TRANSNET FREIGHT RAIL,

a division of **TRANSNET SOC LTD**

Registration Number 1990/000900/30

[hereinafter referred to as **Transnet]**

ADDENDUM 1

REQUEST FOR PROPOSAL [RFP] SIC21025CIDB (HOAC-HO-37408)

MAINTENANCE OF RAILWAY TRACK WITH ON-TRACK UNIVERSAL SLEEPERS REPLACEMENT IN TURNOUTS ON AS AND WHEN BASIS COUNTRYWIDE FOR A PERIOD OF EIGHTY-FOUR (84) MONTHS

RFP NUMBER	**: SIC21025CIDB / HOAC-HO-37408**
ISSUE DATE	**: 05 SEPTEMBER 2022**
NON-COMPULSORY BRIEFING SESSION	**: 13 SEPTEMBER 2022 @ 11:00AM**
VENUE	**: VIA MS TEAMS**
CLOSING DATE & TIME	**: 06 OCTOBER 2022 @10h00 am**
TENDER VALIDITY PERIOD	**: 12 WEEKS FROM CLOSING DATE (19 JANUARY 2023)**

PURPOSE OF THE ADDENDUM:

1. To inform bidders of the additional documents made to RFP Reference: SIC21025CIDB (HOAC-HO-37408)

    - There has been an omission of part C3 – service information.
    - Item 2 on the Price list was omitted when issuing the RFP document.

BACKGROUND:

2. The tender is for the provision of maintenance of railway track with on-track universal sleepers replacement in turnouts on as and when basis countrywide for a period of eighty-four (84) months.

3. Transnet has identified the need for universal sleepers replacement because when turnouts have reached their end-of-life, they need to be replaced to ensure safety and availability of the rail infrastructure system. Whilst it is possible to replace turnouts by hand, mechanised turnout replacement is significantly faster and, as a result, considerably more economical.

4. Furthermore, mechanised turnout replacement ensures a finished product of significantly higher quality, and is a much safer method of turnout replacement, compared to replacement of turnouts by hand.

ADDENDUM

PART C2: PRICING DATA

	Name	Position	Signature	Date
Compiled by:	Ian Mncube	Chief Engineering Technician		
Reviewed by:	Tenny Madiba	Acting Senior Contract Manager		

Document reference	**Title**	**No of pages**
C2.1	Pricing instructions: Option A	2-9
C2.2	Price List	1-15

C2.1 Pricing instructions: Option A

1.1 The *conditions of contract*

1.2 How the contract prices work and assesses it for progress payments

Clause 11 in NEC3 Term Services Contract (TSC), June 2005 (with amendments June 2006 and April 2013) Option A states:

Identified and defined terms

11

11.2 (17) The Price for Services Provided to Date is the total of

- the Price for each lump sum item in the Price List which the *Contractor* has completed and
- where a quantity is stated for an item in the Price List, an amount calculated by multiplying the quantity which the *Contractor* has completed by the rate.

(19) The Prices are the amounts stated in the Price column of the Price List, where a quantity is stated for an item in the Price List, the Price is calculated by multiplying the quantity by the rate.

1.3 Measurement and Payment

1.3.1 The Price List provides the basis of all valuations of the Price for Services Provided to Date, payments in multiple currencies and general progress monitoring.

1.3.2 The amount due at each assessment date is based on activities and/or milestones completed as indicated on the Price List.

1.3.3 The Price List work breakdown structure provided by the *Contractor* is based on the activity/milestone provided by the Employer. The activities listed by the *Employer* are the minimum activities acceptable and identify the specific activities which are required to achieve Completion. T**he Price List work breakdown structure is compiled to the satisfaction of the *Employer* with any additions and/or amendments deemed necessary.**

1.3.4 The *Contractor's* detailed Price List summates back to the activity/milestone provided by the *Employer* and is sufficient detail to monitor completion of activities related to the operations on the Accepted Plan in order that payment of completed activities may be assessed.

2. MEASUREMENT AND PAYMENT FOR CONTRACT

This part C2 of the specification as well as any reference in part **C3** will apply to determine conditions under which payments for this contract are to be made:

The basis of payment of this contract is the no. of Universal Sleepers Installed.

2.1 ITEM 1 Preparatory work

2.1.1 Payment for the pre-inspection and measurement process for an entire turnout applicable to the Infra bolt concept shall be made in accordance with the relevant pay item under ITEM 1.1.1 to ITEM 1.1.4.

2.1.2 Payment for measurement process for individual sleepers to be replaced on existing concrete turnouts applicable to the Infra bolt concept shall be made in accordance with the relevant pay item under ITEM 1.1.5.

2.1.3 Payment for a different turnout than those scheduled may be made against the item for the turnout closest resembling it, for example a $1:3^{1/2}$ (12.6m), $1:4^{1/2}$ (13.9m) , 1:6 (19.6m) , 1:8 (22.6m) or 1:9 (25.5m) diamond may be paid for against the item for a 1:7 diamond (19.9m). If pre-inspection is done on a non-scheduled turnout, then for payment purposes the actual rate used for payment for that non-scheduled turnout shall be proportionate to the total length of the scheduled turnout.

2.1.4 These rates shall be deemed to be inclusive for all supervision, labour, vehicles, equipment, materials and logistics associated with providing timeous and accurate measurements in accordance with relevant specifications.

2.1.5 The contractor must submit with his tender a detailed and sequenced process for executing the measurement work indicating the time required for each operation.

2.1.6 The payment shall be independent from whether the site access is restricted or not.

2.1.7 The payment shall be deemed to be inclusive for the preparation and provision of the Pre-Inspection Report to the depot so that depot preparations of the turnout may be carried out before the replacement of the sleepers is due to start.

2.1.8 The payment shall be deemed to be inclusive for the preparation of a detail requisition for material quantities for each turnout to be installed by the contractor. If the material is to be ordered against Transnet Freight Rail (TFR) supply contracts, then this requisition shall be handed to the depot for the timeous placement of the orders. Alternatively, the contractor shall use it to place orders directly with suppliers.

2.1.9 The payment shall be deemed to be inclusive for the effort and costs of arranging the

placement or the ordering of all material to be replaced. It shall also include for the co-ordination and expediting of ordered material to be delivered at destination on time for occupations. This shall specifically apply irrespective of material being ordered against Transnet Freight Rail (TFR) supply contracts or directly by the contractor'

2.1.10 The Contractor shall allow in this rate for the work, travelling and effort associated with pre-inspection of turnouts in order to quantify exact sleeper lengths to be replaced and associated materials required, discuss and confirm with the depot staff the extend of preparation required of Transnet Freight Rail (TFR) for each turnout.

2.2 ITEM 1.2: Repairing Turnout Geometry.

2.2.1 Payment for Repairing of Geometry in accordance with relevant specifications for the entire turnout applicable to the Infra bolt process shall be made in accordance with the relevant pay item under ITEM 1.2.1 to ITEM 1.2.4.

2.2.2 Payment for turnouts other than those scheduled may be made against the item for the turnout closest resembling it, for example, a 1:$3^{1/2}$ (12.6m), 1:$4^{1/2}$ (13.9m) , 1:6 (19.6m) , 1:8 (22.6m) or 1:9 (25.5m) diamond may be paid for against the item for a 1:7 diamond (19.9m). If the turnout geometry is repaired on a non-scheduled turnout, then for payment purposes the actual rate used for payment for that non-scheduled turnout shall be proportionate to the total length of the scheduled turnout.

2.2.3 These payments shall include for all supervision, labour, vehicles, equipment, materials and logistics associated with providing efficient and accurate repairs to the Turnout Geometry in accordance with relevant specifications.

2.2.4 Repairs to the geometry of a turnout shall include for adjusting vertical and horizontal alignment, gauge and sleeper spacing in accordance with relevant specifications. This shall be possible to be conducted during Between Trains Occupation.

2.2.5 This payment shall be independent from whether the site access is restricted or not.

2.3 ITEM 2: Replacement of Sleepers

2.3.1 Material (sleepers and infra bolts) will be ordered through Transnet Freight Rail (TFR) supply contracts via depots placing the orders on the Transnet Freight Rail (TFR) SAP system (for Transnet Freight Rail (TFR)'s account).In cases where TFR supply contracts are not in place, the Contractor will be required to utilise items 8.32-8.435 to purchase and

install sleepers. Item 12.13 will be used to purchase infra bolts.

