintained. If any, what cost change will occur and when, when wagons are with drawn and no longer allowed. This option only allows for wagons supplied and maintained by Transnet as on previous similar contract. (Transition period only)
- ii) Transition period for some non essential wagons: Wagons Transnet owned but day to day maintenance done by contractor. (This option may only be valid if agreement for standard of safety and accreditation of contractor's maintainer is agreed on with TFR wagon fleet maintaining management.) Cost of wagons as per qualified list, if continued to be supplied by Transnet as on previous similar contract, but part of wagon maintenance be done by contractor, excluding wheel replacement or wheel cutting. (Transition period only)
- iii) Full time use of some wagons supplied by contractor: Wagons supplied and maintained by contractor.
- iv) Full time use of some wagons supplied by Transnet: Wagons supplied by Transnet and partly maintained by Contractor as in ii) above. The cost of maintenance arranged by the contractor may be paid for by:
 - An allowance by the contractor and included as part of price tendered, or
 - Allowing for a provisional lump sum in the contract and paid for by Transnet on approved invoice.

7.1.2.7 This clause on wagon usage shall replace any other reference to the supply or use of wagons mentioned or specified elsewhere in this specification.

7.1.2.8 Tenderers may offer different options to Transnet for the use or not of wagons which they consider important or critical to execute the contract.

- 7.1.2.9 All intended wagon use shall be clearly qualified in an annexure covering wagon requirements. From any submission, it must also be clearly qualified what costs will be involved and at what stage where no TFR wagons and traction will be involved for moving a machine and the camp of the contractor. This clause therefore implies that tenderers shall allow for provision of certain facilities such as accommodation without the use of wagons
- 7.1.2.10 Tenderers shall also qualify tenders stating what costs shall be involved if one or more wagons allowed for in the offer is later withdrawn or is not provided.
- 7.1.2.11 Where wagons are used as part of a contract, the contractor will under all circumstances be required to keep the wagon clean and safe and control security of the wagon. This shall include preparing basic safety cases for all forms of use of wagons and ensuring management thereof.
- 7.1.2.12 Any wagon supplied by Transnet and used by the contractor remains the property of Transnet and shall be returned to Transnet after the expiry of the contract.

7.2 Planning of Normal Working

- 7.2.2 The following will be determined and recorded jointly by the Supervisor's deputy and the Contractor at a monthly site meeting, scheduled to suit both parties:
- (a) The previous month's production and quantities for payment purposes.
 - (b) The next month's detailed programme and the necessary inspections required.
 - (c) Material requirements e.g. fastenings or ballast.
 - (d) Welding required.
 - (e) Occupations.
- 7.2.3 The weekly progress and revisions to the monthly programme will be determined by the Supervisor's deputy and the Contractor's representative at a weekly site meeting. Decisions made will be recorded in a designated site book provided by the Contractor. The weekly site meeting will be held during occupation time, but must not interfere with working time (Tw).

8. RECTIFICATION

- 8.1 In case of non-compliance with the standards of workmanship and accuracy the ballast shall be regulated until the standards are achieved. The Supervisor's deputy will give the Contractor a written instruction to this effect, which will include the relevant measurement results.
- 8.2 Where the S_c standards are not attained before the end of an occupation, or should the Contractor damage the track or any visible equipment, the Supervisor may arrange to rectify the defects. Costs will be recovered from the Contractor, actual Contracted rates or at departmental rates.

Departmental rates, where required, will be as below, and will be subject to price adjustment described in clause 23 of the Contract Data. Labour rates will be enhanced by 50% for work on Saturdays and 100% for Sundays and paid public holidays.

Artisan/Platelayer = R 120,00/hr
Semiskilled labour = R 80,00/hr
Unskilled labour = R 40,00/hr

L.D.V. = R 400,00/hr excluding driver
Lorry = R 800,00/hr

Material: to be determined as and when applicable, subject to a 25% mark-up.

9. PRODUCTIVITY AND UTILIZATION OF REGULATOR

9.1 The following types of time activity shall continuously be recorded so as to clearly define what time is available for working.

To = Total Occupation time for the day.

Ts = Standing time because of TFR reasons, not related to any fault of the contractor.

Tx = Standing time due to Train crossing time

Tt = Travel time from staging site to work site and back to staging site or to clear for train crossing.

Tm = Time allowed to move one staging area to another when machine is required to move to new depot or area.

