



BHARAT COKING COAL LIMITED
(A Subsidiary of Coal India Limited)
Office of the Chief General Manager(MM)
Materials Management Department
Commercial Block L-III , Koyla Bhawan : Koyla Nagar
Dhanbad : 826005(Fax No- 0326-2230183)

ORDER NO.BCCL/ Pur/312120/VTs Rental/42/12-13/185

dtd 29.12.2012

To

M/s ARS Software Engineering (Pvt) Ltd.,

(Vendor Code: VC 1/28/M/T/05)

131-135 1st Floor NILA, Technopark Campus,

BY REGD POST

Trivandrum -695581

Fax: 0471 2527266

SUB: Supply, Installation, Commissioning, Implementation, Training and Maintenance of a GPS based Vehicle Tracking System for internal coal transportation in all Areas of BCCL for a period of 60 months, on monthly rental basis, along with required Computer Hardware, Software and other peripherals

REF: :

- i)Our e-tender no BCCL/ Pur/312120/VTs Rental/12-13/42,Cover-I opened on 24.09.12(Off line)and on 25.09.12(Online) and Cover-II(Price bid) on 14.11.12 for GPS based Vehicle Tracking System
- ii)Your offer no. Nil dated 24.09.12 and subsequent correspondence.
- iii)our letter no.BCCL/ Pur/312120/VTs Rental/12-13/2887 dtd 22.10.2012 for technical presentation.
- iv)our letter no. BCCL/ Pur/312120/VTs Rental/12-13/3093-94 dtd 14.11.2012 for price bid opening

Dear Sirs,

With reference to the above, we are pleased to place an order on you for **Supply, Installation, Commissioning, Implementation, Training and Maintenance of a GPS based Vehicle Tracking System for internal coal transportation on monthly rental basis along with required Computer Hardware, Software and other peripherals** at the rates indicated in Annexure-1 enclosed, as per the special terms and conditions,scope of supply and technical specification specified in the Annexure-II enclosed , to achieve objectives and technical requirements specified in the Annexure-III enclosed, as per the terms and conditions given hereunder alongwith general terms and conditions of NIT.

1.SCOPE OF WORK: You shall supply, install, commission, implement and maintain GPS based Vehicle Tracking System (VTS) initially on three-month-trial-basis at Kusunda Area of BCCL with not more than 70 numbers of vehicles for monitoring.After successful completion of the trial-run duly certified by the General Manager of the designated Area,the system shall be implemented at all Areas of BCCL on rental basis for a period of 60 months for which a clearance/confirmation shall be given from this office on completion of the trial-run as per terms and conditions given under as

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per our NIT. **The trial run will be considered successful provided the monthly average availability of the system during all three consecutive months does not fall below 75%.** Other details as per Annexure-I, Annexure-II & Annexure-III enclosed.

2.TOTAL VALUE OF THE CONTRACT: Rs 4,43,29,110.80(RUPEES FOUR CRORES FORTY THREE LAKHS TWENTY NINE THOUSAND ONE HUNDRED TEN AND PAISE EIGHTY ONLY).The break up of the total value of the contract showing item/equipment wise OTC(one time charge) and Rental(monthly and total during the contract period) payable as per the scope of contract is as per Annexure-I enclosed. However,the actual payment of OTC and rental shall be based on the actual qty of installation for items/equipments at sl.no.1(a),1(b),2 & 3 of Annexure-I within the scope of contract.

3.FIRM PRICE:The prices at sl.no.1(a),1(b),2 & 3 of Annexure-I shall remain firm during the currency of contract.

4.TAXES AND DUTIES:The System is on monthly rental basis, which includes maintenance for a period of sixty months. Rental shall be uniform for the entire rental period of sixty months and inclusive of all taxes, levies, duties etc except service tax for which you have to submit the documentary evidence for claiming reimbursement as per existing rules. Service Tax, if applicable, shall be reimbursed by BCCL against submission of Original Challan as proof of payment and self declaration that the same has been actually paid and not claimed anywhere else. CENVAT CREDIT shall be availed by the consignee on the service tax paid, if applicable,as per provisions,if any .

5.DELIVERY PERIOD : Permissible delivery period for “Vehicle Tracking System” will be 10 (Ten) weeks from 10th day from the date of issue of this order in the first instance for trial-run as per offered BOM-1 and 8 weeks from 10th day from the confirmation of the order for all Areas of BCCL as per BOM-2. The space for storage of the supplied material after delivery but prior to installation and handover to BCCL may be provided by BCCL. However the custody and security of the materials shall be your responsibility.

6.TIME PERIOD FOR INSTALLATION: You shall complete the installation and commissioning work for the supplies as per BOM-1(Trial run) and BOM-2 (regular run)within 6 weeks from the date of commencement of supplies for the respective phase.

7.PAYMENT TERMS:

- i. Payment for 3-month's trial run at Kusunda Area shall be made only after successful completion of the trial run and placement of firm order for the entire work. The payment for the trial run shall be on pro-rata basis for the no. of vehicles monitored during the trial-run after deducting penalty, if any, as per penalty clause of the contract and shall be calculated using the unit rate of monthly rental for mobile equipment as mentioned in the order. Performance of the offered system during trial run shall be certified by the General Manager of the Area at which the trial run is to be conducted. Payment against successful trial run and One Time Charges (OTC), if applicable, shall become eligible for payment provided you complete the installation,

commissioning and acceptance of the VTS in all assigned Areas within the stipulated completion period against submission of bills for the same.

- ii. Payment during 60 months rental period shall be made by BCCL on quarterly basis at the end of each quarter with effect from the date of commencement of rental period. However, computation of the bill shall be made on monthly basis. The payment through electronic methods shall be made as per details of the bank account in the prescribed format indicated in annexure-IV as provided by you alongwith the tender..
- iii. The date of commencement for the rental period would be finalised on successful completion of the trial run and confirmation of the order for regular run and completion of commissioning of the VTS in all Areas followed by formal training to the system users to be identified by GMs of the respective Areas. The date of commencement of the rental period would be decided by a joint committee consisting of the representative of BCCL and the Vendor and shall be same for the entire work.
- iv. Payment shall be made on quarterly basis against bill in triplicate and based on monthly performance of previous quarter after deducting penalty, if any, as per penalty clause of the contract. The performance is to be certified by GM of the respective Area / Dept for the equipment/systems installed in their command Area and the same is to be submitted along with the bill.
- v. All charges specified in this order//agreement shall be billed by you and such charges shall be payable by BCCL within 21 days from the date of receipt of the bills.

However, the actual payment of OTC and rental shall be based on the actual qty of installation for items/equipments at sl.no.1(a),1(b),2 & 3 of Annexure-I within the scope of contract.

8.CONSIGNEE :CGM(E&M),BCCL,KOYALA BHAWAN,Dhanbad.The location of installation as indicated in the Annexure-II of the order.

9.WARRANTY/GUARRANTY: You shall guarantee that the material / equipment, which include system hardware, Software, UPS, etc supplied under this contract, shall be in accordance with the contract specifications and shall have no defects arising out of design, materials or workmanship and shall carry respective manufacturer's standard warranty. You will be responsible for smooth functioning of the material / equipment, which include Computer Hardware, Software, UPS, etc supplied under this contract, for the entire period of the contract, i.e. 60 (sixty) months from the date of successful installation and commissioning. You must ensure that no major breakdown occurs due to manufacturing / design / material / workmanship defect during the contract period. In case of any failure / malfunctioning of the material / equipment, which include system Hardware, Software, UPS, etc supplied under this contract, due to reasons other than those attributable, with facts and figures, to external factors beyond control of the successful bidder such as faulty main power supply, alteration / tempering, misuse or negligence by unauthorised person, repair or replacement of the same will be arranged by you free of cost.

10.PAYING AUTHORITY: Chief Manager (Finance)/In-Charge,Pay Office, BCCL HQ, Dhanbad.

11.SUBMISSION OF BILLS : The quarterly rental bills shall be raised at the end of each quarter which will be paid within 21 (twenty one) days after receipt and acceptance of the same. Payment of OTC, if applicable, will be made within 21 (Twenty one) days after successful installation and acceptance of the “Vehicle Tracking Systems”.

