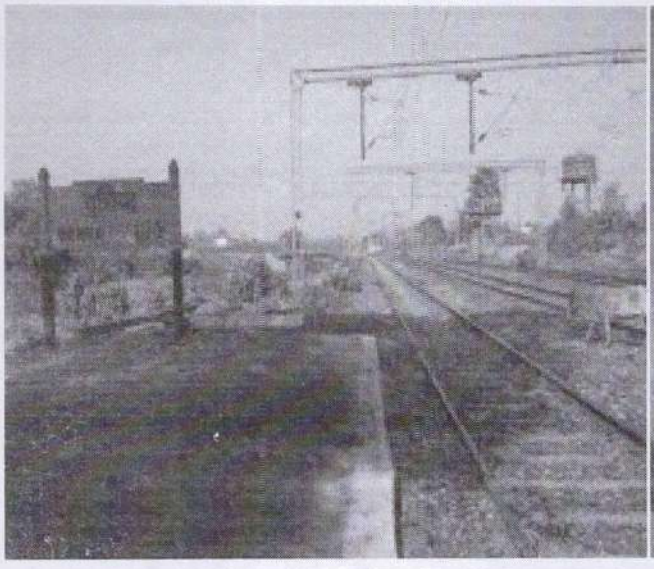
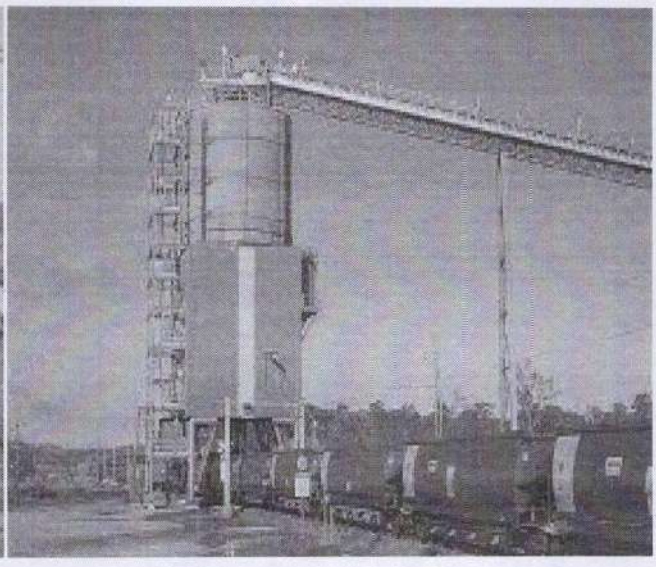
Central Coalfields Limited (CCL)

CENTRAL COALFIELDS LIMITED (CCL)





DETAILED PROJECT REPORT

FOR DEVELOPMENT OF ADDITIONAL RAIL INFRASTRUCTURE REQUIRED FOR MAGADH OCP (51MTY) (PH-II) PROJECT OF CCL .

NOV ' 2021

RITES
THE INFRASTRUCTURE PEOPLE
A Government of India Enterprise

RITES LTD.

SADALA SATYANARAYAN
Project Officer
Magadh OCP

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राइट्स लि०
(भारत सरकार का प्रतिष्ठान)
रेलवे मंत्रालय
RITES LTD.
(A Govt. of India Enterprise)
Ministry of Railway

No. RITES/Ranchi/CCL/PH-II/Magadh-DPR/2018/34/496
Date :29.11.2021

To
The General Manager (Civil)
Central Coal Fields Limited
Civil Engineering Department
Darbhanga House
Ranchi-834029

Sub : "Route alignment survey including preparation of Feasibility Report (FSR) & Detailed Project Report (DPR) for development of additional Rail Infrastructure required for Magadh OCP (51MTY) (Phase-II)". Regarding submission of Detailed Project Report.

Ref : (i) CCL W.O no.: GM(C)/IC/W.O/2020/380, dated 20.06.2020
(ii) RITES/Ranchi/CCL/PH-II/Magadh-FSR/2018/34/53 dated 29.01.2021
(iii) RITES/Ranchi/CCL/PH-II/Magadh-FSR/2018/34/56 dated 29.01.2021
(iv) Railway's letter no.PL/Magadh-PH-II/2021 dated 10.09.2021
(v) RITES/Ranchi/CCL/PH-II/Magadh-DPR/2018/34/393 dated 25.10.2021

Dear Sir,

We are pleased to submit the " Detailed Project Report" for the subject work. In terms of work order issued vide letter under reference (i) above. FSR with proposed alignment through the given corridor of land was submitted to CCL vide letter under ref(ii) and sent to Railway for approval as per letter under reference(iii).

On scrutiny of FSR, Railway has provisionally granted In Principle approval with observations vide letter under ref(iv). Accordingly, Draft Detailed Project Report has been prepared incorporating compliance of observations of Railway & CCL and submitted to CCL vide letter under ref(v). On receiving observations from CCL vide MOM no.GM(C)/IC/2021/689 dated 05.11.2021, Detailed Project Report has been prepared incorporating compliance of Railway & CCL and submitted herewith for your approval.

Anticipated cost of the project duly worked out based on updated cost of men & materials has been incorporated in the Detailed Project Report.

You are requested to convey the approval of Detailed Project Report at an early date for further course of action from this end.

Thanking you,

Encl: 2 (Two) copies of Detailed Project Report

29.10.21
SADALA SATYANARAYAN
Project Officer
Magadh OCP

Yours faithfully,

(Abhay Kumar) 29/11/21
General Manager (P)

Copy to : (i) General Manager,CCL ,Magadh & Sanghmita area for needful action (Three copies of Detailed Project Report).

LIST OF CHAPTERS

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Magadh OCP

CHAPTER – I

Introduction

CHAPTER – I

1.0 Introduction

1.0.1 Central Coalfields Limited (CCL), formerly known as National Coal Development Corporation Limited (NCDC) is one of the 8 subsidiaries of Coal India Limited (CIL) and a Category-I Mini-Ratna Company since October 2007.

1.0.2 In order to match the ambitiously high targeted coal production, CCL has taken various measures including operating a large number of high capacity coal producing opencast mines with mechanized coal production, mostly through Shovel-Dumper combination and faster coal dispatch through Rapid Loading System from which coal is required to be dispatched to various customers/ consumers located all over India. The total command area of the CCL's Coal Producing Mines falls entirely within the mineral rich State of Jharkhand. Out of the vast resources, only a small corner of this coalfields has yet been exploited, keeping the mining from the major portion being untouched blocks which are rich in natural resources, homelands of indigenous peoples, rock-art sites and important wild-life corridors.

1.0.3 CCL has a definite plan of growth. It has envisaged commissioning of a number of Greenfield and expansion projects, both opencast and underground, during XI Plan with state-of-the-art technologies. Within the area of Tandwa Development Block, four new mines have been planned. These are Amrapali OCP, Magadh OCP, Chandragupa OCP and Sanghmitra OCP. These mines contain power grade coal with slight variation of grades. The process of land acquisition and obtaining various approvals/clearances has started in mines. The project wise peak capacity, as targeted by CCL is shown in Table I, below:

Table I

Sl. No.	Name of the Project	Nominal capacity (MTY)	Peak capacity(MTY)
1.	Magadh OCP Expn	51	70
2.	Amrapali OCP Expn	25	35
3.	Karo OCP Expn	11	15
4.	Sangh Mitra OCP	20	27
5.	Chandragupta OCP	15	20
6.	Konar OCP Expn	8	11
7.	North Urimari OCP EXn	7.5	10
8.	Govindpur Ph-II OCP Expn	03	04
9.	Kalyani OC	2.0	2.7
10.	Pichri OC	1.2	1.5

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11.	Piparwar UG(Phase-I)	0.87	1.0

1.0.4 Production of coal and dispatch from the North-Karanpura mines would be fully materialized with the completion of Tori-Shivpur-Hazaribagh / Kathutia rail link. Apart from CPSL projects, many big projects of private sector like Jindal Steel & Power Limited, Arcelor Mittal, Rungta Mines Limited and Bhusan Power & Steel Limited are also suffering due to land acquisition problem and objections raised by MoEF. Due to non-clearance of forest land by MoEF, E.C. Railway has decided to divert the alignment following a new route to connect Kathuatia station on Hazaribagh - Koderma section instead of Hazaribagh via Banadag station.

1.1 Concept of the Study

1.1.1 CCL requested RITES, Ranchi Project office to submit an offer for the work to conduct route alignment survey for construction of Magadh Phase-II sidings with Alternatives (I) & (II) and to submit details report separately. The scope of works, as envisaged there in are: (i) Survey for final route alignment of Magadh sidings Phase-II along with L-Section and Cross section (ii) Preparation of detailed survey report, (iii) Obtaining competent authority approval of final DPR from Railway authorities, and (iv) Submission of cost estimate for the construction and commissioning of Magadh sidings Phase-II as per proposed route alignment.

1.1.2 RITES, submitted an offer for undertaking the work for preparation of Feasibility Study and Detailed Project Reports for construction of Magadh Railway Siding Phase-II under CCL command Area. Accordingly, GM (Civil), CCL issued order for submission of FSR & DPR for Magadh Railway Siding Phase-II under CCL command Area.

1.1.3 The scope of works for providing rail-infrastructure for Magadh Railway Siding Phase-II under CCL command Area shall cover the following activities: -

(i) To determine & quantify the requirement of movement on the basis of production target in various time frame at Magadh coal blocks;
(ii) To establish alternative alignments linking this blocks with suitable rail head;
(iii) To determine the best alignment amongst the alternatives and process for approval of the same by Central Coalfields Limited and East Central Railway;
(iv) To prepare the system of working with the approval of Railways;
(v) To conduct preliminary survey on the approved alignment;
(vi) To prepare junction arrangement at the serving Railway station;
(vii) To suggest relevant loading arrangement matching with the anticipated traffic;

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(viii) To suggest suitable weighment arrangement;

(ix) To establish and prepare appropriate and suitable signaling arrangement;

(x) To suggest mode of traction;

(xi) To prepare cost estimate for the proposed alignment.

1.1.4 On being engaged as a consultant, a reconnaissance survey was conducted around the area and based on the survey report and Phase-II alignment, a 'Feasibility Study Report' has been prepared and the same has been submitted through mail dated 30/01/2021 through letter No. RITES/Ranchi/CCL/PH-II/Magadh-FSR/2018/34/56/ dated 29/01/2021 to both CCL & EC Railway & further vide letter No. RITES/Ranchi/CCL/PH-II /Magadh-FSR/2018/34/95 , Dated 10.03.2021 FSR along with Application fee has been submitted to East Central Railway , Dhanbad to obtain approval. Accordingly In Principle approval of Feasibility Study Report for development of additional Rail Infrastructure for Magadh OCP PH-II has been accorded by E.C Railway vide letter no.PL/Magadh-PH-II/2021 dated 10.09.2021.A copy of this letter is enclosed as Annex.- 1.1.

1.1.5 A meeting held on dated 18.02.2021 at Hajipur between EC Railway and RITES/RNC Regarding provision of long haul loop line in Magadh Ph-I & PH-II. Copy of MOM is shown as Annex-1.2.

After discussion following decision has been taken:

(i) Long haul loop to be provided in Phase-I in post bulb portion along the main load dispatch line. Further, two more long haul loop to be provided along main line in Phase-II. It will facilitate simultaneous loading of long haul from two groups in Phase-I and further two groups in Phase-II.

(ii) CCL Should make arrangement of 8000 MT Silo capacity in each line to ensure loading of long haul rakes. Therefore 4 Silo should be provided in each phase-I & Phase-II. It has been learnt that CCL has already decided the tender for 2 no of Silo of Phase-I, If possible, both the Silo should be constructed in same line to facilitate loading of long haul in one-go.

1.1.6 Further, a meeting held at CCL, Darbhanga House, Ranchi on 02.03.2021 between RITES, CCL& CMPDIL regarding the matter of long haul arrangement Conveyed by ECR for Magadh Railway Siding PH-I &II. Copy of MOM is attached as Annex-1.3.

The Followings were deliberated and decision taken:

(i) Proposed loading of 40 MTY coal(10 MTY already linked through pipe conveyor to

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Tandwa) can be done through 03 nos of Silos for Magadh PH-I & PH-II combined. As 2 no of Silos are already provisioned in Phase-I (duly approved by railway in DPR), so only one Silo with required Rail lines to be provisioned in PH-II.

(ii) CMPDI officials clarified that 4000 Tons capacity SILO will be sufficient for loading of coal in long haul rakes, as feeding belt capacity is sufficient and long haul rakes can be loaded within 2 Hours.

In view of the above meetings, one SILO provision with long haul loops in post loading portion has been proposed in Phase-II and accordingly Plan has been modified.

1.1.7 ECR vide letter No. PL/MAGADH-PH II 11032021, dated 10.05.2021 raised some observations on Feasibility Study Report (Copy of letter shown as Annex. 1.4) as mentioned in the table below and the item wise compliance/ remarks on each of the observations are furnished here under for submission of Draft Detailed Project Report of Magadh Phase II to CCL .

1. Divisional Operating Observations

Sl No.	Observation /Compliance	
1.	Observation	All lines at pre silo and post silo yard (04 lines in each yard) of phase I and phase II should be long haul lines.
	Compliance	As per revised proposed plan provisioning of long haul lines have been kept in Phase-II. Moreover, one long haul loop in Phase-I. In addition, two long haul loop provision has been kept in PH-II as per CFTM MOM dtd-18.02.2021.On advise of CCL, only one SILO has been proposed in Phase-II. Whereas in Phase-I, two SILOs exist.
2.	Observation	Two long loop lines at Bukru station are also required.
	Compliance	ESP is under preparation of ECR(Construction Department) and entire works of Bukru station yard are being executed by Construction department of Railways. (copy of MOM enclosed) (Annex-1.5 A & 1.5 B)
3.	Observation	Pre-weightometer system in silo should be adopted.
	Compliance	complied.
4.	Observation	"Y" connection should be provided for dispatch of loaded rakes in both end

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		(i.e Tori end and Shivpur end).
	Compliance	complied.

2. H Q Commercial Observations

Sl No.	Observation /Compliance	
1.	Observation	Compliance of Policy regarding siding matter enumerated under FM Circular No. 11 of 2016 and its amendment under Rate Circular No. 6 of 2021 on above Policy on Private siding.
	Compliance	Noted.
2.	Observation	Proposed siding will work on EOL system. So it shall come up with Engine on – Load Concept in terms of FM Circular No. 5 of 2013 issued by Board vide letter No. 2012/TC(FM)/18/21 dt 7.3.13 and party should also develop facilities for loading/unloading on Engine on Load Concept and design yard layouts to facilitate the same.
	Compliance	Complied
3.	Observation	Staff cost should be paid as per siding policy mentioned above . Their accommodation should also be as per extant rule.
	Compliance	Noted.
4.	Observation	Environmental clearance should be taken from concerned pollution Control Board.
	Compliance	Noted and informed to CCL(Siding Owner)
5.	Observation	Railway land cannot be provided normally for construction of proposed siding.
	Compliance	PH-II Siding has been proposed in CCL's land, only connectivity with Rail network has been made in Railway land in PH-I.
6.	Observation	Tori-Shivpur section is under process of Electrification. So, to maintain the uniformity of traction it is necessary to electrify the proposed siding keeping advantage of EOL concept in view and also to notify the siding on through distance basis.
	Compliance	Noted and provision kept in DPR for OHE.
7.	Observation	All the Six Proposed EIMWBs should confirm to schedule of Technical Requirements as per RDSO,s specification. EIMWBs should be linked with FOIS Terminal and a separate office for EIMWBs with necessary infrastructure should be provided at the cost of siding owner.
	Compliance	Noted.
8.	Observation	Terminal Management System with FOIS access, as prescribed by Indian

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		Railway, shall be installed at the proposed Siding.
	Compliance	Noted.
9.	Observation	As per para 11.1 of the Siding policy, and Integrated agreement, comprising siding agreement and land license agreement shall be signed in the revised format before commercial notification of siding.
	Compliance	Noted.
10.	Observation	Commercial notification of the propped siding will be done on through distance basis. So, the movement pattern of the proposed siding should be in such a manner that empty/loaded rakes may be placed/withdrawn directly without being dealt at the serving station and without involving a shunting staff particularly for this purpose
	Compliance	Complied.

3. H. Q. Engg. Observations

Item No.	Observations/Remarks & Compliances	
1	Observation	The construction and operation of private siding shall strictly be governed by prevalent Freight Marketing Circular no. 11 of 2016 dtd. 22.08.2016 along with its amendments as issued from time to time.
	Compliance	Noted.
2.	Observation	The proposed line is proposed to be constructed on CCL land. However, If additional land is required on lease/license for connectivity to the existing railway network, the quantum of the same to be spelt out in the FSR which if feasible may be leased or Licensed to CCL.
	Compliance	Entire siding of Phase –II has been planned within CCL acquired land.
3.	Observation	Maximum degree of curvature is proposed as 5 (Radius 350 Meter) degree. This may be reviewed. In addition, feasibility to bring the degree of curvature to 4 degree or below may be explored.
	Compliance	Reviewed and curvature kept less than 5 degree. Maximum 4.37 Degree
4.	Observation	All points and crossing should be 1 in 12 fan shaped.
	Compliance	Complied in Magadh PH-II work.

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5.	Observation	Gradient from CH: 3/678.171 to CH.:4/212.171 (1 in 1200 F) not mentioned on longitudinal section (4/4) . Also there is change of gradient between crossover at Ch. 0 to 106 m. which can not be permitted.
	Compliance	Correction has been made.
6.	Observation	Details of Curves of Annexure 2.2 of the FSR and Detailed plan (4/4) .do not match with those indicated on the longitudinal plan (4/4) . Details of curves to be indicated correctly at both the places. This may be reviewed.
	Compliance	Reviewed and corrected as per proposed plan.
7.	Observation	Para 2.2.8 of the FSR indicates the parameters connected with the profile of the formation of the proposed alignment both in filling and in cutting. This profile parameters may be reviewed duly conforming to prevalent/latest RDSO guidelines/ specifications and other prevalent railway provisions.
	Compliance	Reviewed and complied.
8.	Observation	The thickness of blanketing material should be decided based on RDSO' Guidelines and Specification for Design of Formation for Heavy Axle Load Report no. RDSO/207/GE:0014' and ' Guidelines no GE: G-I'.
	Compliance	Noted.
9.	Observation	The chainage of one of the proposed IN –Motion Weigh Bridge is CH: 316.302 m on the Detailed Plan which is CH. 258.282 m on longitudinal Plan . This mismatch to be corrected. In case of Private Siding , electronic In –motion weighbridge should generally be installed in the private land portion . Installation of Weigh Bridge may be permitted on Railway land if unavoidably essential on account of technical on operational constraints with the approval of GM as per para 4.2.1 of Rates master circular dtd. 12.06.2014 . This condition to be strictly adhered to.
	Compliance	Corrected and IMW has been planned in CCL's land.
10.	Observation	Provision, Installation and functioning of weighbridges shall strictly be governed by Rates master Circular dtd .12.06.2014 issued by Railway Board.
	Compliance	Noted.

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11.	Observation	Minimum of 100 m level tangent rail track length shall be made available on either side of the In- motion Weigh Bridge.
	Compliance	Complied.
12.	Observation	Total 11 nos of RCC box bridges have been proposed either extension or new bridges (annex. 2.5) . As per latest practice , the RCC box can be provided only at locations where the subsoil conditions is non – scour. This may lead to revision of estimated cost of the project work , therefore should be considered in submission of correct estimated cost.
	Compliance	As per revised proposed plan, nos of bridges have been revised and subsoil conditions is non – scourable. Accordingly, revised estimate has been prepared and incorporated in DPR.

4. Sr. DEN/I/DHN Observations

Item No.	Observations/Remarks & Compliances	
1	Observation	Proposed plan should be prepared & submitted along with checklist of yard plan.
	Compliance	Complied.
2.	Observation	TPTC & TPCC point at both side of curve should be shown (Like TPTCI, TPCCI, TPCC2, TPTC2)
	Compliance	Complied.
3.	Observation	Curve details for proposed tracks should be shown with following details: Curve no. , Deflection angle, Degree of curve, Tangent length. and Curve length, Length of transition curve, Super elevation & speed potential to each curve should be mentioned .
	Compliance	Complied.
4.	Observation	Distance of station building from 64.378m Kathotia should be corrected as per approved ESP.
	Compliance	Noted.(Revised ESP of Bukru yard is under Preparation of Construction Dept. of ECR. Moreover approved ESP is enclosed.
5.	Observation	Name of station on both side in plan should be mentioned .
	Compliance	Noted. .(Revised ESP of Bukru yard is under Preparation of Construction Dept. of ECR. Moreover approved ESP is enclosed.

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6.	Observation	At the location of FOB, two chainages mentioned. This should be corrected as per approved ESP.
	Compliance	Noted. .(Revised ESP of Bukru yard is under Preparation of Construction Dept. of ECR. Moreover approved ESP is enclosed).
7.	Observation	At the location of Br.No. 66, two chainages mentioned. This should be corrected as per approved ESP.
	Compliance	Noted. .(Revised ESP of Bukru yard is under Preparation of Construction Dept. of ECR. Moreover approved ESP is enclosed).
8.	Observation	Existing dead end at ch. 555m from CSB should be corrected as per approved ESP.
	Compliance	Noted. .(Revised ESP of Bukru yard is under Preparation of Construction Dept. of ECR. Moreover approved ESP is enclosed).
9.	Observation	Direction of flow of bridges should be shown.
	Compliance	Complied.
10.	Observation	Nomenclature of existing as well as proposed tracks should be corrected as per approved ESP.
	Compliance	Corrected.
11.	Observation	Existing tracks should be in black colour. Whereas, same shown in blue colour.
	Compliance	Complied.
12.	Observation	Approach road of width 3.5 m width from br. No. 65 (ROB)to village Chetar on station building side should be shown as per approved ESP.
	Compliance	Noted.
13.	Observation	Distance of Railway boundary should be corrected between km. 26.995 to km.27.050 as per approved ESP.
	Compliance	Noted. .(Revised ESP of Bukru yard is under Preparation of Construction Dept. of ECR. Moreover approved ESP is enclosed).
14.	Observation	Direction of cross over should be corrected from line no.03 to line no.04 between chainage 720m 945m as per approved ESP.
	Compliance	Noted.
15.	Observation	Track centre for existing track should be mentioned as per approved

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		ESP.
	Compliance	Complied.
16.	Observation	Provision of FM should be shown for every points.
	Compliance	Complied.

5.Sr. Divl. Signal & Telecom. Engg . Observations

Sl No.	Observation /Compliance	
1.	Observation	Alteration work for development of siding for Magadh OCP(phase-II. 51 MTPA) taking off from Bukru station may be processed only according to the approved plan of Bukru station for the new 3rd line work executed by Dy. CE/Con-1/HZME.
	Compliance	Entire works of Bukru station yard are being executed by Construction department of Railways. Provision of Block working compatible with Bukru station had been kept in Magadh PH-I work. However, Phase-II work is not taking off from Bukru Station. (Take off Ph-II is Ch-3850.159 and merging at ch-13914.55 of existing Magadh Ph-I siding). Moreover, if required alteration will be made according to approved plan of Bukru station for the new 3rd line work.

6. Coal Area Manager, Dhanbad Observations

Items No	Observations/Remarks & Compliances	
1.	Observation	As per Railway Board's letter No.TC-I/2019/108/1 dtd. 11.07.19, all loading points should be covered by weighbridge, siding owner provide the weighbridge at its own cost. Such weighbridges also be Integrated with FOIS and cost of integration shall also be borne by siding owner.
	Compliance	Noted.
2.	Observation	The siding owner should bear the cost of staff cost in each shift.
	Compliance	Noted.
3.	Observation	TMS (FOIS) terminal shall be installed at the siding and all costs related to installation borne by siding owner, siding owner shall also provide all facilities like room, furniture, electricity, network connectivity for issuing of Railway Receipt (RR).

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	Compliance	Noted.
4.	Observation	Siding owner shall sign the Private siding Agreement in the revised Format before Commissioning of the siding and before issue of Commercial Notification of the siding.
	Compliance	Noted.
5.	Observation	This siding will work on Engine on load scheme, siding owner should develop fraction for loading and unloading on "Engine on load", Concept and design of yard in such manner the loading and unloading of same rake by same Engine under free time. The siding owner will be required to opt for the Engine on load operation under agreement.
	Compliance	Noted.
6.	Observation	Siding owner should also take environment clearance by Union Ministry of Environment and Forest for the construction of silo & operation for Magadh OCP (Phase-II, 51 MTPA)
	Compliance	Noted. Moreover, informed to CCL.
7.	Observation	Joint Survey of TI/Coal, FIO under Sr. DME(C&W)/DHN, TI/Movement/Tori, SSE(P.Way)/ Tori, SSE(Works)/ Tori, Signal Ispector/ Tori & S.M/ Tori should be conducted from railway side for feasibility study of proposed site & Joint Survey report should include gradient, Centre to Centre distance, turn out, length of siding from serving station and also shunting is required for placement and drawn rakes.
	Compliance	To be complied.
8.	Observation	CCL should agree with all the terms & suitable condition on private siding of freight Maketing Circular No 11 of 2016 (modified circular dtd. 23.06.2020) & other extant circular from time to time.
	Compliance	Noted.

7.Sr.Div. Elect. Eng. Observations

Sl No.	Observation /Compliance	
1.	Observation	Mode of traction (TRD Works) not proposed under SILO loading of the siding.
	Compliance	TRD Work under SILO shall be taken by CCL(Siding Owner) during construction if SILO.
2.	Observation	Provision for Siding maintenance of PH-I & PH-II shall be kept in the estimate to start the outsourcing as soon as warranty expired.

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	Compliance	OHE maintenance shall be taken care off by Siding Owner after commissioning of Siding. Hence, estimate of maintenance not considered in DPR.

1.1.8 Draft DPR has been submitted to CCL vide letter- RITES/Ranchi/CCL/PH-II/Magadh-DPR / 2021 /34/393, dated-25.10.2021 and accordingly, deliberation has been made on date-03.11.2021 and MOM has been issued by CCL vide no-GM(C)/IC/2021/689, dated-05 .11 .2021 (Annex-1.5 C).

1.1.9 Based on Railway's observation on FSR and CCL observation on Draft DPR, DPR has been prepared for submission to CCL & Railways.

1.2 Coal Linkage & Pattern of movement

1.2.1 Magadh Opencast Project in North Karanpura Coalfield has been identified with a normal production capacity of 51 MTPA in Revised PR of CCL for the captive and proposed NKSTPS of NTPC at Tandwa and various Thermal Power Houses at Northern and Western India.

1.2.2 Coal from the Magadh OCP is primarily linked to NTPC's (3 x 660 MW) NKSTPS to be constructed near Tanwda town in the district of Chatra at Jharkhand. The Central Committee of Implementation (CCI) has directed to ensure coal linkages to the project with supplies expected to begin in the XIII Plan period.

1.3 Layout of the coal loading yard.

PHASE-I

Development of Rail Infrastructure for Magadh OCP (20 MTPA), Jharkhand. The DPR & Plan has been approved by CCL & Railways. Accordingly, ESP has also been got approved by Railways vide C.E. drawing's no- 35-2016(sheet No-01 to 09). Construction of proposed siding has been started by RITES.

1.3.1 The layout of the loading terminal has been planned in the form of bulb avoiding coal bearing area. After taking off at Bukru, the alignment as 'empty line' will cross the Bukru-Shivpur line through a rail flyover and will traverse almost parallel to the 'loaded line' from Ch.2/230.00 kms. to Ch.6/919.259 kms. from where the layout will be formed as bulb to effect unidirectional movement. For simultaneous handling of number of rakes at a time, two separate bulbs in the form of 'outer bulb' and 'inner bulb' have been proposed with two independent loading SILOS (at Ch.10/240.43 kms. for the inner bulb and at Ch.3/034.226 kms. for the outer bulb). The outer bulb takes-off at Ch.7/236.89 kms and joins after post loading line at Ch.11/447.76 kms. The facilities, as planned are summarized below:-

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(i) Two bulbs, each consists of two sets of pre-loading & post-loading lines, i.e.; four pre-loading lines of CAL 754.61 m, 774.69 m, 812.68 m & 836.38 m and four post-loading lines of CAL 813.30 m, 812.76 m, 822.79 m & 822.09 m respectively;

(ii) 5 Nos. of weighbridges, one for weighment of empty rakes at Ch.7/225 kms. during admission to the pre-loading lines and four weighbridges at Ch.10/270.352, Ch.10/290.43, Ch.10/374.417 & Ch.10/371.116 on line No. 1, 2, 3 & 4 respectively ahead of each Loading chute, for weighment of loaded wagons simultaneously during the time of loading;

(iii) Two Nos of SILOs at the middle point of pre & post loading lines, each provided with two telescopic loading chute.

1.3.2 Further, Railway has advised vide letter PL/Tori-Shivpur/20 dated 12.10.2020 to plan all siding as well as upcoming Silos are to be designed to deal with long haul Trains. Subsequently a detailed discussion with CCL and Railway has been made for provisioning of long haul in PH-I as substantial progress has already been made as per approved ESP of PH-I.

1.3.3 In this regard, a meeting held at Hajipur on 18.02.2021 between RITES and EC.Railway and MOM issued with instruction to provide a Long Haul locp in PH-I in post bulb portion along the main load dispatch line.(Annexure-1.2)

Accordingly, PH-I plan has been modified and to be submitted separately to Railway for approval. Based on modified plan of PH-I incorporating long haul provision, Plan of PH-II has been developed.

PHASE-II

Development of Additional Rail Infrastructure for Magadh OCP (51 MTPA) in Phase-II, Jharkhand has been envisaged for dispatch of additional coal from Magadh OPC in their expansion Plan.