2.3.2 Payment for a different turnout than those scheduled may be made against the item for the turnout closest resembling it, for example, a 1:4$^{1/2}$, 1:6 or 1:8 diamond may be paid for against the item for a 1:7 diamond. If a non-scheduled turnout or diamond is worked on, then for payment purposes the adjustment for actual length of sleepers replaced shall be made against the relevant rates of the scheduled turnout. The adjustment for actual length of sleepers replaced shall then be made against the relevant rate on ITEM 2.6.

2.3.3 The prescribed anti-corrosive lubricant, epoxy, and HDPE sleeper pads shall in all instances be supplied by the contractor and included in the rates tendered. Such material shall be paid under item 12.0.

2.3.4 Payment for replacing sleepers on an entire turnout with Blank Universal Sleepers (Transnet Freight Rail (TFR)-supply-Contractor-install) shall be made against the relevant item under ITEM 2.1 to ITEM 2.4. Payment shall be regardless of what mass of rail which might apply.

2.3.5 Payment for replacing of individual damaged sleepers (Transnet Freight Rail (TFR)-supply-Contractor-install) on existing concrete turnouts with Universal Concrete sleepers shall be made against ITEM 2.5. Payment shall be regardless of what mass of rail, which might apply.

2.3.6 Payment on correction of actual sleepers replaced per turnout (Transnet Freight Rail (TFR)-supply-Contractor-install) shall be made against the rate as per Item 2.6. See Clause 1 of the Project Specification. This rate shall include measurement and geometry Correction.

2.3.7 For purposes of payment of ITEM 2, site access conditions shall be assumed to be unrestricted. Payment shall be made against the relevant item under ITEM 4 for each category of restricted site access. Payment in accordance with ITEM 4 shall be applicable to entire turnout. For the replacement of individual sleepers on existing turnouts, percentage of individual sleepers will be equated against the number of sleepers in that turnout. Payment will be paid as per the percentage calculated. These rates will be applicable to ITEM 2 as well as ITEM 4.

2.3.8 The holes in some steel chair plates and cast-iron chairs are undersize and require reaming for the Infra bolts to be fit through. The cost of reaming the holes in the steel plates and cast-iron chairs shall be deemed to be included in the rates tendered and no separate

payment shall be made.

2.3.9 The Contractor shall allow in his rates for all the work required to dismantle, stack and load released material onto rail trucks for dispatch.

2.4 ITEM 3: Establishment per Depot Area

2.4.1 An Establishment shall be paid every time the Contractor establishes his operation at a new Depot Area.

2.4.2 It shall be paid in accordance with the relevant item under ITEM 3 to provide for costs associated with re-establishing at a new Depot, the distance of the work to be performed from the Contractors head office.

2.4.3 Only one Establishment shall be paid for all work performed per project, within the area of a Depot Engineer which shall include for all work. If because of Transnet Freight Rail (TFR), secondary establishments become necessary; these will be paid for as required.

2.4.4 Likewise only one Move and one leg of the journey only i.e. from Depot A to Depot B shall be paid to the Contractor to move his camp complete with all plant and equipment, stores, accommodation, vehicles etc by road from one Infra Depot to the next. Subsequent moves inside the same depot area will not be paid for. The Contractor's camp as a whole inclusive of all plant and equipment, stores, accommodation, vehicles etc shall be paid for moving the distance once as one unit. The moving route and distance shall be calculated based on approved maps as the information can be obtained from different devices.

2.4.5 As an Option B which may or may not be awarded the contractor is expected to also price all the Payment Items under B3 for a scenario in which TFR would provide wagons for general use by the contractor for transporting plant and equipment, stores, accommodation, vehicles etc…

2.5 ITEM 4: Restricted Site Access.

2.5.1 The basis of the payment under ITEM 2 shall be for unrestricted site access.

2.5.2 Only payment items under ITEM 2 may be enhanced with the extra over payment in accordance with ITEM 4 for specific categories of site access restriction.

2.5.3 The quantities indicated in the Schedule of Quantities and Prices for Item 4 indicate different types of restricted

2.5.3.1 ITEM 4.1: Work site situated in-between multiple railway lines.

2.5.3.2 ITEM 4.2: No service road access available to the work site.

2.5.3.3 ITEM 4.3: Formation level of work site situated on an embankment higher than 1 meter.

2.5.3.4 ITEM 4.4: Formation level of work site situated in a cutting deeper than 1 meter.

2.5.4 The four Categories of Restricted Access as per ITEMS 4.01 to 4.04 shall be the only ones recognized as applicable to this contract. No claim what-so-ever for any other form of restricted site access shall be entertained or be paid for separately.

2.6 ITEM 5: Work outside of Normal Working hours (over-time).

2.6.1 Work shall be carried out on weekdays only and during normal working hours. Normal working hours for this application shall mean 8 hours, for example, from 07H00 to 15H00 on a 5 day work, 2 day off principle; other ways of working are possible but shall be subject to negotiation.

2.6.2 Work outside of normal working hours shall be paid against overtime rates.

4.6.3 Work carried out during Sundays or Public Holidays are payable under item 5.

2.7 ITEM 6: Day labour

2.7.1 The rate for labour under ITEM 6 will apply in respect of additional labour approved by the Project Manager.

2.7.2 The number of labourers required and the tasks to be completed must be agreed to before commencement of the work.

2.7.3 All Flagmen shall be supplied by the Contractor and the cost thereof shall be deemed to be included in the rates tendered and no separate payment shall be made for this.

2.8 ITEM 7: Cell phone costs.

2.8.1 Cellphone costs in excess of the Talk 500 package will be paid for against Item 8 on authentic proof from the Contractor that such costs were incurred for official operational purposes associated with the replacement of turnout sleepers.

2.8.2 Loss of the phone or damage to the phone shall also be paid for against this item on

authentic proof being submitted by the contractor. On loss or damage to the handset the contractor shall immediately replace it.

2.8.3 The item in the schedule is included merely to enable contractual payments after award and tenderers need not price it.

2.9 ITEM 8: Material Handling

2.9.1 Long distance Road Transport of sleepers and bolts

2.9.1.1 In the event of Transnet Freight Rail (TFR) failing to provide rail wagons in time for the rail transport of universal sleepers from the factory to station nearest to point of installation then road transport may be considered.

2.9.1.2 Payment shall be made against ITEM 8.10 per turnout-km and this shall inclusive for loading at the factory and transporting the entire complete standard turnout of universal sleepers inclusive of infra bolts by road from the factory to depot area. This shall be exclusive of off-loading at the depot area which shall be paid for against a separate rate if required from the contractor

2.9.1.3 For this purpose the standard sleepers for each turnout type will be referenced to values indicated on item 4.9.4.2.

2.9.1.4 The contractor will be given 7 calendar days' notice to switch road transport on.

2.9.1.5 Payment for road transport shall be made for the distance of transport by road along a route agreed with the Technical Officer prior to the transport commencing and shall be for the loaded leg only.

2.9.1.6 There is no minimum distance put in place for the transportation of sleepers. The rate per set per km shall apply.

2.9.2 Off-loading of sleepers and bolts from long distance transport at depot area

2.9.2.1 If off-loading by the Contractors at the depot area from the long-distance road or rail transport is required this shall be paid for against ITEM 8.20.

2.9.2.2 For this purpose, the standard number of sleepers for each turnout will be referenced to values indicated on item 4.9.4.2. Payment shall be made per standard turnout.

2.9.2.3 This off-loading may be required from the contractor prior to the contractor's main team arriving at the depot.

2.9.2.4 This rate shall be all inclusive of the cost, equipment, labour, supervision and vehicles to do the off-loading even before the contractor is established within the depot area.

2.9.3 Secondary Handling of sleepers and bolts.

2.9.3.1 Where site conditions does not permit the off-loading (from long distance road or rail transport) of sleepers and bolts within 500m from the actual point of installation then Secondary Handling i.e. loading, transporting and off-loading from point of delivery within the depot area to actual point of installation will be paid for against ITEM 8.30.