- a) The OTC bill, if applicable, will be payable provided there is no delay in installation and commissioning of the system from the supplier’s end. If the delay in installation and commissioning is found to happen due to the fault from the supplier’s part although BCCL has provided the site, OTC will not be payable. However, if the delay in installation and commissioning is attributable to BCCL for reasons stipulated elsewhere in this document, the same shall be considered for payment only after successful installation and commissioning at all designated Areas and the rental period shall start from the date of successful installation and acceptance of the Vehicle Tracking System at all designated Areas.
- b) Penalty charges during a quarter, if any, shall be deducted from the quarterly rental bill of that quarter.
- c) The last quarterly rental will be paid after recovery of all outstanding dues, if any, after successful completion of the contracted work.
- d) During the period of contract no interest is payable on any amount whatsoever to the successful Bidder/Supplier.

12.SECURITY DEPOSIT: You shall deposit as security money 10% of the value of the contract ie for Rs 44,32,912.00(Rupees Forty Four Lakhs Thirty two Thousand Nine hundred and twelve only) in the form of Bank Draft /Bank Guarantee within 15 days from the date of order. The validity of B.G. will be for a period of three months beyond the expiry of delivery period. If the contractor fails to deposit the security deposit within 15(fifteen) days from the date of order, the same shall be recorded as unsatisfactory performance for future dealings apart from taking any other penal action as may be deemed fit by BCCL . For successful contractor,the Security Money shall be Refunded within 30 days of satisfactory execution of contract. . For unsatisfactory execution of contract and/or failure of execution of contract, the security money shall be forfeited.The Security money may be converted into PBG.Your EMD shall be returned on submission of Security deposit.

13.PERFORMANCE BANK GUARANTEE (PBG)- PBG on schedule/Nationalized Bank in India valid for three months beyond the expiry of Guarantee/Warranty period of the contract(ie valid for 63 months from the date of successful installation/commissioning of the system for regular run) for 10% value of the contract ie for Rs 44,32,912.00(Rupees Forty Four Lakhs Thirty two Thousand Nine hundred and twelve only)shall have to be submitted to MM Division, BCCL, Koyla Bhawan on or before commencement of supply/ installation/commissioning..

The original Bank Guarantee should be sent to the beneficiary directly by the issuing bank under registered post with A.D

14.Liquidated Damage(LD) Clause:

In the event of failure to deliver the equipment/stores within the stipulated date/period to effect supply in accordance with the terms and conditions and the specifications mentioned in the supply order and in the event of breach of any of the terms and conditions mentioned in the supply order, Bharat Coking Coal Ltd., shall be entitled at its option either to enforce the following:

- a) To recover from the successful bidder as agreed liquidated damages, a sum of 0.5%(Half Percent) of the price of any stores which the successful tenderer has not been able to supply as aforesaid for each week or part of a week during which the delivery of such stores may be in arrears limited to **10% (Ten Percent)** and where felt necessary by BCCL it may be increased up to 15 %..
- b) To cancel the supply order or a portion thereof, and if so desired to purchase the stores at the risk and expenses of the defaulting supplier and also/or
- c) To purchase elsewhere after notice to the successful tenderer on the account and at the risk of the defaulting supplier, the equipment/stores not supplied or others of similar description without canceling the supply order in respect of the consignment not yet due for supply/or
- d) To extend the period of delivery with or without liquidated damages as may be considered fit and proper. The liquidated damages if imposed, shall not be more than the agreed liquidated damages referred to in CLAUSE 14 (a) above except in case of force majeure condition.
- e) Whenever under this contract any sum of money is recoverable from and payable by the supplier, Bharat Coking Coal Ltd., shall be entitled to recover such sum by appropriating in part or in whole by deducting any sum or which at any time thereafter may become due to the successful tenderer in this or any other contract, should this sum be not sufficient to recover the full amount recoverable. The successful tenderer shall pay to Bharat Coking Coal Ltd., the balance amount on demand of the remaining balance. The supplier shall not be entitled for any gain on any such purchase.
- f) To forfeit the security deposit fully or in part

15.Force Majeure Conditions - If the execution of the Contract / Supply Order is delayed beyond the period stipulated in the Contract / Supply Order as a result of hostilities, declaration of embargo or blockade or flood, acts of nature or any other contingency beyond the supplier's control due to act of God, then BCCL may allow such additional time by extending the delivery period as is considered justified by the circumstances of the case and its decision shall be final. In case additional time is granted by BCCL for execution of the Contract / Supply Order, the Contract / Supply Order shall be read and understood as if it had contained from its inception the delivery date as extended.

- a) The successful bidder will advise, in the event of his having to resort to this clause, by a registered letter, duly certified by the local chamber of commerce, or statutory authorities, the beginning and end of the causes of the delay, within 15 days of the occurrence and cession of such force majeure conditions. In the event of delay lasting out of force majeure, BCCL will reserve the right to cancel the contract, and provisions governing termination of contract as stated in the bid documents will apply.
- b) For delay arising out of Force majeure, the bidder will not claim the extension in completion date for a period exceeding the period of delay attributable to the causes of force majeure and neither BCCL nor the bidder shall be liable to pay extra cost provided it is mutually established that the force majeure conditions did actually exist.
- c) If any of the force majeure conditions exist in the place of operation of bidder even in the time of submission of bid, he will categorically specify them in his bid, and state whether they have been taken in to consideration in their quotation.

16.PRICE FALL CLAUSE - The price charged for the Stores / Equipment supplied against the order, if placed, shall in no event exceed the lowest price at which the bidder shall sell or offer to sell the Stores / Equipment of identical description to its any other customer during the pendency of the Contract / Supply Order. If the successful tenderer at any time during the pendency of the Contract / Supply Order sells or offers to sell such stores to any customer, at a price lower than the price stipulated in the Contract / Supply Order placed by BCCL, the successful tenderer shall forthwith notify to BCCL such reduction in sale price of stores / equipment supplied after such reduction coming into force shall stand correspondingly reduced.

17.TRAINING:For each of the system installed you are required to train the BCCL's technical and end-user officials/staff to enable them to effectively manage and use the system. The training and accompanying materials shall be provided in English/Hindi. You shall provide a detailed operations and user manuals for each appropriate unit of the supplied system. The training should include all the relevant items required to operate the systems by the end user and the operation and management of GPS based vehicle tracking system and software by user staff. The training shall be conducted for a period of not less than 30 days and the dates shall be decided by mutual consent. The training is to be conducted on-site for all levels of system operation including –

- a)Operators
- b)Supervisors
- c)Maintenance Engineers
- d)System Administration

18. SUSPENSION,CANCELLATION & FORECLOSURE OF RENTAL CONTRACT:BCCL shall, in addition to other remedial steps to be taken as provided in the conditions of rental contract be entitled to cancel the rental contract in full or in part, if the supplier :

- a) Commits default/breach in complying with any of the terms & conditions of the rental contract and does not remedy it or fails to take effective steps for the remedy to the satisfaction of the officer-in-charge nominated by the consignee for this purpose, **OR**

shall offer or give or agree to give to any person in service of the company or to any other person on his behalf any gift or consideration of any kind as an inducement or reward to act or acts of favour in relation to the obtaining or execution of his contract for the company, **OR** obtain a contract with company as a result of ring tendering or other non-bonafide methods of competitive tendering or transfers, subjects, assigns the entire work or any portion thereof without the prior approval in writing from BCCL or its authorised representative.

- b) Notwithstanding anything contained hereinbefore, if the successful bidder/supplier fails to perform its contractual obligation and/or make breach of the contract in any form and/or make delay in progress and if BCCL is of the opinion that the successful bidder/supplier is not in a position to complete the work within schedule time or within a reasonable extended period, in such case BCCL shall be entitled without prejudice to its right to fulfilment, to engage other at the risk and cost of the successful bidder/supplier and to claim the difference in price and adjust/recovery thereof from the dues of security deposit or the performance bank guarantee or to recover/adjust from the dues of the successful bidder/supplier from BCCL or from other subsidiary company of Coal India Limited, Kolkata.
- c) If the successful bidder/supplier is under liquidation either by a resolution passed by the company or by an order of court, not being a voluntary liquidation proceedings for the purpose of amalgamation or re-organisation, or a receiver or manager is appointed by the court on the application by the debenture holders of the company, if any.
- d) On cancellation of the rental contract or on termination of the rental contract, for reasons as specified above, BCCL or its authorised representative will have the powers :

- i. To determine the amount to be recovered from the bidder for completing the remaining installation work or in the event of the remaining work is not to be completed the loss/damage suffered, thereof, if any, by the company, after giving credit for the value of the work executed by the supplier up to the time of cancellation less on a/c payments made till that date and value of contractor's materials etc. taken possession by BCCL after cancellation of the contract.
- ii. To recover the amount determined as above, if any, from any money due to the supplier on any account or under any other contract and in the event of any shortfall, the bidder shall be called upon to pay the same on demand.