1.3.4 In order to dispatch coal as per their Revised PR, CCL has planned to develop an adequate Railway Infrastructure for Magadh OCP at Jharkhand, Dhanbad Division of EC Rly. The layout of loading Terminal has been planned in the form of Bulb-shape parallel to the phase-I, avoiding coal bearing area. The proposed additional loading siding, take-off point ch.6850.646 m of PH-I has been reckoned as Ch.00 for the purpose of calculation for onward location in phase – II work. For simultaneous loading of rakes, additional 1 no. of SILO-3 has been proposed. The C/line of SILO-3 , is at Ch.3455.22 m (L-5) . One Bulb consists of 2 nos of pre-loading and 2 nos of post-loading lines with 2 nos of stabling/holding Line with Provisioning of Long Haul are mentioned below:

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A) Pre- Loading yard:-

1) Pre-loading long haul line no.5 of CAL 1563.620 m (FM - SILO).
2) Pre-loading long haul line no.6 of CAL 1532.620 m (SRJ - SILO).
3) One 140 Ton I.M.W.B. for empty rake at Ch.217.23 m.

B) Post Loading Yard:-

1) Post-loading long haul line no.5 of CAL 1574.76 m (FM - WB).
2) Post-loading long haul line no.6 of CAL 1543.76 m (SRJ- WB).
3) Post-loading long haul Stabling line no.5 of CAL 1605.19 m (DS-FM).
4) Post-loading long haul Stabling line no.6 of CAL 1574.2 m (DS-SRJ)
5) Two 140 Ton I.M.W.B. for loaded rake at Ch.3492.51 m for L-5 & 6.
6) SILO at Ch.3455.22 m (L-5)

1.3.5 The Civil Engineering Plan showing the take off point and layout including bulb & Silo arrangement are placed at Annexure- 1.6 in 6 sheets(2 sheets of approved ESP for PH-I and 4 sheets for proposed PH-II siding which includes modification of PH-I for long haul provision). PH-II lines are taking off and merging in PH-I inside Plant/Silo and not directly taking Off from Bukru station. For reference, connectivity with rail network Two sheets of approved ESP of Ph-I has been attached.

1.4 Signal Engineering & Telecommunication

1.4.1 To study the quantum of existing Phase-I and Projected Traffic at proposed Siding phase-II, it is to find out the necessity of modification of Yard-Layout. To study S&T arrangement for the proposed siding as well as at the serving station to deal with the anticipated traffic. GM, CCL requesting RITES' offer. He has indicated that the proposed load out system is required to be developed in view of expansion program of Magadh OCP from 20 MTPA to 51 MTPA.

According to the proposed plan, the siding alignment which will be developed in phase-II, would accompany with pre & post loading, another two no. of additional lines with 6 long haul are being considered for installation in phase-II. A detailed techno-economical project survey has been carried out considering the exhaustive study of the entire yard, examined the traffic pattern and keeping in view all the latest Globally accepted & available Signaling standards. Under the above circumstances and taking into the considerations of Railway Board's Guidelines, the project has been planned to provide distributed architecture EI signaling system.

1.4.2 In Magadh Phase-I work one Panel Interlocking had been provided for the approach of

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loading bulb for controlling reception and dispatch of trains to and from Bukru station. In which Train will be worked between section Bukru and loading yard through double line Universal Fail Safe Block Interface (UFSBI) with absolute Block System of working.

In Magadh PH-II 6 nos. of long haul have been provided in pre and post loading yard as per railway instructions. Keeping this in mind Provision of one distributed Architecture Electronic Interlocking System along with two EI Hut have to be provided for the approach of loading bulb for controlling reception and dispatch of trains to and from Bukru station and within Pre and Post loading yard.

Accordingly, tentative Signal Interlocking Plan (SIP) has been prepared based on tentative Engineering Scale Plan (ESP) which has reflected in the Chapter-III of this Report.

1.4.3 Suitable modification will be made at the Bukru EI cabin to include the working of additional points and signals, if required, for the junction arrangement work.

1.5 Electrification

1.5.1 The entire railway infrastructure planned for right from the takeoff point and up to the meeting point except a small portion under SILO area shall be provided with 25 KV AC traction for operation of trains by Railway electric locomotive.

1.6 System of working

1.6.1 When an empty rake meant for loading at Magadh OCP siding is scheduled to dispatch from Bukru station, the SM, Bukru will intimate the same to the VDU operator, Magadh OCP Plant EI cabin who after ascertaining a clear line for reception of the train will grant line clear will receive the train on any of the bulb either inner or outer as per loading programme who after ascertaining a clear line for reception with adequate overlap of the train "Will grant Line Clear" to SM, Bukru Station. After getting line clear by SM, Bukru, the empty rake will be dispatched towards Magadh OCP by lowering OCP last stop Signal. The train will be received on the particular bulb particular line for which the line clear has been given after lowering the Home Signal of Magadh OCP Cabin.

1.6.2 Provision of Retractable OHE under SILOs & Conveyor etc. to be arranged by CCL.

Provision of Retractable OHE in Client Scope due to provision for the same has not considered in the Draft DPR.Moreover,before construction of RO under Silo,movement of train and loading through SILO will be done by Railway electric locomotive . The portion of chute under SILO shall have an unwired zone with a gap of 6.5 m under the SILO. Following precautions have to be observed during loading:-

(a) The train will move towards the SILO with the rear pantograph raised as a customary

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system.

(b) The engine, as soon as crosses the SILO will stop at a point where a 'stop board' will be provided keeping the 'without OHE zone' in between front and rear pantograph.

(c) After stopping, the front pantograph will be raised and the rear pantograph will be lowered keeping the engine continuously energized.

(d) There after the train will start at a pre controlled speed to commence loading through SILO.

(e) A rake after loading under SILO will be received on the corresponding post loading line.

1.6.3 On completion of loading, weighment and on readiness of the train, the VDU operator, Magadh OCP Plant cabin will ask for "line clear" from SM, Bukru station with intimation regarding the load and destination particulars. On receipt of "line clear" by VDU operator, Magadh, the loaded rakes will be dispatched by lowering the relevant signals (Starter, Advance Starter etc.).

1.6.4 Similar operating system shall be followed for Train movement (To and Fro) from Magadh OCP to all lines in all the bulbs.

1.7 Commercial formalities

1.7.1 The commercial formalities for working of TMS including manning of the weighbridge shall be decided after interaction with the Commercial Department of East Central Railway. S ding will be commissioned and operative in terms of Railway board's freight Marketing Circular No.11 of 2016. The policy of 'Engine On Load' scheme, as incorporated in freight marketing circular No.5 of 2013 dated 07.03.2013 shall be followed. The loading will be done within the specified free time for various type of Block Rakes as stipulated therein.

1.7.2 Though the quantity of coal loaded in the individual wagon shall be available from the in-built weighing system provided with loading SILOs, 6 (six) nos. (Ph-I, 4 nos. + proposed Ph-II, 2 nos.) 140 ton in-motion weigh bridges have been provided immediately after loading SILOs for weighment of loaded wagons. Other 2 nos (Ph-I, 1 no. + proposed Ph-II,1 no.) weigh bridge have been provided on the empty line for weighment of empty rakes during admission for all the SILOs.

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1.8 Cost Estimate

1.8.1 The entire work has been planned to be under taken matching with the loading programme of CCL. A detailed cost for construction of the siding, as calculated on the basis of present day cost of man and materials, is tabulated below:-

Phase-II

[Rs. In Lakh]

Civil Engineering	S & T	Electrical	Total
15243.73	2361.32	2400.62	**20005.68**

1.9 Project Execution

1.9.1 On approval of the project by Railways, as per MOU signed between CIL and RITES, the construction works will be undertaken by RITES after getting work order from CCL. The

construction work within Railway premises including S&T and Electrical (TRD) may also be undertaken by RITES having vast experience in construction and management of Railway sidings, a Government of India Enterprise under Ministry of Railways, subject to approval of East Central Railway

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CHAPTER – II

Civil Engineering

CHAPTER – II

Civil Engineering

2.0 Introduction

2.0.1 Central Coalfields Limited (CCL) have planned for construction of Magadh Railway Siding Phase-I at CCL's command area to dispatch coal at different power plants from the said Open Cast Project by introduction of 'Rapid Loading System' (RLS) through SILO loading arrangement. The takeoff point of the siding line is proposed to be taken off at Tori end from up main line at Ch.26/836 , which is 536 m away from the center line of Bukru station which is located at Ch.26/300.00 of Tori-Shivpur section of Dhanbad Division of East Central Railway. All Railway chainages for the Tori-Shivpur section, are reckoned from the center line of Tori station

2.0.2 An additional Terminal facility shall be developed, parallel to proposed Magadh Ph-I to cope up with the Magadh OCP PH-II expansion PR by avoiding coal bearing areas.

2.0.3 The Phase-I report deals with the provision of (i) 03 nos. of additional loop lines at Bukru (ii) 02 nos. SILO loading bulbs, each consists of 02 sets of pre-loading & post-loading lines connected with separate reception and departure lines;(iii) 05 nos. In-Motion Weigh Bridges, and (iv) Rapid Loading System through 2 nos. of SILOs as per approved CE'S Drawing No.Y-35 2017(Sheet 1 to 9).

Further, Railway has advised vide letter PL/Tori-Shivpur/20 dated 12.10.2020 to plan all siding as well as upcoming Silos are to be designed to deal with long haul Trains. Subsequently a detailed discussion with CCL and Railway has been made for provisioning of long haul in PH-I as substantial progress has already been made as per approved ESP of PH-I.
In this regard a meeting held at Hajipur on 14.02.2021 between RITES and EC.Railway and MOM issued with instruction to provide a Long Haul loop in PH-I in post bulb portion along the main load dispatch line.(Annexure-1.2)
Accordingly, PH-I plan has been modified and to be submitted separately to Railway for approval. Based on modified plan of PH-I incorporating long haul provision, Plan of PH-II has been developed.

2.0.4 The Central Coal Field Limited has planned to develop additional Rail infrastructure required for Magadh OCP (51 MTY) capacity as phase –II.

2.0.5 In phase-II, report deals with the provisions of (i) 01 no.of loading bulb with Single SILO with two chutes, which consists of 02 nos of pre-loading long haul & 02 nos of post-loading long haul lines with 2 nos of long haul stabling/holding lines connected with separate reception and departure lines; (ii) 03 nos. In-Motion Weigh Bridge.

2.0.6 Siding alignment

CCL has planned to develop an additional Rail Infrastructure required for dispatch of coal for Magadh OCP (51 MTY) Phase –II , Jharkhand, under Dhanbad Division of EC Rly. The layout of loading Terminal has been planned in the form of Bulb-shape parallel to the phase-I, avoiding coal bearing area. The proposed additional loading siding, take-off point ch.6850.646 m of PH-I has been reckoned as 00 Ch. for the purpose of calculation for onward location in phase – II work. For simultaneous additional number of rakes, additional

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1no.of SILO-3 with two chutes has been proposed. The C/line of SILO-3 ,at Ch.3455.22 m (L-5) has been proposed. One Bulb consists of 2 nos of pre-loading and 2 nos of post-loading lines with 2 stabling/holding lines as mentioned below:

A) Pre- Loading yard:-

1) Pre-loading long haul line no.5 of CAL 1563.620 m (FM - SILO).

2) Pre-loading long haul line no.6 of CAL 1532.620 m (SRJ - SILO).

3) One 140 Ton I.M.W.B. for empty rake at Ch.217.23 m.

B) Post Loading Yard:-

1) Post-loading long haul line no.5 of CAL 1574.76 m (FM - WB).

2) Post-loading long haul line no.6 of CAL 1543.76 m (SRJ- WB).

3) Post-loading long haul Stabling line no.5 of CAL 1605.19 m (DS-FM).

4) Post-loading long haul Stabling line no.6 of CAL 1574.2 m (DS-SRJ).

5) Two 140 Ton I.M.W.B. for loaded rake at Ch.3492.51 m for L-5 & 6.

6) SILO at Ch.3455.22 m (L-5)

2.1 Survey Methodology

2.1.0 Reconnaissance & preliminary engineering survey has been conducted through the corridor to find out the most suitable and feasible techno-economical alignment for planning of the proposed railway siding infrastructure facilities to serve the dispatch facilities of coal.

2.1.1 After in depth study, the most suitable alignment has been selected on the result of reconnaissance survey and accordingly preliminary Engineering survey has been carried out at site with the help of précised and latest survey instruments like Tota Station & GPS, Digital level etc. by adopting modern survey methodology. Survey data downloaded in AUTO CAD format to arrive at the existing features of the alignment corridor to identify the availability of suitable open space for further development.

2.1.2 Engineering plan along with L/section prepared with AUTOCAD and modern survey software. Original ground levels have been taken at suitable intervals of the existing laid alignment and the proposed alignment along with other facilities which have been incorporated in the layout plan.

2.1.3 Horizontal control points have been fixed along the laid out alignment in respect to fixed reference points. Vertical control points have been fixed at suitable locations and the levels are connected with the mother Bench Mark by using "AUTO LEVEL".

2.2 Engineering Parameters

2.2.1 Gauge: The gauge adopted for the proposed Railway siding line is Broad Gauge 1676 mm (5'-6"), i.e., the standard gauge of the serving Railway system from which the siding is proposed to be taken off.

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2.2.2 **Fixed point:** Ch.6850.646 m of Phase-I line has been reckoned as 0.00 Chainage of Phase-II line and has been considered for demarcating further onward chainage.

2.2.3 **Level:** All the levels have been taken for this survey are based on TBM U1- at electric OHE mast putting near proposed Bridge no. 39 in Bukru yard value of which is 541.284m. TBM List is placed at Annexure-2.0

2.2.4 **Gradient**: A list of gradients and gradient abstract is placed at Annex-2.1.

2.2.5 **Curve**: A list of curves and curve-abstract is shown in Annex-2.2.

2.2.6 **Speed potential**: The track structure of the siding as a whole will be suitable for movement of fully loaded rakes consisting of BOXN / BOBRN wagons like main line tracks. Although, the track structure will suit to run a goods train on maximum permissible speed, considering it as a siding, the speed has been limited to 25kmph subject to observance of other speed restrictions over turnouts for points & crossings.

2.2.7 **Length:** The route length & track length for the proposed siding are about 7.16 Km & 12.70 Km respectively.

2.2.8 **Formation**: Formation of the proposed alignment will cross through both cutting and filling zone. Formation in filling zone is designed to be made of mechanically compacted earth with side slopes of 2H:1V (i.e. 2 horizontal and 1 vertical). The width of single line formation is kept as 7.850 m in filling and 9.250 m in cutting including side drain with side slopes of 1H:1V (i.e. 1 horizontal and 1 vertical). The formation, when in filling zone and if filling height is higher than 6.0 m & when in cutting zone and if depth of cutting is deeper than 6.0 m, berm width of 3.0 m has been designed to be provided on either side of the embankment. The same procedure shall be followed in every successive height / depth of 6.0 m. In formation, in case of clayey soil - a layer of 1000 mm and in case of granular soil - a layer of 600 mm thickness in filling zone and minimum 300 mm thickness in cutting zone, a compacted layer of blanketing material of approved quality granular / stone dust is designed to be provided over the compacted earthwork in formation in filling / cutting, conforming to RDSO guide line. Side slope of the embankment is designed to be grass turfed with approved quality and thickness. A cross slope of 1 in 30 on top of formation, both in filling and cutting zone is designed to be provided. A typical profile of embankment and cutting is placed at Annex-2.3.

2.2.9 Track Center: Minimum 6.0 m track center is proposed in between two tracks unless otherwise mentioned in the Engineering Plan.

2.2.10 Track Structure: The proposed railway track is designed to be laid on 60 kg/90 UTS, T-12 Grade, Prime Rails on new 60 kg. PSC Mono block sleepers (T-2496) in straight and in curved alignment of radius less than 5° and in curves of radius above 5°, PSC Mono block sleeper (T-4183 to T-4186) with the provision of check rails. Sleeper density is proposed for 1660 nos. per kilometer over a layer of 350 mm thick machine broken stone ballast cushion. Points & Crossings will be of 60 kg rails along with curve switches, CMS crossings etc. on PSC sleepers with fan shaped layout. It is proposed for 1 in 12 Points & Crossings throughout the Track Structure at Loading Yard. A detail of track structure is placed at Annex-2.4.

2.2.11 Bridges/Culverts: 17 (Seventeen) Nos. extension of minor bridges have been proposed. A list of Bridges and Bridge Abstract is placed at Annex-2.5.

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2.2.12 Fixed Structure: All fixed structures are to be designed to comply with the fixed structure as indicated in the Schedule of Dimension for Broad Gauge of IR.

2.2.13 Road Crossing / Level Crossing: The list road crossing is shown in Annex-2.6.

2.2.14 Land: The proposed line will be constructed on CCL land.

2.2.15 Weighment Facility: There is provision for 3 numbers 140 T In-motion electronic weighbridge as shown in the plan.

2.3 The Civil Engineering L/Section drawing is placed at Annex-1.7

2.4 Civil Engineering Cost

2.4.1 The estimated cost of civil engineering works has been calculated on the basis of up datec cost of men & materials and tabulated below. The details of cost estimate have been shown in Annex-8.1.

Sl No	Description	Estimated cost [in lakhs of Rs.]
		Total
1.	Civil Engineering works (excluding GST & Other Taxes)	15243.73

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CHAPTER – III

Signal Engineering & Telecommunication

CHAPTER-III

Signal Engineering & Telecommunication

3.0 Introduction:-

Central Coalfields Limited (CCL), formerly known as National Coal Development Corporation Limited (NCDC) is one of the 8 subsidiaries of Coal India Limited (CIL) and a Category-I Mini-Ratna Company since October 2007, having its Head Quarters at Ranchi, Jharkhand.

In order to dispatch coal, CCL have planned to develop an additional railway infrastructure required for Magadh OCP (51 MTY) phase-II, (Revised) at Jharkhand under Dhanbad division of East Central Railway.

. Proposed Engineering Layout:-

The proposed additional loading siding for Ph-II, will taking off from existing Line of phase-I at Ch.6850.646 m with a 1 in 12 CS and meeting at L-2 of SRJ Ch.13911.77 m as shown in ESP. The take off point of Ph-II at Ch.6850.646 m has been reckoned as '0.00' chainage for the purpose of calculation of onward locations for phase-II work. The additional loading siding is consists of the following post loading & pre-loading facilities:

(A) Pre- Loading yard:-

1) Pre-loading long haul line no.5 of CAL 1563.620 m (FM - SILO).
2) Pre-loading long haul line no.6 of CAL 1532.620 m (SRJ - SILO).
3) One 140 Ton I.M.W.B. for empty rake at Ch.217.23 m.

B) Post Loading Yard:-

1) Post-loading long haul line no.5 of CAL 1574.76 m (FM - WB).
2) Post-loading long haul line no.6 of CAL 1543.76 m (SRJ- WB).
3) Post-loading long haul Stabling line no.5 of CAL 1605.19 m (DS-FM).
4) Post-loading long haul Stabling line no.6 of CAL 1574.20 m (DS-SRJ).
5) Two 140 Ton I.M.W.B. for loaded rake at Ch.3492.51 m for L-5 & 6.
6) SILO at Ch.3455.22 m (L-5).

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3.1 Proposed Signaling Arrangement:-

3.2.1 Due to proposed development of additional Rail Infrastructure at Magadh OCP (51 MTY) Phase-II, major alteration in signaling system will be involved in the existing signaling system of phase-I at Magadh OCP. Due to major alteration in the yard, one new Distributed E.I. Cabin with two E.I.hut is proposed for construction at a suitable location at Magadh OCP yard.

[Note:-

1) As the alteration will involve more than 20% of routes, the installation to be executed by new indoor installation as per CSTE's technical circular no.91 and as per Railway board circular no.2003/SIG/G/5 dated 28.04.2016.

2) Any big station and major junction station with average no. of routes between 50 to 500 routes shall be provided with Electronic Interlocking with Distributed Architecture and/or object controllers.]

3.2.2 MACL's LED based 2/3 Aspect Main signals With Junction type Route Indicator are to be provided at Magadh OCP yard for reception and dispatch of Goods (Coal) trains to and from adjacent Cabin/station. Shunt signals for controlling movements inside the Yard.

3.2.3 Multi section digital axle counter (MSDAC) is proposed to be provided over the entire Magadh OCP yard (Ph-II portion) to ensure occupancy / clearance of the track which will be depicted in the VDU/Panel Board.

3.2.4 All points and signals under the jurisdiction of the new Magadh OCP E.I. Cabin will be centrally controlled from the Control cum Operating VDU Panel.

3.2.5 All the points in the Magadh OCP yard will be electrically operated through 110 V DC Non-trailable Rotary types IRS Point Machine.

3.2.6 Crank Handles are proposed to be provided for operation of the Point machine manually in case any motor operated point fails to operate by the route setting process.

3.2.7 Data Logger which is a versatile real time data acquisition system is proposed to be provided for fault diagnosis and event logging at new Magadh OCP E.I.cabin.

3.2.8 SMPS based integrated Power Supply (IPS) system is proposed to be provided for uninterrupted supply to both AC & DC Signaling circuit at new Magadh OCP E.I.cabin.

3.2.9 Alteration work at adjacent cabin/station in connection with the proposed Magadh OCP E.I.cabin will be done accordingly.

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3.3 Telecommunication:-

3.3.1 Point to point communication facilities are proposed to be provided for smooth operation of train services between new Magadh OCP E.I.cabin with adjacent station/cabin.

i) VHF sets are provided at E.I. Cabin of new Magadh OCP E.I.cabin.

ii) Magneto telephones are to be provided and connected from new Magadh OCP E.I.cabin to adjacent cabin / station

iii) Hand held Walkie-Talkie sets will be provided for effective and reliable communication at new Magadh OCP E.I.cabin.

3.4 System of Working:

3.4.1 Train operation between the Block stations\Cabins is to be controlled by Absolute Block System of Working with approved means of Block Working as indicated below:

Sl. No	Section	Means of Block working.
1	New Magadh Loading Yard E.I.Cabin – Bukuru E.I.Cabin	By Double Line UFSBI with BPAC.

.3.5 Cost Estimate:-

Abstract Cost for S&T work will be approx. Rs. 2361.32 lakhs (For Ph-II DPR.) excluding GST & other charges as applicable. This cost is excluding the cost of civil (Cabin building etc) & electrical work related to S&T work.

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CHAPTER – IV

Electrical Engineering

Chapter - IV

Electrical Engineering

4.0 Introduction

4.0.1 Central Coalfields Limited (CCL) have planned to develop Rail Infra structure facility for Magadh OCP expansion PR with Normal capacity of 51 MTY in phase II.

4.0.2 With Phase – II, CCL have planned to transport 51 MTY of coal, to various Power houses in Northern & Western India by rail. Rail connectivity linking the mine & Bukru Station on Tori-Shivpur section have accordingly been proposed.

4.0.3 The proposed rail infrastructure under phase - II includes

(i) Provision of a Single line take-off from existing Magadh Ph-I at Ch.6850.646 m (New Ch.0.000m for Ph-II) to Existing Ch.13911.77 in line no.2 of Ph-I (New Ch. For Ph-II is 7163.236m)

(ii) 1 No. of SILO on Two Line.

(iv) 3 Nos. of Weigh Bridge.

4.0.4 About 16 track Kms in stretches is under curves of radius varying between 400 to 1750 m.

4.0.4.1 The section involves heavy filling/cutting.

4.0.4.2 A number of bridges on the section.

4.0.4.3 Speed under SILO shall be around 1.0 kmph. .

4.1 Mode of Traction

4.1.1 Siding is proposed to be electrified to maintain uniformity of traction.

Part – I : Traction Distribution

4.2 Scope of Wiring

4.2.1 All the lines proposed under this scheme shall be fully wired excepting a short stretch of about 6.5 m under each of the SILOs which shall remain unwired.

4.2.2 It is considered that wiring of Ph-I & that of siding shall be taken up concurrently and as such large-scale modification is not envisaged.

4.2.2.1 Marginal modification of OHE near take offs of the siding has been considered.

4.2.3 Track Kms to be electrified is about **16 Kms** including modification & dismantling works.

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4.3 OHE installations

4.3.1 Conventional simple all copper regulated OHE matching with OHE on Tori – Shivpur section shall be provided.

4.3.2 Minimum implantation of 2.8 m shall be maintained throughout the section. Stay, Bracket & 9 tonne Insulators shall be of polluted type having 1050 mm creepage distance.

4.3.3 Section insulators & isolators at suitable points shall be provided for segregation of feed.

4.3.4 All road crossings shall be switched over to RUB if any.

4.3.5 Bonding & Earthing arrangements conforming of Bonding & Earthing code shall be followed.

4.3.6 Foundation/Holding down bolts on either side of all bridge piers if required shall be provided for supporting traction structures. Necessary provision if required shall be taken under Civil Estimate.

4.4 Power Supply Arrangement

4.4.1 Provision of a new switching post with 4 interrupters to ensure reliable supply to siding. Power shall be tapped from Ph-I lines through two interrupters. Another two interrupters shall feed the Ph-I & Ph-II Bulb.

4.4.2. Final location & configuration of the switching post may change with finalization of power supply scheme by Railway

4.4.4 It is suggested that operation of isolators in siding be done by authorized representative (s) of siding owner having competency certificate issued by railway. Railway may like to examine the proposal.

4.4.5 Wiring cum Power Supply Scheme as proposed is appended under Annex. **4.1**

4.4.6 Provision of Retractable OHE under SILOs & Conveyor etc. to be arranged by CCL. Provision of Retractable OHE in Client Scope due to provision for the same has not considered in the Draft DPR.

4.5 SCADA Work

4.5.1 The RTU for the proposed switching post shall be compatible with the SCADA system to be provided under Tori – Shivpur- Katauthia section. Control cable has been covered under S&T Estimate.

4.6 Provision of Retractable OHE under SILOs & Conveyor etc.

4.6.1 Details of SILO like dimensions, Storage capacity, no. of Chute & type of Chute with horizontal & vertical Clearances has not yet been made available.

4.6.2 It is however, considered that the same will be designed in such a way that Retractable OHE

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can be installed. For this purpose following factors are to be kept in view:

(i) There should be one chute on each line under SILO.

(ii) The chute shall be of Telescopic cum Traverse type only.

(iii) There shall be adequate free space on opposite side of chute to facilitate provision of supports for Retractable OHE system.

(iv) Height of Retractable OHE shall match with that of conventional OHE in the vicinity.

(v) Adequate head room for running of OHE below SILO Tower should be available at Entry or Exit of the SILO.

(vi) The Retractable OHE shall swing by about 85° from 'In line' position when not working.

(vii) Both Retractable OHE and the chute shall be in parking mode when there in no train & they will move one after another in sequence when a train will approach the loading zone, in such a way that the chute is placed on the track only when Retractable OHE has fully retracted form the track. SILO Operator room & Parking position of Chute should be in same direction and opposite of Retractable OHE parking position & Control Room.

(viii) 415 V supply to be made available in the SILO area to facilitate working of Retractable OHE.

(ix) List is not exhaustive.

4.7 Operation of SILO by electric Loco before Construction of RO under SILO

4.7.1 Detailed design of SILO has not been finalized. It is considered that the proposed SILOs shall have

a) well with internal diameter of not more than 18 m and

b) there shall be one telescopic type chute of size not more than 1.6 m x 1.6 m under a SILO provided on a track.

4.7.2 In such case, OHE shall be terminated at either end of the chute maintaining a distance of 3.25 m from Centre line of chute.

4.7.3 The empty rake shall be hauled by single or multiple electric loco as offered by railway.

4.7.3.1 The empty rake hauled by single electric loco with rear panto raised shall stop at point having Electric Engine Stop Board in the direction of traffic. The electric loco shall then lower rear panto and raise the front panto on other end of unwired zone to proceed at restricted speed as controlled by loco driver manually till the loading is complete. Thereafter it shall move at higher speed. The loco shall raise rear panto during return journey.

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4.7.3.2 In case of multiple electric loco unit, loco moving with rear panto of front loco in raised condition shall stop at Electric engine Stop Board in the direction of traffic. There after the rear panto shall be lowered and front panto of front loco shall be raised at other end of unwired zone. The loco shall then move forward to pull the rear loco till the first empty wagon is placed in position for loading . The loco will thereafter proceed at restricted speed as controlled by loco driver manually till the loading is complete. Thereafter, the rake may move at a faster speed. The loco shall raise rear panto of both locos under return journey as necessary and proceed at permissible speed.

4.7.3.3 All safety measures including earthing of SILO structures as required for safe working of SILO and personnel shall be done.

4.7.4 **Conveyor**

4.7.4.1 Each of the SILO is connected by a conveyor. The conveyor shall maintain the following stipulations:

i) Bottom most part of SILO shall be at a height of not less than 9.0 m from rail level.

ii) The conveyor shall have protective cover at bottom side & on two vertical sides.

iii) There shall not be any leaf or sliding type window(s) within 2 m on either side of nearby wired track.

iv) It is preferable that conveyor passes over wired track(s) on uniform plain.

v) Conveyor shall be properly earthed.

4.8 **Power/DOT line crossing**

4.8.1 There are two nos LT/HT line crossing which are to be cabled as per Crossing regulation There is no DOT line crossing the alignment.

4.9 **Weigh Bridge**

4.9.1 Glued joints if required at either end of weigh bridge shall be provided which is covered under S&T estimate. For continuity of return path, jumper by-passing the weigh bridge is also proposed.

4.10. **Tree cutting/Tree Trimming**

4.10.1 Tree cutting/Tree trimming as required to maintain adequate clearance from live OHE shall be done.

Part II : General Services works

4.11 **Electrification of Panel building, Crew Rest room, illumination of yard**

4.11.1 Electrification of in-plant cabin, console rooms, In Motion way Bridge (3 Nos), D.G. room & Crew rest room has been included.

4.11.1.1 Electrification of additional relay room at Bukru Panel Cabin has also been included.

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4.11.2 30 m high masts along with 350 W LED flood light luminaires of adequate numbers has been proposed to adhere to illumination.

4.11.3 It is considered that L.T. supply shall be made available in proximity of SILO where from power supply shall be sourced for above establishments.

4.11.4 It is also considered that CCL will provide office accommodation & staff quarters for railway personnel engaged in operation of siding, at suitable place, duly electrified at their cost The type of quarters and scale of electrical fittings shall not be less than the railway yard stick.