2.9.3.2 Payment shall be per Standard turnout. For this purpose, the standard number of sleepers for each turnout will be referenced to values indicated on item 4.9.4.2.

2.9.3.3 This rate shall only apply if material must be distributed further than 500m to point of actual installation and shall include a free haul distance 25km i.e. a total distance of 25.5km shall apply before the Extra-over-Rate as per ITEM 8.31 shall become effective.

2.9.3.4 This rate shall be inclusive of the handling process of the released materials from point of release back to the point where the new material was delivered.

2.9.4 Ordering/Controlling Expediting and co-ordinating material

2.9.4.1 A payment for ITEM 8.32-8,35 shall be made for each turnout (e.g., 1:9, 1:12, etc) for the costs and effort associated with placing orders, controlling orders, expediting and co-ordinating the material supply for each turnout to site in time for the scheduled occupation for each turnout project.

2.9.4.2 Payment shall be made per turnout type. It shall include the purchasing of all sleeper sizes for respective turnouts. The transportation of such turnouts shall be claimed under item 8.10. The Contractor shall refer to the Maintenance Manual and relevant rule books for the sleeper sizes and quantities required for each type of turnout.

2.10 ITEM 9: Ballast screen of turnouts

2.10.1 Screening of entire turnouts prior to or during sleeper replacement shall be paid for against the rates ITEM 9.10 to ITEM 9.40

2.10.2 Ballast screening shall imply screening of all the ballast to provide clean ballast (19mm > ballast stone size < 63mm) in the ballast profile as per Annexure 4, Sheet 1 of the Manual for Track Maintenance. (Latest version).

2.10.3 The extend of screening shall be up to 20m to either side of each turnout and provide at least 180mm clean ballast under each sleeper.

2.10.4 Ballast spoil shall appropriately be disposed of without fouling drainage, increasing risk to slips on banks or falling back from cutting sides.

2.10.5 The off-loading from AY trucks, boxing and trimming of replacement ballast shall be included and no separate payment shall be made.

4.10.6 In situations where Depots request the Contractor to haul ballast from a stockpile to a point of installation for a distance over 200m, the Contractor shall organise all plant and machinery required for such. This shall be payable by ITEM 9.60.

2.11 ITEM 10: Installation of Standard flat sleepers and normal sleepers

2.11.1 If the installations of standard flat sleepers are required payment shall be made against ITEM 10.10 to ITEM 10.30.

2.11.2 Please note that the payment for this item will be made per Sleeper installed. Day Labour will be applicable on this item.

2.11.3 Occasionally, the Contractor shall be requested to transport normal sleepers from a specific point to a point of installation. If such request is conveyed and honoured by the Contractor, item 10.40 shall be used for payment. Such rate will apply if the Contractor has been requested to move sleepers away from Site.

2.12 ITEM 11: Transport and Machinery

2.12.1 The contractor shall supply different forms of transport and machinery during the execution phases.

2.12.2 Please note that the payment for this item will be made per hour on every item utilised, therefore the contractor is required to include all cost relating to transportation and machinery on this rate.

2.13 ITEM 12: Supply Material at Cost

2.13.1 The employer shall request the contractor to supply certain items for the benefit of the project. If such request is sent to the contractor and the supply is done as per the request, the contractor will use ITEM 12.1 to 12.13 for payment purposes.

2.14 ITEM 13: Other Related Items

In some cases, the contractor shall be required to offer opportunities to local communities where work shall be carried out. To cover for costs incurred while offering opportunities to the local communities, the Contractor shall utilise this item.

C2.2 Price List

Number of work packages required = 2

ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	PRICE
1	**Preparatory Work**				
1.1	**Measurement of sleepers (Infra-bolt process)**				
1.1.1	Any 1:8 turnout complete	Turnout	35		
1.1.2	Any 1:9 turnout complete	Turnout	1071		
1.1.3	Any 1:12 turnout complete	Turnout	238		
1.1.4	Any 1:7 diamond crossing complete.	Diamond	7		
1.1.5	Any damaged sleeper on 1:8, 1:9 or 1:12 turnout or 1:7 diamond crossing	Sleeper	7000		
1.2	**Repair Turnout Geometry (Infra-bolt process)**				
1.2.1	Any 1:8 turnout complete	Turnout	35		
1.2.2	Any 1:9 turnout complete	Turnout	1071		
1.2.3	Any 1:12 turnout complete	Turnout	238		
1.2.4	Any 1:7 diamond crossing complete	Diamond	7		
2	**Replacement of Sleepers (Infra-bolt process)**				
2.1	Any 1:8 turnout complete	Turnout	28		
2.2	Any 1:9 turnout complete	Turnout	1057		
2.3	Any 1:12 turnout complete	Turnout	224		

2.4	Any 1:7 diamond crossing complete	Diamond	7		
2.5	Any damaged sleeper on 1:8, 1:9 or 1:12 turnout or 1:7 diamond crossing	Sleeper	7000		
2.6	Unit rate for correction to actual meters of sleeper per turnout (Clause 1 PS) (TFR-supply-Contractor-install).	Metre	34216		
A3.00	**Establishment per Depot Area (Incl. Associated Pre-inspection) - NO TFR WAGONS PROVIDED**				
A3.01	Establishment Value	sum	56		
A3.02	Camp Movement	km	232995		
B3.00	**OPTION: Establishment per Depot Area (Incl. Associated Pre-inspection) - TFR WAGONS PROVIDED**				
B3.01	Establishment Value	sum	21		
B3.02	Camp Movement by Rail	km	31920		
4.00	**Categories of Site Restriction**				
4.01	Work site situated in-between multiple railway lines	work site	350		
4.02	No service road access to site	work site	70		
4.03	Formation level of work site on embankment of 1 meter or higher	work site	70		
4.04	Formation level of work site in cutting of 1 meter or deeper	work site	70		
5.00	**Work after hours**				
5.10	Normal Overtime (Outside normal working hours and on Saturdays)				
5.11	Labourers	man hour	128940		
5.12	Unskilled	man hour	21490		

5.13	Skilled	man hour	30086		
5.14	Driver Operator	man hour	17192		
5.15	Artisan	man hour	4298		
5.16	Supervisor	man hour	4298		
5.20	**Sunday Time (Including work on Public Paid Holidays)**				
5.21	Labourers	man hour	25200		
5.22	Unskilled	man hour	4200		
5.23	Skilled	man hour	5880		
5.24	Driver Operator	man hour	3360		
5.25	Artisan	man hour	840		
5.26	Supervisor	man hour	840		
5.27	Night Shift Allowance (18H00-06H00)	Operational hour	840		
5.28	Double Shift Allowance	Operational hour	840		
6.00	**Day Labour (NOT Applicable to provision of Flagmen)**				
6.01	Labourers	man hour	Rate Only		
6.02	Unskilled	man hour	Rate Only		
6.03	Skilled	man hour	Rate Only		
6.04	Driver Operator	man hour	Rate Only		
6.05	Artisan	man hour	Rate Only		
6.06	Supervisor	man hour	Rate Only		

7.00	Cell phone costs > Talk 500 and repairs (not to be priced)	sum	77		
8.00	**Material Handling**				
8.10	Road transport of Universal Sleepers (Factory to Depot area)	Set-km	70000		
8.20	Off-loading of Universal sleepers at depot area	Set	840		
8.30	Secondary Handling of new and released material between depot area delivery point and final point of installation (>500m up to 25.5km) (Provisional)	Set	350		
8.31	Extra-Over Rate for Secondary Handling for distance beyond 25.5km from point of delivery	Set-km	35000		
8.32	Contractor Supply and Install Sleepers (all sleepers for one complete set) for 1:8 turnout (**Refer to clause 4.9.4.2 on Pricing Data)**	Set	7		
8.33	Contractor Supply and Install Sleepers (all sleepers for one complete set) for 1:9 turnout (**Refer to clause 4.9.4.2 on Pricing Data)**	Set	14		
8.34	Contractor Supply and Install Sleepers (all sleepers for one complete set) for 1:12 turnout (**Refer to clause 4.9.4.2 on Pricing Data)**	Set	14		
8.35	Contractor Supply and Install Sleepers (all sleepers for one complete set) for a diamond crossing (**Refer to clause 4.9.4.2 on Pricing Data)**	Set	Rate Only		
9.00	**Ballast screen of Turnouts**				
9.10	Screen 1:8 set complete (Total turnout plus 20m either side)	Set	35		
9.20	Screen 1:9 set complete (Total turnout plus 20m either side)	Set	1071		
9.30	Screen 1:12 set complete (Total turnout plus 20m either side)	Set	238		