Enclosure:

Annexure-I- item/equipment wise OTC(one time charge) and Rental(monthly and total during the contract period) payable as per the scope of contract.

Annexure-II- SPECIAL TERMS AND CONDITIONS OF WORK & BILL OF MATERIALS(BOM-1 &2)

Annexure-III-OBJECTIVES ,TECHNICAL REQUIREMENTS, SPECIFICATIONS AND FEATURES OF GPS BASED VEHICLE TRACKING SYSTEM

EFT DETAILS FOR EFT PAYMENT

Yours faithfully,

(C R Samantray)

Chief Manager(MM)

For & on behalf of Bharat Coking Coal Ltd.

INDENT REFERENCE

Indent reference	Budget Certification no. & dt., & FC No.& dt.
Approved by CMD vide diary no.470F Dated 15.05.2012	BC/FC NO.BCCL/FIN(C&B)/12/D/301 Dated 28.12.2012 For Value: Rs 4,43,29,110.80 for 2013-14 to 2018-19 BC given by Chief Manager(F)Cost & Budget Dept,BCCL advance budget for 2013-14 to 2018-19 FC given by Chief Manager(F)Pay I/C,BCCL

- COPY:**
1. CGM(E&M), Koyla Bhawan
 2. GM(SYSTEM), Koyla Bhawan
 3. GM(F),MM , Koyla Bhawan.
 4. CHIEF MANAGER(FINANCE)/In-Charge,Pay Office, BCCL HQ, Dhanbad.
 - 5.MM(Tech Cell), MM Div, Koyla Bhawan.
 - 6.MF/Office Copy.

ANNEXURE—I(TWO PAGES)

ITEM/EQUIPMENT WISE OTC(ONE TIME CHARGE) AND RENTAL CHARGES AS PER SCOPE OF CONTRACT.

A:DURING TRIAL RUN OF THREE MONTHS

Item No. of NIT	Item Description in brief As per BOM-1 (as per Tech. Specs. enclosed)	Unit	Required Qty.	OTC per Unit	Total OTC for the Item	Monthly Rent per Unit	TOTAL
1a	Fixed equipment and software for installation at BCCL HQ and Central Control Room including maintenance and service charges.	set	As per BOM-1	NIL	NIL	NIL	NIL
1b	Fixed equipment and software for installation at Area Control Rooms including maintenance and service charges.	set	As per BOM-1	NIL	NIL	NIL	NIL
2	Vehicle Mounted Unit comprising of GPS receiver and GPRS service including maintenance and service charges.	Set	70*	NIL	NIL	276.00	57,960.00
3	Other accessories and items not specified in BOM but may be required for successful installation, commissioning and maintenance during contract period	set	As per BOM-1	NIL	NIL	NIL	NIL
	SERVICE TAX @12.36%						7,163.86
						TOTAL	65,123.86(A)

* The population of such vehicles during trial run shall not be more than 70.The payment shall be on pro-rata basis for the no. of vehicles monitored during the trial-run after deducting penalty, if any, as per penalty clause of the contract .

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ANNEXURE—I(2ND PAGE)**B: DURING REGULAR RUN OF SIXTY MONTHS**

Item No.	Item Description in brief As per BOM-2 (as per Tech. Specs. enclosed)	Unit	Required Qty.(as per BOM-2)	OTC per Unit	Total OTC for the Item)	Monthly Rent per Unit	60 months Rent for required quantity
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1a	Fixed equipment and software for installation at BCCL HQ and Central Control Room including maintenance and service charges.	Set	1	2,50,000.00	2,50,000.00	85,001.18	51,00,070.80
1b	Fixed equipment and software for installation at Area Control Rooms including maintenance and service charges.	Set	14	22200.00	3,10,800.00	19,071.00	1,60,19,640.00
2	Vehicle Mounted Unit comprising of GPS receiver and GPRS service including maintenance and service charges.	Set	975*	600	5,85,000.00	276.00	1,61,46,000.00
3	Other accessories and items not specified in BOM but may be required for successful installation, commissioning and maintenance during contract period	L.S.		NIL	NIL	16,388.00	9,83,280.00
Totals					11,45,800.00		3,82,48,990.80
SERVICE TAX @12.36%					1,41,620.88		47,27,575.26
					12,87,420.88		4,29,76,566.06
GRANDTOTAL					4,42,63,986.94(B)		

* the quantity of vehicles may vary (increase or decrease)during the period of contract as per requirement of the situation.

TOTAL COST DURING TRIAL RUN OF 3 MONTHS FOLLOWED BY REGULAR RUN OF 60 MONTHS:4,43,29,110.80 (A + B)

However,the actual payment of OTC and rental shall be based on the actual qty of installation for items/equipments at sl.no.1(a),1(b),2 & 3 within the scope of contract.

Annexure-II

Special terms and conditions ,Scope of Work & Technical specification

1.You shall implement the system initially on trial basis for a period of three months at Kusunda Area of BCCL with not more than 70 numbers of vehicles for monitoring and only after successful three-months-trial-run the solution is to be implemented at all other Areas of BCCL by you. **The trial run will be considered successful provided the monthly average availability of the system during all three consecutive months does not fall below 75%.** The successful completion of the trial run is to be certified by the General Manager of the Area in which the system shall be implemented on trial-basis.

2.You have to provide the necessary hardware, software and other related equipments along with the required qualified maintenance personnel to provide satisfactory maintenance support for installation, commissioning, training and maintenance of the offered system during 3-month's trial period and throughout 60 months contract period after successful completion of trial run.

2(a)the make and model of the supplied hardware/software item must be IPV6 complaint.

2(b)All items and their components / parts / assemblies / sub-assemblies / software etc which shall be supplied to BCCL shall be original and new from the respective OEMs of the items and that no refurbished / duplicate / second-hand components / parts / assemblies / sub-assemblies / software shall be supplied.

2 (c)All the offered software, with requisite number of user licenses as may be necessary, shall be supplied with duly authorised license certificate in the name of Bharat Coking Coal Limited from the respective OEM and also that these software shall be sourced from the original manufacturer / developer of the software product or their authorised agencies. You shall provide all necessary updates and/or patches as and when released by the respective OEM of the software product during the entire period of contract i.e. 60 months, at no additional cost.

3.You shall arrange Internet facility at the Central Control Room and all Area Control Rooms at your cost.

4. BILL OF MATERIALSs (B.O.M.): You shall supply all items of the hardware, software, monitoring equipment / devices, power conditioning equipment / devices, networking equipment / devices, and services and their quantities required, separately during the period of trial run and thereafter for implementation in all Areas of BCCL if needed,for successful implementation and commissioning of the offered technical solution as per BOM.

5. Technical specifications of the items included in the offered B.O.M shall be as indicated elsewhere in this contract.

6. If any item required for successful implementation of the offered solution is not specified in the B.O.M. submitted by you but is considered necessary for successful implementation of the solution, the same has to be supplied/provided by you at your own cost and expenses and no additional monthly rental charges shall be paid by BCCL for such supplies.

7.Scope of Work :

You are required to supply, install, commission, implement and maintain GPS based Vehicle Tracking System (VTS) initially on three-month-trial-basis at Kusunda Area of BCCL and after successful completion of the trial-run duly certified by the General Manager of the designated Area, the system shall be implemented at all Areas of BCCL on rental basis for a period of 60 months as per terms and conditions of NIT for which a separate clearance/confirmation shall be given to you.

For this purpose, You are required to provide, install, configure, integrate a complete package of equipment such as computer hardware/software and telecommunication gear and other related peripherals and services etc. You are also required to provide training to the operational personnel of BCCL for a period of not less than 30 days to provide necessary insight and acquaintance with the installed system. You will also be required to maintain the system during the entire period of contract i.e. 60 months and post adequate number of technical personnel at site to provide on-site support in respect of all hardware, software and related peripherals.

In brief following are the important steps covered under Scope of work :

- a) Installation of GPS receiver on all vehicles engaged in transportation of coal in the Area. The population of such vehicles during trial run shall not be more than 70. However, subsequent to the successful trial run, the estimated population of vehicles to be monitored across BCCL is 975 (nine hundred seventy five). The number may increase or decrease in future. If the number

increases in future, the contractor has to arrange for the additional devices as may be necessary as per rate, terms and conditions of the contract.