4.11.5 Illumination of SILO well shall be done by CCL duly ensuring that the luminaries shall be of covered type and maintains a safe clearance of not less than 2.0 m from live OHE. Depending on the location of installations, attention/replacement work may require 'permit to work' from traction Department.

4.12 **D.G. Set**

4.12.1 D.G. set with AMF (each of 25 KVA capacity) has been proposed to meet exigency in the event of outage of the supply to console rooms.

4.13 **Modification of crossing**

4.13.1 There are two nos LT/HT line crossing which are to be cabled as per Crossing regulation. There is no other power lines at present. If any other power line comes up on this section and does not confirm to crossing regulation, the same shall be modified at the cost of siding owner.

4.13.2 Siding owner to get the modification work done by the owner of the line on the basis of the estimate to be submitted by them prior to commencement of wiring of the line, with modification drawings approved by railway.

4.13.3 Siding owner to arrange for way leave/lease agreement as necessary.

4.13.4 Maintenance of OHE & GEN: OHE maintenance cost for siding shall be borne by the siding owner. As per FMC No.6 of 2020 vide letter No.2018/TC(FM)/14/04, dt:23.06.2020 (amendment 5 of FMC 11 of 2016) as implemented for private siding where OHE maintenance cost for new as well as old siding to be borne by siding owner.

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4.14 Anticipated cost for execution of work.

Department	Basic Cost of work for CCL Magadh Siding Ph-II (Rs. In Lakhs)	Labour welfare cess @1% on Basic Cost (Rs)	GST @ 12% on Basic cost (Rs)	Deptt. Charge		Environmental Cess @1% on (Basic Cost + Labour Welfare Cess) (Rs)	Total(Rs)
				TRD @ 6.25% on Basic Cost (Rs)	General @4% on Basic Cost (Rs)		
TRD Cost	2059.84	20.60	247.18	128.74		20.80	2477.16
General Cost	340.79	3.41	40.89		13.63	3.44	402.17
TOTAL	2400.63	24.01	288.08	128.74	13.63	24.24	2879.33

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Magadh OCP

CHAPTER – V

Commercial

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CHAPTER – V

Commercial

5.0 Introduction

5.0.1 Central Coalfields Limited under their mega development programme have planned for excavation of coal from Magadh coal block with a targeted capacity of 51.00 MTPA in Expansion PR. The coal block is primarily linked to the NTPC's proposed North Karanpura Super Thermal Power station with the requirement of 12 MTPA and secondarily 39.0 MTPA as 'busket' supplier for various Power Houses at Northern and Western India. The coal for the NKSTPPS will be supplied through captive MGR, the plan for which is yet to be finalized and, as such, it has been planned to construct rail-infrastructure facilities from the loading yard to connect the nearest and suitable rail head for the purpose of transporting 39.0 MTPA of coal traffic to power houses and other users under PH-I & PH-II.

5.0.2 The Policy on siding matters as indicated in the Freight Marketing Circular No. 11 of 2016 on 'Liberalization of Siding Rules' circulated vide Ministry of Railways, Railway Board's letter No.99/TC(FM)/26/1/Pt-II dated 22.08.2016 shall be followed for construction and operation of the private siding and the siding will be opened as per 'Engine-on-Load' (EOL) scheme and in this respect, Freight Marketing Circular No. 5 of 2013 as issued under Railway Board's letter No. 2012/TC(FM)/18/21 dated 07.03.2013 and its amendments from time to time shall be followed.

5.1 Engine On Load scheme

5.1.1 The siding holder will require to opt for the EOL operations under an agreement with the Zonal Railway administration as per terms and conditions of EOL conditions. The prescribed free time under EOL scheme for different types of rake is given as under:

Type of wagon	EOL free time in hrs.	
	Loading	Unloading
Open Rake (BOXN etc.)	3:00	5:00
Hopper Rake (BOBR etc.)	3:00	2:00

5.1.2 According to above circular, if a siding holder requires to utilize the train engine during loading or unloading of rakes, within the free time prescribed, the same will be allowed without levying any additional charges. The siding owner may, therefore, not be required to

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maintain a captive engine at his cost under the 'EOL' operations. Beyonc the free time the engine hire charges shall be charged as per extant rules.

5.1.3 For bulb type sidings freight will be charged on the basis of through distance up to a specified loading or unloading point and not for the entire length of the siding. No siding / shunting charges for haulage of wagons within the siding will be leviable under the EOL operations.

5.2 Weighbridge and TMS Facilities

5.2.1 Three (03) 140 Ton Electronic In-motion Weighbridges have been propcsed; One for weighment of empty rakes in two lines during admission and further Two nos for loaded rakes in post loading lines after loading through One SILO. The weigh bridges shculd conform to the Schedule of Technical Requirements as per RDSO's specification circulated in June, 2005. The siding owner should arrange calibration, testing & certification from the manufacturer/authorized service provider.

5.2.2 The Weigh Bridges should be linked with FOIS Terminal for which a separate office with necessary furniture will be provided at the cost of siding owner. TMS equipment and hardwire peripheral should also be arranged by the siding owner. However, necessary software will be supplied by Railways for issue of computerized Railway Receipt (RR).

5.2.3 The commercial formalities for handling coal rakes including manning of Weighbridge at the loading terminal may be finalized after interaction and discussion with the Commercial Department of Dhanbad Division as well as HQs of East Central Railway

5.3 Execution of Private Siding Agreement

5.3.1 Private Siding Agreement on the prescribed format shall be executed between Railways and Central Coalfields Limited. The siding owner shall sign the agreement as soon as the agreement documents are served to them by East Central Railway.

5.4 Pollution Control

5.4.1 CCL has to obtain necessary clearance from MOEF for commissioning of the loading arrangement at the siding and the status be informed to the Railways.

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CHAPTER – VI

Mechanical Engineering

CHAPTER –V I

Mechanical Engineering

6.0 General

6.0.1 Central Coalfields Limited (CCL) has planned to evacuate 51 MTPA of coal from Magadh coal mines situated at Latehar district of Jharkhand. Though the subject coal mines is not adjacent to any rail head, it has been planned to develop rail infrastructure connecting at Bukru Station on Tori-Shivpur section of Dhanbad Division..

6.0.2 Intensively examined empty rakes are to be supplied for loading by IR and train should run on round-trip BPC. Hence, there will be no need for any maintenance facilities within the siding premises. However, the costs of re-railing/restoration work, in case any accident or derailment occurred owing to the fault of siding holder, will usually be borne by the Siding holder.

6.0.3 For damage and deficiency to wagons inside the siding premises, regular damage and deficiency bills will be raised on the siding owner on the basis of joint sample check to be done in every six monthly or as fixed by East Central Railway. However, for severely damaged wagons, this will be done on case to case basis. Railway's discretion for charging damage/deficiency bills on case to case basis shall be final.

6.0.4 Joint check of loading/unloading points where mechanized equipments are used should be carried out by officers of Mechanical and Operating / Commercial branches of Railway once in 3 months along with the loader/un-loader. Penalties for damages, if detected, should be imposed as per extant rules.

6.0.5 One rest room with toilet facilities for the train crew should be provided near the loading point.

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Project Officer
Magadh OCP

CHAPTER – VII

Operation & Maintenance of the Siding

SADALA SATYANARAYAN
Project Officer
Magadh CCP

CHAPTER – VII

Operation & Maintenance of the Siding

7.0 General

7.0.1 Central Coalfields Limited (CCL) have planned to develop Magadh OCP siding to excavate and dispatch of 51 MTPA of coal to various power houses at Northern and Western India. The proposed siding would takeoff from Bukru station on the Tori-Shivpur section constructed by East Central Railway under 'deposit' terms at the cost of CCL..

7.0.2 The siding facilities will be developed according to the provision of para 6 of FM circular No 11 of 2016 circulated under Railway Board's letter No. 99/TC/(FM),26/1/ Pt.II dated 22.08.2016 and the entire capital cost of the work will be borne by siding owner.

7.1 Operating

7.1.1 It has been proposed to provide One EI Cabin near Ch 5/400 and 2 EI goomty in the In plant yard for controlling movement of trains to and from the Bukru station and also the operation of the in-plant yard. For smooth operation of In-plant yard cabin following operating staff including Rest Giver and Leave Reserve may be provided, preferably from retired Railway employees, for round the clock working:

1	Supervisor (Traffic)	1
2	Panel operator including RG & LR	4
3	Operating Assistant including RG & LR	4
	Total	**9**

7.2 Civil Engineering

7.2.1 Civil Engineering maintenance shall be done by the siding owner at their cost and Railways should not claim for any inspection charges. The siding may be maintained by engaging approved Agency.

7.3 Signal & Telecommunication

7.3.1 For maintenance and up keeping of the signaling assets of Inplant yard cabin, CCL may provide following staff, may be engaged from the retired Railway employees.

1	S&T Maintainer including LR & RG	2
2	S&T Helper including LR & RG	2
	Total	**4**

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Magadh OCP

7.4 Electrical Engineering

7.4.1 General services assets under siding premises shall be maintained by the Siding owner. General services assets under Railway premises shall be maintained by Railway.

7.4.2 OHE Maintenance cost for existing as well as new siding shall be borne by siding owner in accordance with Railway guide lines as per FM circular no.11 0f 2016 and its amendment no - 5 dated 23.6.2020

7.5 Carriage & Wagons

7.5.1 As regard to C&W maintenance, no C&W facility should be developed. Running repairs of rolling stocks including materials and staff cost in all cases shall be borne by the Railway. However, the cost of re-railment including the repair cost of stock owning to any derailment or accident occurred due to the negligence of siding owner shall be borne by the siding owner.

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Project Officer
Magadh OCP

CHAPTER – VIII

Anticipated Cost of the Project

SADALA SATYANARAYAN
Project Officer
Magadh OCP

CHAPTER – VIII

Estimated cost of the Railway infrastructure

8.0 General

8.0.1 The capital cost for the rail-infrastructure for the proposed siding has been worked out based on updated cost of men and materials. The cost does not include the cost of land to be acquired for construction of the siding and also the charges for power and / or traffic block that may be required during construction of the siding.

8.0.2 The area where the siding facilities are planned to be developed are politically disturbed and construction work may have to suffer due to law & order problem as has been suffered during field survey. The cost for restoration of works due to such problems has also not been included in the estimate.

8.1 Civil Engineering Cost

8.1.1 The capital cost of Civil Engineering works for the proposed Railway infrastructure has been assessed taking into consideration the present day cost of earthwork, P-way, track, ballast, track fittings, major & minor bridges, side drains etc. The estimated cost of Civil Engineering works amounts to Rs. 15243.73 Lakhs. The Abstract cost estimate is placed **at Annex - 8.1.**

8.2 Signal Engineering & Telecommunication

8.2.1 Signaling & Telecommunication works have been computed for providing one EI Cabin With two EI hut at the In-plant yard of Loading terminal and also for modification of Bukru Panel cabin. Abstract cost estimate has been prepared for the S&T arrangements works out to Rs.2361.32 lakhs placed at Annex-8.2.

8.3 Electrical (OHE) Engineering works

8.3.1 Abstract Cost for provision of OHE has been prepared based on the norms adopted in Railways for provision of OHE installation including wiring. The Abstract Cost Estimate for providing OHE and General electrical works is estimated at Rs.2400.62 lakhs and placed at annexure 8.3.

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8.4 Estimated Total Capital Cost

8.4.1 The estimated total capital cost for construction of the proposed railway infrastructure in Magadh- Phase-II, Civil Engineering, Signal & Telecommunication, Electrical Engineering including General Electrical works has been estimated at Rs. 20005.68 lakhs (excluding GST & all applicable Taxes/ Charges) for Phase-II and is placed at Annex - 8.0.
The details of the estimated cost of different disciplines are given as under:-

Phase-II

Sl. No.	Department	Cost of Construction of the siding Magadh Phase-II in Rs. Lakhs
1.	Civil Engineering (Annex-8.1)	15243.73
2.	S & T(Annex-8.2)	2361.32
3.	Electrical (Annex-8.3)	2400.63
		20005.68

8.4.2 In addition to above, as per para 5 of Railway Board's FM circular No.11 of 2016, the departmental charges, in terms of provisions of Indian Railways code for the Engineering Department -2012 , shall be payable by party, desirous to set up a siding. These charges shall have applicability as per following table:

Table-1 Departmental Charges and Stages of Payment

SL	Executing Agency For Project	Departmental Charges: (Inclusive of cost of tools & plants and establishment Supervision) {w.r.t total completion cost of project}	Stages of Payment			
			Approval of undertaking of Survey {w.r.t Abstract Cost of Project}	Conveying Approval To Surveys/Plans And Estimate (Inclusive of amount deposited with Railways mentioned in Cal. 4) {w.r.t Detailed Estimated Cos of Project}	Before commencement of Execution of Work. {w.r.t Detailed Estimated Cos of Project}	Applying For Final Approval of Completed Works (Balance Cost by adjusting cost already deposited w.r.t detailed estimated cost of project) {w.r.t Detailed Estimated Completion of Project}
1	2	3	4	5	6	7
1	Railways	12½ %	1%	2%	8½ %	% age worked out as under {(Column 3) minus (Column 5) minus (Column 6)}
2	Party	6¼ %	1%	2%	2¼ %	
3	Approved consultant	4 % (For all Work except OHE and S&T Works	1%	2%	NIL	
		6¼ % (OHE and S&T Works	1%	2%	2¼ %	

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Magadh OCP

LIST OF ANNEX

Annex No.	Subject
1.1	Letter to Sr DOM for IPA of FSR, Dated-10.09.21
1.2	MOM between RITES & Railway on Dated 18.02.2021
1.3	MOM between CCL, CMPDIL & RITES dt. 02.03.2021
1.4	Sr DOM letter for observation in FSR on Dated 10.05.2021
1.5A	MOM between RITES and Railways on Date 23.06.21
1.5B	MOM between RITES and Railways on Date 14.09.21
1.5C	MOM between RITES and CCL on Date 05.11.21
1.6	Civil Engineering Plan and L- Section
2.0	List of Bench Mark
2.1	List of Gradient
2.2	List of Curve
2.3	Formation
2.4	Standard of Track
2.5	Bridge & Culverts
2.6	Road Crossing
2.7	List HT & LT Crossings
3.1	Schematic S & T Plan
4.1	Wiring cum Power Supply Scheme
8.0	Anticipated Cost of the Project
8.1	Civil Engineering Estimate
8.2	S & T Estimate
8.3	Electrical Estimate

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Project Officer
Magadh OCP

File No.ECR-DHN0OPTG(PLG)/33/2020-O/OSRDOM

ANNEX-1.1

Magadh Ph-II

EAST CENTRAL RAILWAY

No. PL/MAGADH-PH II/2021 Date: 10.09.2021

General Manager,
RITES/Ranchi

Sub: - In principle approval of Feasibility study report for development of additional rail infrastructure for Magadh OCP Ph-II taking off from Bukru station.

Ref: (i) Your letter no. RITES/Ranchi/CCL/PH-II/Magadh-PMC/2018/34/327 dated: 30.08.2021.
(ii) This office letter no. PL/MAGADH-PH II/11032021, dated 10.05.2021.

In reference to above, 'In Principle Approval' is hereby provisionally granted, on deposit of 1% Codal charge (of anticipated cost) by SBI DD no. 632875 dated 25.08.2021 amount Rs 2,43,92,842.00/- (Two crore Forty-Three Lakh Ninety-Two Thousand Eight Hundred and Forty-two only), for the proposed project subject to fulfilment of the following observations:

1. All observations made vide reference letter no. (ii) must be complied and taken into consideration while preparing DPR & ESP.
2. DPR to be submitted (six copies at division and six copies at HQ) in hard copy and soft copy (single PDF).
3. ESP in original with miniature schematic plan to be submitted at division with soft copy (AUTOCAD) for onward approval with approval of DPR.
4. The siding holder has to be abiding by the Railways terms and conditions according to extant rule of Railways regarding staff cost, maintenance charge of track OHE, Signalling etc. as applicable from time to time.
5. Railways reserve the right to incorporate any kind of change, if feel necessary in view of operations, track laying, signalling arrangement etc. which will be binding on the siding holder.
6. Siding will be strictly guided by existing FM Circular no.11 of 2016 issued by Railway Board vide letter no. 99/TC (FM) /26/1/pt.-II dated-22.08.2016 & FM circular no. 06 of 2020 and correction slips/circulars/amendments issued by Railway time to time in this regard.

Sr. Divisional Operations Manager
East Central Railway, Dhanbad

Signed by Pankaj Kumar
Date: 11-09-2021 14:01:31
Reason: Approved

Copy to: CTPM/ECR for kind information.
COS(G) for kind information to DRM/DHN
General Manager (Civil)/CCL/Darbhanga House, Ranchi for info. and necessary action, please.

10.10.21
SADALA SATYANARAYAN
Project Officer
Magadh OCP

ANNEX-1.2

Nagadh Ph-II

Minutes of meeting held between Railway and RITES/ RNC regarding provision of long haul loop lines in Magadh and Amarpali Silo Bulb on 18.02.2021 at Hajipur.

Officers Present :

Railway Side :	RITES side :
1. Sri Salil Kumar Jha, PCOM	1. Sri Abhay Kumar, GM/RITES/RNC
2. Sri Sanjay Kumar, CFTM	2. Sri A.K.Akbari, SDGM/RITES/RNC

Phase-I and Phase-II plan of Magadh and Amarpali Project were discussed with RITES for provision of long haul loop lines in silo bulb and all the aspects were examined. GM/RITES has explained about the work progress and shown inability in making changes in Magadh phase –I bulb plan, which will required land acquisition and new formation on changed alignment.

After discussion following decision has been taken :

1. Long haul loop should be provided in Phase-I in post bulb portion along the main load dispatch line. Further, two more long haul loop should be provided along main line in phase-II. It will facilitate simultaneous loading of long haul from two groups in phase –I and further two groups in Phase-II.

2. CCL should make arrangement of 8000 MT Silo capacity in each line to ensue loading of long haul rakes. Therefore 4 Silos should be provided in each Phase-I and Phase-II. It has been learnt that CCL has already decided the tender for 2 nos. of silo of Phase-I, if possible, both the Silos should be constructed in same line to facilitate loading of long haul in one-go.

3. Phase-I plan should be modified accordingly and Phase –II FSR should be cleared by DHN division as per above decision.

4. With the above plan, there will be no change required in bulb portion of Phase-I plan.

5. Till such time Phase-I Silo become operational, feasibility should be explored for wharf loading by construction of adequate length of wharf and track for loading.

6. The above discussion has been made for project of Magadh and similar arrangement should be made for Amarpali Phase-I and Phase-II also.

SANJAY KUMAR
Digitally signed by SANJAY KUMAR
Date: 2021.02.19 15:43:44 +05'30'

(Sanjay Kumar)
CFTM/ECR/HJP

No. ECR/OPTG/Pvt. Siding/cors./505

Hajipur, Dated : 18.02.2021

Distribution :

1. PCOM/ECR for kind information.
2. CMD/CCL for kind information.
3. Director/Tech/CCL for kind information and necessary action.
4. DRM/DHN for kind information.
5. GM/RITES/RNC for necessary action.
6. Sr.DOM/DHN for information and necessary action.

SADALA SATYANARAYAN
Project Officer
Magadh OCP

Magadh PR-II ANNEX-1.3

GM(C)/C/2021/k

Minutes of Meeting held at CCL, Darbhanga House, Ranchi on 02/03/2021 (in the 04-03-2021 conference Hall of DT(P&P,CCL) regarding the matter of Long Haulage arrangement conveyed by East Central Railway at Magadh Railway Siding, Amrapali Railway Siding and upcoming Sanghmitra Railway siding..

The following officials were present in the meeting:

Sl no	CCL	CMPDIL	RITES	IPRCL
1.	Sri Bhola Singh, DT(P&P)	Sri Jayant Chakrobarty, HOD (Opencast Divn)	Sri R.B. Roy, JGM(C)	Sri U.K. Singh, GM(BD)
2.	Sri V K Singh, GM(E&M)	Sri Binod Kr. CM(E&M)	Sri MM Akbari, SDGM(C)	Sri Binod Prasad
3.	Sri A C Moharana, GM(Civil)		Sri Kr. Rajeev Ranjan DGM(C)/Amrapali	Sri Santu kr Samanta, PSE(C)
4.	Sri S S Jha, CM(Civil)		Sri Rajeev Ranjan, DGM(C)/Magadh	Sri Rohini Raman
5.	Sri AK Panjiar, CM(E&M)			
5.	Sri C S Singh, AM(C)			

The followings were deliberated and decisions taken :

A. Magadh Railway Siding

1. CMPDI officials deliberated regarding the revised requirements of total number of Silos at Magadh Railway siding and it was mentioned that proposed loading of 40 MTY coal (10 MTY already linked through pipe conveyor to Tandwa) can be done through 3 (Three) number of Silos for Magadh Ph-I & Ph-II combined. Therefore, based on suggestions of CMPDI, the same was agreed and RITES was accordingly advised to modify their planning for phase-II). As Two no of Silos are already provisioned in Phase-I(duly approved by Railway in DPR), so only one Silo with required rail lines to be provisioned in phase-II.
2. Railway's suggestion regarding 8000 Tonne capacity Silo on each line OR 2 (Two) number of Silos with 4000 Tonne capacity to be placed in series for long haulage loading, as desired by Railway deliberated in detail. CMPDI officials clarified that the 4000 Tonne capacity Silo will be sufficient for loading of coal in Long haulage rakes, as the feeding belt capacity is sufficient and long haulage rakes can be loaded within 2(Two) hours.
3. M/s RITES informed that if proposed future line is completed at this stage for placing empty rakes, then for movement of loaded rakes, there will not be much change in the planning of already under construction Magadh (Ph-I) Railway Siding work and only loops will be provisioned in post loading portion. RITES mentioned that in view of Railways requirements for provisioning of long haulage loops in post loading portion, the same is being examined (in phase-II also with one Silo) and being firmed up. CCL agreed for the same and requested RITES to expedite.
4. CMPDIL requested to realign the alignment of Silo location as shown in FSR report submitted to Railway (for 3rd Silo coming for phase-II railway line work) in such a way that Conveyor belts of the Silo don't interfere with each other. CMPDI further informed that 4th Silo is not required now and accordingly proposal is to be modified by RITES.

SADALA SATYANARAYAN
Project Officer
Magadh OCP

5. Infringement of Road under construction, if any, during construction of formation works etc in the space meant for future rail line by RITES, is to be decided as per site conditions.
6. DT(P&P),CCL directed and M/s RITES was subsequently requested to organize a meeting at the earliest with concerned Railway officials for discussions regarding long haulage loading system at Magadh siding.

B. Amrapali Railway Siding

1. M/s RITES Ltd informed that for making arrangement of loop for long haulage loading system in Amrapali Ph-I railway siding work, Level of Railway line including Silo location will have to be regarded and Silo locations already approved by Railway(In phase-I) shall have to be raised by 5-6 m to compensate the gradients. Similarly for provisioning of loops for long haulage loading system for Phase-II (for Chandragupta) Silo location will be raised as compared to the presently approved Rail level of Phase-I Railway line.
2. In view of the more technical constraints raised by M/s RITES especially for Amrapali & Chandragupta Sidings, DT(P&P),CCL directed and M/s RITES was subsequently requested to organize a meeting at the earliest (preferably by the week ending 6th March 2021) with concerned Railway officials for discussions regarding long haulage loading system at Magadh siding and Amrapali siding with provision for Chandragupta.
3. M/s RITES Ltd was requested to examine and explore reduction in number of lines shown in the drawing ,i.e w.r.t two engine escape lines- which in similar case of Magadh siding has not been provisioned for.

C. Sanghmitra Railway siding

1. In light of requirements given by Railways for Magadh & Amrapali Siding (connected to Tori-Shivpur line) for arrangement of loops in post loading portion for long haulage loading, the same was deliberated for its provisioning in the upcoming Sanghmitra siding connected to Tori-Shivpur line. It was decided that provision should be kept for long haulage loading arrangements in Sanghmitra Railway siding. With four rail lines in the loading yard Area.
2. Requirement of number of Silos at Sanghmitra Railway siding was deliberated, wherein it was decided that total 2(Two) number of Silos (each silo with two chutes coming over two rail lines) will serve the purpose of loading of 20/27 MTY of coal through Long haulage. M/s IPRCL was according advised for taking needful action for its incorporation in DPR.
3. Land requirement is to be assessed in consultation with Environment & Forest Department and Land & Revenue Dept. of CCL. So, that action is initiated for acquisition of additional land (if required)

Yours faithfully,

General Manager(Civil)/HOD

Copy to:

1. DT(P&P),CCL, Ranchi...for kind information.

For distribution:

1. RD/RI-III,CMPDI, Ranchi....for kind information.
2. All concerned officials of CCL & CMPDI present in the meeting.

RITES/IPRCL :

3. GM(Projects), M/s RITES Ltd , RPO, Ranchi.
4. GM(P&BD),.M/s IPRCL, Ranchi.

20.10.21
SADALA SATYANARAYANA
Project Officer
Magadh OCP

File No.ECR-DHN0OPTG(PLG)/33/2020-O/OSRDOM

ANNEX-1.4

EAST CENTRAL RAILWAY

No. PL/ MAGADH-PH II/11032021 Date 10.05.2021

General Manager (P)
RITES/ Ranchi

Sub: Deposit of codal fee in connection with approval of FSR for development of additional rail infrastructure for Magadh OCP (phase -II , 51 MTPA) taking off from Bukru station.

Ref: Your letter no. RITES/Ranchi/CCL/Ph-II/ Magadh- FSR/2018 /34/95 dated 10.03.2021

In reference to the above, 'In Principle Approval' is to be issued for the proposed project subject. Observations of concerned department from division and HQ are attached herewith for compliance of the same in DPR.

Necessary action regarding deposit of codal fee for the project development of additional rail infrastructure for Magadh OCP (phase -II , 51 MTPA) taking off from Bukru station and compliance of railway observation in DPR may please be taken accordingly.

DA: 06 pages

PANKAJ KUMAR Digitally signed by PANKAJ KUMAR Date: 2021.05.11 18:14:28 +05'30'

Sr. Divisional Operations Manager
East Central Railway, Dhanbad,

Copy : COS(G) for kind information to DRM/DHN

CTPM/ECR for kind information.

10.5.21
SADALA SATYANARAYAN
Project Officer
Magadh OCP

DIVISIONAL OPTG COMMENT

1. All lines at pre silo and post silo yard (04 lines in each yard) of Phase I and Phase II should be long haul lines.

2. Two long loop lines at Bukru station are also required.

3. Pre- weightometer system in silo should be adopted.

4. "Y" connection should be provided for dispatch of loaded rakes in both end. (i.e. Tori end and Shivpur end).

HQ COMMERCIAL

The following commercial aspects also required to be added under Chapter V of the subject FSR -

(1) Compliance of Policy regarding siding matter enumerated under FM Circular No.11 of 2016 and its amendment under Rate Circular No.6 of 2021 on above Policy on Private siding.

(2) Proposed siding will work on EOL system. So it shall come up with Engine - on - Load Concept in terms of FM Circular No.5 of 2013 issued by Board vide letter no.2012/TC(FM)/18/21 dt 7.3.13 and party should also develop facilities for loading/unloading on Engine on Load Concept and design yard layouts to facilitate the same.

(3) Staff cost should be paid as per siding policy mentioned above. Their accommodation should also be as per extant rule.

(4) Environmental clearance should be taken from concerned Pollution Control Board.

(5) Railway land cannot be provided normally for construction of proposed siding.

(6) Tori - Shivpur section is under process of electrification. So, to maintain the uniformity of traction it is necessary to electrify the proposed siding keeping advantages of EOL concept in view and also to notify the siding on through distance basis.

(7) All the six proposed EIMWBs should conform to schedule of Technical Requirements as per RDSO's specification. EIMWBs should be linked with FOIS Terminal and a separate office for EIMWBs with necessary infrastructure should be provided at the cost of siding owner.

20.10.23
SADALA SATYANARAYAN
Project Officer
Magadh OCP

(8) Terminal Management System with FOIS access, as prescribed by Indian Railway, shall be installed at the proposed siding.

(9) As per para 11.1 of the Siding Policy, An Integrated Agreement, comprising Private Siding Agreement and Land License Agreement shall be signed in the revised format before commercial notification of siding.

(10) Commercial notification of the proposed siding will be done on through distance basis. So, the movement pattern of the proposed siding should be in such a manner that empty/loaded rakes may be placed /withdrawn directly without being dealt at the serving station and without involving a shunting staff particularly for this purpose.

HQ ENGG COMMENT

1. The construction and operation of private siding shall strictly be governed by prevalent Freight Marketing Circular no. 11 of 2016 dtd. 22.08.2016 along with its amendments as issued from time to time.

2. The proposed line is proposed to be constructed on CCL land. However, If additional land is required on lease/license for connectivity to the existing railway network, the quantum of the same to be spelt out in the FSR which if feasible may be leased or licensed to CCL.

3. Maximum degree of curvature is proposed as 5 (Radius 350 meter) degree. This may be reviewed. In addition, feasibility to bring the degree of curvature to 4 degree or below may be explored.

4. All points and crossing should be 1 in 12 fan shaped.

5. Gradient from CH: 3/678.171 to CH: 4/212.171(1 in 1200 F) not mentioned on the Longitudinal section (4/4). Also there is change of gradient between crossover at Ch. 0 to 106 m. which can not be permitted.

6. Details of Curves of Annexure 2.2 of the FSR and Detailed plan (4/4), do not match with those indicated on the longitudinal plan (4/4). Details of curves to be indicated correctly at both the places. This may be reviewed.

7. Para 2.2.8 of the FSR indicates the parameters connected with the profile of the formation of the proposed alignment both in filling and in cutting. This profile parameters may be reviewed duly conforming to prevalent/latest RDSO guidelines/specifications and other prevalent railway provisions.