9.40	Screen 1:7 diamond complete (Total turnout plus 20m either side)	Diamond	7		
9.50	Screen open track	m	Rate Only		
9.60	Ballast Hauling (Free Hauling=200m)	km	Rate Only		
10.00	**Install standard flat/normal sleepers**				
10.10	Install P2 flat sleeper.	Sleeper	Rate Only		
10.20	Install PY flat sleeper.	Sleeper	Rate Only		
10.30	Install normal sleepers (PY, P2, FY, & F4)	Sleeper	Rate Only		
10.40	Transportation of normal/flat sleepers to/from Site (Minimum Distance for Payment =10 km)	km	Rate Only		
10.50	Offloading of Sleepers from Wagons (Utilisation of manual labour)	Wagon	Rate Only		
10.60	Trollying of Sleepers from Stockpile to installation point (minimum distance for payment=75m)	m	Rate Only		
11.0	**Transport and Machinery**				
11.1	LDV-Up to 1 Ton	Hours	38598		
11.2	Truck-8 Ton with a crane	Hours	12866		
11.3	Truck-8 Ton Flat Bed	Hours	12866		
11.4	TLB	Hours	12866		
11.5	Generator 15 KVa	Hours	25732		
11.6	Water Tankers-2500 litres	Hours	25732		
11.7	Submersible Pump	Hours	25732		
11.8	Jackson Tampers/Pionjars	Hours	77196		

11.9	Impact Wrenches	Hours	38598		
11.10	Coach Screw Machines	Hours	51464		
11.11	Core Drilling Machines	Hours	51464		
11.12	Track Lifting Jacks (A Type)	Hours	77196		
12.0	**Supply Material at Cost**				
12.1	HDPE Strips (3m x 220mm)	Each	30492		
12.2	Grease Compound (Epoxy)- 3 Kg	Each	1351		
12.3	Drill Bits 24mm	Each	8106		
12.4	K Clips	Each	9240		
12.5	M Clips	Each	9240		
12.6	L Clips	Each	5460		
12.7	L Bolts + Nuts + Washers	Each	259392		
12.8	E3300	Each	4410		
12.9	E3262	Each	5740		
12.10	Infrabolts	Each	3500		

The total of the Prices **R**

Note : The pricing list above is expected to reflect the pricing offer per Universal Sleeper Replacement Service Package

Stipulate the number of Universal Sleeper Replacement Work Packages being bid for..... (*enter number here)*

PART C 3.1 : SERVICE INFORMATION BY THE EMPLOYER

Maintenance of Railway Track with Universal Sleepers Replacement Machine: Countrywide for a Period of 84 Months

CONTENTS

DEFINITIONS

1.1 **Occupation:** The formal closure of the line to normal rail traffic for a specified period of time arranged in accordance with Infrastructure Occupation Management System (IOMS) or any other system and implemented in accordance with the Protection Manual.

1.2 **Total Occupation Time (To):** shall be the total of the time from when the first on-track machine arrives on site until the last machine leaves the site.

1.3 **Working time.** The time between the actual start and end times of an occupation, excluding time on the critical path of the day's replacement operations lost which may be attributed by the *Employer*.

1.4 **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 Service Manager.

1.5 **Project Manager**. The person or juristic person appointed by the *Employer* from time to time to administer the contract according to the NEC3 Term Services Contract (TSC3) and in terms of this contract.

1.6 **E7/1:** Specification for General Work and Works On, Over, Under, Or Adjacent to Railway Lines and Near High Voltage Equipment

1.7 **Total Occupation Time (To):** shall be the total of the time from when the first on-track machine arrives on site until the last machine leaves the site.

1.8 **Train Crossing Time (Tx):** means the time for the machine to wait for train crossings.

1.9 **Travelling Time (Tt)**: means the time for the machine to travel on track between work site and the staging site (or vice-versa), or between work sites, or to clear the section.

1.10 **Movement Time (Tm):** Time allowed to move from one staging area to another when machine is required to move to new depot or area.

1.11 **Breakdown time (Tb)**: means all periods during which any machine or any part of a machine is non-available.

1.12 **Standing Time (Ts):** means the loss of Working Time (Tw) incurred by the *Contractor* due to reasons attributed to the *Employer*.

1.13 **Shutdown:** Closure of a specific line, for example the Iron Ore line once a year for limited period of time (e.g. 10 days) to perform a large volume of work. Shutdowns on various lines may be to varying degrees i.e. it may range from total shutdown perhaps requiring Double Shift Working where all normal train traffic on a line is suspended for the duration of the shutdown to a situation utilizing extended occupations with normal train operation windows in between. Some Shutdowns will be partial in the sense that while work is performed on one line and on one section of the line, normal train operations will proceed on adjacent line/s and adjacent sections of the same line.

1.14 **Night Shift Working** (Occupation time between 18h00 to 06h00): Night Shift Working will apply to any part of any shift for which occupation time has been approved and happens to fall between 18h00 and 06h00 on any day of the week inclusive of Public Paid Holidays.

1.15 **Double Shift Working**: A second shift of 8 hours within any 24 hour period. Double Shift Working may be used by the *Employer* as and when required.

1. DESCRIPTION OF WORKS

1.1 Replacement of turnout sleepers

1.1.1 The Contractor shall be required to replace existing turnout sleepers with new Universal Sleepers in accordance with the new Infrabolt concept. It shall include the supply of HDPE pads and epoxy material in a Supply-and-Fit Contract, inclusive of all labour, equipment, and materials.

1.1.2 The Contractor shall be expected to rectify the geometry of each turnout, remove existing turnout sleepers, measure and core holes in new Universal Sleepers for fastenings, install Universal Sleepers as well as all tamping, alignment and ballast work. Replacement of sleepers shall be required for complete turnouts consisting of the 3 panels of a turnout. The panels are the Stock and Switch panel, Leads and Closure panel and the Crossing/Stock and Guard panel. The Crossing/Stock and Guard panel shall mean to include all the non-standard sleepers at the back of it as well as the switchbox sleepers at the front. A standard sleeper shall imply a standard PY, FY, P2, F4, P84, P54 or "flat" pandrol sleeper.

1.1.3 The Universal Sleepers will be installed on the sizes of turnouts as shown below:

- 1: 9 Turnouts
- 1:12 Turnouts
- Diamond crossings

1.1.4 Rail mass of the turnouts where sleepers are installed shall be on the following values:

- 48 kg/m
- 57 kg/m
- 60 kg/m

1.1.5 Repairs to existing concrete sleeper turnouts by replacement of individual damaged concrete sleepers will also be required on a limited scale.

1.2 Universal Sleeper.

1.2.1 Only one type of sleeper will be required to be handled and installed i.e. existing turnout sleepers to be removed and replaced with Universal Sleepers. Reference to this sleeper shall mean a Universal Sleeper for which the positions of bolts for the fastenings are to be measured on each sleeper for each turnout of which the sleepers are to be replaced.

1.2.2 Strict adherence at all times to the Transnet Installation Procedure for Universal Sleepers will be required. See Annexure 2.

1.2.3 These measurements shall be made after the Contractor has rectified to the geometry of the turnout to an A-standard. Rectification of the geometry shall include vertical and horizontal alignment, gauge and sleeper spacing.

1.2.4 These measurements shall then be used as follows:

1.2.4.1 The Contractor shall use these measurements to core holes in the Universal Sleepers to

receive infrabolts at all designated positions in accordance with the Installation Procedure contained in Annexure 2.