- b) Whenever an existing vehicle, on which GPS receiver is mounted, is withdrawn from the fleet and/or replaced by another, the service provider is required to remove the GPS receiver from the withdrawn vehicle and install the same on the new/replacement vehicle. In such cases, it will also be the responsibility of the service provider to integrate this GPS receiver with the equipment and telecommunication gear so that the new/replaced vehicle also becomes a part of the vehicle tracking system.
- c) Integration of all GPS devices with the web-enabled VTS application on the BCCL website through a secured link which is also to be incorporated by the service provider.
- d) Maintenance of the system during the entire contract period i.e. 60 months so that it can achieve the Guaranteed Availability as detailed in technical terms and conditions.
- e) Configuration of geo-fencing.
- f) To establish Control Room in all the Area offices to monitor the movement of vehicles of the Area. However, BCCL will provide required space, building and other basic infrastructure as specified in the NIT.

8.SCOPE OF MAINTENANCE:

Comprehensive maintenance work is to be done by you. The Scope of Maintenance work will be as under:

- (i) To carry out all routine schedule maintenance job at the required locations.
- (ii) Providing all labour, all spare parts, inspection and supervision services related to the above.
- (iii) Maintaining the system to achieve guaranteed availability as per contract.
- (iv) The cost of maintenance work will include cost of all spares (landed price basis), labour charges and all other charges on as and when required basis. The payment for maintenance is included in the monthly rental charges, to be paid on quarterly basis against invoice / bill raised for that purpose.
- (v) Providing of all software upgrade, updates etc.
- (vi) For all hardware & software free maintenance services and software upgrades shall be provided by you during the entire rental period.
- (vii) The response time to attend a maintenance complaint / breakdown call at site shall not exceed 3 hours. You shall, thus, respond and commence repair work on the equipment within 3 hours of being notified of the system malfunction. In case there is any failure with hardware components, the same may be made good/rectified within further 24 hours time. All the hardware, software supplied and installed, shall be maintained by the system provider in a manner, which ensures that the guaranteed availability is achieved.
- (viii) The periodicity of preventive maintenance shall be decided by the designated VTS Project Manager of BCCL and you as per requirement but it must be at least once in a month and shall be carried out during normal working days.
- (ix) All spare parts and components have to be supplied and installed free of cost at site during the period of contract. Printing media i.e. paper, printer ribbons, ink cartridges, toner cartridges and media required for taking system/data backup shall only be treated as consumables and the same shall be provided by BCCL during the 60 months rental period. However, minimum required quantity of these items during the trial run and for three month's consumption after successful implementation of the system at all Areas will have to be provided by the successful bidder. No other items shall be considered as consumables. Print heads for dot matrix printers, hammer bank for line matrix printers or such parts used in the printing mechanism but not included in the list of consumable items given above shall have to be supplied by the successful bidder free of cost as and when needed.

9.Location & volume of work :

- a) Location of Site:
BCCL HQ, Barora Area, Block-II Area, Govindpur Area, CV Area, Katras Area,
Sijua Area, Kusunda Area, PB Area, Bastacola Area, Lodna Area, E.Jharia Area,

W.Jharia Area, WWZ Area and EWZ Area of BCCL.

- b) Total No. of vehicles/Tippers engaged in internal Coal transportation: 975

It is expected that the quantity of vehicles may vary as per requirement of the situation. If the number increases in future, the successful bidder has to arrange for the additional devices as may be necessary as per rate, terms and conditions of the contract.

10.Delivery : Permissible delivery period for “Vehicle Tracking System” will be 10 (Ten) weeks from 10th day from the date of issue of the work order in the first instance for trial-run as per offered BOM-1 and 8 weeks from 10th day from the confirmation of the work order for all Areas of BCCL as per BOM-2. The space for storage the supplied material after delivery but prior to installation and handover to BCCL may be provided by BCCL. However the custody and security of the materials shall be the responsibility of the bidder.

11.Time period for Installation: You have to complete the installation and commissioning work for the supplies as per BOM-1 and BOM-2 within 6 weeks from the date of commencement of supplies for the respective phase.

12.Insurance: Comprehensive insurance of each material/equipment supplied by the successful bidder/supplier is to be done by the successful bidder/supplier and cost of insurance of the material/equipment during transit and during operation of the contract will be on successful bidder's account. The successful bidder will have to provide documentary evidence to this effect prior to release of first payment.

13.Inspection, Installation, Tests and Acceptance: The designated representative(s) of BCCL shall undertake the inspection of the Goods and Services installed, after written intimation of the same from the bidder, to check whether the Goods and Services are in conformity with the items included in the Bill of Materials and their technical specifications. The inspection shall be carried out in presence of the supplier's representative. The Inspection/Testing shall include the physical verification of documents, manuals, equipment, operating systems, Application Software etc. as per Bill of Materials.

14.Warranty/Guarantee: You shall guarantee that the material / equipment, which include system hardware, Software, UPS, etc supplied under this contract, shall be in accordance with the contract specifications and shall have no defects arising out of design, materials or workmanship and shall carry respective manufacturer's standard warranty. You will be responsible for smooth functioning of the material / equipment, which include Computer Hardware, Software, UPS, etc supplied under this contract, for the entire period of the contract, i.e. 60 (sixty) months from the date of successful installation and commissioning. You must ensure that no major breakdown occurs due to manufacturing / design / material / workmanship defect during the contract period. In case of any failure / malfunctioning of the material / equipment, which include system Hardware, Software, UPS, etc supplied under this contract, due to reasons other than those attributable, with facts and figures, to external factors beyond control of the successful bidder such as faulty main power supply, alteration / tempering, misuse or negligence by unauthorised person, repair or replacement of the same will be arranged by you free of cost.

15.The total job of supply, installation and maintenance of all hardware and peripherals during the rental period will be done by you only.

16.The “Vehicle Tracking Systems” is on monthly rental basis, which includes maintenance for a period of sixty months. Rental rates are uniform for the entire rental period of sixty months and inclusive of all taxes, levies, duties etc except service tax for which you have to submit the documentary evidence for claiming reimbursement as per existing rules. The rental quoted shall remain firm without escalation during the currency of contract.

17.The rate of monthly rental for the VTS shall comprise of two parts; (a) Rental for the fixed equipment and software taken together for the equipment to be installed at HQ, and Area Control Rooms, (b) Rental for the mobile unit including charges for GPRS services.

18.One Time Charges (OTC): Apart from the monthly rental charges, One Time Charges payable to the bidder to cover the incidental expenses which may be required during timely installation and commissioning of the system. OTC should not be more than 3 month's rental charges for the fixed equipment. It will be paid only after successful installation and commissioning of hardware, porting of operating system, utilities and their acceptance by BCCL for all the designated Areas. OTC will be payable only if the trial run is successfully completed and installation and commission of VTS for all designated Areas is completed successfully within the stipulated period indicated in the work order. However, if the delay in installation & commissioning is due to reasons attributable, with facts and figures, to external factors beyond control of the successful bidder, such as (a) site for installation not provided by BCCL as per requirement specified by the successful bidder in its offer and/or (b)

pre-defined number of vehicles not identified and provided by BCCL for installation of GPS receiver (VMU), (c) Non-availability of mains power as per required electrical standards within the stipulated time for installation and commissioning mentioned in the work order, You will be eligible for payment of OTC.

20.Rental period will commence from the date of successful installation and commissioning and acceptance of the “Vehicle Tracking Systems”. The date of successful installation of the “Vehicle Tracking Systems” will be notified jointly by the BCCL and the contractor.

21.After the expiry of 60 months, BCCL will have the option to retain the “Vehicle Tracking System” on perpetual rental basis. However, in the event of the above the Annual Maintenance charges for maintenance and upkeep of the “Vehicle Tracking System” may be settled at a mutually agreed rate, terms and conditions.

22.The monthly rental charges for the fixed equipment will cover comprehensive maintenance services for all equipment, hardware and software including all Printers, UPS batteries, GPS receivers etc and will cover repairs and replacement of defective parts to keep the equipment(s) in proper working order. However, print/toner cartridges, ink cartridges, printer ribbons shall only be treated as consumables and would be supplied by BCCL. There will be no other financial liabilities on the part of BCCL for above maintenance services.

23.Monthly rental charges for the mobile equipment will cover comprehensive maintenance services for the mobile equipment i.e. GPS receiver and the GPRS services. This will also include mounting and unmounting of GPS receivers from the vehicles as and when required during the entire contract period. There will be no other financial liabilities on the part of BCCL for above maintenance services.

24.Availability Provisions :

You shall guarantee that the system supplied pursuant to this contract shall be available for use of BCCL and shall meet the performance criteria in accordance with the terms & conditions of the guaranteed availability as outlines below.

The guaranteed availability for the entire “Vehicle Tracking System” shall not be less than 98% calculated on monthly average basis and in no case shall fall below 75%.