Tp = Time required to for preparation of track to allow working. (Only preparation that is purely related to machine on site that could not be phased apart from machine can be recorded for this purpose. This item may not be used for any problem related to the machine or staff inefficiency)

Tb = Breakdown of machine

Tw = Working time (As specified below)

Twpro1 = Time spent on profiling the shoulders only

Twpro2 = Time spent on profiling the centre

Twpro3 = Time spent on profiling the shoulders and centre

Twbr = time spent on brooming if not done simultaneously with profiling

A productivity factor, P shall be calculated to continuously monitor whether the machine consistently produces at the rates of production tendered.

9.2 $Productivity = P = La / [\sum(Twpro1 * Rpro1) + (Twpro2 * Rpro2) + (Twpro2 * Rpro2)]$

La = the total lengths of track accepted

= Lapro

Tw = Working time

R = quoted production rate of track finalised per hour of working time (Tw).

Subscripts "pro" indicates profiling (up to three separate types) including clearing ballast from the sleepers. The productivity factor will always be limited to a factor of 1.

Working on sections where the standards of workmanship and accuracy are not applied will not be included in the productivity factor.

9.3 The quoted production rates will be used in conjunction with the monthly totals of work done and times taken to determine the month's productivity factor.

- 9.4 The scheduled working rates will be taken in consideration during adjudication of tenders.
- 9.5 If the actual monthly working rate is slower than R, Tw will be multiplied with the ratio: $P = (\text{Actual working rate})/R = \text{Productivity factor}$.
- 9.6 Monitoring of availability will be calculated as : $\text{Availability (A)} = \frac{T_o - T_b}{T_o}$
- 9.7 Productivity and availability will be monitored to ensure that TFR allows sufficient time for the planned workload to be achieved.
10. PROVISION OF ELECTRONIC PRODUCTION DATA TO TFR
- 10.1 The Contractor shall provide Transnet Freight Rail daily with the daily production statistics of the work.
- 11.2.1 The production data shall be in an agreed on format providing the following basic type of information:
- To, Tw, Tt, Ts, Tb, etc. of each machine applicable.
 - Length of work completed for the day.
 - Start & final km and GPS coordinate of length and line description/ name.
 - Reasons / comments on production shortfall.
 - Graphical presentation of data as and where agreed on.
- 10.3 The data shall be e-mailed daily to the Supervisor at the depot as well as the Service Manager or his representative and the Technical Officer.
- 10.4 Where problems exist of actually transmitting the data, the Contractor shall state what measures shall be taken to ensure transmission of data as soon as possible. All data shall be summarised per week and then per month. Data may be used as a preliminary indication of payment but shall not be used specifically for payment purposes. Final payment data shall be dealt with as specified elsewhere.

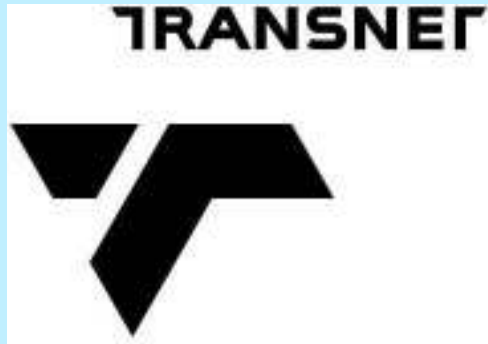
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Ballast Measurements
Number of permissible disallowed measurements

Type	Position	Method	Frequency*	500m sections	class line	Standard S _f	Standard S _c	Unit	
<u>BALLAST PROFILES</u>									
TOP WIDTH "K"	Either side of centre line	Tape, template	left and right every 50m	5	All	1 350, 50	1 350 - 200	mm	
Batter deviation "B"	Either side, from profile template	Tape, template	left and right every 50m	5	All	50	n.a.	mm	
Top surplus "T"	Either side above sleeper top level	Tape	left and right every 50m	5	All	+ 25 - 0	+ 100	mm	
Toe lines "S"	Either side, if surplus ballast	Tape, template	left and right every 50m	5	All	100	- 200	mm	

*A total of 40 measurements per kilometre, for each of the dimensions.





(REGISTRATION NO.1990/000900/06)

**TRADING AS
TRANSNET FREIGHT RAIL**

ADDENDUM NO. 1 TO THE SECONDARY SPECIFICATIONS AND GENERAL SPECIFICATIONS TO THE CONTRACT

- 1) Wherever the word "Spoornet" appears in the secondary specifications, please replace it with "Transnet Freight Rail".
- 2) Wherever it is referred to the E5(M.W.)(1996) or the E5(Nov.1996) General Conditions of Contract, please refer to the conditions of contract of the TSC3 Contract.
- 3) Wherever the word "Technical Officer" appears in the secondary specifications, please replace it with "Service Manager's Deputy".
- 4) Wherever the word "Project Manager" appears in the secondary specifications, please replace it with "Service Manager".

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