SADALA SATYANARAYAN
Project Officer
Magadh OCP

8. The thickness of blanketing material should be decided based on RDSO 'Guidelines and Specifications for Design of Formation for Heavy Axle load Report no. RDSO/2007/GE:0014' and 'Guidelines no. GE: G-1'.

9. The chainage of one of the proposed In-Motion Weigh Bridge is CH: 316.302 m on the Detailed Plan which is CH: 258.282 m on Longitudinal Plan. This mismatch to be corrected. In case of private sidings, electronic In-motion weighbridge should generally be installed in the private land portion. Installation of Weigh Bridged may be permitted on Railway land if unavoidably essential on account of technical on operational constraints with the approval of GM as per para 4.2.1 of Rates master circular dtd. 12.06.2014. This condition to be strictly adhered to.

10. Provision, installation and functioning of weighbridges shall strictly be governed by Rates master Circular dtd. 12.06.2014 issued by Railway Board.

11. Minimum of 100 m level tangent rail track length shall be made available on either side of the In-motion Weigh Bridge.

12. Total 11 nos. of RCC box bridges have been proposed either extension or new bridges (annex. 2.5).As per latest practice, the RCC box can be provided only at locations where the subsoil conditions is non-scour. This may lead to revision of estimated cost of the project work, therefore should be considered in submission of correct estimated cost.

HQ S&T: SAME AS DIVISION
HQ TRD: SAME AS DIVISION
HQ OPTG: SAME AS DIVISION

SADALA SATYANARAYAN
Project Officer
Magadh OCP

EAST CENTRAL RAILWAY

No. W500/Drg./Pt.XII Dhanbad, dt. 25.03.2021

Sr. Divisional Operating Manager
ECR Dhanbad

Sub: - FSR for development of siding for Magadh OCP, Phase-II taking off from Bukru station.

Ref: your office letter no.PL/MAGADH-PH II/11032021 Dated 15.03.2021

Subject mentioned FSR was checked and following observations raised for compliance:

1. Proposed plan should be prepared & submitted along with checklist of yard plan.
2. TPTC & TPCC point at both side of curve should be shown (Like TPTC1, TPCC1, TPCC2, TPTC2).
3. Curve details for proposed tracks should be shown with following details: Curve no., Deflection angle, Degree of curve, Tangent length, and Curve length, Length of transition curve, Super elevation & speed potential to each curve should be mentioned.
4. Distance of station building from Kathotia should be corrected as per approved ESP.
5. Name of station on both side in plan should be mentioned.
6. At the location of FOB, two chainages mentioned. This should be corrected as per approved ESP.
7. At the location of Br. No. 66, two chainages mentioned. This should be corrected as per approved ESP.
8. Existing dead end at ch. 555m from CSB should be corrected as per approved ESP.
9. Direction of flow of bridges should be shown.
10. Nomenclature of existing as well as proposed tracks should be corrected as per approved ESP.
11. Existing tracks should be in black colour. Whereas, same shown in blue colour.
12. Approach road of width 3.5m width from br. No. 65(ROB) to village Chetar on station building side should be shown as per approved ESP.
13. Distance of Railway boundary should be corrected between km. 26.995 to km. 27.050 to be corrected as per approved ESP.
14. Direction of cross over should be corrected from line no. 03 to line no. 04 between chainage 720m 945m as per approved ESP.
15. Track center for existing track should be mentioned as per approved ESP.
16. Provision of FM should be shown for every points.

DALA SATYANARAYAN
Project Officer
Magadh OCP

Sr.DEN/I/DHN
E.C.R. Dhanbad

East Central Railway

Dhanbad, dt- 26/03 / 2021

No. SG.662/8/Works

Sr. Divl. Operations Manager
East Central Railway
Dhanbad

Sub: FSR for development of additional rail infrastructure for Magadh OCP(phase-II, 51MTPA) taking off from BUKRU station.

Ref:- Your letter No. PL/MAGADH-PH II/11032021, dtd-15/03/2021.

****

Approval of ESP of Bukru station is under process for the work of " Construction of new 3rd line between Tori – Shivpur ". This is a sanction work and the work is being executed by Dy.CE/Con-1/HZME.

Therefore the alteration work for development of siding for Magadh OCP(phase-II, 51MTPA) taking off from BUKRU station may be processed only according to the approved plan of Bukru station for the new 3rd line work executed by Dy.CE/Con-1/HZME.

This is for your information and necessary action please.

26/03/2021

Sr.Divl. Signal & Telecom. Engr
East Central Railway / Dhanbad

SADALA SATYANARAYAN
Project Officer
Magadh OCP

Office of the,
Sr. DIV. Elect. Engineer (TRD),
DRM office, Dhanbad.
P.O. & Dist. Dhanbad -826001
Phone-0326-2220535, Mob. 07711426801

No. ELD/367/FSR/Siding (Magadh OCP) Dhanbad, dt. 18/03/2021

Sr. Divl. Operations Manager,
Dhanbad.

Sub: Comments on FSR for development of additional rail infrastructure to serve Magadh OCP PH-II (for 51 MPTA) taking off from Bukru Station (Jan. 2021) TRD comments

Ref : Your letter No. PL/Magadh- PH-II/11032021 dt. 15/03/2021.

The referred letter and FSR report has been received by this office on 16/03/2021. The comments on subject FSR for development of additional rail infrastructure for Magadh OCP PH-II (for 51 MPTA) taking off from Bukru Station is furnished as under towards electrification as framed by RITES Limited, Ranchi-834002 for CCL.

The siding has been proposed for elelctrification for seamless working vide para 1.5 and 4.0. of FSR.

1. Length of Siding to be ellectrified (Page- 17,para 4.2.3) = 14.0 Km. (incl. modifn.)
2. Mode of traction proposed in the siding vide 1.5 (page-6) = Electrifn.proposed.
3. Cost of electrification works (incl. SSP at Magadh siding) = Rs. 53.40 crores (excl. GST & other charges)

It is mentioned that mode of traction (TRD works) not proposed under Silo loading of the siding. Detailed cost for 14 TKM OHE, SSP at Magadh siding, 10KVA Aux. Transformer for panel cabin are enclosed at Annex. E1, E-2, E2A has been considered in the FSR.

The siding maintenance has not been considered in FSR. As per FMC No. 6 of 2020 vide No. 2018/TC(FM)/14/04 dt. 23/06/2020 (Amendment 5 of FMC 11 of 2016) as implemented for private siding where OHE maintenance (at para 1.4) cost for new as well as old siding to be borne by siding owner. A provision for siding maintenance of Phase-I & Phase-II shall be kept in the estimate to start the outsorcing as soon as warranty expired. Present cost of siding OHE malnatence per TKM is approx. 0.60 lakhs/TKM through outsoircing the OHE maintenance activities except PSI maintenance.

As such, detailed comments will be given on submission of DPR with laycut plan, sectioning diagram, wiring diagram & OHE key plan and detailed estimate of OHE, PSI, SCADA work.

The above may please be looked into and ensured before finalization of FSR.

Sr. Divl. Elect. Engineer(TRD),
East Central Railway, Dhanbad.

Copy to:
PCEE/ECR/HJP, for kind information.

A. A. SATYANARAYAN
Project Officer
Magadh OCP

Sr. Divl. Elect. Engineer(TRD),
East Central Railway, Dhanbad.

East Central Railway

No. XG.90/Sdg/FSR/2021

Office of the
Coal Area Manager
Dhanbad, dt. 25.03.2021

Sr. Divisional Operations Manager,
E.C.Rly/Dhanbad.

Sub: - FSR for development of additional rail infrastructure for Magadh OCP (phase – II, 51 MTPA) taking off from Bukru station.

Ref: - (i) RITES letter no. RITES/Ranchi/CCL/Ph-II/Magadh – FSR/2018/34/95 dated 10.03.21.

(ii) Your office letter No. PL/MAGADH-PH-II/108202/ dtd. 13.03.2020

In connection with your letter under ref (ii), dtd. 15.03.21 the feasibility study report for construction of Magadh OCP (phase –II, 51 MTPA) of CCL as per commercial norms is furnished below:-

1. As per Railway Board's letter No. TC-I/2019/108/1, dtd. 11.07.19, all loading points should be covered by weighbridge, siding owner provide the weighbridge at its own cost. Such weighbridges also be Integrated with FOIS and cost of integration shall also be borne by siding owner.

2. The siding owner should bear the cost of staff cost in each shift.

3. TMS (FOIS) terminal shall be installed at the siding and all costs related to Installation bore by siding owner, siding owner shall also provide all facilities like room, furniture, electricity, network connectivity for issuing of Railway Receipt (RR).

4. Siding owner shall sign the Private Siding Agreement in the revised Format before Commissioning of the siding and before issue of Commercial Notification of the siding.

5. This siding will work on Engine on load scheme, siding owner should develop fraction for loading and unloading on "Engine on load", Concept and design of yard in such manner the loading and unloading of same rake by same Engine under free time. The siding owner will be required to opt for the Engine on load operation under agreement.

6. Siding owner should also take environment clearance by Union Ministry of Environment and Forest for the Construction of silo & operation for Magadh OCP (phase – II, 51 MTPA)

7. Joint Survey of TI/Coal, FIO under Sr. DME(C&W)/DHN, TI/Movement/Tori, SSE(P.Way)/ Tori, SSE(Works)/ Tori, Signal Inspector/ Tori & S.M/ Tori should be conducted from Railway side for feasibility study of proposed site & Joint Survey report should include gradient, centre to centre distance, turn out, length of siding from siding from serving station and also shunting is required for placement and drawn rakes.

8. CCL should agree with all the terms & suitable condition on private siding of Freight Marketing Circular No 11 of 2016 (modified circular dtd. 23.06.20) & other extant circular from time to time.

This is for your information and necessary action please.

25/3/21
Coal Area Manager
E.C.Rly,Dhanbad

SADALA SATYANARAYAN
Project Officer
Magadh OCP

ANNEX-1.5A

cc: Cross op
Sent by mail
[illegible] 7/21

Note

Sub: Planning, Project monitoring and construction of Rail Infrastructure facilities to serve Magadh OCP of CCL. Regarding meeting at Dhanbad Division of EC Railway on 23.06.2021.

Ref: (i) CCL's Work Order no:-GM(C)/IC/WO/Magadh/2016/236, dated: 14.07.2016

A meeting held on 23.06.2021 in the chamber of Sr.DOM/Dhanbad regarding development of Bukru yard of Tori-Shibpur section of ECR.

Member Present.

Railway		RITES	
Mr. Pankaj Kumar	Sr.DOM	M.M.Akbari	Jt.GM(C)
Mr. Kunal	Dy.CE (Con)	Rajeev Ranjan	DGM(C)

Development of Bukru Yard has been discussed in length and it has been decided by Sr.DOM in consultation with DRM that all works in Bukru yard shall be taken up by Railway including development of ESP, bridge work etc for provision of third line, long haul as well as Magadh siding.

Takeoff point in Bukru yard shall be provided by Railway for Magadh siding considering the formation work already completed for Magadh siding shall not be made futile.

Sr.DOM has informed that this has also been discussed by DRM/Dhanbad with CAO/Con on date.

Submitted for kind information and further advise please.

25/6/21
(M.M.Akbari)
JGM(C)/Ranchi

GM(P)/RITES/RPO Ranchi

Copy to:

(i) SrDOM/Dhanbad/EC Railway
(ii) Dy.CE(Con)/ECR/Hazaribagh

SADALA SATYANARAYAN
Project Officer
Magadh OCP

Mathrapur Siding	• Comment of HQ/Civil on ESP to be given to RITES • Approval of GAD of 02 bridges by HQ is awaited • Early shifting of S&T cable from Sonardih Loop to Hindustan Zinc Boundary Division to give estimate to RITES
Patherdih Siding MTPA Railway Siding	03 nos of location box and 1 no Signal mast needs to be shifted at ch 4/600. RITES requested Division to expedite. Division stated that utility Shifting is the responsibility of RITES Ltd
Nagesh Railway Siding Phase-I	RITES requested for early finalization of modified ESP of Bukru yard. Construction is revising yard plan. RITES requested that their take off point should not be disturbed, as Rail over rail crossing Tori Shivpur line has already been approved
Shivpur - Kathotiya Line	**IRCON** • Out of total 100 nos GAD drawings 60 have been approved. IRCON requested to Division to approve balance 40 nos GAD drawings expeditiously. • IRCON to submit drawings for major Bridges ROBs Wild Life passages

W/606/Drg /Pt XII/Meeting

Dhanbad, dtd: 14.09.2021

ASHOK KUMAR MAHTHA
Digitally signed by ASHOK KUMAR MAHTHA
Date: 2021.09.15 13:00:24 +05'30'

(Ashok Kumar Mahtha)
Addl Divisional Railway Manager/Infra
East Central Railway,
Dhanbad

To:

1. Ch OS/G – For Kind information of DRM/DHN
2. Sr DEN/C, Sr.DSTE, Sr.DEE/TRD, Sr.DEE/G, Sr.DEN/Estate, Sr.DEN/1, Sr DEN/2, Sr.DEN/3, Sr.DEN/4, Sr.DEN/5
3. RITES – For Kind information & necessary action.
4. IRCON – For Kind information & necessary action.
5. RVNL – For Kind information & necessary action.

VADALA SATYANARAYAN
Project Officer
Magadh OCP

ANNEX-1.5C

GM (C)/IC/2021/689

05 .11 .2021

Minutes of meeting held on 03rd Nov 2021 in the conference hall of new building, CCL, RANCHI between all stake holders, for deliberations on Draft DPR submitted by M/s RITES for development of additional rail infrastructure for Magadh OCP Ph-II (51MTY)

The followings were present:

SL no	CCL	RITES	CMPDI
1	Sri P.Chanda , GM(P&P),CCL	Sri M.M.Akbari , Jt.GM(C)	Sri J.Chakrovarty , RD,RI-3
2	Sri Ramesh Jha, GM(C)/IC	Sri Rajeev Ranjan ,DGM(C)	Sri Utpal Kr. Sarkar , Mgr(E&M)
3	Sri S.S.Jha, CM(C)/IC	Sri R.Thomas , Expert (Civil)	Sri P.S.Naidu ,Mgr (E&M)
4	Sri Vinod Kumar , AM (C)/Magadh		
5	Sri Raghu Raj Ratnam,Dy. Mgr (E&M)		
6	Sri Satender Kumar ,Dy. Mgr (Env)		
7	Sri Anuj Kumar ,SO(P&P)/Magadh		

A presentation was made by M/s RITES on the salient features envisaged in draft DPR and issues pertaining to above works related with Magadh OCP Ph-II railway siding. Discussions were held at length and the decisions taken are as under: -

1. RITES mentioned that the draft DPR has been prepared in view of the observations received from E.C. Railway, regarding additional requirement for provisioning of Long Haulage requirement for Ph-I and Ph-II works. It was elaborated by RITES that E.C. Railway has been informed regarding already awarded work of Silo/conveyor for CHP (Ph-I) & regarding already achieved formation level of Ph-I works of Magadh Railway siding.

2. RITES mentioned that keeping in view of above status, Railways have advised for provisioning of 1(one) post-loading loop for Ph-I Railway siding work and 2(two) additional loops for Ph-II Railway siding work.

3.a) **PHASE-I portion:** It has been explained in Draft DPR (annexure 1.6) by M/s RITES that existing empty line of Ph-I will be shifted towards Shivpur side – i.e. initially proposed future line will be empty line. It has further been suggested that the existing loading line(Ph-I) will remain the same , however an additional long haulage loop towards Bukru side has been proposed in draft DPR , which may require additional land.

The same was deliberated in detail and it was decided that the shifting of suggested empty line by RITES is ok, however the existing empty line (after its re-gradation etc.) should be utilized as a load line to minimize the over all cost and the suggested loading line by M/s RITES in draft DPR should now be provisioned as additional long haulage loop as required by Railway. By the way of re-gradation the cost of the project will be minimized and also one proposed loop line in draft DPR will be eliminated. It is also advised to keep provision for all the three lines in a same formation level so that it may facilitate in future planning.

SADALA SATYANARAYAN
Project Officer
Magadh OCP

b) **PHASE -II portion** : RITES mentioned that they have kept provisioning of long haulage arrangement in Ph-II in both pre-loading and post-loading portions along with additional long haul loops as required by Railway. It was deliberated and advised that RITES should examine for provisioning of above additional loops keeping in view of minimum additional required land as fresh land acquisition will take considerable time.

4. CMPDI officials deliberated on the matter of Silo location of Ph-II (one No. Silo) and advised RITES to keep the same Silo location earlier provided.

5. It was requested by CCL for an early preparation and submission of final DPR keeping in view the above decisions. RITES mentioned that final DPR will be submitted within 20th November 2021 and requirement of additional land required shall be firmed up after plotting of final alignment of DPR on Mouza map by 25th November 2021.Area officials in this regard shared the soft copy of Mouza map with RITES.

The meeting ended with thanks to all stake holders.

05-11-21

General Manager(C)/IC

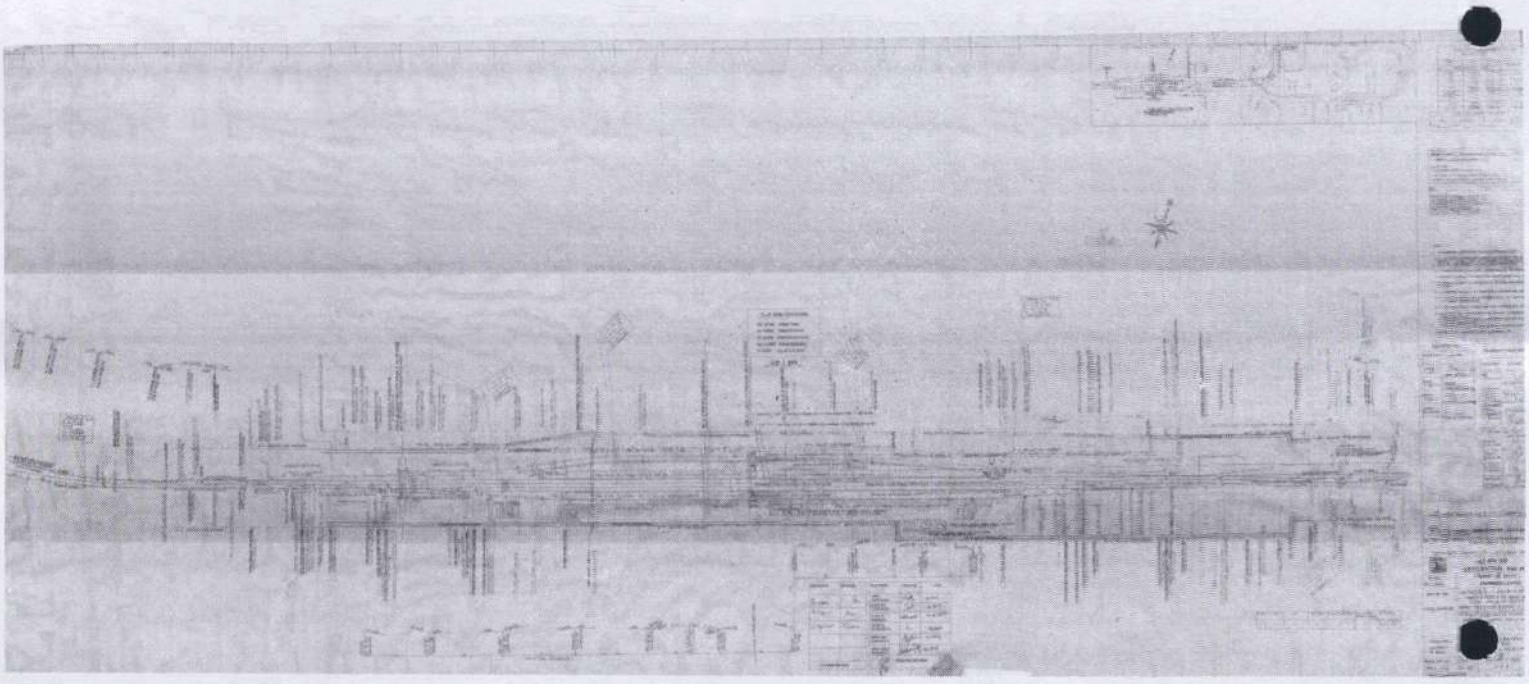
Copy to:
1. DT(P&P), CCL, Ranchi.... for kind information.
2. GM(P&P), CCL, Ranchi .
3. GM(E&M)/HOD, CCL, Ranchi
4. GM (M&S Area)
5. GM(C)/HOD, CCL
6. SO(P&P) ,(M&S Area)
7. SO(C) , (M&S Area)

CMPDI:
1. RD, RI-3, CMPDI
2. GM (E&M)/HOD,CMPDI

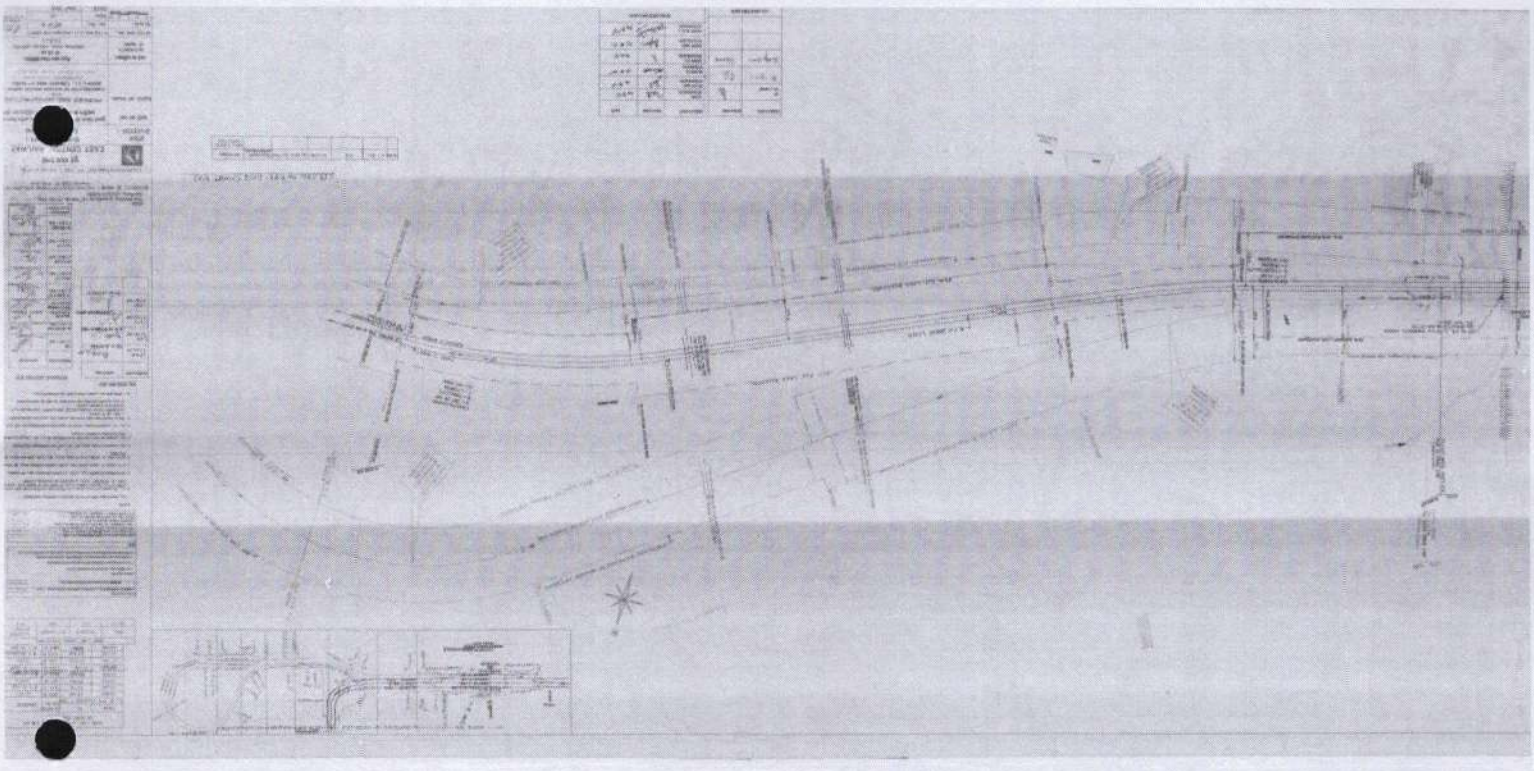
RITES:-1. GM RITES, RPO Ranchi
2. JGM RITES, RPO Ranchi

20.10.21

SADALA SATYANARAYAN
Project Officer
Magadh OCP



20.10.22
SADALA SATYANARAYAN
Project Officer
Magadh OCP



20.10.13
SADALA SATYANARAYAN
Project Officer
Magadh OCP

SADALA SATYANARAYAN
Project Officer
Magadh OCP

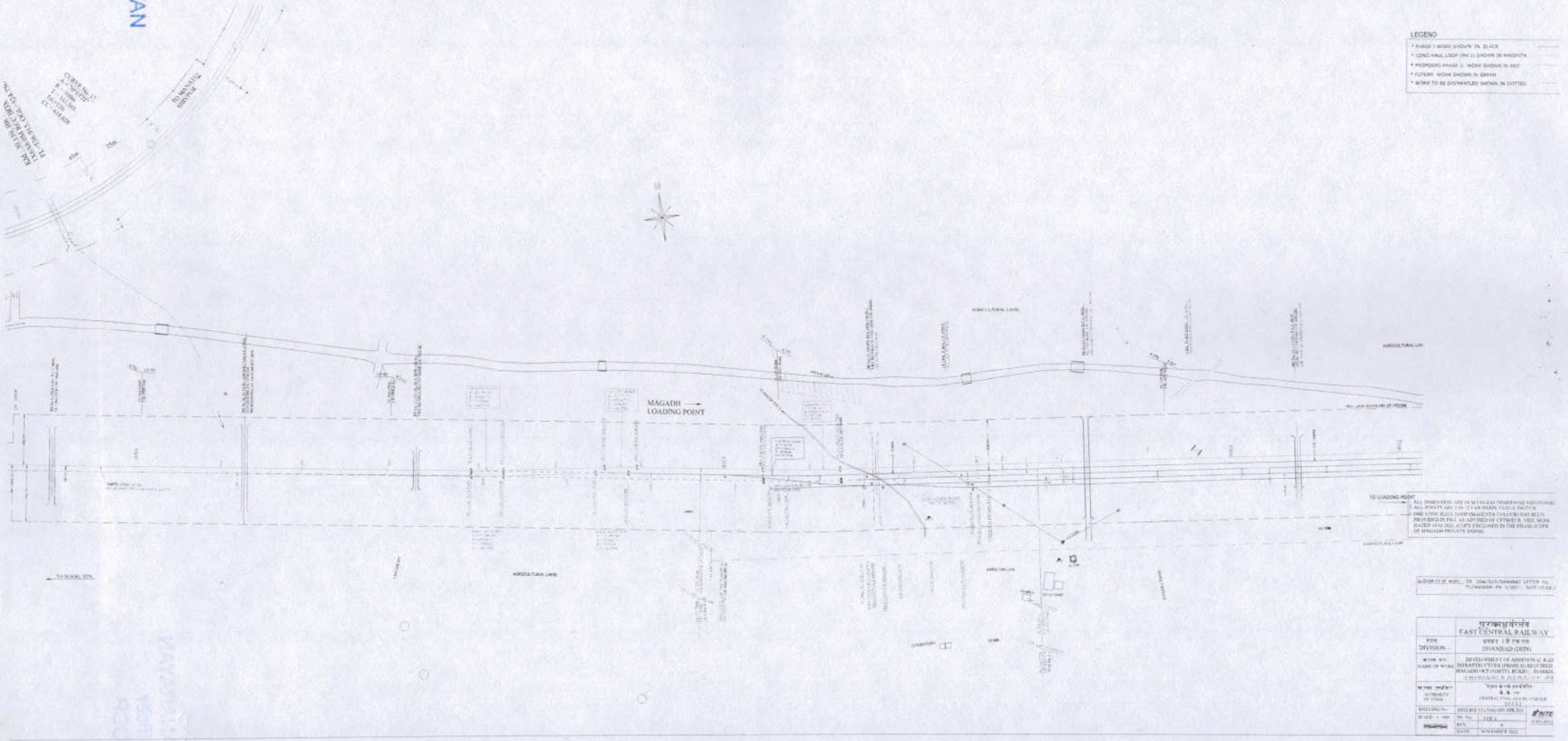
ANNEX: 1.