Availability during the month shall be calculated as follows:

$$\% \text{ Daily availability} = \frac{24 \times N - \text{TBD}}{24 \times N} \times 100$$

Where N = GPS mounted vehicles to be monitored in a day

TBD = Sum total in hours in a day during which individual vehicles not monitored.

$$\% \text{ Monthly Availability} = \frac{\text{Sum of daily availability \%age during the month}}{\text{No. of days in a month}}$$

Example: Since the system is expected to work round the clock, each GPS receiver mounted vehicle is expected to be monitored 24 hours per day for say 10 number of such vehicles deployed in a day. Out of these 10 vehicles if 2 are not monitors for half an hour on a day and 4 are not monitored for 1 hour on the same day then the percent availability during that day will be as follows:

$$24 \times 10 - (2 \times 0.5 + 4 \times 1)$$

$$\% \text{ Daily availability} = \frac{\text{-----}}{24 \times 10} \times 100 = 97.92$$

$$24 \times 10$$

Sum of daily availability % during the month

$$\% \text{ Monthly Availability} = \frac{\text{-----}}{\text{No. of days in the month}}$$

No. of days in the month

Penalty –

- a) If the availability falls below the guaranteed monthly availability (98%), there will be pro-rata deduction in the monthly rental as penalty. A penal charge amounting to 5% of such penalty will also be imposed and deducted from the monthly rental.

Thus, $\text{Penalty} = \frac{(98 - \% \text{ Monthly Availability})}{98} \times \text{Monthly rent of the system}$

$$98$$

$$\text{Penal Charge} = 0.05 \times \text{Penalty}$$

$$\text{Rental payable} = \text{Monthly rental} - (\text{Penalty} + \text{penal Charge})$$

- b) If the system is not available for use for more than 3 consecutive days an additional penalty amounting to 20% of the monthly rental shall be imposed.
- c) No bonus or additional sum shall be payable to the contractor if the monthly availability is more than the guaranteed availability as mentioned above.
- d) The entire system will be treated under breakdown if any server or UPS or monitoring console is under breakdown or malfunctioning.
- e) In case the monthly availability falls below 75% in a month rental charges for that particular month will not be payable.
- f) Scheduled preventive maintenance time shall not be considered as breakdown.
- g) The contractor has to provide on-line UPS for supplying power to the system for at least 3 hours backup in case of mains power failure. If mains power failure is for more than 3 hours duration, the same shall not be treated as breakdown.

25.Payment Terms :

i) Payment for 3-month's trial run at Kusunda Area shall be made only after successful completion of the trial run and placement of firm order for the entire work. The payment for the trial run shall be on pro-rata basis for the no. of vehicles monitored during the trial-run after deducting penalty, if any, as per penalty clause above and shall be calculated using the unit rate of monthly rental for mobile equipment as mentioned in the work order. Performance of the offered system during trial run shall be certified by the General Manager of the Area at which the trial run is to be conducted. Payment against successful trial run and One Time Charges (OTC), if applicable, shall become eligible for payment provided you complete the installation, commissioning and acceptance of the VTS in all assigned Areas within the stipulated completion period against submission of bills for the same.

ii) Payment during 60 months rental period shall be made by BCCL on quarterly basis at the end of each quarter with effect from the date of commencement of rental period. However, computation of the bill shall be made on monthly basis. For facilitating payment through electronic methods, you shall furnish details of the bank account in the prescribed format provided in the NIT.

iii) The date of commencement for the rental period would be finalised on successful completion of the trial run and completion of commissioning of the VTS in all Areas followed by formal training to the system users to be identified by GMs of the respective Areas. The date of commencement of the rental period would be decided by a joint committee consisting of the representative of BCCL and the Vendor and shall be same for the entire work.

iv) Payment shall be made on quarterly basis against bill in triplicate and based on monthly performance of previous quarter after deducting penalty, if any, as per penalty clause above. The performance is to be certified by GM of the respective Area / Dept for the equipment/systems installed in their command Area and the same is to be submitted along with the bill.

v) All charges specified in the agreement shall be billed by you and such charges shall be payable by BCCL within 21 days from the date of receipt of the bills.

vi) Disputes regarding payment if any shall be resolved during monthly meeting between BCCL and the contractor.

26. The expected movement area of the vehicles covered under the Vehicle Tracking System is within 15 Km radius from the respective Area HQ. All Area HQs are located at a distance of about 10 to 40 km from BCCL HQ where the main server is to be installed.

27. You shall post, at your own cost, adequate experienced and qualified Hardware/Software Resident Engineers at Dhanbad with sufficient spares to maintain the "Vehicle Tracking Systems".

28. You will help in porting the existing data to the new hardware platform for running the existing software application packages.

29. The Vehicle Tracking Systems shall be operative round the clock in all shifts (24x7) during the contract.

30. You shall provide services for installation, configuration, implementation, integration, training & acceptance testing as required by the contract.

31. You shall be responsible for all unpacking assembling, wiring, installation, cabling between equipment units & components and connection to power supplies. The system provider will test all systems operation and perform all the necessary set up, configuration and customization for successful operation of the systems in accordance with contract requirements.

32. You shall be responsible for installation, commissioning and testing of all equipment, hardware and software including all Printers, UPS batteries, GPS receivers, communication system/local Area network etc. required to run the system effectively, optimally and efficiently and overall system Integration of all hardware, software and networks.

33. TRAINING: For each of the system installed the you are required to train the BCCL's technical and end-user officials/staff to enable them to effectively manage and use the system. The training and accompanying materials shall be provided in English/Hindi. You shall provide a detailed operations and user manuals for each appropriate unit of the supplied system. The training should include all the relevant items required to operate the systems by the end user and the operation and management of GPS based vehicle tracking system and software by user staff. The training shall be conducted for a period of not less than 30 days and the dates shall be decided by mutual consent. The training is to be conducted on-site for all levels of system operation including –

a) Operators

b) Supervisors

c) Maintenance Engineers

d) System Administration

34. During the contract period the system provider is responsible for the functionality and the performance of the systems.

35. During contract period the supplier is responsible for implementation of the new versions and will make all necessary modifications and adaptation of the vehicle tracking systems and other software to the new version.

36. Emergency and urgent on-site services should be available within 2 hours of receipt of the service-call by the resident service engineers of the service provider.

37. The system provider shall provide requisite technical manpower at identified locations to ensure effective operations of the system.

38. Patent Rights: You shall indemnify the BCCL against all 3rd party claims of software piracy & infringement of intellectual propriety rights. In the event of any claim asserted by a third party of infringement of copyright, patent, trademark or industrial design rights arising from the use of the Goods and services or any part thereof in India, you shall act expeditiously to extinguish such claim. If you fail to comply and BCCL is compelled to pay compensation to a third party resulting from such infringement, you shall be responsible for the compensation including all expenses, court costs and lawyer fees to BCCL.

39. Technical Documentation: The Technical documentation involving detailed instruction for operation and maintenance is to be delivered with all equipment supplied at no extra cost. The language of the documentation should be English. Unless and otherwise agreed, the goods and services shall not be considered to be complete for the purpose of taking over until such manuals have been supplied to the BCCL.

40. You shall be fully responsible for the successful virus free functioning by providing a suitable anti-virus software licensed for regular updates for the entire contract period and integrated operations of the system as a whole and the omission of any item/component in this document shall not be sufficient reason for non-performance of the system at a future date. The Bidder should therefore specify, justify and quote for any additional item/s, which he feels, are essential for the trouble-free functioning of the system during the entire contract period.

41. You and your Personnel shall not disclose any proprietary or confidential information relating to the Project Services, this contract or the employer's business or operations without the prior written consent of the Employer. Service provider shall sign an Integrity Pact as per format provided in the tender document.

42. Definitions

In this contract, the following terms shall be interpreted as indicated.

- a) **The Contract** means the agreement entered into between the BCCL and the successful bidder.
- b) **The Vehicle Tracking System** means the Receiver, Transmitter, work-station/servers, PCs, Networking/communication equipments, printers, UPS (including batteries), other related hardware/peripherals, operating system, application software for vehicle tracking system etc.
- c) **The Contract Price** means the price payable to the successful bidder under the contract for the full and proper performance of its contractual obligations.
- d) **The Goods** means all of the equipment, machinery, and/or other material which the successful bidder is required to rent out to the BCCL under the Contract.
- e) **The Services** means services ancillary to the renting of the Goods, such as transportation, insurance, installation and any other incidental services, such as technical assistance, training, operating system, HW/SW maintenance and other obligations of the successful bidder covered under the Contract.
- f) **BCCL** means the Organisation receiving the goods and services on rental basis.
- g) **Bidder** means the firm renting the Goods and services under this contract; bidder will also mean the 'Supplier' of the goods and services under this contract. It will also include the term 'service provider'
- h) **Installation** shall mean the power-on of the complete "Vehicle Tracking Systems" supplied and loading of operating system under this agreement at specified locations.
- i) **Acceptance** means accepting the goods/equipment only after successful installation of all Hardware, Operating System, application software for Vehicle Tracking Systems etc and other equipment supplied by the bidder.