1.2.5 Each Transnet depot shall be responsible for replacing worn and or damaged parts on the steelwork, buttresses, chairs, blocks, bolts etc. of each turnout before repair to the geometry of the turnout by the Contractor starts. In instances where Transnet depots are not in position of such steelwork required, they will inform the Contractor well in advance so that such can be coordinated and arranged by the Contractor.

1.2.6 If the steelwork or any part thereof of a turnout handed to the Contractor by a depot for replacement of sleepers is not in such a condition as to allow the Contractor to complete the work to within the A-standard then the Contractor shall refuse to proceed with any work on that specific turnout. In such an event the Project Manager must be advised immediately.

2 NATURE OF WORK

2.1 This contract covers replacement of existing wood turnout sleepers and the removal of released material, on lines owned or operated by Transnet.

2.2 The contractor will be required to work under "total occupation" or "between trains' occupations". Several such occupations may be granted per day. Normal protection measures in accordance with the Protection Manual shall apply. Eight (8) hours shall be used as the maximum duration for ''total occupations". In instances where more than 8 hours are required to complete a full turnout set, 'occupation between trains" will be granted as an addition to the whole duration. Below are the maximum duration set for each turnout size:

- 1: 8 Turnout -9 hours
- 1:9 Turnout -10 hours
- 1:12 Turnout-12 Hours
- Diamond Crossing-12 hours
-

With reference to the durations stated above, the contractor will be afforded the chance to motivate for an extension if he can prove beyond reasonable doubt that the site conditions may impact the progress. Such
motivation shall be assessed by the Project Manager who will then advise on his status of approval.

2.3 The basis of the payment under ITEM 4.01 shall be for unrestricted site access.

2.4 The total cost of executing the pre-inspection (See Clause 7.3) as well as the detail planning session (See Clause 3.3) per turnout as prescribed shall be included in the rates tendered and no separate payment shall be made for this.

2.5 The Contractor shall unload and transport the new sleepers to point of installation and perform the complete process of replacement which shall include boxing out of ballast, loosen existing fastenings, removing the existing sleepers, rectifying geometry, measuring fastening positions, coring for Infrabolts and install the new sleepers and fasten the rails to the sleepers, lift, align, tamp to an A-standard and restore ballast profile to correct standard and remove the released material from section to be stacked at a designated site or loaded into DZ type trucks at nearest station.

2.6 Standard of work

2.6.1 Initial standard of turnout

2.6.1.1 Transnet shall be responsible to maintain any turnout to the preferred material standard (excluding sleepers and fastenings) herein after referred to as the Initial Standard, before the

Turnout Sleeper Replacement Contractor commences any work on any specific turnout. If the steelwork or any part thereof of a turnout handed to the Contractor by a depot for replacement of sleepers is not in such a condition as to allow the Contractor to complete the work to within the A-standard then the Contractor shall refuse to proceed with any work on that specific turnout. In such an event the Project Manager must be advised immediately.

2.6.2 Final Standard of turnout
On completion of sleeper replacement work, all fastenings as per specification shall be in place and the turnout shall comply with an A-standard as the Final Standard of turnout.

2.6.3 Adjustment of Final Standard.
The Turnout Sleeper Replacement Contractor shall remain ultimately responsibility for final quality of each project where sleepers were replaced unless proven by him that failure to meet quality standards is due to non-performance of Transnet.

2.6.4 In the event that the sleeper supply and installation on the first 5 turnouts completed under the Contract by the Contractor does not meet with the Contract Specifications then work on further turnouts shall be halted by the Contractor until such time that quality problems on the first 5 (five) turnouts has been addressed to the satisfaction of the Project Manager. For the remainder of the Contract period and work the same condition shall apply to any 5 consecutive turnouts worked upon. During the remainder of the contract period this condition shall also apply to any subsequent 5 (five) turnouts.

2.6.5 Non-Performance.
In the case of failure by the Contractor to execute the work in accordance with the contract document, Transnet shall reserve the right to cancel the contract with immediate effect. Monies owed to the Contractor for work done and accepted up to the time of cancellation shall first and foremost be applied by Transnet to remedy the non-performance of the Contractor in terms of the contract for purpose of limiting damages to Transnet.

3 CONTRACT AREA

3.1 This Contract will include all Depots nationwide.

3.2 For this purpose the Technical Officer shall arrange for a Depot Project Planning meeting 1 month in advance of the Contractor's team arriving on a particular depot area to discuss all issue relating to the particular project. This meeting shall involve all the local role players and will focus on production and occupation aspects of all work required for the replacement of the sleepers of the turnout.

4 DURATION OF CONTRACT

4.1 The contract will commence as soon as possible and continue for a period of 84 months.

4.2 The contractor shall submit exact and clear details of how he intends to execute all three aspects of the work i.e. repairing geometry, measurement as well as installation of Universal Sleepers. This detail shall include what equipment he intends using and number as well as level of staff he intends using on site.

4.3 The Contractor shall also submit a work program indicating the sequence in which work will be executed, number of weeks to be spent at the depot, as well as the start and finish week for the depot. The program shall show the duration of hours in a day that a contractor will take to replace sleepers on the full set. The contractor must submit three different programs for the following:

- 1: 9 Turnouts
- 1:12 Turnouts
- Any 1:7 Diamond crossings

5 SAFETY

5.1 The Contractor shall comply with requirements of safety legislation and regulations in all respects.

5.2 The Contractor shall prepare and submit to Transnet at the start of the contract, a comprehensive safety plan which shall also cover the following heading:

5.2.1 Transportation of flammable or explosive materials.
5.2.2 Transportation and/or equipment.
5.2.3 Transportation of personnel.
5.2.4 Storing flammable/explosive materials and/or equipment.
5.2.5 The accommodation of staff to comply with health and public regulations.

5.3 The method of sleeper replacement shall be such that work may proceed either under "total occupation" or "between trains occupation" and shall at all times comply with Transnet Specification E7/1.

5.4 Normal protection measures in accordance with the Transnet Protection Manual shall apply.

5.5 All protection arrangements shall at all times remain under the supervision and responsibility of a Transnet track master or track inspector.

5.6 The contractor will supply at least three (3) flagmen per work site for protection duties.

5.7 In the event of the contractor's employees being called upon on the request by the Technical Officer, the cost to the Contractor to use those employees for protection duties shall be paid against the Day labour.

5.8 The contractor shall appoint at each work site a person whose sole task shall be to be on the lookout for approaching rail traffic. This employee shall operate an audible warning device to timeously warn all people on the work site of approaching rail traffic.

5.9 The contractor shall not allow any persons on the work site to venture within the structure gauge when this warning procedure is not operating effectively.

5.10 The warning device shall be such that it's sound can be clearly and effectively heard above the noise on the work site by all personnel within a radius of 100m around the center of each work site. The cost to the contractor of providing the lookout as well as the warning device shall be deemed to be included in the rates tendered and no separate payment shall be made.

5.11 An effective safety procedure to be followed by all personnel on any work site in the case of approaching rail traffic shall be compiled by the contractor and implemented before any work

commences. This procedure shall be updated whenever the need arises and any changes shall be communicated to all employees on a works site before work proceeds.

5.12 The contractor shall supply the safety file to any depot where he is required to render services a week (90 days) prior the commencement of services. The Safety file shall be constructed in a way that it aligns to the safety checklist provided by the client (Transnet) at the beginning of the contract period. Should there be delays in submission of the file and such delays contribute to the late commencement of the project, a fee of R3500, 00 will be charged against the contractor for each day lost as measured from the first day of the planned programme of work activities. Such fee will be deducted from the total monthly value (before VAT) to be claimed by the contractor. In instances where the delays (late verification and approval of the safety file) are due to the client, then the depot will be liable to pay the same fee for each day lost as measured from the first day of the planned programme of work activities. Such value will be added to the total monthly value (before VAT) that shall be claimed by the Contractor. In instances where site activities are brought to an abrupt stop due to non-compliance of safety requirements by the contractor, an hourly fee of R350, 00 will be charged against the Contractor until such requirements are met and acknowledged by the client's safety officer. The total value incurred due to such stoppages will be deducted from the total monthly value (before VAT) to be claimed by the Contractor.

5.13 Training

5.13.1 General.

5.13.1.1 The Contractor shall ensure that all staff working on or with the contract are adequately trained, so as to comply with any relevant safety and quality requirements.