ADALA SATYANARAYAN
Project Officer
Magadh OCP

ANNEX: 1

LEGEND

- PHASE I WORK SHOWN IN BLACK
- LONG HAUL LOOP (RK 1) SHOWN IN MAGENTA
- PROPOSED PHASE II WORK SHOWN IN RED
- FUTURE WORK SHOWN IN GREEN
- WORK TO BE DISMANTLED SHOWN IN DOTTED



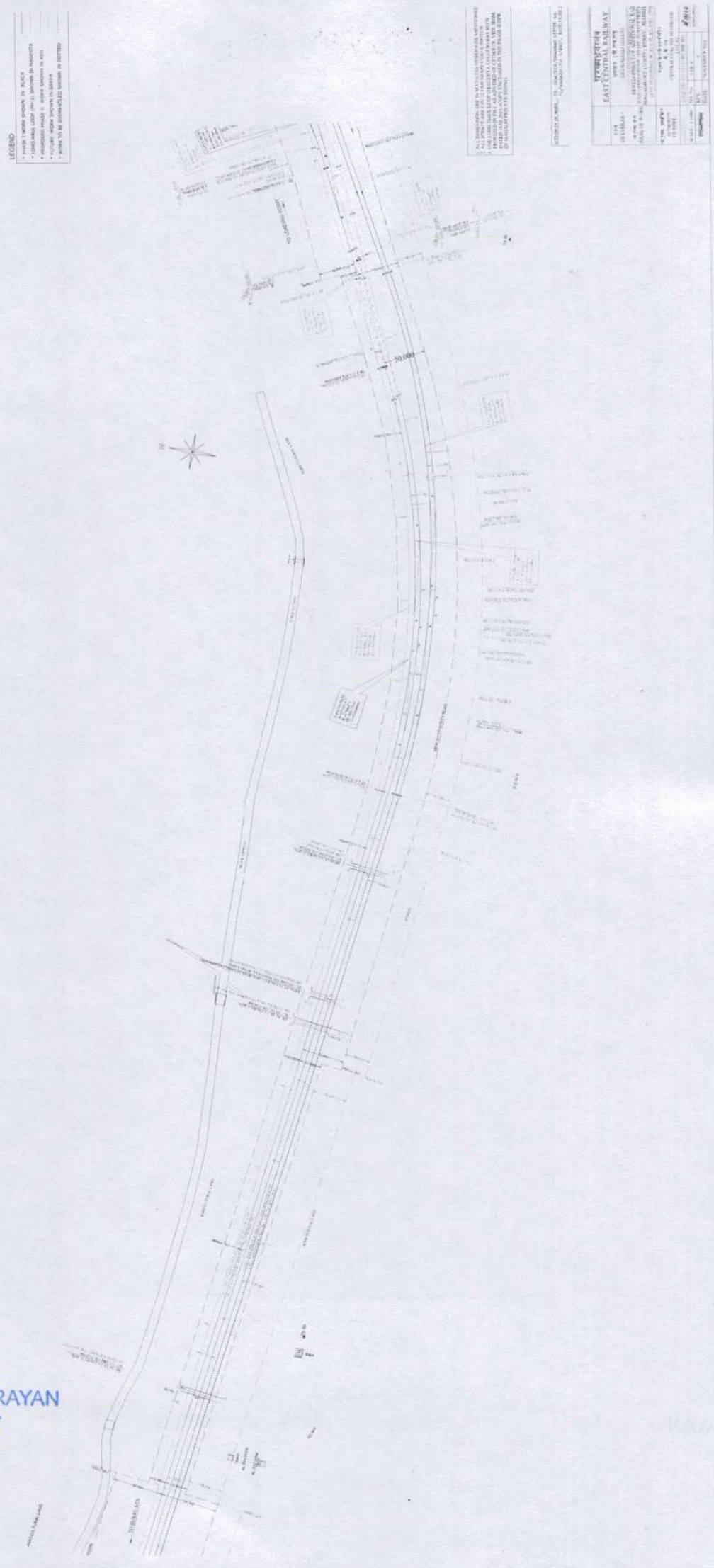
1. ALL DIMENSION ARE IN M UNLESS OTHERWISE MENTIONED.
2. ALL POINTS ARE 1 IN 12 TAN SHAPE CURVE SWITCH
3. ONE LONG HAUL LOOP (MAGENTA COLOUR) HAS BEEN PROVIDED IN PH-II AS ADVISED OF CPTM/ER, VIDE MOM. DATED 19.02.2021, COPY ENCLOSED IN THE PHASE-II DPR OF MAGADH PRIVATE SIDING.

AUTHORITY OF WORK: DR. (Dem)/ECR/DHANBAD/ LETTER No. PL/MAGADH- PH II/2021, DATED 15.02.21

	पूर्व मध्य रेलवे / EAST CENTRAL RAILWAY
WORK DIVISION :	DHANBAD (DHN)
NAME OF WORK :	DEVELOPMENT OF ADDITIONAL RAIL INFRASTRUCTURE (PHASE-II) RECEIVED MAGADH OCP LIMITED, BOKARO - DHANBAD
AUTHORITY OF WORK :	पत्र सं एम ओ सी/ पी-II/ 19 DATED 15.02.21
ESTD. EST.(Rs.) :	ESTD. RFE TO CNB/ECR/ DHN/2021
SCALE : 1:1000	SHT. No. 1 OF 1
	REV. 0
	DATE : NOVEMBER 2021

WAY

ANNEX: 1



SADALA SATYANARAYAN
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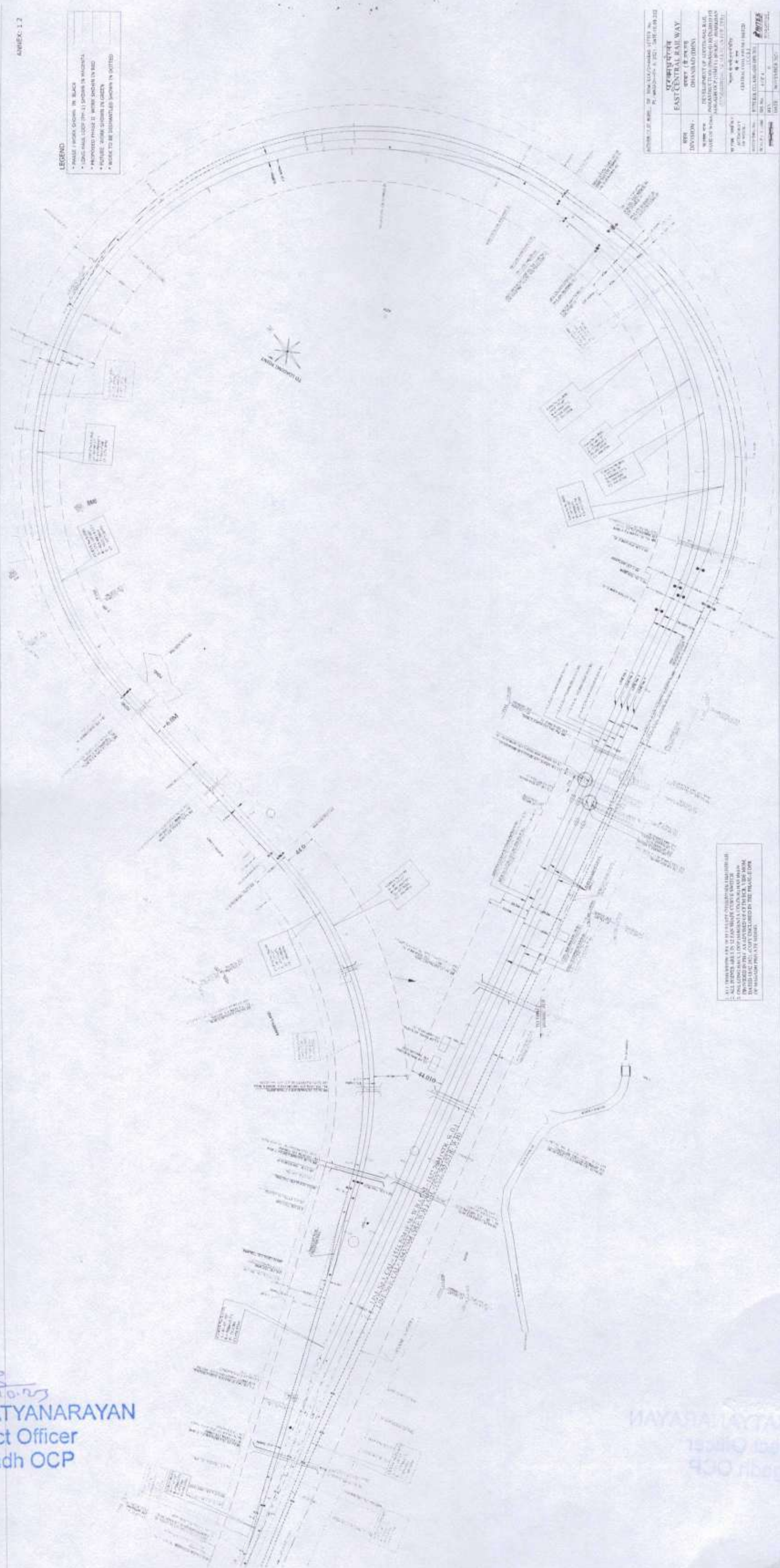
Magadh OCP



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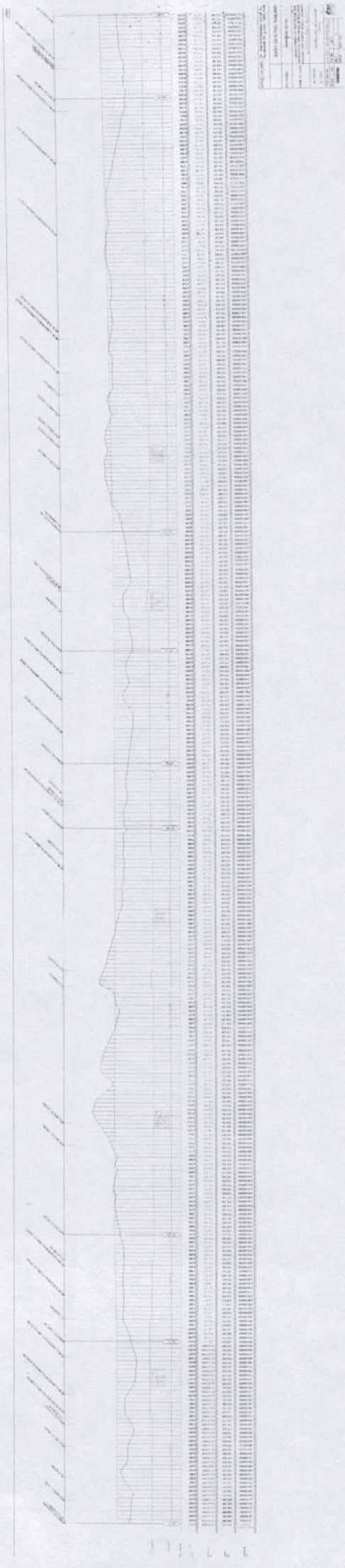
Project Officer
Magadh OCP



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Magadh OCP

ANNEX: - 2.0

List of Bench Mark

Sl. No.	TBM	Elevation (m)	Location	Remarks
1	TBM-01	542.383	Top of the culvert Near OHE 26\27	Paint Mark
2	TBM-02	541.470	Top of the Concrete Drain(Backward side of Bukru station Building)	Paint Mark
3	TBM-03	541.670	Top of the Concrete Place of OHE(OHE No.26\30	Paint Mark
4	TBM-04	541.879	Top of the Existing Bridge no.72(Between OHE 27\8 to 27\10)	Paint Mark
5	TBM-05	541.992	Top of the Concrete Place of OHE(OHE No.27\28)	Paint Mark
6	TBM-06	541.998	Top of the Concrete Place of OHE(OHE No.27\40)	Paint Mark
7	TBM-07	542.211	Top of the Concrete Place of OHE(OHE No.28\06)	Paint Mark
8	TBM-08	542.950	Top of the Concrete Place of OHE(OHE No.28\26)	Paint Mark
9	TBM-09	545.952	Top of the Bitumine road edge(Between OHE 29\6 to 29\7)near Br no-5	Paint Mark
10	TBM-10	540.387	Top of the culvert (Between OHE 29\23 to 29\25)near Royal Camp	Paint Mark
11	TBM-11	536.185	Top of the Bridge(Br no-8)	Paint Mark
12	TBM-12	530.850	Top of the Culvert(Near Br no-9)	Paint Mark
13	TBM-13	526.652	Top of the Culvert(Near Br no-10)	Paint Mark
14	TBM-14	530.448	Top of the Culvert(Between Br no-11 to Br no-13)	Paint Mark
15	TBM-15	520.396	Top of the Culvert(Near Br no-13)	Paint Mark
16	TBM-17	534.308	Top of the Culvert(Between Br no-13 to Br no-14)	Paint Mark
17	TBM-18	541.430	Top of the Culvert(Near Br no-15)	Paint Mark
18	TBM-19	536.611	Top of the Concrete Drain(Between Br no-15 to Br no-16)	Paint Mark

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19	TBM-20	537.444	Top of the Culvert (Near Br. No.16).	Paint Mark
20	TBM-20	537.444	Top of Concrete road side Guard Pillar of existing Bituminous road side (Br No -16 to Br. No 17) .	Paint Mark
21	TBM-21	539.016	Top of the Stone at existing Bituminous road side (Between Br. No. 16 to Br. No. 17)	Paint Mark
22	TBM-22	525.969	Top of the Stone (Between Br. No. 17 to Br. No. 18)	Paint Mark
23	TBM-23	518.562	Top of the Culvert (Between Br. No. 17 to Br. No. 18)	Paint Mark
24	TBM-24	526.095	Top of the Stone (Between Br. No. 20 to Br. No. 19	Paint Mark
25	TBM-25	523.159	Top of the Bridge (Br.No. 23 under pass)	Paint Mark
26	TBM-26	527.242	Top of the Bridge (Br.No. 21)	Paint Mark
27	TBM-27	535.286	Top of the Stone , Near Bridge No.24	Paint Mark
28	TBM-28	531.561	Top of the Stone , Near Bridge No.25	Paint Mark
29	TBM-29	524.331	Not available	Paint Mark

SADALA SATYANARAYAN
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Annex-2.1

GRADIENT STATEMENT

Total Route Length of Line = 7163.326 m

Sl. No.	Chainage in 'm'		Length in 'm'	Grade	Remarks
	From	To			
01	0	872.17	872.17	Level	Level
02	872.17	1387.23	515..06	1 in 249.787	Rise
03	1387.23	3326.43	1939.20	1 in 1200	Fall
04	3326.43	3635.85	309.42	Level	Level
05	3635.85	4169.85	533.585	1 in 1200	Fall
06	4169.85	4737.30	567.865	Level	Level
07	4737.30	6801.00	2063.70	1 in 402.28	Rise
08	6801.00	7201.00	400.00	1 in 265	Rise

GRADIENT ABSTRACT

Total Route Length of Line = 7163.326 m

Sl. No.	Grade	Length In (m)	% of Length	Remarks
01	Level	1749.455	24.294	
02	1 in 249.787	515.06	7.152	
03	1 in 1200	2472.785	34.339	
04	1 in 402.28	2063.70	28.658	
05	1 in 265	400.00	5.554	
	Total	7201.00	100%	

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Annex-2.2

LIST OF CURVE

Total Route Length of Line = 7163.326 m

Sl. No.	Curve No.	Radius of Curve In m	Chainage in 'm'		Deflection Angle	Total Length of Curve In m	Direction	Remarks
			From	To				
01	P1	450	506.33	979.552	60°15'09"	473.222	LHS	
02	P2	433.1	1263.75	2569.41	168°49'50"	1305.66	RHS	
03	P3	400	2645.647	3203.154	79°51'25"	557.507	RHS	
04	P4	1750	4358.956	4458.145	03°14'51"	99.189	LHS	
05	P5	1000	4765.33	5392.294	35°55'20"	626.961	RHS	

CURVE ABSTRACT

Total Length of Line = 7163.326 m

Sl. No.	Radius of Curve in (m)	No. of Each	Length in (m)	Total Degree of Curvature	% Of Curvature of Total Length of Line
01	450.00	1	473.222	3.89°	6.60 %
02	433.1	1	1305.66	4.04°	18.29 %
03	400.00	1	557.507	4.37°	7.78%
04	1750.00	1	99.189	1.0°	1.33 %
05	1000		626.961	1.75°	8.75 %
				Total	42.80 %

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Annex-2.5

LIST OF BRIDGES

MINOR BRIDGE

Total Route Length of Line = 7163.326 m

Sl. No.	Bridge No.	Chainage in (m)	Span in (m)	Type of Bridge	Remarks
01	19A	137.370	1X6.0mX6.0m	R.C.C. Box	CROSS DRAINAGE (BOTH SIDE)
02	20A	528.440	1X6.0mX6.0m	R.C.C Box	NALA CROSSING (ONE SIDE)
03	21A	637.790	1X6.0mX6.0m	R.C.C Box	VILLAGE ROAD CROSSING (RUB)
04	22A	797.280	1X6.0mX6.0m	R.C.C Box	NALA CROSSING (ONE SIDE)
05	23A	1094.630	1X4.0mX4.0m	R.C.C Box	CROSS DRAINAGE (ONE SIDE)
06	24A	1234.670	1X4.0mX4.0m	R.C.C Box	CROSS DRAINAGE (ONE SIDE)
07	25A	3133.370	1X3.0mX3.0m	R.C.C Box	NALA CROSSING (ONE SIDE)
08	26A	3435.360	1X2.0mX2.0m	R.C.C Box	NALA CROSSING (ONE SIDE)
09	27A	3783.330	1X6.0mX6.0m	R.C.C Box	NALA CROSSING (ONE SIDE)
10	28A	3940.200	1X6.0mX6.0m	R.C.C Box	VILLAGE ROAD CROSSING (RUB)
11	29A	4065.200	1X6.0mX6.0m	R.C.C Box	NALA CROSSING (ONE SIDE)
12	18A	5497.130	1X2.0mX2.0m	R.C.C Box	NALA CROSSING (ONE SIDE)
13	17A	5656.820	1X6.0mX3.0m	R.C.C Box	VILLAGE ROAD CROSSING (RUB)
14	16A	5692.580	1X3.0mX3.0m	R.C.C Box	NALA CROSSING (ONE SIDE)
15	15A	6153.120	1X2.0mX2.0m	R.C.C Box	NALA CROSSING (ONE SIDE)
16	14A	6491.950	1X6.0mX6.0m	R.C.C Box	VILLAGE ROAD CROSSING (RUB)
17	13A	6742.290	1X6.0mX6.0m	R.C.C Box	NALA CROSSING (ONE SIDE)

BRIDGE ABSTRACT

MINOR BRIDGE

Total Route Length of Line = 7163.326 m

Sl. No.	Type of Bridge	Span in Meter	Total No. of Span	Linear Water way in Meter
01	R.C.C. Box	1X6.0mX6.0m	5	30
02	R.C.C. Box	1X4.0mX4.0m	2	8
03	R.C.C. Box	1X3.0mX3.0m	2	6
04	R.C.C. Box	1X2.0mX2.0m	3	6
05	R.C.C. Box	1X6.0mX6.0m	4	RUB
06	R.C.C. Box	1X6.0mX3.0m	1	RUB

TOTAL LINEAR WATER WAY FOR MINOR BRIDGES = 50.0 m
LINEAR WATER WAY PER KILOMETRE= 6.98 m

SADALA SATYANARAYAN
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Annex-2.6

LIST OF ROAD CROSSING

Total Route Length of Line = 7163.326 m

Sl. No.	Chainage in 'm'	Type of Xing	Remarks
01	637.79	Village Road Xing	Road to be diverted RUB at CH. 637.79
02	1875.00	Existing Road Xing	Road is Non functional
03	3940.20	Village Road Xing	Road to be diverted RUB at CH 3940.20
04	5656.82	Village Road Xing	Road to be diverted RUB at CH 5656.82
05	6491.95	Village Road Xing	Road to be diverted RUB at CH 6491.95

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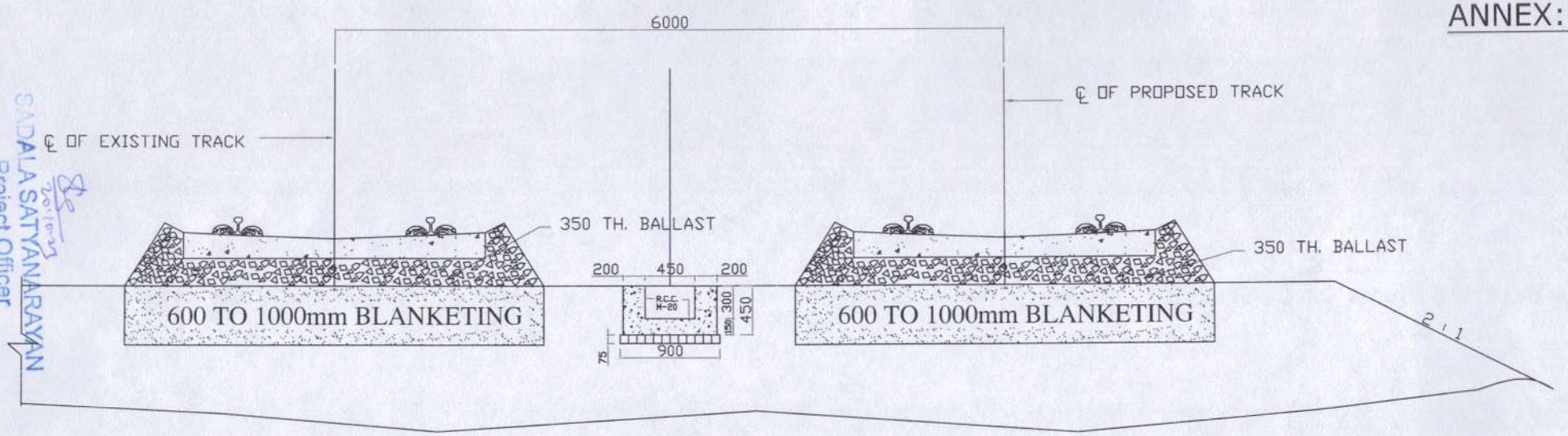
ANNEX:- 2.4



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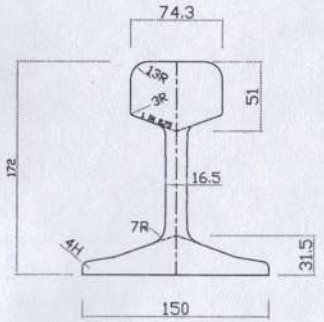
Project Officer
Magadh OCP

TYPICAL SECTION OF BALLAST PROFILE DOUBLE B.G. LINE

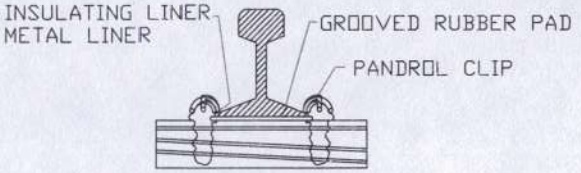
NOT TO SCALE

350mm Th. BALLAST
210mm Th. SLEEPER AT RAIL SEAT
6 mm Th. RUBBER PAD
172mm RAIL Ht.

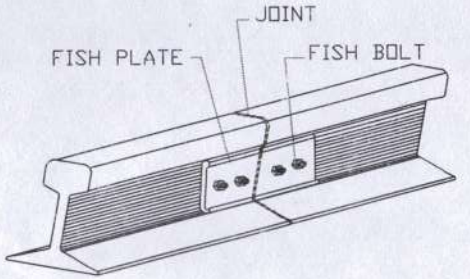
TOTAL 738 mm. F.L TO RAIL TOP



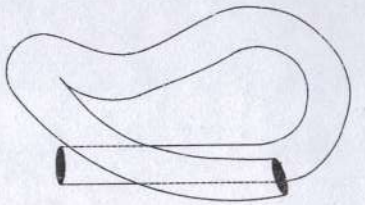
CROSS SECTION OF 60 Kg RAIL



DETAILS AT RAIL SEAT

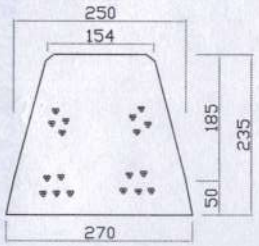


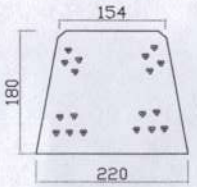
FISH PLATE

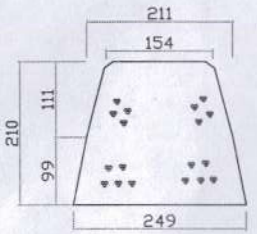


PANDROL CLIP
SCALE

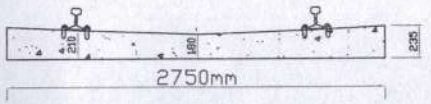
ALL DIMENSIONS ARE IN MILLIMETRES







DETAILS AT PCS-12 SLEEPER



DETAILS AT MONO BLOCK P.C.S.

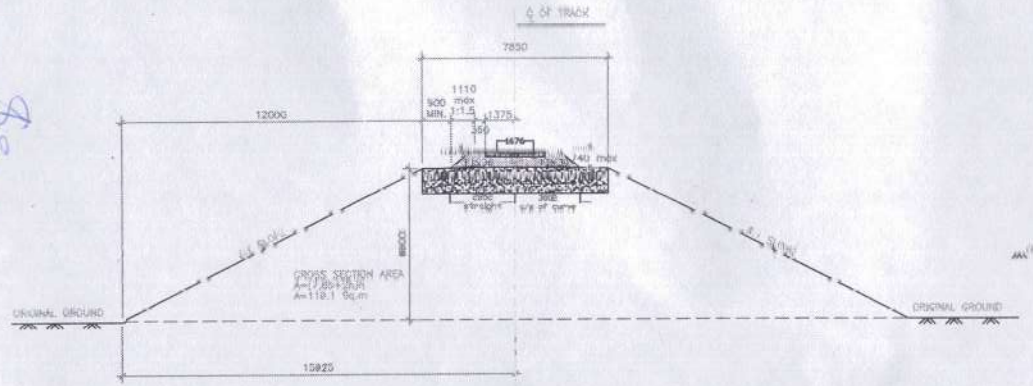
STANDARD DRAWING.

DETAILED OF TRACK STRUCTURE 60Kg. RAIL

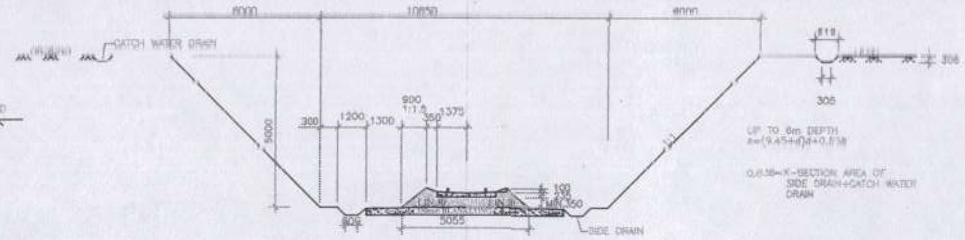
SCALE	Drg. No.	RITES/KOL	RITES THE INFRASTRUCTURE PROJECT CONSULTANT
NOT TO SCALE	Sh. No.		RITES LIMITED (A GOVT. OF INDIA ENTERPRISES)
	Date	SEPTEMBER - 2019	

DETAILS OF TRACK STURCTURE

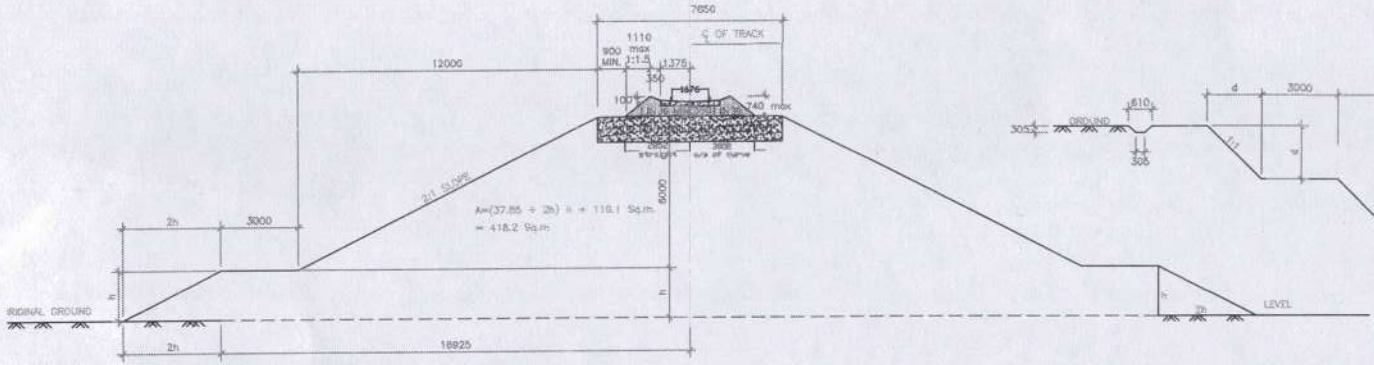
ANNEX:-2.3



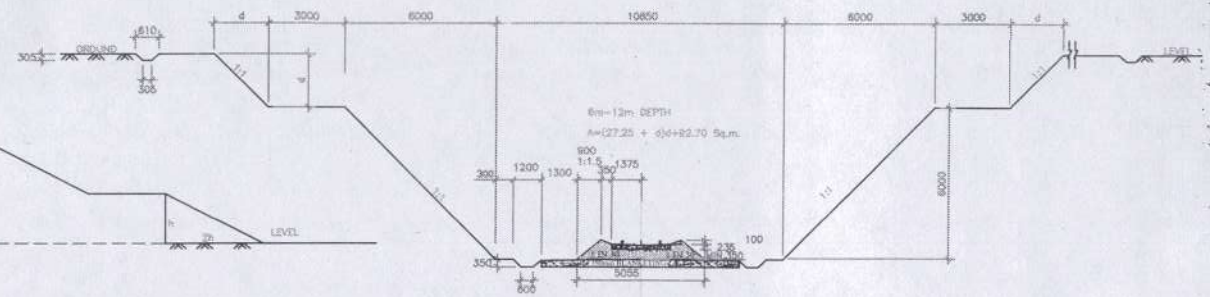
EMBANKMENT UP TO 6m HIGH



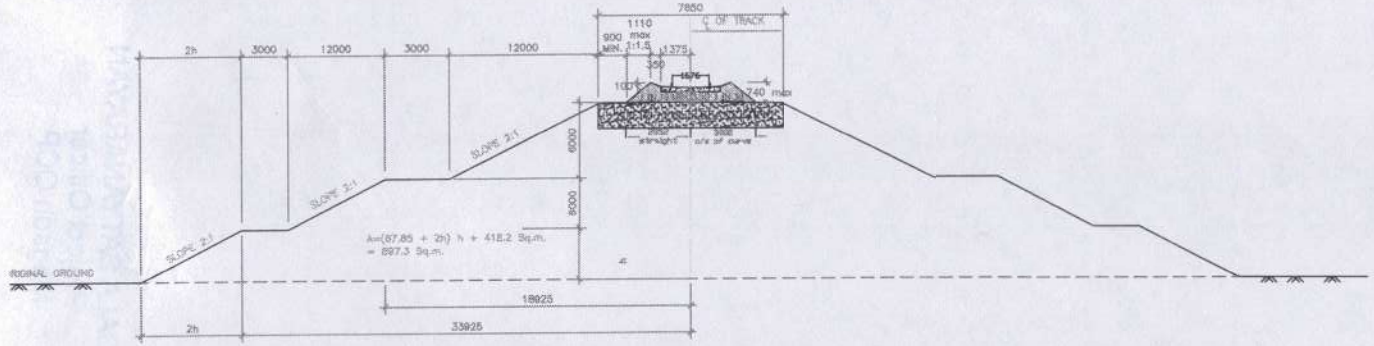
CUTTING UP TO 6m HIGH



EMBANKMENT ABOVE 6m HIGH UP TO 12m HIGH



CUTTING ABOVE 6m DEPTH UP TO 12m DEPTH



EMBANKMENT ABOVE 12m HIGH UP TO 18m HIGH

TURFING UP TO 6m (ON BOTH SIDE)
(a) (BANK OF HEIGHT)h x 4.47m.
ABOVE 6m UP TO 12m (ON BOTH SIDE)
(a) (h x 4.47m)+8m

NOTE:- 1. ALL DIMENSIONS ARE IN MILLIMETRICS
2. AS PER RLY. BOARD LETTER No. 98/W-I/Gen./0/30-Pt.-I dt. 13.01.2015

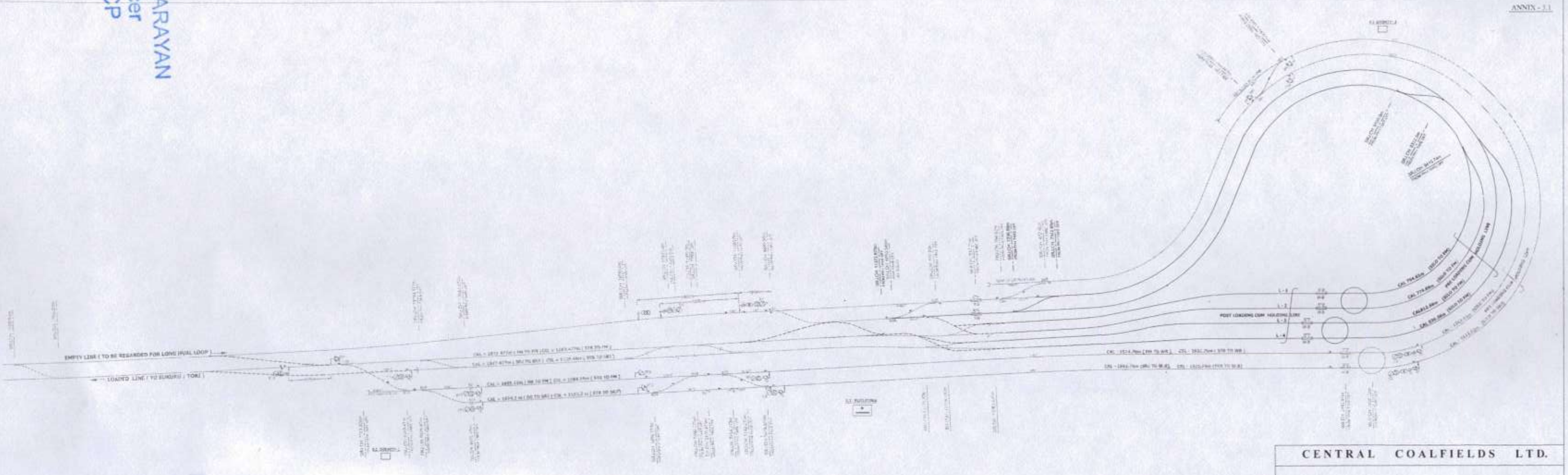
STANDARD DRAWING.