BILL OF MATERIALS(BOM)-1

Bill of Materials/Services required for Trial Run at Kusunda Area for a period of 3 months

Sr. No.	Item (as per detailed Technical Specifications indicated in Annexure-III)	For Central Site at BCCL HQ	For Area Control Room & User
		Required	Required
1	Server with Monitor, Kaspersky Business Space Security for 5 years	3	Nil
2	SQL Server CAL 2012 OLP NL Database Management System and Windows Server Std 2008 R2	1	Nil
3	KVM Switch	1	Nil
4	External Storage System with back up facility and APC 3 KVA UPS	1	Nil
5	600 LPM Line Matrix Printer	1	Nil
6	APC 1 KVA Online UPS	1	1
7	Work Station with monitor and Kasperesky Internet Security 2012	1	1
8	HP Business Inkjet 2800 A3 size colour Printer	1	1
9	24pin 136 column Dot Matrix Printer	1	1
10	Samsung Galaxy Tab 2 10.1 P5100 Android OS	1	Nil
11	Lenovo H320 Slim Core i3 Desktop PC	2	2
12	Dlink DGS1008D Network Switch + TL-MR3220 Router+ Broadband connection	1	1
13	Cisco RV042 Dual WAN VPN+ Coyote Point Equalizer E250GX Load Balancer+ VSNL leased line+ Network switch	1	Nil
14	Travelstar GPS Receiver	Nil	70
15	VTS System	1	

BILL OF MATERIALS(BOM)-2

Bill of Materials/Services to be provided after successful completion of Trial Run for implementation of the system in all Areas FOR REGULAR RUN

Sr. No.	Item (as per detailed Technical Specifications indicated in Annexure-III)	For Central Site at BCCL HQ	For Area Control Room & User Location
		Required Qty	Required Qty
1	Server with Monitor, Kaspersky Business Space Security for 5 years	Nil	Nil
2	SQL Server CAL 2012 OLP NL Database Management System and Windows Server Std 2008 R2	Nil	Nil
3	KVM Switch	Nil	Nil
4	External Storage System with back up facility and APC 3 KVA UPS	Nil	Nil
5	600 LPM Line Matrix Printer	Nil	Nil
6	APC 1 KVA Online UPS	Nil	13
7	Work Station with monitor and Kasperesky Internet Security 2012	Nil	13
8	HP Business Inkjet 2800 A3 size colour Printer	Nil	13
9	24pin 136 column Dot Matrix Printer	Nil	13
10	Samsung Galaxy Tab 2 10.1 P5100 Android OS	Nil	Nil
11	Lenovo H320 Slim Core i3 Desktop PC	Nil	26
12	Dlink DGS1008D Network Switch + TL-MR3220 Router	Nil	13
13	Cisco RV042 Dual WAN VPN+ Coyote Point Equalizer E250GX Load Balancer+ VSNL leased line+	Nil	Nil
14	Travelstar GPS Receiver	Nil	905
15	VTS System	Updates will occur on the	Nil

ANNEXURE-III**OBJECTIVES ,TECHNICAL REQUIREMENTS, SPECIFICATIONS AND FEATURES OF GPS
BASED VEHICLE TRACKING SYSTEM**

The objectives to be achieved by implementation of the Vehicle Tracking System in BCCL are as follows:

(I)Objectives –

1. To install a customised vehicle tracking system which will give a solution in place by which it can track all the vehicles engaged in internal coal transportation in & around Dhanbad under BCCL and intends to answer the following queries regarding movement of vehicles.
 - (a) Are the vehicles deviating from their specified routes?
 - (b) Will the deliveries be in time?
 - (c) Is the vehicle being driven safely/within safe speed?
 - (d) How much each vehicle is running on any given day?
 - (e) Which vehicle is closest to the delivery point?
2. Online web enabled real time tracking of vehicles is to be achieved which will enable BCCL officials to view all vehicles on single screen in Control Room to utilise the resources in efficient and cost effective way and preventing the unwanted movement of coal carriers.
3. The offered system should provide necessary reports to analysis operational parameters to avoid idle time of the transporting vehicles.

In order to achieve the above mentioned objectives, BCCL shall provide the following facilities and data/information to the contractor.

- Estimates / expected duration for transportation from source point to destination as standard norm which may change over time and from Area to Area. The system should have facility for recording and modifying the same as per requirement by the system controller.
- Permissible driving speed from source point to destination as standard norm which may change over time and from Area to Area. The system should have facility for recording and modifying the same as per requirement by the system controller.
- Maps of the lease hold area of the mines indicating the various points such as location of dumps, coal handing plants, weighbridges, washeries, workshops, parking places, etc between which the vehicles are expected to move and the probable routes. The system should have facility to upload these maps.
- Number of operating vehicles and the routes assigned to them as and when the need arises. The system should have facility to upload these parameters.
- **Site for server installation at BCCL HQ, Central Control Room and Area Control Rooms, as specified, if any, by the contractor in respect of (a) the minimum space required in SqMtr for each location, (b) Requirement of Mains Power in terms of Volts, Single/ Three Phase, expected Power consumption, No. of power points and switches with rating, (c) Air conditioning requirement, (d) requirement of**

furniture. If the required information is not specified by the contractor, contractor's claim for delay in installation and commissioning and/or un-satisfactory performance of the contractor shall not be considered.

- Consumables such as paper, printer ribbons, ink cartridges, toner cartridges and media required for taking backup system / data backup shall be provided by BCCL during the 60 months rental period. However, minimum required quantity of these items during the trial run and for three months consumption after successful implementation of the system for all Areas will have to be provided by the contractor.
- Fuel tracking is not included in the present scope of monitoring.
- Provision of surveillance cameras at the all weighbridge sites, RFID tags for all the vehicles, boom barriers and RFID readers at weighbridge sites, Provision of IP radios, etc are not included within the scope of the present scope of work. However, the offered software system should have facility to capture data from weigh-bridges, surveillance cameras, RFID readers and boom barriers as and when needed during the contract period of 60 months.
- The climatic conditions, where the VTS hardware / software has to work, are tropical to sub-tropical, dusty with a hot and humid atmosphere. Ambient temperature ranges from 0⁰ C to 50⁰ C with Relative Humidity of maximum 98% (non-condensing).

(II)The bidder must provide a total technical solution along with necessary hardware, software and other devices including installation, commissioning and maintenance of the same to achieve the above mentioned objectives. The GIS maps, if required, will be arranged by the contractor at his own cost.

(III)The Contractor to provide the necessary hardware, software and other related equipments along with the required qualified maintenance personnel to provide satisfactory maintenance support for the offered system during installation, commissioning, training and maintenance during 3-month's trial period and through out 60 months contract period after successful completion of trial run. The bidder has to arrange Internet facility at the Central Control Room and all Area Control Rooms at their cost.