5.13.1.2 It is the Contractor's responsibility to ensure that his staff are trained. At the commencement of the contract, Transnet 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 Contractor shall ensure that he has a core group of workers with sufficient previous experience to take the lead in undertaking maintenance tasks.

5.13.1.3 Where training is required by the Contractor and Transnet is committed to provide training, the contractor shall qualify his tender as to what and how many staff, training will be required for. After award of the contract, the contractor shall then arrange with the appropriate Transnet Perway Production manager, through the technical officer, for this training / testing.

5.13.2 Training of Track Workers

The Contractors workers must be able to perform the following tasks:

5.13.2.1 Track work (Level crossing blocks, cattle guards, sleeper & Clip replacement / fastening, lubricators, flagmen, ballast boxing etc.).

5.13.2.2 Quality measurements as required for track work.

5.13.3 Training of Track Inspectors, Track Masters and or Tradehands (Perway):

5.13.3.1 This training shall be solely the responsibility of the contractor. Only fully qualified people shall be used by the Contractor for these positions. The Contractor shall ensure that staff used, do comply with requirements for the industry.

5.13.3.2 The Contractor's Track Master/Track Inspector shall take full charge of the Contractor's resources on the work site. 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 competent Transnet employees only.

5.13.3.3 The *person-in-charge-of-the-occupation for an on-track machine* shall be a competent Transnet employee, reporting to the Transnet 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 and detonators

5.13.4 Training of Flagmen:

5.13.4.1 F*lagmen* used, may be either Transnet employees or employees of the Contractor.

5.13.4.2 *Flagmen* must be officially trained, evaluated and certified competent, (Transnet 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.

5.13.4.3 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.

5.13.4.4 The Transnet 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.

5.13.4.5 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

Electrical awareness, Educational and competency training:

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	To be determined by the service Provider. **Accredited Electrical trainer / Depot's Electrical technical officer.**	• 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.	To be determined by the service provider. **Accredited Electrical trainer**	• 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.	To be provided by the service provider. **Accredited Electrical trainer**	Supervisor (Responsible person in charge at machine working)

The electrical awareness training must be arranged for beforehand on-the-job.

The electrical educational and competency training may be arranged for at either a depot's lecture room's (Transnet property), or at a venue of the Contractors choice (Contractors cost).

The Accredited Electrical trainer from Transnet will be provided by Transnet at Transnet 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.

6 HOURS AND DAYS OF DUTY

6.1 Work shall proceed during weekdays from 06h00 to 18h00. Over-time, work on public paid holidays, Saturdays and Sundays shall only be required in exceptional cases. The contractor may be required to work beyond 18H00 during Shut down periods where extensive work is required. The employer will send a request for such projects two months prior. Should the contractor work is such conditions; the principle of double shift shall apply.

6.2 Work outside of normal working hours shall not be paid against overtime rates unless:

6.2.1 Agreed upon by the Technical Officer in writing before the start of the any project.

6.2.2 The contractor can prove Transnet's accountability for delays resulting in overtime being required.

6.3 Work shall proceed under "total occupation" or "between trains occupation". If work is executed under "between trains occupation" work shall proceed in such a way that normal rail traffic can be allowed, on short notice, to pass safely over the work site at a speed of 30km/h.

6.4 The Contractor shall provide for sufficient resources to complete the replacement of all the sleepers of one 1:12, 1:9 turnouts and any 1:7 diamond crossings within one workday without the use of overtime.

7 TO BE PROVIDED BY THE CONTRACTOR

7.1 The contractor shall submit with his tender a detailed and sequenced program (as shown on clause 4.3) based on Annexure 1 of how he proposes to execute the work. This shall include detail of number and grades of staff and equipment that he intends using. On award of the tender the Contractor's first task under the Contract shall be to agree with the Project Manager on a Final Work Program to be followed. This must be done within 7 days from date of award.

7.2 The Contractor shall at the request by the employer supply all Infra bolt systems HDPE Pads and Prostruct 30/35 Quickset Structural Adhesive epoxy as per Annexure 2.

7.3 The Contractor shall do a pre-inspection of all turnouts for purpose of planning each project.

7.3.1 The requirement for sleepers, bolts, HDPE pads and Epoxy thus determined, shall be used by the Contractor to procure all materials for the proper completion of each project. On request by the Contractor, Transnet will make available a Free-on-Rail facility for the transport of

these materials and equipment to the station nearest to point of installation.

7.3.2 The requirements for preparation by Transnet shall be made available to the Maintenance Manager (Track), copy to the Technical Officer, in writing to enable the depot to timeously complete all preparations before date of installation.

7.4 The quality of all materials to be used shall be specifically pre-approved by Transnet.

7.5 The Contractor shall in addition to what is stipulated in the Conditions of Contract for Maintenance of Railway Track (E5), provide the following facilities:

7.5.1 Stabling of vehicles and equipment.
The vehicles and equipment may at times be stabled over night at the workplace or in station yards near the workplace. Whatever the case may be, the Contractor shall in all instances be responsible for security of the machinery and his staff. The cost to provide such security will be deemed included in the rates tendered and no separate payment will be made.

7.5.2 Safety and sabotage
When staged overnight in the vicinity of railway lines all vehicles, equipment and material shall be secured in such a way that it cannot be found and placed on the track by vandals.

7.5.3 Storage and transport of dangerous substances
The Contractor shall provide such safe storage facilities as might be required by law for dangerous or flammable substances and/or equipment.

The Contractor shall comply with all legal requirements with regard to the transport of such dangerous substances and or equipment.

Suitable, adequate and functional fire fighting equipment shall be available at all times for the duration of the contract. Competent and trained people shall be appointed and be available to operate such equipment in case of fire.

7.5.4 Communication

7.5.5 Tools and Equipment

7.5.5.1 The contractor shall supply all tools and equipment required for and during the execution of the work. Correct equipment shall be used e.g. panpuller instead of hammer/beater to install or remove pandrol fastenings. Also see Annexure 2

7.5.5.2 The Contractor shall supply, maintain and operate all labour, equipment and materials associated with the work. The Contractor shall also be responsible for all logistics required in order to achieve accurately installed Infrabolts. Below are minimum requirements of major plant/equipment that the contractor must meet:

- 4 Functional Drilling Machines per Site
- 1x 2500L of Water Tank
- 2x 7, 5 kv Generators or 1 x 15 kV Generator
- 5 Functional Pionjars
- 1 Crane Truck

The Contractor must note that the above requirements do not form a complete set of plant/machinery required for the replacement of Universals. It is the Contractors responsibility to provide all the tools and equipment required for the successful completion of the project.

7.5.6 Flagmen

7.5.6.1 When required, three (3) flagmen shall be used per site for protection measures under the control of the Transnet track master.

8 TO BE PROVIDED BY TRANSNET

Transnet will supply the following to the Contractor free of charge:

8.1 A Formal Installation Procedure for the installation of Universal Sleepers including quality standards for acceptance and rejection. See Annexure 2.

8.2 A Track Master to be in charge of the protection arrangements on site and to declare the track safe for the passage of trains during the work and on completion of work.

8.3 Transnet may deliver Universal Sleepers, Infrabolts and all bolts, nuts and clips to the nearest SCS warehouse. Transnet is also allowed to request the contractor to deliver the material from the supplier to site and ITEM 8.0 will be used for payments if such activity is carried out.

8.4 A Transnet Track Inspector shall on completion of each project inspect and measure each turnout for purposes of verifying quality for payment purposes.

9 ENGINEERING

9.1 Replacement of sleepers.
The Contractor shall ensure that on completion of the work the turnout and adjacent track complies with the "A" standard.

9.2 The Contractor shall work to the layout dimensions required by the Technical Officer. These dimensions will be given in writing to the Contractor or indicated by means of chalk marks on the sleepers.

9.3 The Contractor shall monitor and evaluate measurements of the layout and shall ensure compliance with the specified standards of workmanship and accuracy during installation of the sleepers.