TYPICAL PROFILES OF
EMBANKMENT AND CUTTING

SCALE	DRG. NO.	RITES/CAL/
NOT TO SCALE	SH. NO.	
	DATE	JANUARY 2020
	REV. NO.	

RITES
THE INFRASTRUCTURE PEOPLE
RITES LIMITED
(A GOVT. OF INDIA ENTERPRISES)

ANNEX - 3.1



NOTE :-

1. ALL POINTS ARE MOTOR OPERATED EXCEPT OTHERWISE INDICATED.
2. ALL POINTS ARE 1 IN 12 EXCEPTS OTHERWISE INDICATE.
3. ABSOLUTE BLOCK SYSTEM OF WORKING WITH DLBI WITH EF-SC WILL BE PROVIDED BETWEEN PROP. BUKRU STATION AND RAPLANT [illegible].
4. ALL SIGNALS ARE PROVIDED WITH LED LAMP.
5. ALL SIGNALLING ARRANGEMENT IN PHASE-I WORK HAVE SHOWN IN [illegible] OPT.

LEGEND

- PHASE I WORK SHOWN IN BLACK
- LONG HAUL LOOP (PH-I) SHOWN IN MAGENTA
- PROPOSED PHASE II WORK SHOWN IN RED
- WORK TO BE DISMANTLED SHOWN IN DOTTED

CENTRAL COALFIELDS LTD.

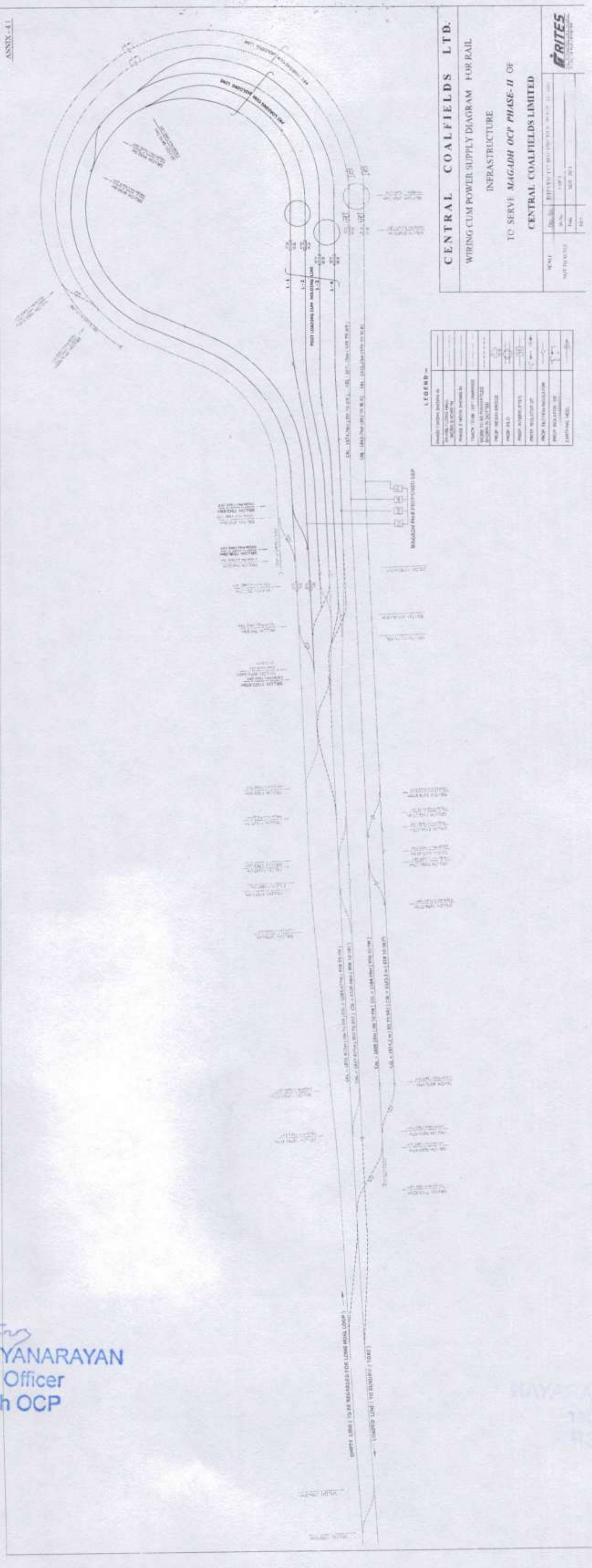
PROPOSED SIGNALLING PLAN FOR RAIL INFRASTRUCTURE

TO SERVE ***MAGADH OCP PHASE II*** OF

CENTRAL COAL FIELD

SCALE	Drg. No.	RITES/.../CCL/MAGADH PH II / S&T - ...
NOT TO SCALE	Sh.No.	1 OF 1
	Date	...
	REF.	

RITES



SADALA SATYANARAYAN
Project Officer
Magadh OCP

Annex - 8.0

TOTAL COST OF THE PROJECT INCLUDING LABOUR WELFARE CESS, ENVIRONMENTAL CESS, GST & DEPARTMENTAL/CODAL CHARGES

[Rs. In Lakh]

		A	B	C	D	E	
Sl. No.	Type of Works	Basic Cost	Labour welfare cess @1% on A	Environment related charges @1% on (A + B)	GST @12% on A	Codal Charges @ 4% & 6.25% on A [S & T - 6.25% Electrical (TRD)- 6.25%]	Total
1	Civil Engineering	15243.73	152.44	153.96	1829.25	609.75	17989.13
2	Signal Engineering & Telecommunication	2361.32	23.61	23.85	283.36	147.58	2839.72
3	Electrical Engineering (TRD)	2059.84	20.60	20.80	247.18	128.74	2477.16
4	Electrical Engineering (General Services)	340.79	3.41	3.44	40.89	13.63	402.17
5	**Grand Total**	**20005.68**	**200.06**	**202.06**	**2400.68**	**899.70**	**23708.18**

SADALA SATYANARAYAN
Project Officer
Magadh OCP

Annex - 8.1

DETAILED PROJECT REPORT

DETAILED PROJECT REPORT FOR DEVELOPMENT OF ADDITIONAL RAIL INFRASTRUCTURE REQUIRED FOR MAGADH OCP(51MTY) (PH-II)

CIVIL ENGINEERING ESTIMATE

Sl. No	Description of Work	Rs. in lakhs
1	Railway formation Works (8.1.1)	7,311.74
2	Permanent Way Works (8.1.2)	4,009.99
3	Bridge Works(8.1.3)	3,154.00
4	Other Civil Engineering works(8.1.4)	768.00
5	**Total**	**15,243.73**
6	Labour Welfare Cess @ 1% over Sl no-5	152.44
7	Provision for Environment Related works @1% over (sl no-5 + Sl no-6)	153.96
8	GST @ 12% over Sl no-5	1,829.25
9	**Grand Total including GST and other charges**	**17,379.38**

10.10.23

SADALA SATYANARAYAN
Project Officer
Magadh OCP

DETAILED PROJECT REPORT

DETAILED PROJECT REPORT FOR DEVELOPMENT OF ADDITIONAL RAIL INFRASTRUCTURE REQUIRED FOR MAGADH OCP(51MTY) (PH-II)

CIVIL ENGINEERING ESTIMATE

RAILWAY FORMATION WORK

	Description of items of work	Unit	Qty	Rate (Rs.)	Amount (Rs.)
1	Preliminary expenses for survey, soil test etc.	L.S.			1,500,000.00
2	Site clearance including cutting of small trees & removal of grass, shrubs etc.	sqm	300,000.00	18.03	5,408,036.36
3	Felling of trees of girth (measured at a height of 1m above ground level) including lead and stacking of material within 100m. Note : 1. When stumps are grubbed up in addition, the rates shall be doubled for trees cut and grubbed. 2. Payment for grubbing shall only be made where specially ordered. 3. Grubbing shall be ordered only where it is essential to remove the stumps, including the roots, as per specification. 4. Grubbing shall include removal of roots of trees and saplings to a depth of 60cm below ground level or 30 cm below formation level or 15 cm below sub grade level, whichever is lower.Girth over 30 cm and upto 60 cm	Nos	600.00	296.15	177,690.97
4	Earthwork in cutting in formation including side drain, trolley refuges, etc in all conditions and classifications of soil except rock,leading and spreading to adjacent bank and disposal of surplus earth if any, including all lead lift complete.				
a	In all conditions and classifications of soil except rock	cum	85,000.00	132.97	11,302,699.34
b	Soft rock not requiring blasting in all conditions	cum	62,000.00	297.78	18,462,079.22
c	In hard rock and very hard rock with hammer/Chisel/ pavement braker etc. where blasting is not permitted.	cum	20,000.00	1,033.29	20,665,754.96
d	In hard rock requiring blasting with explosives and blasting/drilling equipment Including all incidental work in all conditions. Rate includes cost of all explosive material.	cum	78,000.00	472.16	36,828,234.66
5	Earthwork in filling in embankment with earth arranged by contractor including all leads & lift etc.	cum	1,347,000.00	286.64	386,104,653.67
6	Supplying & spreading of stone dust on top of new formation with contractor own labour & materials equipment & machinary including compaction.	cum	102,000.00	1,673.09	170,655,067.49
7	Mechanical compaction of earth in formation with contractor own plant and machinery.	cum	1,365,000.00	17.51	23,907,290.39
8	Turfing in slopes with contractors grass sods 100mm thick & 200mm square including all leads & lifts transportation and watering the same till it holds the ground firmly.	sqm	180,000.00	55.35	9,962,385.91
9	Drain along embankment.	Metre	6,600.00	7000.00	46,200,000.00
TOTAL:					731,173,892.97

25.10.23
SADALA SATYANARAYAN
Project Officer
Magadh OCP

Annexture-8.1.2

DETAILED PROJECT REPORT					
DETAILED PROJECT REPORT FOR DEVELOPMENT OF ADDITIONAL RAIL INFRASTRUCTURE REQUIRED FOR MAGADH OCP(51MTY) (PH-II)					
CIVIL ENGINEERING ESTIMATE					
PERMANENT WAY WORKS					
SL NO	DESCRIPTION OF ITEMS	UNIT	QTY	Rate	AMOUNT
				RS P	RS P
1	Laying and linking of BG straight & curve Track with new 60 Kg (IRS T-12) 90 UTS First Quality Rail on PSC sleepers (1660 Nos/Km) with cost of Rail and standard fitting with 350 mm Ballast cushion including 4 round through packing complete.	TM	14,000.00	26,000.00	364,000,000.00
3	Assembling Laying & Linking 1 in 12 P & C fan shape with new 60 Kg (IRS T-12) 90 UTS First Quality lead Rail including PSC Sleeper on ballast cushion 300 mm including 4 round through packing.	SET	13	2,520,000.00	32,760,000.00
4	Making & Fixing of Fouling Mark.	EACH	13	3,000.00	39,000.00
5	Construction of Buffer End.	EACH	4	300,000.00	1,200,000.00
6	Assembling Laying & Linking 60 Kg Derailing Switch (1 in 8.5) Fan Shape including PSC Sleeper on ballast cushion 350 mm including 4 round through packing.	SET	4	750,000.00	3,000,000.00
	TOTAL				400,999,000.00

SADALA SATYANARAYAN
Project Officer
Magadh OCP

Annexture-8.1.3

DETAILED PROJECT REPORT

DPR FOR DEVELOPMENT OF ADDITIONAL RAIL INFRASTRUCTURE REQUIRED FOR MAGADH OCP(51MTY) (PH-II)

CIVIL ENGINEERING ESTIMATE

MINOR BRIDGE WORKS

A	MINOR BRIDGES			
SL NO	Br. No.	Chainage.	DESCRIPTION	Amount
1	19A	137.370	1X6.0mX6.0m R.C.C BOX CROSS DRAINAGE (BOTH SIDE)	4,26,00,000
2	20A	528.440	1X6.0mX6.0m R.C.C BOX NALA CROSSING (ONE SIDE)	1,63,00,000
3	21A	637.790	1X6.0mX6.0m R.C.C BOX VILLAGE ROAD CROSSING (RUB)	1,37,00,000
4	22A	797.280	1X6.0mX6.0m R.C.C BOX NALA CROSSING (ONE SIDE)	1,74,00,000
5	23A	1094.630	1X4.0mX4.0m R.C.C BOX CROSS DRAINAGE (ONE SIDE)	73,00,000
6	24A	1234.670	1X4.0mX4.0m R.C.C BOX CROSS DRAINAGE (ONE SIDE)	75,00,000
7	25A	3133.370	1X3.0mX3.0m R.C.C BOX NALA CROSSING (ONE SIDE)	91,00,000
8	26A	3435.360	1X2.0mX2.0m R.C.C BOX NALA CROSSING (ONE SIDE)	62,00,000
9	27A	3783.330	1X6.0mX6.0m R.C.C BOX NALA CROSSING (ONE SIDE)	4,38,00,000
10	28A	3940.200	1X6.0mX6.0m R.C.C BOX VILLAGE ROAD CROSSING (RUB)	2,34,00,000
11	29A	4065.200	1X6.0mX6.0m R.C.C BOX NALA CROSSING (ONE SIDE)	3,27,00,000
12	18A	5497.130	1X2.0mX2.0m R.C.C BOX NALA CROSSING (ONE SIDE)	46,00,000
13	17A	5656.820	1X6.0mX4.0m R.C.C BOX VILLAGE ROAD CROSSING (RUB)	1,35,00,000
14	16A	5692.580	1X3.0mX3.0m R.C.C BOX NALA CROSSING (ONE SIDE)	69,00,000
15	15A	6153.120	1X2.0mX2.0m R.C.C BOX NALA CROSSING (ONE SIDE)	46,00,000
16	14A	6491.950	1X6.0mX6.0m R.C.C BOX VILLAGE ROAD CROSSING (RUB)	2,56,00,000
17	13A	6742.290	1X6.0mX6.0m R.C.C BOX NALA CROSSING (ONE SIDE)	4,02,00,000
			Total	315,400,000.00

SADALA SATYANARAYAN
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Annexture-8.1.4

DETAILED PROJECT REPORT					
DETAILED PROJECT REPORT FOR DEVELOPMENT OF ADDITIONAL RAIL INFRASTRUCTURE REQUIRED FOR MAGADH OCP(51MTY) (PH-II)					
OTHER CIVIL ENGINEERING WORKS					
Sl. No.	Description of items of work	Unit	Qty.	Rate (Rs.)	Amount (Rs.)
1	**For Civil Works**				
(i)	Construction of Two Cabin Building	Sqm	1000	30,000.00	30,000,000.00
(ii)	Construction of In motion Weigh bridge	Nos	3	5,000,000.00	15,000,000.00
(iii)	Construction of One El Hut	Sqm	150	30,000.00	4,500,000.00
(iv)	Constrction of TMS/FOIS/weighbridge Room	LS	2	500,000.00	1,000,000.00
(v)	Crew Rest room	LS	1	500,000.00	500,000.00
(vi)	Consruction of Panel cabin Building	Sqm	200	30,000.00	6,000,000.00
(vii)	Consruction of RCC Path Way	RM	200	2,500.00	500,000.00
(viii)	Road diversion Work	RM	1000	800.00	800,000.00
(ix)	Dismentaling Work	LS		200,000.00	200,000.00
(x)	Provision of Control Cubicle	Sqm	22	30,000.00	660,000.00
(Xi)	Provision of panel Room	Sqm	16	30,000.00	480,000.00
(Xii)	Provision of DG Room	Sqm	72	30,000.00	2,160,000.00
(Xiii)	Consruction of Panel cabin Building For S& T Work	Sq m	500	30,000.00	15,000,000.00
	Total :				**76,800,000.00**

20.10.23
SADALA SATYANARAYAN
Project Officer
Magadh OCP

Annex-8.2.0

DETAIL PROJECT REPORT

SIGNAL ENGINEERING & TELECOMMUNICATION ESTIMATE

Cost Estimate for Installationof Distributed Electronic Interlocking for development of additional rail infrastructure required for Magadh OCP (51 MTY) phase-II (Rev.) under Dhanbad division of East Central Railway.

SUMMARY COST OF ALL WORKS

		[Rs. In lakhs]		
Sl No.	Name of the work	Within Railway land	Outside Railway land	Total
1	Magadh Loading Yard E.I. Cabin.	0.00	2,261.32	2,261.32
2	Addition / alteration in adjacent cabin/station.	100.00	0.00	100.00
			Sub Total	2,361.32
3	GST @ 12%			283.36
4	Labour Wellfare Cess @1%			23.61
5	Enviromental Related Charge @1% (on Basic amount +labour welfare cess)			23.85
6	Departmental Charge @ 6.25%			147.58
			Grand Total	2,839.72

N.B *The cost of Electrical& Civil portion associated with S&T works has been included in the Electrical and Engineering Estimates respectively.*

SADALA SATYANARAYAN
Project Officer
Magadh OCP

Annex-8.2.1

DETAIL PROJECT REPORT

SIGNAL ENGINEERING & TELECOMMUNICATION ESTIMATE

Cost Estimate for Installationof Distributed Electronic Interlocking for development of additional rail infrastructure required for Magach OCP (51 MTY) phase-II (DPR.) under Dhanbad division of East Central Railway.

Sl. No.	Description	Qty	Unit	Rate (Rs.)	Amount (Rs.)
1	Design, Manufacturing, Supply, Testing(icluding FAT, SAT) and commisioning of Distributed EI System (HOT Stand by) complete with two E.I.hut,which includes supply of Interlocking Equipments, DC-DC Convertos,Relay Racks,Panel/Fascilities,earthing materials, Lighting Arrestors AC/DC, surge protection,etc. this also includes supply of spares@10% of EI modules.	1	LS	60,000,000.00	60000000.00
2	Electrical Point Machine complete with ground connection	30	Nos.	97,000.00	2910000.00
3	Electric Key Transmitter (EKT)	20	Nos.	7,800.00	156000.00
4	MACLS complete with all accessories with LED lit				
	i) 2 Aspect	20	Nos.	56,000.00	1120000.00
	ii) 3 Aspect	0	Nos.	68,000.00	0.00
	iii) Route 1 Way	2	No.	75,000.00	150000.00
	iii) Route 4 Way	1	Nos.	170,000.00	170000.00
	iv)C/ON	10	Nos.	15,000.00	150000.00
5	Independent Shunt Signal with LED lit	10	Nos.	44,100.00	441000.00
6	Dependent Shunt Signal with LED lit	12	Nos.	28,000.00	336000.00
7	Underground Signalling Cable PVC insulated				
	i)12 Core	90	Km.	221,000.00	19890000.00
	ii) 6 Core	40	Km.	134,000.00	5360000.00
8	Copper Power cable 2C - 10 sq. mm	10	Km.	136,000.00	1360000.00
9	6 Quad Telecom cable	30	Km.	321,500.00	9645000.00
10	24 Fiber armoured Optical Fiber Cable.	15	Km.	108,500.00	1627500.00
11	Stop Board	1	Nos.	3,950.00	3950.00
12	Cable indoor copper conductor plain annealed high conductivity 650V grade PVC insulated unarmoured IRS-S-76/89.				
i)	-do- 3 x 0.75 sq.mm	50	Coil (100M each)	1,200.00	60000.00
ii)	-do- 16 x 0.2 sq.mm	500	Coil (100M each)	650.00	325000.00
iii)	-do- 7 x 0.75 sq.mm	10	Coil (100M each)	3,400.00	34000.00
13	Switch Board Cable 30 pair conductor dia 0.63 mm	600	Mtrs	112.50	67500.00
14	Signalling Relay of sorts	700	Nos.	5,500.00	3850000.00
15	Integrated Power supply (IPS)	3	LS	1,197,500.00	3592500.00
16	Steel Apparatus case	70	Nos.	14,000.00	980000.00
17	Data logger	3	LS	797,000.00	2391000.00
18	Cable Termination Rack (CTR)	6	Nos.	8,500.00	51000.00
19	Relay Rack	4	Nos.	17,500.00	70000.00
20	Earth Electrode with MS Flat	100	Nos.	2,100.00	210000.00
21	DWC Pipe	3000	mts	402.00	1206000.00
22	G,I,Pipe	200	mts	1,100.00	220000.00

SADALA SATYANARAYAN
Project Officer
Magadh OCP

Annex-8.2.1

DETAIL PROJECT REPORT

SIGNAL ENGINEERING & TELECOMMUNICATION ESTIMATE

Cost Estimate for Installationof Distributed Electronic Interlocking for development of additional rail infrastructure required for Magadh OCP (51 MTY) phase-II (DPR.) under Dhanbad division of East Central Railway.

Sl. No.	Description	Qty	Unit	Rate (Rs.)	Amount (Rs.)
23	Multisection Digital Axle Counter for 60DP./45TS .	60	DP	583,000.00	34980000.00
24	Supply & Execution of Earthing (Ring Earthing with Minimum Ten Earth Electrodes around Cabin. Building) of EI equipments along with Supply of all Required material as per RDSO/SPN/197/2008 VERSION 1.0 OR LATEST (With Latest Amendment) as per RDSO TAN no.STS/E/TAN/3006 dt.02.11.2012.,Supply of all requistes materials as per latest RDSO guide line.	3	Set	650,000.00	1950000.00
25	High Availability Single Section Digital Axle counter (HASSDAC)	2	Set	944,000.00	1888000.00
26	UFSBI Double Line	1	Set	982,000.00	982000.00
27	Wiring and terminating materials	1	LS	200,000.00	200000.00
28	Cable terminating materials	1	LS	200,000.00	200000.00
29	Building materials (sand, cement etc.)	1	LS	200,000.00	200000.00
30	4w DTMF Equpt. With all accessories	4	Nos.	12,500.00	50000.00
31	PA System	1	set	19,000.00	19000.00
32	25 Watt VHF set with all accessories including power pack	1	No	35,500.00	35500.00
33	5 Watt VHF set with all accessories	4	Nos.	22,000.00	88000.00
34	VFT	10	Nos.	7,800.00	78000.00
35	Misc. stores/Furniture	1	LS	300,000.00	300000.00
36	Paints & Consumables	1	LS	200,000.00	200000.00
37	Provision of A.C.Machine for dust proof arrangement in Panel & Relay Room.	1	LS	500,000.00	500000.00
38	Provision of Fire System at Cabin.	1	LS	350,000.00	350000.00
39	Provision of Surge Arrestor.	1	LS	100,000.00	100000.00
40	Hiring of Vehicles for Supevision work (24 Months)	1	LS	1,000,000.00	1000000.00
41	Electronic Magneto Telephone with accessories	6	Nos.	3,600.00	21600.00
42	PVC insulated multi- strand single core copper conductor cable 10 sq.mm.as per IRS S-76/89 (Amd.-3) or latest.	500	Mtrs.	120.00	60000.00
43	Auto Changeover LT	1	No.	55,000.00	55000.00
44	10 KVA DG set	1	Set	332,000.00	332000.00
45	Relocation of Emergency socket / Location box for Electrical works	1	LS	500,000.00	500000.00
				SUB TOTAL	160465550.00
46	Transportation,installation etc 40% on sub total of supply item	1	40%	64,186,220.00	64186220.00
47	Cable trenching, laying & refilling	20	Km.	74,000.00	1480000.00
				TOTAL	226,131,770.00
				Or say Rs. In Lakh	**2,261.32**

N.B ***The cost of Electrical& Civil portion associated with S&T works has been included in the Electrical and Engineering Estimates respectively.***

20.10.22

SADALA SATYANARAYAN
Project Officer
Magadh OCP

DETAILED PROJECT REPORT

CONSTRUCTION OF ADDITIONAL RAILWAY INFRASTRUCTURE AT MAGADH OCP (51 MTY,PHASE-II, JHARKHAND)

ELECTRICAL ENGINEERING ESTIMATE

SUMMARY OF ALL ELECTRICAL ENGINEERING WORKS

(Cost in Lakhs)

Sl.No.	Item	[Tr-D]	[G]	Reference
1	OHE Works	1575.03		E-1
2	PROVISION of SSP AT MAGADH SIDING	150.74		E- 2
3	Provision of 10 KVA AT for panel cabin	5.47		E- 2A
4	Electrification of Panel Cabin		30.39	E-3
5	Electrification of Crew Rest Room at Inplant		24.93	E-4
6	Electrification of FOIS & TMS at Inplant & Motion Weigh Bridge		11.84	E-5
7	Illumination of In-Plant Yard		179.25	E-6
8	Illumination of pathway for GDR check		16.57	E-7
9	LT Power supply arrangement for Inplant incld. Lightening Prortection		41.48	E-8
10	DG Supply through Cable		8.78	E-9
11	Provision of Civil Works for OHE Depot and Switching post control cubicle	15.72		E-1 +E-2
12	**Total**	**1746.96**	**313.26**	
13	Infrastructural facilities on 12			
(a)	Initial spares @3%	52.41		
(b)	Testing & Measuring equipments @2%	34.94		
(c)	BD Transport (LS) @ 3%	52.41		
(d)	Furniture & office equipments @1%	17.47		
14	**Total (12+13)**	**1904.18**	**313.26**	
15	Tranportation of materials from store to site & return of excess / Dismantled materials back to store @ 4% on 12	69.88	12.53	
16	Misc. Works			
(a)	Publication of NIT & Warning Notices (LS)	20.00	10.00	
(b)	Hiring charge of vehicle for transportation of Railway officials till commissioning	20.00	5.00	
(c)	Hiring charges of Tower Wagon including crew from Railway	25.78		
(d)	Traffic/Power Block charge (LS)	20.00		
17	**Total Cost of Work (14+15+16)**	**2059.84**	**340.79**	
18	Labour Welfare cess @ 1% on 19	20.60	3.41	
19	**Total Cost of Work (17+18)**	**2080.43**	**344.19**	
20	**GST @ 12 % on 17**	**247.18**	**40.89**	
21	**TOTAL (19+20)**	**2327.61**	**385.09**	
22	**Departmental Charges on 17**			
(a)	On Tr-D works @ 6.25%	128.74		
(b)	General Services @ 4.0%		13.63	
23	**Total (21+22)**	**2456.35**	**398.72**	
24	Environmental Cess @ 1% on 20	**20.80**	**3.44**	
25	**Overall Total (23+24)**	**2477.16**	**402.16**	
26	**Total TRD+General**	**2879.32**		

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Project Officer
Magadh OCP

DETAILED PROJECT REPORT

CONSTRUCTION OF ADDITIONAL RAILWAY INFRASTRUCTURE AT MAGADH OCP (51 MTY,PHASE-II, JHARKHAND)