(IV)The essential features required for achieving the above mentioned objectives are as follows:

1. On-line web-enabled real-time system for tracking of vehicles is required which will enable full visibility of all vehicles on single screen in Control Room to utilise the resources in efficient and cost effective way and preventing the unwanted movement of coal transporting vehicles. Since the system is expected to serve the communication needs for the next 5 years it must have the flexibility of adapting to changing existing hardware. It is anticipated that additional features may become available for the system in future. The system shall provide straight forward mechanism for software up-gradation to all system components.
- a) **Technology:** In order to achieve aforesaid features, one GPS Receiver with facility of transmitting GPRS signal in selectable ASCII or Binary format to the designated Server is to be installed on each designated vehicle. The Location Data along with Vehicle No & Date-Time stamp will be transmitted through GPRS from concerned Vehicle to Designated Server. The Designated Server is to be installed at BCCL Hqrs, at Dhanbad (Jharkhand) equipped with Public IP & necessary Software shall process data received from all the vehicles and deliver structured information in web-enabled format such that all officials entrusted with Vehicle Tracking Operation can monitor their group of vehicles through website and receive Alert SMS generated by designated Server for necessary action. The contractor shall create digital map of the Mine Site for geo-fencing & identify important points of mine, viz, Source, Dumping Yard, Workshop, Resting place etc, such that any abnormal waiting at earmarked points or en-route can be recorded to adjudge its operational performance. Required input data for creating digital maps for geo-fencing and the location of source and destination

points with pre-defined probable routes shall be provided by BCCL. The offered system should have facility to define and make changes in the pre-defined routes, if necessary, by the authorised system controller of BCCL.

b) Equipment:

i) **GPS Receiver:**

- a) The GPS receiver & other accessories to be supplied and installed as per the offered technical solution shall be tropicalised and shall conform to all CCITT Wireless Standards and relevant Indian/International standards for vibration & shock/Noise, Dust etc.
 - b) The GPS Unit shall be housed in locked metal enclosure such that it can be fixed on the dashboard of the vehicle with necessary opening for egress & ingress of cables, antennas etc. The GPS Receiver shall have required display to note the status/alarm, interface for audio, antenna, USB-II, RS-232C etc.
 - c) The GPS Receiver shall have slots to insert & operate any valid triband / Quadband GSM SIM with GPRS facility to transmit available GSM data to designated Server of BCCL for further processing.
 - d) Appropriate loop / suitable antenna shall be connected securely to GPS Receiver on the dashboard of vehicle to avoid any eventual damage to the system.
 - e) The GPS receiver shall have in-built battery support for minimum 8 (eight) hours with internal rechargeable battery as well as external Battery support either 12V DC or 24 V DC from vehicle battery.
 - f) The GPS Receiver Unit shall be supplied in complete with all associated tools & tackles to function along with valid SIM with GPRS features.
 - g) GPS Receiver unit shall have adequate internal memory to record data during GPRS signal-blind-zone & transfer data as soon as it enters the GPRS signal zone.
 - h) The contractor has to arrange for all valid SIMs with GPRS facilities for insertion/ function to GPS Receiver from the mobile service providers so as to minimise the GPRS-blind-zones in the operating Areas of BCCL. The rental and the recurring charges for its use shall be to the contractor's account. The contractor shall indemnify BCCL against loss of SIM & its misuse.
 - i) GPS Receiver shall have location accuracy of ± 10 (ten) mtr.
 - j) All the GPS receivers are supposed to work under extreme environment of coal mine conditions and shall conform to standard IP66.
 - k) The GPS receiver shall be mounted with vibration proof Mounting Brackets.
 - l) The GPS module shall be integrated into the System to capture the current location of the vehicle along with date-time stamp and the same will be communicated to Server using GPRS link. The offered software shall have the capability to convert this data to monitor speed of the vehicle.
- ii) **Server:** The designated server will be installed at BCCL HQ at convenient place for round-the-clock (24 x 7) tracking of designated vehicles engaged in coal transportation. The detailed configuration of the designated Server and the storage devices shall be commensurate with the defined objectives specified in this document and to achieve the guaranteed availability during the entire period of contract. **The server shall be housed in sufficiently cooled housing cabinet / rack with power input redundancy for dual power source.** The contractor shall provide necessary backup devices and backup software for periodic backup of data and backup library. **The contractor shall also provide on-line UPS system of suitable capacity to support server, monitor, storage, back-up devices, printer, work-station for at least 3 hours backup.**

The detailed configuration and the required quantity of the server, storage and other associated devices offered by you as part of the solution is enclosed as annexure.

iii) **Work Station:** One work station is required to be installed at BCCL HQ Control Room along with the server and additional work stations shall be required one each for the Area Control Rooms. Presently there are 14 operational Areas of BCCL where the offered system shall be implemented after successful trial run. The work station for the Central control room will be powered by the UPS provided with server. However, the work stations for Area Control Rooms must have a separate on-line UPS of suitable capacity with minimum 3 hours backup. The detailed configuration and the required quantity of the work stations offered by you as part of the solution is enclosed as annexure.

iv) **Desktop PCs for Client Location:** Two desktop PCs with UPS (600VA, 30 min. backup) are required for the system users at the Central Control Room and two similar desktop PCs are required for the systems users of each Area where the offered solution is to be implemented. Presently 14 Areas exist in BCCL where the offered solution is to be implemented. The technical specifications of the offered PCs as specified by you is enclosed as annexure.

v) **Tablet 10 inch for BCCL HQ:** Provision one Tablet is required and must be included in the offered B.O.M. The detailed technical specifications of the offered tablet as offered by you is enclosed as annexure.

vi) **Application software requirement (Vehicle Tracking System):**

Data capturing and reporting:

A. The system should be capable of capturing the following data for further reporting.

a) Equipment tracking (geo-referenced location)

Sl no	Item	Broad Specification
1	Dumper/Tipper/Vehicle	Equipment ID, Vehicle No, X-Y Location (within ± 10 mtr) on route

b) Shift-wise equipment status as required in the reports to be produced by the system.

c) The Application Software shall provide facilities for report generation as per requirement at Area Control Room as well as at Central Control Room. **Map / GIS Interface**

Slno	Item	Broad Specification
1	Map Display	Dynamically display Eqpt-ID, X-Y location (within ± 10 mtr on geo-referenced Map)
1	Map Query Display/Interface	Dynamically display Eqpt-ID, X-Y location (within ± 10 mtr on geo-referenced Map based on eqpt status attribute, date/time, and Report Generation as per Management Requirement
1	Map Replay facility	Replay Eqpt movement during day/shift at defined intervals/Steps and report generation

B. The Server shall have the facility to generate SMS Alert & e_mail for concerned Official.

C. Server shall be capable of handling data for 975 vehicles and with provision for handling data for additional 50% of vehicles which may be brought under the scope of work in future.

- D. The vehicle/Tipper assigned to particular mine or group of mines shall be indicated separately.
- E. The Application software of the offered System shall be capable to communicate & exchange data with BCCL's CoalNet/ERP Package.
- F. Industry Standard ODBC compliant technology is to be used to provide capability of integration with other industry standard solutions provided by other vendors.
- G. The System shall provide both voice and data communication between Control room and equipment.
- H. The ownership of all the data captured and the reports generated by the system during the entire contract period shall remain with BCCL and the same be made available to BCCL in softcopy for future use.
- I. The BCCL management shall have right to increase or decrease the quantity of GPS receivers installed on the vehicles and /or activate or deactivate them as & when required by the BCCL management as per its policy decisions.
- J. It is required that the system is capable of monitoring any vehicle covered by the system by providing a dash-board at the Control Room and at any other desk-top. The screen should provide live status of vehicles like current location, status, speed etc. Location of all vehicles should also be seen in the Map. Alternatively, the controller at Control Room may also be able to poll for the status of particular vehicle and may send command accordingly for getting information in response.
- K. The service provider shall arrange anti-virus / firewall protection, system security for SMS, Server, etc for ensuring effective operation of VTS.
- L. **Geo-Fencing:** A facility to create a geo-fence is to be provided by selecting the successive points (Geo-codes) on the map. The system should be capable of assigning geo-fence to a particular vehicle or a group of vehicles and would be cable of raising the alarm accordingly if the vehicle tries to move out of assigned geo-fence.
- M. **Location and Routes:** There should be facility by which the location and routes can be defined using the map. Location is a point identified by latitude/longitude and the name (place/landmark) as defined by BCCL. Routes will be a set of geo-codes and can be defined by using maps by selecting several geo-codes that appear in the path. A vehicle should be associated with the specific route so that controller can monitor the vehicle as and when it deviates from the assigned route and the alarm should be raised.
- N. **Locating vehicle on Map:** The system should provide the functionality to locate a vehicle on the map. User is able to select the vehicle from the list or search using the vehicle number. The system should fetch the latest location of the vehicle and present the user with map of the area. There should be facility to locate the vehicles within particular area or nearby area using the system.
- O. **Required Reporting Features:** Following Reports are required to be generated and these reports and real-time data can be seen on website or on Smart Phone.
 - 1. Fleet summary Report (Individual & Group-wise)
 - 2. History Report
 - 3. Start-End Report
 - 4. Report consisting number of trips made by individual vehicle per shift / per day / per month.
 - 5. Speed Report

6. Latest Location Report
7. Travel Distance Report (date-wise)
8. Stoppage Report consisting unwanted stoppage for more than 5 minutes.
9. Geo-fence Report
10. Travelling Report with point of interest
11. Input history report (date-wise)
12. History of path
13. History of path with point of interest. Detailed report is to be sent automatically at scheduled intervals through e-Mail, Excel, PDF etc.
14. Monthly availability report for assessment of the system availability and/or up-time for the purpose of monthly monitoring / billing.
15. Any other report, based on the data available in the system, as may be required by the BCCL authorities during the contract period.