9.4 Where, in the opinion of the Contractor, the condition of the site or turnout steelwork is such that the specified performance standards cannot be achieved, he should not proceed with doing any work on the turnout. The Contractor shall record all relevant information in conjunction with the Technical Officer and immediately report it to the Project Manager or delegate. The Project Manager or delegate may, if he concurs with the Contractor's contentions, adapt the specified standards of workmanship in order to suit the track and/or site conditions in order to allow the work to proceed on that particular turnout.

9.5 Track formation.
9.5.1 Track formation shall not be damaged or it's profile changed by work carried out by the Contractor.

9.6 Geometric and Material standard.
9.6.1 On completion of sleeper replacement, turnouts shall comply with the "A" standard.

9.6.2 Diagrams indicating measurements to determine the geometric standard of turnouts are included in The Rules Books for the Building of Turnouts as well as in the Manual for Track Maintenance (2012).

9.6.3 Each turnout shall in turn also comply with the material and procurement specifications as contained in the Installation Procedure (Annexure 2) as supplied by Transnet.

9.7 General

9.7.1 Where subject to the Contractor's discretion the distance between track centerlines on multiple tracks must be kept within 10mm of the design centers.

9.7.2 The standard for structure gauge shall be adhered to specification E7/1 (July 1998).

9.8 Sleepers

9.8.1 The position of each sleeper shall be marked out with permanent paint on the field side of the rail flange. These markings will be used for quality measurements afterwards.

9.8.2 Sleepers spacing in accordance with the "A" standard shall not vary by more than 5mm where it was subjected to the Contractor's discretion.

9.9 Ballast.

9.9.1 The top width of the ballast shoulder to the "A" standard shall be constructed to a tolerance of +100mm and -50mm.

9.9.2 The depth of the ballast profile shall be within a tolerance of +50mm and -50mm.

9.10 Signal equipment.

9.10.1 The contractor shall not interfere or tamper with signal equipment on turnouts or signal equipment next to the track.

9.10.2 In the event of existing signal equipment hindering the execution of the works, the contractor shall timeously advice the Depot Engineer in writing of his requirements in order for qualified signalling personnel to provide the necessary assistance.

9.11 Electrical equipment

9.11.1 The contractor shall not interfere or tamper with any electrical equipment on turnouts or electrical equipment next to the track.

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9.11.2 Because sleepers will be replaced under live overhead conditions the following precautionary measures will be required to ensure the safety of persons on site against the risk of electric shock:

The Contractor shall not proceed with any work before having properly informed and warned all his staff of potential dangers of adjacent live equipment pointed out to him by the Transnet electrical officer. The Contractor shall specifically ensure that no person or equipment or any part thereof ventures within 3 (three) meters from such life equipment.

10 MEASUREMENT OF QUALITY OF CONSTRUCTION

10.1 Where the "A" Standard work is required, the following measurements of quality of construction shall be required.

10.2 The Contractor shall measure and record for each turnout all measurements required to determine

the standard of construction. A hard copy of these measurements shall be made available to the Technical Officer on completion of the work for evaluation purposes.

10.3 Measurements for the vertical alignment and gauge shall be made with a Geismar type track gauge or equivalent.

10.4 Deviations from straight line (slack): Determine position of the slack by visual means. Measure the depth of the slack with a Geismar type track gauge. Measurements shall be taken along the top of the rail also before and after the points of deviation.

10.5 Measurement for the horizontal alignment shall be made with a nylon line on the running side of the reference rail at two points 10m apart and a feeler gauge calibrated 1mm intervals.

10.6 On the straight track, each deviation between the two points 10m apart must be measured by inserting the feeler gauge between the nylon line and the rail at the centre of the deviation. The number of sleeper spaces between the beginning and end of the deviation must be recorded.

10.7 Curved track shall be marked out at 5m intervals and each mark shall become a measuring station. Measuring and recording the offset at each station from the 10m chord strung across alternative stations shall determine the Final Standard.

10.8 The measuring stations specified above shall be numbered consecutively on the flange of the left hand rail with white chalk for each section being evaluated and shall be prefixed with the letter A.

10.9 Ballast standards shall be determined by:
10.9.1 Open and measuring actual ballast depth where directed by the Technical Officer.
10.9.2 The ballast profile shall be measured by approved means along the track and recorded.

11 RECTIFICATION OF SUB-STANDARD WORK

11.1 Where the specified standards of workmanship and accuracy are not attained within the period of an occupation, the Technical Officer will arrange to rectify the defects to allow the temporary safe passage of trains and will recover from the Contractor the cost, at departmental rates, of all the resources utilized.

12 MATERIAL UNLOADED BY THE CONTRACTOR

12.1 The Contractor shall unload, distribute, and stack permanent way material supplied for the works at places designated by the Technical Officer. The Contractor must keep record of such receipts, indicating rail truck numbers and the date of unloading. The Contractor shall accept responsibility for safe custody of the material only from the time the material is handed over into his custody by Transnet at the station nearest to the site just prior to commencement of the work.

13 RELEASED MATERIAL

13.1 General
13.1.1 The Technical Officer will classify all materials to be released and arrange for the rail trucks required for loading of released material.

13.1.2 Released permanent way material shall be broken up into its basic components, and shall be

grouped into types for loading, or stacking. Clips shall not be loaded onto the same rail truck as sleepers. Pads shall be placed in approved type bags when loaded together with pins in the same truck, etc.

13.1.3 Losses shall be kept to a minimum. Any material to be scrapped shall be collected in material camps and disposed as directed by the Technical Officer.

13.1.4 Re-usable material loaded into rail trucks for dispatching shall be neatly stacked in such a manner that:

13.1.4.1 Re-usable material is not to damage during the loading operation.

13.1.4.2 The rail journey to it's destination may be made with no damage to the material or shifting of the load; and

13.1.4.3 The unloading by others at its destination may be undertaken without difficulty.

13.1.5 Fastenings

13.1.5.1 Released fastenings shall be grouped together prior to loading by binding wire, sturdy bags or any similar approved method.

13.1.6 Loading and stacking records.

13.1.6.1 The Contractor shall keep record of all materials loaded into trucks or stacked for dispatching. The lists reflecting the full contents of each truck or stack shall be submitted to the Technical Officer.

14 PENALTY FOR DELAYING OF TRAINS

14.1 If the Contractor delays any trains and Transnet is satisfied that the delay was avoidable, a penalty will be imposed on the Contractor of R3 000 per hour or part thereof for the period of delay, irrespective of the number of trains delayed.

15 OTHER SPECIFICATIONS APPLICABLE

15.1 The documents forming the contract are to be taken as complimentary to each other. In case of any discrepancy or inconsistency between contract documents, the order of precedence will be:

15.1.1 Project specification, together with particular drawings, schedules of machines and schedules of prices.

15.1.2 E.5 – Conditions of Contract and General Specifications for maintenance of railway track with on-track machinery

15.1.3 Standard specifications E7/1(1998) – Specification for works on, over, under or adjacent to railway lines and near high voltage equipment .

15.1.4 E10 - Specification for Railway Track Work.

- E10 Gen : Preliminary and general
- E10/1 : Laying of rails
- E10/2 : Laying of sleepers
- E10/3 : Ballast cleaning
- E10/4 : Ballasting and tamping
- E10/6 : Building and replacement of sets
- E10/9 : Slewing and alignment

- E10/10 : Drain cleaning

16. RECORDING OF ACTIVITY TIMES

16.1.1. The mutually agreed time the machine shall be available at its staging point, shall be the start of the occupation time (To) for the task order. Therefore, arriving late shall be deemed as breakdown time (Tb).

16.1.2. During the work activity the productivity, availability and utilization of the machine shall be recorded.

16.1.3. The time shall continuously be recorded for all work performed. 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 *Employer* reasons, not related to any fault of the *Contractor*.
Tb = Breakdown of machine

Daily production report shall be e-mailed to the *Service Manager* at 08:00 am in the morning of the next day after each shift, and shall be in excel format.