ELECTRICAL ENGINEERING ESTIMATE

OHE WORKS

Item No	Description of the Item	Unit	Qty	Unit Rate (Rs.)	Amount (Rs.)
1	Foot by foot survey & preparation of OHE pegging plan including modification/regrading & Dismantling work	TKM	16	6,553.00	104,848.00
2	Preparation of Design & Drawing of Overhead equipment including modification/ regrading & Dismantling works	TKM	16	6,553.00	104,848.00
3	Concrete for foundation & plinth				
	(i) Ordinary soil/Hard soil inlcuding rock required chieseling (Grade M-15)	Cum	2400	8,619.00	20,685,600.00
	(ii) Reinforced Concrete	Cum	20	9,214.00	184,280.00
	(iii) Rocky soil	Cum	100	10,684.00	1,068,400.00
4	Supply and Manual erection of traction mast/other special masts (BFB/RSJ/B-Series) including terminating structures & gantry masts/along track feeder				
	(i) Supply	MT	200	108,468.00	21,693,600.00
	(ii) Erection	MT	200	4,019.00	803,800.00
5	Supply & Erection of TTC/Portal assembly complete				
	(i) Supply	MT	20	114,176.00	2,283,520.00
	(ii) Erection	MT	20	6,700.00	134,000.00
6	Supply of				
	(i) Hard drawn grooved copper contact wire (107 Sq.mm)	Km.	22.40	1,119,868.00	25,085,043.20
	(ii) Cadmium copper catenary wire (65 Sq.mm)	Km.	24.00	746,581.00	17,917,944.00
	(iii) Large span wire	Km.	1.5	100,893.00	151,339.50
7	Supply & Erection of fabricated steel works other than mast including Dwarf mast for anchor				
	(i) Supply	MT	64	114,175.00	7,307,200.00
	(ii) Erection	MT	64	6,700.00	428,800.00
8	Supply & Erection Guy rod assembly				
	(i) Supply	No.	64	8,719.00	558,016.00
	(ii) Erection	No.	64	1,462.00	93,568.00
9a	Supply & Erection of single Bracket Assembly without insulators conventional				
	(i) Supply	No.	480	7,718.00	3,704,640.00
	(ii) Erection	No.	480	1,462.00	701,760.00
10(a)	Supply & Erection of Overhead Equipment conventional				
	(i) Supply	Km.	21.00	37,329.00	783,909.00
	(ii) Erection	Km.	21.00	22,398.00	470,358.00
11(a)	Supply & Erection of regulating equipment (3 pulley modified type) with normal counter weight assembly for conventional OHE				
	(i) Supply	No.	34	64,621.00	2,197,114.00
	(ii) Erection	No.	34	3,419.00	116,246.00
12	Supply & Erection of materials for termination of double overhead equipment conductor (Excluding 9 tonne insulator)				
	(i) Supply	No.	64	6,683.00	427,712.00

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Project Officer
Magadh OCP

Item No	Description of the Item	Unit	Qty	Unit Rate (Rs.)	Amount (Rs.)
	(ii) Erection	No.	64	661.00	42,304.00
13	Supply & Erection of materials for termination of single overhead equipment conductor(excluding 9 ton insulator)				
	(i) Supply	No.	64	5,598.00	358,272.00
	(ii) Erection	No.	64	1,245.00	79,680.00
14(a)	Supply & Erection of anti-creep for conventional OHE (excluding 9 tonne insulator and catenary wire with SPS) conventional				
	(i) Supply	No.	16	9,387.00	150,192.00
	(ii) Erection	No.	16	1,283.00	20,528.00
15	Suppy & erection of 9 tonne Insulator for poluted zone 1050 mm CD				
	(i) Supply	Each	130	4,453.00	578,890.00
	(ii) Erection	Each	130	445.00	57,850.00
16 (a)	Supply of large (105 sqmm) Copper jumper (G jumper)	Mtr	450	1,265.00	569,250.00
16 (b)	Supply & erection of copper jumper (160 Sqmm)				
	(i) Supply	Mtr	700	1,438.00	1,006,600.00
	(ii) Erection	Mtr	700	143.00	100,100.00
17	Supply of small (50 sqmm) Copper jumper (C/F/AT Jumper)	Mtr	500	530.00	265,000.00
18	Erection of copper jumper (105 sqmm)	Mtr	500	127.00	63,500.00
19 a)	Erection of copper jumper (50 sqmm)	Mtr	500	196.00	98,000.00
b)	Erection of large span wire	Mtr	500	97.00	48,500.00
20	Supply & Erection of Structure bond (Wire bond type, M.S Flat)				
	(i) Supply	Each	500	494.00	247,000.00
	(ii) Erection	Each	500	194.00	97,000.00
21	Supply & Erection of Transverse and Special Bond (Wire bond type, M.S Flat)				
	(i) Supply	Each	40	647.00	25,880.00
	(ii) Erection	Each	40	197.00	7,880.00
22	Supply & Erection of longituditinal bond (Wire bond type, M.S Flat)				
	(i) Supply	Each	2200	347.00	763,400.00
	(ii) Erection	Each	2200	147.00	323,400.00
23	Supply & Erection of single earth electrode with earth pit box cover complete				
	(i) Supply	Each	40	2,807.00	112,280.00
	(ii) Erection	Each	40	1,791.00	71,640.00
24(a)	Supply & Erection of section insulator assembly including core insulator (excluding cut in insulator) conventional				
	(i) Supply	Each	35	47,189.00	1,651,615.00
	(ii) Erection	Each	35	5,244.00	183,540.00
25	Supply & Erection of pull off arrangement for one OHE (excluding 9 tonne insulator)				
	(i) Supply	No.	10	9,176.00	91,760.00
	(ii) Erection	No.	10	338.00	3,380.00
26 a)	Supply & erection of various types of caution boards to RDSO specification	No.	60	1,573.00	94,380.00
b)	Supply & erection of retro reflect caution boards				
	1. Special caution Boards (unloading/loading zone)				
	i) Supply	No	24	7953.00	190,872.00
	ii) Erection	No	24	25.00	600.00

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Magadh OCP

Item No	Description of the Item	Unit	Qty	Unit Rate (Rs.)	Amount (Rs.)
c)	Supply & erection of electric engine stop board				
	(i) Supply	No	20	1,245.00	24,900.00
	(ii) Erection	No	20	138.00	2,760.00
d)	Supply & Erection of Caution - unwired line				
	i) Supply	No	20	1,245.00	24,900.00
	ii) Erection	No	20	138.00	2,760.00
27 a)	Supply & erection of number plates (enamelled)				0.00
	(i) Supply	No.	8	731.00	5,848.00
	(ii) Erection	No.	8	73.00	584.00
27 b)	Supply & erection of number plates (retro reflect)				
	(i) Supply	No.	450	811.00	364,950.00
	(ii) Erection	No.	450	74.00	33,300.00
28	Supply & Erection of sectioning Diagram Board (Size 4'x2')	No.	6	4,611.00	27,666.00
29	(a) Supply of 1050 mm CD Insulator				
	(i) Stay	No.	520	3,389.00	1,762,280.00
	(ii) Bracket	No	520	3,389.00	1,762,280.00
	(b) Supply of 1600 mm CD Insulator				
	(i) 9 t Insulator	No	2	3,476.00	6,952.00
	(ii) Stay Insulator	No	5	3,389.00	16,945.00
	(iii) Bracket Insulator	No	5	3,389.00	16,945.00
	(c) Erection of 1600 mm CD Insulator 9 t	No.	2	277.00	554.00
30(a)	Supply & erection of 25 KV Single Pole Isolator 1600 Amp complete with insulator etc				
	(i) Supply	No	14	54,397.00	761,558.00
	(ii) Erection	No	14	2,121.00	29,694.00
30(b)	Supply & erection of 25 KV Double Pole Isolator 1600 Amp complete				
	(i) Supply	No	10	101,099.00	1,010,990.00
	(ii) Erection	No	10	3,931.00	39,310.00
30(c)	Supply & erection of Inter locking arrangements				
	(i) Supply	No	2	9,626.00	19,252.00
	(ii) Erection	No	2	1,129.00	2,258.00
30(d)	Supply & erection of Earthing Heel				
	(i) Supply	No	9	10,725.00	96,525.00
	(ii) Erection	No	9	1,075.00	9,675.00
30(e)	Supply & erection of Danger Board				
	(i) Supply	No	100	563.00	56,300.00
	(ii) Erection	No	100	56.00	5,600.00
31	Supply & erection of additional fittings at turnouts/overlaps				
	(i) Supply	No.	20	3,457.00	69,140.00
	(ii) Erection	No.	20	425.00	8,500.00
32	Supply & Erection of Key Box for isolator etc.	No	1	8,473.00	8,473.00
33	Supply & erection of 25 KV Post Insulator without clamps etc.				
	(i) Supply	No.	60	7,134.00	428,040.00
	(ii) Erection	No.	60	655.00	39,300.00
34	Supply & Erection of earth bus of MS flat size 50mm x 6mm				
	(i) Supply	Mtr	100	329.00	168,400.00
	(ii) Erection	Mtr	100	42.00	7,200.00
35	Supply & erection of 25 KV feeder wire 37/2.25 mm, 150 sqmm copper				

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Item No	Description of the Item	Unit	Qty	Unit Rate (Rs.)	Amount (Rs.)
	(i) Supply	Mtr	1000	1,684.00	5,000,000.00
	(ii) Erection	Mtr	1000	72.00	405,000.00
36	Extra for supply & erection of termination arangement of Feeder (excluding 9 tonnne insulator)				
	(i) Supply	No	10	5,000.00	50,000.00
	(ii) Erection	No	10	405.00	4,050.00
37	Extra Erection charge under Power block				
a)	Traction masts	MT	5	9,097.00	45,485.00
b)	SPS	MT	1	11,646.00	11,646.00
c)	Cantilever conventional	No.	10	1,516.00	15,160.00
d)	OHE conventional	Km.	1	50,551.00	50,551.00
e)	Section insulator conventional	No.	4	7,077.00	28,308.00
f)	Cut in insulator 9 t.	No.	8	2,023.00	16,184.00
g)	Termination of OHE Double	No	8	3,033.00	24,264.00
h)	Large jumper wire (105)	Mtr	20	445.00	8,900.00
i)	Small jumper wire	Mtr	20	445.00	8,900.00
j)	Large span wire	Mtr	100	99.00	9,900.00
k)	Additional fittings at turnouts / overlaps	No	6	1,779.00	10,674.00
l)	TTC/Portal	Mt.	4	9,097.00	36,388.00
m)	Regulating equipment	No.	4	6,067.00	24,268.00
38	Adjustment of OHE after Tower Wagon checking	Span	500	438.00	219,000.00
39	Splicing & extension of an overhead equipment under power block	No.	8	5,057.00	40,456.00
40	Slewing of OHE	Span	10	1,599.00	15,990.00
41	Transfer of OHE from one mast to another under power block	No.	12	5,057.00	60,684.00
42	Dismantling charges				
a)	Under Power Block				
i)	Cantilever	No	10	1,821.00	18,210.00
ii)	SPS	t.	0.5	8,087.00	4,043.50
b)	Under Non Power Block				
i)	Cutting of Mast	No	10	2,023.00	20,230.00
ii)	Regulating Equipment	No	25	35,390.00	884,750.00
iii)	Guyrod	No	4	1,011.00	4,044.00
iv)	FT	No	10	177,977.00	1,779,770.00
43	Extra for Anti theft charging	LS	LS	98,789.00	98,789.00
44	Station Working Rule Diagram	No.	6	8,087.00	48,522.00
45	Anti corrosive painting on cantilever & mast	No	500	1,694.00	847,000.00
46	Manning of Section				
a)	36 Persons Without gun (36x18961) for 12 position Day & Night	Man month	18	682,596.00	12,286,728.00
b)	12 Persons With gun (12x21233) for 4 Position	Man month	12	254,796.00	3,057,552.00
c)	Hiring Charges for Vehicle for inspection by RITES/Railway Officials	Month	30	52,898.00	1,586,940.00
47a	Site clearance including tree cutting, tree trimming	LS	LS	200,000.00	200,000.00
47b	Compliance of observations made by Railway Officials, collection of field data (test result) & submission to various units for approval & processing of EIG/CRS sanction	LS		500,000.00	500,000.00
48	Extra for stage working	LS	LS	1,000,000.00	1,000,000.00
49	Prorata cost on testing of insulator	No.	427	493.00	210,511.00
50	Misc unforeseen & modification works	LS	LS	500,000.00	500,000.00

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Item No	Description of the Item	Unit	Qty	Unit Rate (Rs.)	Amount (Rs.)
51	Level crossing Ht gauge				
	(i) Supply	No	6	597,775.00	3,586,650.00
	(ii) Erection	No	6	110,000.00	660,000.00
52	Special tools, Jigs, Fixtures, clamps etc including Furniture	LS		1,000,000.00	1,000,000.00
52(a)	Oliver G-X	No	1	2,000,000.00	2,000,000.00
53	**Total Rs. (Traction)**				**157,503,225.20**
54a	Hiring charges of Tower Wagon including crew from Railway	Day	15	171,839.00	2,577,585.00
54b	Traffic/Power Block charge (Tentative)	LS	LS	2,000,000.00	2,000,000.00
55	**Total Rs.**				**4,577,585.00**
56	**Civil Works**				
a)	OHE Depot	Sqm	20	25000	500000.00

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DETAILED PROJECT REPORT

CONSTRUCTION OF ADDITIONAL RAILWAY INFRASTRUCTURE AT MAGADH OCP (51 MTY,PHASE-II, JHARKHAND)

ELECTRICAL ENGINEERING ESTIMATE

PROVISION of SSP AT MAGADH SIDING

Item No	Description of the Item	Unit	Qty	Unit Rate (Rs.)	Amount (Rs.)
1(a)	Preparation of Design & Drawing of Switching Station	Set	1	21,847.00	21,847.00
1(b)	Foot by Foot survey & preparation of Design/Drawings for feeder	Km	0.65	6,553.00	4,259.45
2	Concrete for foundation, Plinth & trenches				
	(i) Ordinary soil/Hard soil inlcuding rock required chieseling (Grade M-15)	Cum	90	8,619.00	775,710.00
	(ii) Reinforced Concrete	Cum	2	9,214.00	18,428.00
	(iii) Rocky soil	Cum	18	10,684.00	192,312.00
3(a)	Supply and erection of main mast of Switching Station				
	(i) Supply	MT	5	108,468.00	542,340.00
	(ii) Erection	MT	5	4,019.00	20,095.00
3(b)	Supply and erection of Rolled/ Fabricated/special masts				
	(i) Supply	MT	8	108,468.00	867,744.00
	(ii) Erection	MT	8	4,019.00	32,152.00
4	Supply & Erection of Galvanised fabricted Steel works other than Main Mast				
	(i) Supply	MT	5	114,175.00	570,875.00
	(ii) Erection	MT	5	6,700.00	33,500.00
5a)	Supply, Erection, testing & commisioning of vaccum circuit breaker 25 KV				
	(i) Supply	No	1	618,174.00	618,174.00
	(ii) Erection, testing & Commissioning	No	1	61,818.00	61,818.00
5b)	Supply, Erection, testing of 25 KV SF6/ Vaccum type interruptor				
	(i) Supply	No	4	489,633.00	1,958,532.00
	(ii) Erection, testing & Commissioning	No	4	10,920.00	43,680.00
6(a)	Supply & erection of 25 KV Double Pole isolator complete in all respect				
	(i) Supply	No	5	101,099.00	505,495.00
	(ii) Erection	No	5	3,931.00	19,655.00
6(b)	Supply & erection of 25 KV Single Pole isolator complete in all respect				
	(i) Supply	No	1	54,397.00	54,397.00
	(ii) Erection	No	1	2,121.00	2,121.00
6(c)	Supply & erection of Interlocking device				
	(i) Supply	No	4	11,306.00	45,224.00
	(ii) Erection	No	4	1,327.00	5,308.00
6(d)	Supply & erection of Key box	No	1	562.00	562.00
7 a)	Supply, Erection, testing and commissioning of 25 KV Potential Transformer Type-I				
	(i) Supply	No	1	65,118.00	65,118.00
	(ii) Erection	No	1	1,654.00	1,654.00
7 b)	Supply & Erection, testing & commissioning of 25 KV PT (type-II)				
	(i) Supply	No	1	65,118.00	65,118.00
	(ii) Erection	No	1	1,654.00	1,654.00
7 c)	Supply, Erection and commissioning of current transformer 1000-500/5A				
	(i) Supply	No	1	81,194.00	81,194.00

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Item No	Description of the Item	Unit	Qty	Unit Rate (Rs.)	Amount (Rs.)
	(ii) Erection	No	1	2,026.00	2,026.00
8	Supply, Erection of 42 KV Lightning arrester (Gap less type) with surge monitor and insulating base				
	(i) Supply	No	5	35,884.00	179,420.00
	(ii) Erection	No	5	1,092.00	5,460.00
9(a)	Supply, Erection of 25 KV copper feeder wire 150 sqmm (along/across)				
	(i) Supply	Mtr	500	1,684.00	842,000.00
	(ii) Erection	Mtr	500	72.00	36,000.00
9(b)	Supply of feeder Jumper (160) copper				
	(i) Supply	Mtr	100	1,623.00	162,300.00
	(ii) Erection	Mtr	100	161.00	16,100.00
9(c)	Supply, Erection of feeder suspension arrangement wihout insulator				
	(i) Supply	No	14	2,165.00	30,310.00
	(ii) Erection	No	14	216.00	3,024.00
9 (d)	Supply & erection of large jumper wire				
	(i) Supply	Mtr	10	1,623.00	16,230.00
	(ii) Erection	Mtr	10	161.00	1,610.00
9 (e)	Supply & Erection of Catenary wire				
	(i) Supply	m	10	747.00	7,470.00
	(ii) Erection	m	10	75.00	750.00
10(a)	Supply & erection of Structure bond of MS flat size 40mm x 6mm				
	(i) Supply	No	20	351.00	7,020.00
	(ii) Erection	No	20	44.00	880.00
10(b)	Supply & erection of earth bus 50 x 6 mm				
	(i) Supply	Mtr	200	309.00	61,800.00
	(ii) Erection	Mtr	200	39.00	7,800.00
10(c)	Earthinng strip 75 mm X 8 mm				
	(i) Supply	Mtr	50	468.00	23,400.00
	(ii) Erection	Mtr	50	195.00	9,750.00
10(d)	Supply & Erection of single earth electrode with earthpit box cover complete				
	(i) Supply	Each	4	2,925.00	11,700.00
	(ii) Erection	Each	4	1,867.00	7,468.00
11	Supply, Erection, Testing & Commissioning of Control & Relay Panel				
	(i) Supply	No	1	2,196,090.00	2,196,090.00
	(ii) Erection	No	1	56,024.00	56,024.00
12	Supply & erection of Guy rod assembly				
	(i) Supply	No	4	8,719.00	34,876.00
	(ii) Erection	No	4	1,462.00	5,848.00
13	Supply & erection of 9 ton insulator composite				
	(i) Supply	No	24	4,453.00	106,872.00
	(ii) Erection	No	24	445.00	10,680.00
14	Supply & erection of 25 KV Post insulator without clamps etc.				
	(i) Supply	No	16	7,134.00	114,144.00
	(ii) Erection	No	16	655.00	10,480.00
15	Supply & Erection of copper strips size (25mm x 3mm) for equipments earthing				
	(i) Supply	Mtr	30	585.00	17,550.00
	(ii) Erection	Mtr	30	81.00	2,430.00

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Item No	Description of the Item	Unit	Qty	Unit Rate (Rs.)	Amount (Rs.)
16(a)	Supply & Erection and Commissioning of low maintenance lead acid Battery 110V, 40 AH				
	(i) Supply	Set	1	125,297.00	125,297.00
	(ii) Erection	Set	1	7,505.00	7,505.00
16(b)	Supply & Erection and commissioning of battery charger for 110V, 40 AH low maintenance lead acid battery				
	(i) Supply	No	1	117,487.00	117,487.00
	(ii) Erection	No	1	4,738.00	4,738.00
16 (c)	Supply & Erection of LM lead acid battery 200 AH 110 V complete				
	(i) Supply	No	1	216,517.00	216,517.00
	(ii) Erection	No	1	27,064.00	27,064.00
16 (d)	Supply & erection of Battery cherger for above				
	(i) Supply	No	1	332,728.00	332,728.00
	(ii) Erection	No	1	31,390.00	31,390.00
17	Supply & Erection of Terminal Board in Control Cubicle				
	(i) Supply	No	2	11,462.00	22,924.00
	(ii) Erection	No	2	476.00	952.00
18	Supply & Erection of 110V DC distribution Board.				
	(i) Supply	No	2	10,825.00	21,650.00
	(ii) Erection	No	2	951.00	1,902.00
19	Supply & Erection of 240V AC distribution Board.				
	(i) Supply	No	2	10,825.00	21,650.00
	(ii) Erection	No	2	951.00	1,902.00
20	Supply & Installation of Cables				
	(a) For Control and Indication (7 Core x 2.5 Sq.mm) Copper				
	(i) Supply	Mtr	500	201.00	100,500.00
	(ii) Erection	Mtr	500	42.00	21,000.00
	(b) For Catenary indication (2 Core x 2.5 Sq.mm) Copper				
	(i) Supply	Mtr	150	124.00	18,600.00
	(ii) Erection	Mtr	150	42.00	6,300.00
	(c) For Heater Supply (2 Core x 4 Sq.mm) Aliminium				
	(i) Supply	Mtr	200	114.00	22,800.00
	(ii) Erection	Mtr	200	42.00	8,400.00
	(d) For 110 V DC Supply (2 Core x 4 Sq.mm) Copper				
	(i) Supply	Mtr	150	135.00	20,250.00
	(ii) Erection	Mtr	150	44.00	6,600.00
	(e) Flexible PVC				
	(i) Supply	Mtr	30	55.00	1,650.00
	(ii) Erection	Mtr	30	9.00	270.00
21	Supply & Erection of Aluminium busbar 36/28mm				
	(i) Supply	Mtr	50	593.00	29,650.00
	(ii) Erection	Mtr	50	141.00	7,050.00
22	Supply & Erection of Aluminium Bus Connectors				
	a) Bus Terminal (6480)				
	(i) Supply	No	16	1,935.00	30,960.00
	(ii) Erection	No	16	118.00	1,888.00
	b) Bus Splice(6490)				
	(i) Supply	No	4	1,997.00	7,988.00
	(ii) Erection	No	4	118.00	472.00
	c) Bus Tee Connector(6500)				

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Item No	Description of the Item	Unit	Qty	Unit Rate (Rs.)	Amount (Rs.)
	(i) Supply	No	6	2,028.00	12,168.00
	(ii) Erection	No	6	110.00	660.00
	d) 36/20mm terminal connector (6530)				
	(i) Supply	No	4	1,935.00	7,740.00
	(ii) Erection	No	4	110.00	440.00
	e) Tap Connector(6520)				
	(i) Supply	No	1	2,027.00	2,027.00
	(ii) Erection	No	1	110.00	110.00
	f) Flexible Bus Splice (6550)				
	(i) Supply	No	4	3,247.00	12,988.00
	(ii) Erection	No	4	132.00	528.00
	g) Terminal Connector Bolted type(6830-1)				
	(i) Supply	No	6	1,715.00	10,290.00
	(ii) Erection	No	6	110.00	660.00
23	Supply & Erection of materials for termination of 25 KV feeder wire				
	(i) Supply	No	6	4,100.00	24,600.00
	(ii) Erection	No	6	405.00	2,430.00
24(a)	Supply and erection of fencing panel				
	(i) Supply	Mtr	24	2,044.00	49,056.00
	(ii) Erection	Mtr	24	141.00	3,384.00
24(b)	Supply and erection of fencing upright				
	(i) Supply	MT	0.50	82,689.00	41,344.50
	(ii) Erection	MT	0.50	3,923.00	1,961.50
25	Supply and erection of Anti-Climbing device				
	(i) Supply	Mtr	340	427.00	145,180.00
	(ii) Erection	Mtr	340	79.00	26,860.00
26(a)	Painting of fencing assembly	Sqm	550	246.00	135,300.00
26(b)	Provision of anti corrosive paint on masts	No	20	1,694.00	33,880.00
27 i)	Supply of various type of Enamelled Board				
a)	Name Board	No.	2	1,502.00	3,004.00
b)	Number plate	No.	10	1,573.00	15,730.00
c)	Caution Board	No.	20	1,573.00	31,460.00
27 ii)	Erection of enamelled board				
a)	Name Board	No.	15	798.00	11,970.00
b)	Number plate	No.	30	798.00	23,940.00
c)	Caution Board	No.	10	798.00	7,980.00
28	Supply & Erection of Schematic power supply diagram board (size 4' x 2')	No	6	5,244.00	31,464.00
29 a)	Brick Soling	Sqm	60	109.00	6,540.00
29 b)	Surface raming	Sqm	60	109.00	6,540.00
29 c)	Gravel carpetting (100 mm thick)	Sqm	50	96.00	4,800.00
30	Supply & erection of Cable clamps	LS	LS	2,000.00	2,000.00
31	Supply & erection of connector (Assorted type)				
	(i) Supply	LS	LS	5,000.00	5,000.00
	(ii) Erection	LS	LS	500.00	500.00
32	Testing & System commissioning	LS	LS	100,000.00	100,000.00
33	Supply & erection of A.T. 25 KV/10 KVA with D.O. Fuse switch assembly support insulators (without mast)				
	(i) Supply	No.	1	156,328.00	156,328.00
	(ii) Erection	No.	1	8,881.00	8,881.00

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Item No	Description of the Item	Unit	Qty	Unit Rate (Rs.)	Amount (Rs.)
34	Supply & erection of 2 x 70 sqmm cable Aluminium	No.			
	(i) Supply	Mtr	20	400.00	8,000.00
	(ii) Laying of cable on RCC / Hume pipe	Mtr	10	42.00	420.00
	(iii) Laying of cable on the wall	m	10	91.00	910.00
35a)	Supply & laying of 50 mm dia GI pipe	Mtr	5	600.00	3,000.00
35b)	Supply, laying & fixing of RCC/Hume pipe 150	Mtr	10	134.00	1,340.00
36	Supply & erection of Shock Treatment chart (Laminated)	No.	1	1,932.00	1,932.00
37	Supply & Fitment of Fire Extinguisher CO_2 type capacity 9 ltr. (wall mounted)	No.	2	3,247.00	6,494.00
38	Fire buckets painted 9 ltr cap. Filled with dry sand (4 in a set)	No	4	2,165.00	8,660.00
39a	Shed with stand for fire buckets including painting	LS	LS	6,000.00	6,000.00
39b	Cable Trench with RCC trench Cover	Cum	5	6,662.00	33,310.00
39c	Supply & Erection of Drain Pipe	Mtr	45	2,015.00	90,675.00
40	First Aid Box	Set	1	1,001.00	1,001.00
41	3 Persons Without gun (9x18961) for 1 position Day & Night	Man Month	3	170,649.00	511,947.00
42	Provision of Buried rail				
a)	Supply of 52/60 Kg BG Rail for buried Rail	Tonne	3.2	192,293.00	615,337.60
b)	Welding of Rail	No	2	4,474.00	8,948.00
c)	Placement under track	loc.	4	3,356.00	13,424.00
d)	Earth lead 5 places	No	20	1,119.00	22,380.00
e)	SS & copper rivets / fastners				
	(i) Supply	LS	LS	6,000.00	6,000.00
	(ii) Erection	LS	LS	600.00	600.00
f)	Ballast removal for 30 m @ 2.3 cum per Rm	Cum	70	209.00	14,630.00
g)	Ballast spreading for 30 m	Cum	70	308.00	21,560.00
43a	Works under Power Block				
	ii) Feeder wire	m	100	127.00	12,700.00
	iii) 9t. Insulator	No	6	298.00	1,788.00
	iv) Feeder Jumper	m	20	449.00	8,980.00
	v) Feeder Termination	No	6	357.00	2,142.00
	vi) Post insulator	No	2	601.00	1,202.00
43b	Dismantling work under switching post	LS	LS	150,000.00	150,000.00
44a	Misc. & unforeseen work	LS		200,000.00	200,000.00
44b	Compliance of observations made by Railway Officials, colletion of field data (test result) & submission to various units for approval & processing of EIG/CRS sanction	LS		200,000.00	200,000.00
45	Furniture for Switching Post Monitoring	LS	1	150,000.00	150,000.00
46	Site clearence	LS		100,000.00	100,000.00
47	**Total Traction**				**14,945,687.05**
48	Traffic & Power block charge	LS	LS	0.00	0.00
49a	**ELECTRIFICATION OF SWITCHING POST CUBICLE (E-2A)**			103,610.00	103,610.00
49b	**DISMANTLING WORKS**	LS	LS	25,000.00	25,000.00
50	**Total (G)**				**128,610.00**
51	**Total (Traction + General)**				**15,074,297.05**
52	**Civil Works**				
a)	Provision of Switching post control cubicle	Sqm	50	25000	1250000
b)	Dismantling of Switching post cubicle	Sqm	22	1000	22000

30-10-17
SADALA SATYANARAYAN
Project Officer
Magadh OCP

Annex - E 2A

DETAILED PROJECT REPORT

CONSTRUCTION OF ADDITIONAL RAILWAY INFRASTRUCTURE AT MAGADH OCP (51 MTY,PHASE-II, JHARKHAND)