P. **Required Alerting Features:**

Following audio and/or visual alerts must be generated by the system on mobile or on screen

1. Movement Alert: In case transport vehicle stops more than 5 minutes.
2. Geo-fence Alert: Instant SMS/e-Mail alert in case a transport vehicle deviates from the pre- defined route.
3. Park Fence Alert.
4. Top Speed Alert

TECHNICAL SPECIFICATION

Server Specification

Sl. No.	Item	Technical specifications
1.	Make & Model of Server	IBM X3250, Model : 7328 M3
2	Processor	Intel Xeon X3430 2.4GHz/1333MHz-8MB 4C
3	Memory	8 GB X 2GB DDR3
4	Storage	2 x 500 GB SATA7
5	Combo Drive	16x SATA DVD-ROM
6	Display	Samsung S19B150
7	Cluster interface	External load balancer
8	Network interface	Dual Gigabit Ethernet
9	Graphic Interface	VGA
10	Operating System	Windows Server Std 2008 R2 OLP NL(With 5 CAL)
11	Database Mgt. System	SQL Server +SQL Server CAL 2012 OLP NL
12	Server Console	KVM Switch
13	Key Board	USB
14	Mouse	USB optical
15	Form Factor (Blade or Rack)	Tower
16	Housing (cooled cabinet)	One (1) - Non-redundant system fan One (1) - Non-redundant CPU heat sink fan
17	Accessories	Power cables ,Datasheet, Driver CD, etc
18	External Storage System with back up facility	2TB SATA HDD
19	600 LPM Line Matrix Printer	500 Line per minute
20	On-line UPS with 3 hrs backup of suitable capacity	3 KVA with APC 100Ah 8 SMF batteries
21	Licensed total security software for protection against viruses, external attacks from public network, etc.	Kaspersky Business Space Security for 3 years



Work Station Specification

SI No	Item	Technical specifications
1	Make & Model of Work Station	HP Z220 CMT
2	Processor	Intel® Core™ i5-3470 (3.20 GHz, 6 MB cache, 4 cores)
3	Memory	4 GB 1600 MHz DDR3 non-ECC Unbuffered RAM
4	Storage	500 GB 7200 rpm SATA NCQ
5	Combo Drive	SATA SuperMulti DVD+/-RW
6	Display	Samsung S19B150
7	Network Interface	10/100/1000 Ethernet
8	Graphic Interface	Intel® HD Graphics 2500
9	Internet Connectivity	Ethernet (wired)
10	Accessories	Power Codes, Driver CD user guide.
11	A3 size colour Printer	HP Business Inkjet 2800
12	Operating System	Windows 7 Professional 64 Bit (OEM)
13	On-line UPS with 3 hr backup of suitable capacity	1 KVA with APC 100Ah SMF batteries
14	Licensed total security software for protection against viruses, external attacks from public network etc.	Kasperesky Internet Security 2012



Work Station Specification

SI No	Item	Technical specifications
1	Make & Model of Work Station	HP Z220 CMT
2	Processor	Intel® Core™ i5-3470 (3.20 GHz, 6 MB cache, 4 cores)
3	Memory	4 GB 1600 MHz DDR3 non-ECC Unbuffered RAM
4	Storage	500 GB 7200 rpm SATA NCQ
5	Combo Drive	SATA SuperMulti DVD+/-RW
6	Display	Samsung S19B150
7	Network Interface	10/100/1000 Ethernet
8	Graphic Interface	Intel® HD Graphics 2500
9	Internet Connectivity	Ethernet (wired)
10	Accessories	Power Codes, Driver CD user guide.
11	A3 size colour Printer	HP Business Inkjet 2800
12	Operating System	Windows 7 Professional 64 Bit (OEM)
13	On-line UPS with 3 hr backup of suitable capacity	1 KVA with APC 100Ah SMF batteries
14	Licensed total security software for protection against viruses, external attacks from public network etc.	Kasperesky Internet Security 2012



Desktop PCs

Sl No	Item	Technical specifications
1	Make & Model of the Desktop P C	Lenovo H320 Slim Core i3
2	Processor	Intel Core i3 Processor 550 3.06GHz
3	Memory	4GB PC3-8500 DDR3-1066 (8533 MB/s)
4	Storage	320 GB SATA
5	Display	20" LCD HD Bright View
6	Combo Drive	8X Double Layer DVD +R/+RW Writer
7	Network Interface	10/100/1000 Ethernet
8	Graphic Interface	VGA,HDMI
9	Internet Connectivity	Ethernet (wired)
10	Operating System	Windows 7 Professional
11	Accessories	Power cable ,Driver CD user manual
12	UPS 600VA with 30 min. backup	1 KVA with APC 100Ah SMF batteries
13	24pin 136 column Dot Matrix Printer	EPSON
14	Licensed total security software for protection against viruses, external attacks from public network, etc.	Kasperesky Internet Security 2012

Tablet 10 inch

Sl No	Item	Offered Specification
1	Make & Model	Samsung Galaxy Tab 2 10.1 P5100, Android OS, v4.0.3, Dual-core 1 GHz Cortex-A9 , PowerVR SGX540 processor, Card slot -microSD, up to 32 GB, Internal 16/32 GB storage, 1GB RAM, PLS TFT capacitive touchscreen, 16M colors Size 800 x 1280 pixels,
1.1	Size 10"	10.1"
1.2	Available Features (Built-in GPS is essential)	GPRS , HSDPA 850 / 900 / 1900 / 2100,bult in GPS
1.3	Network	3G Network, WIFI
1.4	Memory	1GB DDR3
1.5	Navigation	GSM 850 / 900 / 1800 / 1900



Networking devices

Device /feature	Purpose	Make &model
Network switch	LAN Connectivity for Workstations and PCs	Dlink DGS1008D
Router	Internet connectivity for workstation and PCs	TP -LINK TL-MR3220
Leased line 4 Mbps	Dedicated Internet connectivity for server	VSNL leased line
Router	Firewall and router for server	Cisco RV042 Dual WAN VPN
Load balancer	To Load balance applications /servers	Coyote Point Equalizer E250GX Load Balancer
Broadband connection	For area control room	TATA/RELIANCE Broadband Wired/wireless
Network switch	LAN connectivity for HQ server room	DGS-1210-16





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Phone : +91-471 - 2527153, 2527444
E-mail : info@ars-software.com

PROFORMA to be submitted in Triplicate

1	VENDOR/SUPPLIER/CONTRACTOR/CUSTOMER'S NAME & ADDRESS: (With Telephone No. & Fax No.)	ARS Software Engineering Pvt. Ltd. 131-135, NILA, Technopark Trivandrum-695581 Kerala, India Telephone : +91 471 3069185 Fax : +91 471 2527266
2	PARTICULARS OF BANK ACCOUNT:	
	A. BANK NAME:	ING VYSYA BANK LIMITED
	B. BRANCH NAME: (Including RTGS Code)	TRIVANDRUM BRANCH RTGS CODE: VYSA0005140
	ADDRESS:	R.V.TOWERS, PUNNEN ROAD, SPENCER, PALAYAM, TRIVANDRUM- 695034
	C. 9-DIGIT CODE NUMBER OF THE BANK & BRANCH (Appearing on MICR Cheque issued on the Bank) Or 5-DIGIT Code Number of SBI	695064002
	D. ACCOUNT TYPE: (S.B. Account/Current Account Or Cash Credit with Code 10/11/13)	CURRENT ACCOUNT 30/11/2011
	E. LEDGER NO./LEDGER FOLIO NUMBER:	GF2
	F. ACCOUNT NUMBER (CORE BANKING) & STYLE OF ACCOUNT (As appearing on the Cheque Book)	514011017992

3. Date of Effect: I hereby declare that the particulars given above are correct and complete. If the transaction is delayed or not effected at all for reasons of incomplete or incorrect information, I would not hold the user institution responsible. I have read the option invitation letter and agree to discharge responsibility expected of me as a participant under the scheme. Any bank charges levied by the bank of such e-transfer shall be borne by us.

Date: 14-09-2012



(Signature)
Signature of the Customer
Vendor/Supplier/Contractor

Certified that the particulars furnished above are correct as per our records.

(Signature)
Signature of the Authorized
Officials from the Bank

"WE CONFIRM THAT THE ADDRESS & BANK DETAILS PROVIDED ABOVE IS CORRECT AS PER OUR BANK RECORDS"



For ING VYSYA BANK LTD.

BRANCH HEAD
Trivandrum Branch

Subsidiary of ARS Traffic & Transport Technology BV, The Netherlands