Tw = Working time

16.1.4. Monitoring of machine availability will be calculated as: Availability (A) = $\frac{To - Tb}{To}$

16.1.5. Monitoring of machine utilization will be calculated as: Utilization (U) = $\frac{Tw}{To}$

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

Monitoring of machine productivity will be calculated as: Productivity (P) = $\frac{TR}{AR}$

TR = Tendered Rate (Tendered time (To) per finalised turnout, including removal of existing sleepers and installation of new sleepers)
AR = Actual Rate (Time per finalised turnout: To)

16.1.7. The tendered nominal production rate shall be maintained over a calendar month.

16.1.8. All Tb shall be recorded at all times.

16.1.9. Where a machine becomes unreliable and continues breaking down and results in train delays or occupations having been taken with insufficient production, the *Service Manager* may decide on placing a machine on breakdown until such time that the *Contractor* can prove that the machine can be consistently available. The machine will always be required to produce the required standard of work required at full production rate.

16.2. **Provision of Electronic Production Report to the *Employer*.**

16.2.1. The *Contractor* shall send daily, weekly and monthly reports to the *Service Manager*, in a format that will agreed between him and the *Service Manager*.

16.2.2. The *Contractor* shall provide the *Employer* with the daily production statistics of the work.

16.2.3. The production report shall be in an agreed on format providing the following basic type of information:

- To, Tw, Tt, Ts, Tb, etc. of each machine applicable.
- Details and number of turnouts completed for the day.
- Reasons / comments on production shortfall including minutes per reason.
- Train numbers and minutes delays per train number.
- CTC names and CTC panel member details.
- Graphical presentation of data as and where agreed on.

16.2.4. The report shall be e-mailed daily to the Service Manager, Supervisor and nominated *Employer*'s representatives.

16.2.5. 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.

16.2.6. 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.

17.0. SLEEPER REPLACEMENT BY HAND.

17.1. Tools and Equipment

17.1.1. The Contract shall supply all the relevant tools and equipment required for the replacement of normal sleepers. The Contractor shall engage and consult with Depot personnel in time to determine the type of sleepers to be replaced so that proper tools and equipment may be brought to site.

17.2. Labour

17.2.1. The Contract shall supply an adequate number of employees in this type of an Activity. Below are the minimum requirements of human resources on a normal sleeper replacement project:

- 50 Labourers
- 3 Flagmen
- 2 SHE Representatives
- 2 Track masters
- 1 Supervisor
- 1 First Aider

The number of employees may increase depending on the extent of the workload provided (such will be communicated in advance by the Depots). Safety personnel must align to the number of employees as per Safety guidelines.

17.3. Productivity

17.3.1. The productivity on sleeper replacement by hand will be measured by the output produced by a pair of employees. A pair of labourers must replace 10 sleepers in one working day.10 Sleepers replaced will mean that 100% productivity has been reached.Below is the formula that will be used to calculate productivity:

$$\text{Productivity} = \frac{Number\ of\ Sleepers\ Replaced\ by\ a\ pair}{10\ Sleepers\ (Requirement)}$$

17.3.2. There will be penalties imposed to the Contractor should they fail to reach the target of 100%.This penalty shall be deducted from the total value (reflecting on the payment certificate) to be claimed by the Contractor. Below is the table that shows as to what percentage will be deducted if 100% is not reached:

Productivity	**Percentage to be Deducted from Total Amount to be Claimed on the Payment Certificate**
90-99%	1%
80-89%	2%
<80%	4%

17.3.3. In instances where the contractor performs beyond 100%, the Contractor will be paid for the number of sleepers (output rate specified on payment certificate) replaced and there will be no additional funds or bonuses.

17.4. Occupations

17.4.1. Sleeper replacement will be carried out ‘’between trains” where sufficient protection shall be afforded by the use of flagmen provided by the Contractor. There will be instances where the Contractor will be working on Shutdowns where the lines will be completely shut for certain periods. The Depot will carry the responsibility of arranging and organising occupations.

17.5. Transportation of Sleepers

17.5.1. Transportation of sleepers must be done by the Depot weeks prior to the commencement of the project. The Contractor will then be responsible for trolleying and lining of sleepers before actual replacement. In Situations where Depots are struggling to source transportation trucks, they will make a request through the Contract Manager on getting the assistance from the Contractor. Such request must be made 3 weeks prior. Once the Contractor has moved sleepers as per the request, a claim shall be submitted in line with the correct line of claim as specified in the payment certificate.

17.6. Housekeeping

17.6.1. It is the responsibility of the contractor to make sure that all the old sleepers are clearly removed from the vicinity of the line and are stacked properly.

ANNEXURE 2:

MINIMUM REQUIREMENTS FOR INSTALLATION OF UNIVERSAL SLEEPERS WITH INFRABOLTS

1.1 Once installed the bolts must be torqued to between 240 and 250 Nm and re-torqued a week after installation.

1.2 All bolts must be greased by applying anticorrosive grease over the whole length of the thread before installation (Caltex Rustproof Compound L Item Number: 09/038581).

1.3 A HDPE pads with a minimum thickness of 5 mm * must be used between the steel hardware and concrete sleeper. HDPE pad comes in a strip of 4.3 m long * 200mm wide and must be cut on site.

1.4 A Stumec and impact wrench may not be used for the installation of the bolts.

1.5 Prostruct 35/30 must be used at the bottom of the sleeper on the nut. 2 Litres should be sufficient to do a set. Once the epoxy is mixed it must be used within 30 minutes. The epoxy (Sealed kits) must under no circumstances be stored or placed in the sun.

1.6 Careful consideration should be given to make sure that provisions are made to fit the cradle for the points rodding and the two way indicator frame. The cradle may be fastened with a minimum of 3 Infrabolts provided that at least two of the bolts are prevented from turning by installing a locking plate or tag washers. Each contractor must submit his proposed method for approval to Technology Management. The following serve as a guideline on typical fastening methods.

- 1mm Cromedeck flat plate with two bolt holes. The ends are bent up and knocked over to prevent the bolts from turning.
- 18 mm Tag washer of suitable thickness and material.

1.7 Under no circumstances may the steel reinforcing be cut off. These holes must be left out.

1.8 Each sleeper must have a minimum overhang of 200 mm. i.e. The length from the side of the plate to the end of the sleepers shall not be less than 200 mm. The first hole in the sleeper must be at least 250 mm from the one side and 250+100 from the other side. This will allow for the re-use of the sleepers if new hardware is installed. On the stock and switch panel the 100 mm could be increased to 200 mm. If the sleepers are moved for the new steel hardware the old and new holes must be at least 100 mm apart.

1.9 If holes will be closer than 150 mm the one hole must be left out.

1.10 The holes in the HDPE pad must be between 26-30 mm.

1.11 Before coring the sleepers the sleepers must be aligned and positioned to make sure that the holes do not align with the reinforcing. The sleeper has small indents marking the position of the reinforcing within 15 mm. The hole must be cored at a 90 degree angle to the concrete surface with a maximum error of 3 degrees.

1.12 All possible bolts must be installed. See guidelines below.
Technology management is busy considering reducing the number of bolts. (Detail to follow)

- Preferably all bolts on sleeper 1 to 6 must be installed. If not, a minimum of 3 bolts per rail seat must be installed provided, that this does not happen on consecutive sleepers
- The bolts on the rails seats of the base leg "High leg" of the stock and switch must be as above
- The rest of the set must have a minimum of 3 bolts on the 4 hole plates and a minimum of 2 bolts on the 3 hole base plates provided that the minimum number of bolts does not happen on consecutive sleepers.
- Exceptions to the rules above provide for:
  - places where the holes are in the centre of the sleeper
  - skew plates causing holes to overlap on the reinforcing

1.13 In order to ensure that the turnouts can be measured accurately and be built to the correct gauge, the metal flow in the gauge corner (Overburden) of the rails should be removed by Transnet prior to the Contractor arriving for measurement of the turnout.

1.14 The contractor shall only start work on turnouts, which can be repaired to the 'A' standard with the installation of the Universal Sleepers.

1.15 The holes in the steel hardware must be at least 24 mm. All holes smaller than 24 mm must be reamed to a maximum of 25 mm.

1.16 The steel washer at the top must be at least 6mm thick with a 4mm at the bottom of the assembly.

1.17 When welding needs to be done on the set the E clips and T bolts must be loosened and not the Infrabolt.

1.18 The Infrabolt System my only be used to fasten plates with a thickness of between 20 and 35 mm.