ELECTRICAL ENGINEERING ESTIMATE

PROVISION OF 10 KVA AT FOR PANEL CABIN

Sl No	Description	Unit	Qty	Unit rate (Rs.)	Amount (Rs.)
1	Preparation of design and drawing for AT	LS	LS	5,500.00	5,500.00
2	Concrete for foundation	Cum	4	7,578.00	30,312.00
3	Supply & erection of				
(a)	Fabricated mast				
	(i) Supply	Ton	0.4	95,371.00	38,148.40
	(ii) Erection	Ton	0.4	3,535.00	1,414.00
(b)	Fabricated steel works other than masts				
	(i) Supply	Ton	0.1	108,468.00	10,846.80
	(ii) Erection	Ton	0.1	4,019.00	401.90
(c)	Catenary wire				
	(i) Supply	Mtr	10	657.00	6,570.00
	(ii) Erection	Mtr	10	68.00	680.00
(d)	Suspension arrangement for (c) including connector/lugs/ clamps				
	(i) Supply	LS	LS	2,500.00	2,500.00
	(ii) Erection	LS	LS	250.00	250.00
(e)	No. plate (Enamel)				
	(i) Supply	No.	2	1,245.00	2,490.00
	(ii) Erection	No.	2	138.00	276.00
(f)	Supply & erection of Caution Board (Enamel)				
	(i) Supply	No.	1	731.00	731.00
	(ii) Erection	No.	1	73.00	73.00
(g)	Supply & erection of Large Jumper wire				
	(i) Supply	Mtr	10	1,438.00	14,380.00
	(ii) Erection	Mtr	10	143.00	1,430.00
4	Supply & erection of				
(a)	Earth Station				
	(i) Supply	No.	2	2,572.00	5,144.00
	(ii) Erection	No.	2	1,642.00	3,284.00
(b)	Earth Bus				
	(i) Supply	Mtr	20	309.00	6,180.00
	(ii) Erection	Mtr	20	39.00	780.00
(c)	63 A Fuse switch unit				
	(i) Supply	No.	1	4,803.00	4,803.00
	(ii) Erection	No.	1	481.00	481.00
(d)	Terminal Board in control cubicle				
	(i) Supply	No.	1	11,462.00	11,462.00
	(ii) Erection	No.	1	476.00	476.00
(e)	Structure Bond				
	(i) Supply	No.	1	435.00	435.00
	(ii) Erection	No.	1	170.00	170.00
(f)	Cable laying				

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Sl No	Description	Unit	Qty	Unit rate (Rs.)	Amount (Rs.)
(i)	along track	Mtr	225	270.00	60,750 00
(ii)	across track (without pipe)	Mtr	15	35.00	525 00
(iii)	on the wall	Mtr	10	95.00	950 00
(g)	4 way fuse box				
	(i) Supply	No.	1	8,752.00	8,752 00
	(ii) Erection	No.	1	847.00	847 00
5	Supply and erection of 25 KV/240 V 10 KVA Auxilary Transformer with DO fuse switch assembly complete				
	(i) Supply	No.	1	137,453.00	137,453.00
	(ii) Erection	No.	1	7,810.00	7,810.00
6	Supply of cable for 240 V A.C supply (2 core X 70 sqmm) Aluminium PVC	Mtr	250	353.00	88,250.00
7	Supply & Erection of copper strips size (25 mm X 3 mm) for equipment earthing				
	(i) Supply	Mtr	5	515.00	2,575.00
	(ii) Erection	Mtr	5	38.00	190.00
8	Supply & Erection of Anti climbing device				
	(i) Supply	Mtr	15	376.00	5,640.00
	(ii) Erection	Mtr	15	70.00	1,050.00
9	Supply and erection of 9 tonne insulator				
	(i) Supply	No.	1	3,477.00	3,477.00
	(ii) Erection	No.	1	277.00	277.00
10	Oil filtration Testing & Commissioning	LS	LS	5,000.00	5,000.00
11	Misc. Works including Painting etc	LS	LS	5,000.00	5,000.00
12 (a)	Supply & laying of HDPE Pipe 63mm	Mtr	240	267.00	64,080.00
12 (b)	Supply & erection of RCC spun pipe	Mtr	10	512.00	5,120.00
13	**Total (01 No.)**				**546,964.00**
14	**Total (01No.)**				**546,964.00**

20.10.22
SADALA SATYANARAYAN
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DETAILED PROJECT REPORT

CONSTRUCTION OF ADDITIONAL RAILWAY INFRASTRUCTURE AT MAGADH OCP (51 MTY,PHASE-II, JHARKHAND)

ELECTRICAL ENGINEERING ESTIMATE

ELECTRIFICATION OF PANEL CABIN

Sl No	Description of Item	Unit	Qty	Rate (Rs)	Amount (Rs)
1	Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FR PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm. FR PVC insulated copper conductor single core cable etc. as required for service building, office, panel cabin etc.	Point	82	739.00	60,598.00
2	Wiring for circuit/ submain wiring alongwith earth wire with the following sizes of FR PVC insulated copper conductor, single core cable in surface/ recessed medium class PVC conduit as required				
a)	2 X 2.5 sq. mm + 1 X 2.5 sq. mm earth wire	Metre	350	135.00	47,250.00
b)	2 X 4 sq. mm + 1 X 4 sq. mm earth wire	Metre	650	166.00	107,900.00
c)	2 X 6 sq. mm + 1 X 6 sq. mm earth wire	Metre	300	210.00	63,000.00
3	Supplying and fixing metal box of 180mm X 100mm X 60mmdeep (nominal size) on surface or in recess with suitable size of phenolic laminated sheet cover in front including providing and fixing 6 pin 5/6 & 15/16 amps socket outlet and 15/16 amps piano type switch, connection, painting etc. as required.	Each	18	284.00	5,112.00
4	Installation, testing and commissioning of pre-wired, LED fitting of all types, with all accessories and tube etc. directly on ceiling/ wall, including connection with 1.5 sq. mm FR PVC insulated, copper conductor, single core cable and earthing etc. as required.	Each	58	94.00	5,452.00
5	Supplying & fixing of batten holer & batten type fixing,indoor single integrated LED lamp of 9W.	Each	5	320.00	1,600.00
6	Supplying of box type,indoor single integrated sleek extruded polycharbonate LED tube light fittings with 1 X18 W lamp, integrated driver, holders,acrelic made protective cover and other accessories .	Set	45	1322.00	59,490.00
7	Installation, testing and commissioning of ceiling fan, including wiring the down rods of standard length (upto 30cm) with 1.5 sqmm FR PVC insulated copper conductor, single core cable etc.	Each	12	98.00	1,176.00
8	Supply of 1400mm sweep ceiling fan suitable for operation on 230V, 50 Hz AC supply, complete with down rod, rubber shackle, blades, condensor, canopies etc. complete as reauired but without regulator.	Set	12	1752.00	21,024.00
9	Supplying and fixing stepped type electronic fan regulator on the existing modular plate switch box including connections but excluding modular plate etc. as required. (Two module)	Each	12	292.00	3,504.00
10	Supply of single phase, 300mm sweep, 1400rpm exhaust fan suitable for operation on 230V, 50 Hz AC supply, complete with blades, condensor, frame etc. as required.	Set	4	2677.00	10,708.00
11	Installation of exhaust fan in the existing opening, including making good the damage, connection, testing, commissioning etc.	Each	4	209.00	836.00
12	Extra for fixing the louvers / shutters complete with frame for exhaust fan.	Each	4	92.00	368.00
13	Supply, erection, testing & commissioning of 1.5 ton split type 5 star rated room air conditioner with copper evaporator & cooling coil.	Set	6	51420.00	308,520.00
14	Supply, erection, testing & commissioning of 5 kVA single phase voltage stabiliser with working voltage 150 to 290 volt having low voltage cut off below 150 volt, high voltage cut off above 300 volt and time delay.	Each	6	6896.00	41,376.00
15	Supply, fixing, testing & commissioning of 4 module cover plate, 20A starter, 25 A socket, 25A plug for AC, water cooler.	Set	6	2285.00	13,710.00

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Sl No	Description of Item	Unit	Qty	Rate (Rs)	Amount (Rs)
16	Wiring of power plug for AC with 2X4 sq. mm FR PVC insulated copper conductor single core cable in surface/ recessed medium class PVC conduit along with 1 No 4 sq. mm FR PVC insulated copper conductor single core cable for loop earthing as required.	Metre	60	166.00	9,960.00
17	Supply, fixing, testing and commissioning of integral type LED Street light Fittings of IP 66 rating (bracket light) complete with **1 X 25** watt LED lamp, driver etc.	Set	8	5008.00	40,064.00
18	Earthing with G.I. earth pipe 4.5 metre long, 40 mm dia including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. with charcoal/ coke and salt as required.	Each	2	4038.00	8,076.00
19	Supplying and laying 6 SWG G.I. wire at 0.50 metre below ground level for conductor earth electrode, including connection/termination with GI thimble etc.as required.	Metre	30	29.00	870.00
20	Supplying and fixing 4 way (4 + 12), Double door TP&N MCB distribution board of steel sheet for 415 volts on surface/ recess complete with loose wire box, terminal connectors for all incoming and outgoing circuits, duly prewired with suitable size FRLS PVC insulated copper conductor up to terminal blocks, tinned copper bus bar, neutral link, earth bar, din bar, detachable gland plate, interconnections, powder painted including earthing etc. as required.(But without MCB/ RCCB/ Isolator)	Each	2	7567.00	15,134.00
21	Supplying and fixing 5 amps to 32 amps rating, 240 volts, "C" curve, miniature circuit breaker suitable for inductive load of Single poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.	Set	24	174.00	4,176.00
22	Supplying and fixing 63A rating, four pole, (three phase and neutral), 415 volts, MCB, having 10kA short circuit current rating with 'C' curve in the existing MCB DB complete with connections, testing and commissioning etc. as required.	Each	2	1701.00	3,402.00
23	Supply of 1.1 kV grade, XLPE insulated, armoured, PVC outer sheath aluminium cable of following sizes.				
a)	4 C X 16 sqmm	Metre	300	362.00	108,600.00
b)	4 C X 35 sqmm	Metre	1000	362.00	362,000.00
c)	4 C X 70 sqmm	Metre	2000	372.00	744,000.00
24	Laying of one number XLPE power cable of 1.1 KV grade of following size direct in ground of minm 750mm depth including excavation, sand cushioning, protective covering and refilling the trench etc as required.				
a)	Upto 35 sq mm	Metre	1000	90.00	90,000.00
b)	Upto 70 sq mm	Metre	2000	90.00	180,000.00
25	Laying of one number XLPE power cable of 1.1 KV grade of following size in the existing pipe as required.				
i)	Upto 70 sq mm	Metre	300	17.00	5,100.00
26	Providing, laying following dia pipe in ground as required				
a)	40 mm dia	Metre	250	88.00	22,000.00
27	Laying of following size cable in the existing masonary duct as required				
i)	Upto 35 sq mm	Metre	25	12.00	300.00
28	Laying and fixing of one number XLPE power cable of 1.1 KV grade of following size on wall surface as required.				
i)	Upto 35 sq. mm (clamped with 1mm thick saddle)	Metre	25	24.00	600.00
29	Supplying and making indoor end termination with brass compression gland and aluminium lugs for following size of XLPE aluminium conductor cable of 1.1 KV grade as required.				
i)	4 X 16 sq. mm	Each	2	253.00	506.00
30	Provision of Changeover Panel 63A (3 position)- RDSO specification	Set	1	83050.00	83,050.00
31	Misc and unforeseen works	LS			50,000.00
32	Provision of AC-2 Tonne, Split with installation	No	8	70000.00	560,000.00

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Sl No	Description of Item	Unit	Qty	Rate (Rs)	Amount (Rs)
33	**Total**				**3,039,462.00**
	1 Nos Panel Cabin Building				**3,039,462.00**

SADALA SATYANARAYAN
Project Officer
Magadh OCP

DETAILED PROJECT REPORT

CONSTRUCTION OF ADDITIONAL RAILWAY INFRASTRUCTURE AT MAGADH OCP (51 MTY,PHASE-II, JHARKHAND)

ELECTRICAL ENGINEERING ESTIMATE

ELECTRIFICATION OF CREW REST ROOM AT INPLANT

Sl No	Description of Item	Unit	Qty	Rate (Rs)	Amount (Rs)
1	Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FR PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm. FR PVC insulated copper conductor single core cable etc. as required for service building, office, panel cabin etc.	Point	51	868.00	44,268.00
2	Wiring for circuit/ submain wiring along with earth wire with the following sizes of FR PVC insulated copper single core cable in surface/ recessed medium class PVC conduit as required				
a)	2 X 2.5 sq. mm + 1 X 2.5 sq. mm earth wire	Metre	350	135.00	47,250.00
b)	2 X 4 sq. mm + 1 X 4 sq. mm earth wire	Metre	650	166.00	107,900.00
c)	2 X 6 sq. mm + 1 X 6 sq. mm earth wire	Metre	300	210.00	63,000.00
3	Supplying and fixing metal box of 180mm X 100mm X 60mmdeep (nominal size) on surface or in recess with suitable size of phenolic laminated sheet cover in front including providing and fixing 6 pin 5/6 & 15/16 amps socket outlet and 15/16 amps piano type switch, connection, painting etc. as required.	Each	12	434.00	5,208.00
4	Installation, testing and commissioning of pre-wired, LED fitting of all types, with all accessories and tube etc. directly on ceiling/ wall, including connection with 1.5 sq. mm FR PVC insulated, copper conductor, single core cable and earthing etc. as required.	Each	29	147.00	4,263.00
5	Supplying & fixing of batten holer & batten type fixing,indoor single integrated LED lamp of 9W.	Each	5	320.00	1,600.00
6	Supplying of box type,indoor single integrated sleek extruded polycharbonate LED tube light fittings with 1 X18 W lamp, integrated driver, holders,acrelic made protective cover and other accessories .	Set	16	4904.00	78,464.00
7	Installation, testing and commissioning of ceiling fan, including wiring the down rods of standard length (upto 30cm) with 1.5 sqmm FR PVC insulated copper conductor, single core cable etc.	Each	9	150.00	1,350.00
8	Supply of 1400mm 5 star rayed sweep ceiling fan suitable for operation on 230V, 50 Hz AC supply, complete with down rod, rubber shackle, blades, condensor, canopies etc. complete as reauired but without regulator.	Set	9	2917.00	26,253.00
9	Supplying and fixing stepped type electronic fan regulator on the existing modular plate switch box including connections but excluding modular plate etc. as required. (Two module)	Each	9	300.00	2,700.00
10	Supply of single phase, 300mm sweep, 1400rpm exhaust fan suitable for operation on 230V, 50 Hz AC supply, complete with blades, condensor, frame etc. as required.	Set	5	2677.00	13,385.00
11	Installation of exhaust fan in the existing opening, including making good the damage, connection, testing, commissioning etc.	Each	5	209.00	1,045.00
12	Extra for fixing the louvers / shutters complete with frame for exhaust fan.	Each	5	92.00	460.00
13	Supply, erection, testing & commissioning of 1.5 ton split type 5 star rated room air conditioner with copper evaporator & cooling coil.	Set	6	67320.00	403,920.00
14	Supply, erection, testing & commissioning of 5 kVA single phase voltage stabiliser with working voltage 150 to 290 volt having low voltage cut off below 150 volt, high voltage cut off above 300 volt and time delay.	Each	6	9163.00	54,978.00
15	Supply, fixing, testing & commissioning of 4 module cover plate, 20A starter, 25 A socket, 25A plug for AC, water cooler.	Set	6	2431.00	14,586.00

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Magadh OCP

Sl No	Description of Item	Unit	Qty	Rate (Rs)	Amount (Rs)
16	Wiring of power plug for AC with 2X4 sq. mm FR PVC insulated copper conductor single core cable in surface/ recessed medium class PVC conduit along with 1 No 4 sq. mm FR PVC insulated copper conductor single core cable for loop earthing as required.	Metre	100	166.00	16,600.00
17	Supply, fixing, testing and commissioning of integral type LED Street light Fittings of IP 66 rating (bracket light) complete with **1 X 25** watt LED lamp, driver etc.	Set	8	5008.00	40,064.00
18	Earthing with G.I. earth pipe 4.5 metre long, 40 mm dia including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. with charcoal/ coke and salt as required.	Each	2	4038.00	8,076.00
19	Supplying and laying 6 SWG G.I. wire at 0.50 metre below ground level for conductor earth electrode, including connection/termination with GI thimble etc.as required.	Metre	30	29.00	870.00
20	Supplying and fixing 4 way (4 + 12), Double door TP&N MCB distribution board of steel sheet for 415 volts on surface/ recess complete with loose wire box, terminal connectors for all incoming and outgoing circuits, duly prewired with suitable size FRLS PVC insulated copper conductor up to terminal blocks, tinned copper bus bar, neutral link, earth bar, din bar, detachable gland plate, interconnections, powder painted including earthing etc. as required.(But without MCB/ RCCB/ Isolator)	Each	2	7567.00	15,134.00
21	Supplying and fixing 5 amps to 32 amps rating, 240 volts, "C" curve, miniature circuit breaker suitable for inductive load of Single poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.	Set	24	174.00	4,176.00
22	Supplying and fixing 63A rating, four pole, (three phase and neutral), 415 volts, MCB, having 10kA short circuit current rating with 'C' curve in the existing MCB DB complete with connections, testing and commissioning etc. as required.	Each	2	1701.00	3,402.00
23	Supply of 1.1 kV grade, XLPE insulated, armoured, PVC outer sheath aluminium cable of following sizes.				
a)	4 C X 16 sqmm	Metre	300	350.00	105,000.00
b)	4 C X 35 sqmm	Metre	1000	362.00	362,000.00
c)	4 C X 70 sqmm	Metre	2000	372.00	744,000.00
24	Laying of one number XLPE power cable of 1.1 KV grade of following size direct in ground of min 750mm depth including excavation, sand cushioning, protective covering and refilling the trench etc as required.				
i)	Upto 35 sq mm	Metre	1000	90.00	90,000.00
b)	Upto 70 sq mm	Metre	2000	90.00	180,000.00
25	Laying of one number XLPE power cable of 1.1 KV grade of following size in the existing pipe as required.				
i)	Upto 70 sq mm	Metre	300	17.00	5,100.00
26	Providing, laying following dia pipe in ground as required				
a)	40 mm dia	Metre	250	88.00	22,000.00
27	Laying of following size cable in the existing masonary duct as required				
i)	Upto 35 sq mm	Metre	25	12.00	300.00
28	Laying and fixing of one number XLPE power cable of 1.1 KV grade of following size on wall surface as required.				
i)	Upto 35 sq. mm (clamped with 1mm thick saddle)	Metre	25	24.00	600.00
29	Supplying and making indoor end termination with brass compression gland and aluminium lugs for following size of XLPE aluminium conductor cable of 1.1 KV grade as required.				
i)	4 X 16 sq. mm	Each	2	253.00	506.00
30	Misc and unforeseen works				25,000.00
31	**Total**				**2,493,458.00**

SADALA SATYANARAYAN
Project Officer
Magadh OCP

DETAILED PROJECT REPORT

CONSTRUCTION OF ADDITIONAL RAILWAY INFRASTRUCTURE AT MAGADH OCP (51 MTY,PHASE-II, JHARKHAND)

ELECTRICAL ENGINEERING ESTIMATE

ELECTRIFICATION OF FOIS & TMS AT INPLANT

Sl No	Description of Item	Unit	Qty	Rate (Rs)	Amount (Rs)
1	Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FR PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm. FR PVC insulated copper conductor single core cable etc. as required for service building, office, panel cabin etc.	Point	22	739.00	16,258.00
2	Wiring for circuit/ submain wiring along with earth wire with the following sizes of FR PVC insulated copper single core cable in surface/ recessed medium class PVC conduit as required				
a)	2 X 2.5 sq. mm + 1 X 2.5 sq. mm earth wire	Metre	350	135.00	47,250.00
b)	2 X 4 sq. mm + 1 X 4 sq. mm earth wire	Metre	650	166.00	107,900.00
c)	2 X 6 sq. mm + 1 X 6 sq. mm earth wire	Metre	300	210.00	63,000.00
3	Supplying and fixing metal box of 180mm X 100mm X 60mmdeep (nominal size) on surface or in recess with suitable size of phenolic laminated sheet cover in front including providing and fixing 6 pin 5/6 & 15/16 amps socket outlet and 15/16 amps piano type switch, connection, painting etc. as required.	Each	4	284.00	1,136.00
4	Installation, testing and commissioning of pre-wired, LED fitting of all types, with all accessories and tube etc. directly on ceiling/ wall, including connection with 1.5 sq. mm FR PVC insulated, copper conductor, single core cable and earthing etc. as required.	Each	15	94.00	1,410.00
5	Supplying & fixing of batten holer & batten type fixing,indoor single integrated LED lamp of 9W.	Each	1	320.00	320.00
6	Supplying of box type,indoor single integrated sleek extruded polycharbonate LED tube light fittings with 1 X18 W lamp, integrated driver, holders,acrelic made protective cover and other accessories .	Set	10	1322.00	13,220.00
7	Installation, testing and commissioning of ceiling fan, including wiring the down rods of standard length (upto 30cm) with 1.5 sqmm FR PVC insulated copper conductor, single core cable etc.	Each	2	98.00	196.00
8	Supply of 1400mm sweep ceiling fan suitable for operation on 230V, 50 Hz AC supply, complete with down rod, rubber shackle, blades, condensor, canopies etc. complete as reauired but without regulator.	Set	2	1752.00	3,504.00
9	Supplying and fixing stepped type electronic fan regulator on the existing modular plate switch box including connections but excluding modular plate etc. as required. (Two module)	Each	2	292.00	584.00
10	Supply of single phase, 300mm sweep, 1400rpm exhaust fan suitable for operation on 230V, 50 Hz AC supply, complete with blades, condensor, frame etc. as required.	Set	1	2677.00	2,677.00
11	Installation of exhaust fan in the existing opening, including making good the damage, connection, testing, commissioning etc.	Each	1	209.00	209.00
12	Extra for fixing the louvers / shutters complete with frame for exhaust fan.	Each	1	92.00	92.00
13	Supply, erection, testing & commissioning of 1.5 ton split type 5 star rated room air conditioner with copper evaporator & cooling coil.	Set	2	51420.00	102,840.00
14	Supply, erection, testing & commissioning of 5 kVA single phase voltage stabiliser with working voltage 150 to 290 volt having low voltage cut off below 150 volt, high voltage cut off above 300 volt and time delay.	Each	2	6896.00	13,792.00
15	Supply, fixing, testing & commissioning of 4 module cover plate, 20A starter, 25 A socket, 25A plug for AC, water cooler.	Set	2	2285.00	4,570.00

SADALA SATYANARAYAN
Project Officer
Magadh OCP

Sl No	Description of Item	Unit	Qty	Rate (Rs)	Amount (Rs)
16	Wiring of power plug for AC with 2X4 sq. mm FR PVC insulated copper conductor single core cable in surface/ recessed medium class PVC conduit along with 1 No 4 sq. mm FR PVC insulated copper conductor single core cable for loop earthing as required.	Metre	20	166.00	3,320.00
17	Supply, fixing, testing and commissioning of integral type LED Street light Fittings of IP 66 rating (bracket light) complete with **1 X 25** watt LED lamp, driver etc.	Set	4	5008.00	20,032.00
18	Earthing with G.I. earth pipe 4.5 metre long, 40 mm dia including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. with charcoal/ coke and salt as required.	Each	2	4038.00	8,076.00
19	Supplying and laying 6 SWG G.I. wire at 0.50 metre below ground level for conductor earth electrode, including connection/termination with GI thimble etc.as required.	Metre	30	29.00	870.00
20	Supplying and fixing 4 way (4 + 12), Double door TP&N MCB distribution board of steel sheet for 415 volts on surface/ recess complete with loose wire box, terminal connectors for all incoming and outgoing circuits, duly prewired with suitable size FRLS PVC insulated copper conductor up to terminal blocks, tinned copper bus bar, neutral link, earth bar, din bar, detachable gland plate, interconnections, powder painted including earthing etc. as required.(But without MCB/ RCCB/ Isolator)	Each	1	7567.00	7,567.00
21	Supplying and fixing 5 amps to 32 amps rating, 240 volts, "C" curve, miniature circuit breaker suitable for inductive load of Single poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.	Set	8	174.00	1,392.00
22	Supplying and fixing 63A rating, four pole, (three phase and neutral), 415 volts, MCB, having 10kA short circuit current rating with 'C' curve in the existing MCB DB complete with connections, testing and commissioning etc. as required.	Each	1	1701.00	1,701.00
23	Supply of 1.1 kV grade, XLPE insulated, armoured, PVC outer sheath aluminium cable of following sizes.				
a)	4 C X 16 sqmm	Metre	100	362.00	36,200.00
24	Laying of one number XLPE power cable of 1.1 KV grade of following size direct in ground of minm 750mm depth including excavation, sand cushioning, protective covering and refilling the trench etc as required.				
i)	Upto 35 sq mm	Metre	80	90.00	7,200.00
25	Laying of one number XLPE power cable of 1.1 KV grade of following size in the existing pipe as required.				
i)	Upto 35 sq mm	Metre	80	17.00	1,360.00
26	Providing, laying following dia pipe in ground as required				
a)	40 mm dia	Metre	80	88.00	7,040.00
27	Laying of following size cable in the existing masonary duct as required				
i)	Upto 35 sq mm	Metre	10	12.00	120.00
28	Laying and fixing of one number XLPE power cable of 1.1 KV grade of following size on wall surface as required.				
i)	Upto 35 sq. mm (clamped with 1mm thick saddle)	Metre	10	24.00	240.00
29	Supplying and making indoor end termination with brass compression gland and aluminium lugs for following size of XLPE aluminium conductor cable of 1.1 KV grade as required.				
i)	4 X 16 sq. mm	Each	2	253.00	506.00
30	Total Amount				474,582.00
31	Misc and unforeseen works				25,000.00
32	Electrification of 3 Nos Motion Weigh Bridge Electrification (3x70000)				210,000.00
33	**Total**				**1,184,164.00**

SADALA SATYANARAYAN
Project Officer
Magadh OCP

DETAILED PROJECT REPORT

CONSTRUCTION OF ADDITIONAL RAILWAY INFRASTRUCTURE AT MAGADH OCP (51 MTY,PHASE-II, JHARKHAND)

ELECTRICAL ENGINEERING ESTIMATE

ILLUMINATION OF RAILWAY/IN-PLANT YARD

Sl No	Description of Item	Unit	Qty	Rate (Rs)	Amount (Rs)
1	Supply, erection, testing and commissioning of 30 mt High Mast tower along with feeder pillar box consisting with astronomical timer, aviation obstruction light, earthing (2no) with earthing connector by 25x5 mm GI earth strip as per specification enclosed.				
a)	Supply	Each	8	414652.00	3,317,216.0(
b)	Erection, testing & commissioning	Each	8	41825.00	334,600.0(
2	Supply & construction of RCC foundation with M-20 grade concrete by considering soil bearing capacity as 10 Ton per sq mt.	Each	8	224675.00	1,797,400.0(
3	Supply, erection, testing and commissioning of integral type 350 watt LED high mast flood light luminaires with driver and other accessories enclosed.				-
a)	Supply	Each	128	37605.00	4,813,440.0(
b)	Erection, testing & commissioning	Each	128	3793.00	485,504.0(
4	Earthing with G.I. earth pipe (ISI marked) 4.5 metre long, 40 mm dia including accessories, and providing masonry enclosure with CI cover plate having locking arrangement and watering pipe etc. with charcoal/ coke and salt as required.	Each	30	3926.00	117,780.0(
5	Supplying and laying 6 SWG G.I. wire at 0.50M below ground level for conductor earth electrode, including connection/termination with GI thimble etc.as required.	Metre	450	23.00	10,350.0(
6	Drawing, Designing, Supply, Erection, Testing & Commissioning of outdoor type and ingress protection of IP-66 rated main LT Panel for inplant Yard Illumination including 2 no 160 A 4Pole microprocessor based adjustable thermal & magnetic setting rated MCCB-2 no as incommer (Icu=35 kA, Ics= 100% Icu, 1 set 250A rated TPN tin plated Cu busbar(current density >1.6A/sqmm), 1 no digital Ammeter, 1no digital Voltmeter, with phase selection option, 1 set phase indication LED lamp(R-Y-B), 40 A 4P 'C' curve 40kA rated MCB- 6 no as outgoing.				-
a)	Supply	Set	2	348350.00	696,700.0(
b)	Erection, testing & commissioning	Set	2	17235.00	34,470.0(
7	Supply of 1.1 kV grade, XLPE insulated, armoured, FRLS, PVC outer sheath aluminium cable of following sizes conforming to IS:7098-(Pt-I)-1998 or latest and ISI marked.				-
a)	3.5 C X 120 sqmm	Metre	1000	900.00	900,000.0(
b)	3.5 C X 70 sqmm	Metre	1000	861.00	861,000.0(
c)	3.5 C X 35 sqmm	Metre	1000	670.00	670,000.0(
d)	4 C X 16 sqmm	Metre	1500	462.00	693,000.0(
8	Laying of one number XLPE insulated, armoured, FRLS, PVC outer sheath power cable of 1.1 KV grade of following size direct in ground of min 750mm depth including excavation, sand cushioning, protective covering and refilling the trench etc as required.				-
i)	Upto 70 sq mm	Metre	3500	100.00	350,000.00
ii)	Above 95 sq.mm and upto 185 sqmm	Metre	1000	118.00	118,000.00
9	Laying of one number XLPE insulated, armoured, FRLS, PVC outer sheath power cable of 1.1 KV grade of following size in the existing HDPE pipe as required.		0		-
i)	Upto 70 sq mm	Metre	3500	14.00	49,000.00
ii)	Above 95 sq.mm and upto 185 sqmm	Metre	1000	32.00	32,000.00

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SADALA SATYANARAYAN
Project Officer
Magadh OCP

Sl No	Description of Item	Unit	Qty	Rate (Rs)	Amount (Rs)
10	Providing, laying following dia HDPE pipe(IS:4984-2016 or latest) in ground as required (ISI marked)		0		-
a)	40 mm dia	Metre	2400	94.00	225,600.00
11	Laying of following size XLPE insulated, armoured, FRLS, PVC outer sheathcable in the existing masonary duct as required		0		-
i)	Upto 35 sq mm	Metre	500	14.00	7,000.00
12	Laying and fixing of one number XLPE insulated, armoured, FRLS, PVC outer sheath power cable of 1.1 KV grade of following size on wall surface as required.		0		-
i)	Upto 35 sq. mm (clamped with 1mm thick saddle)	Metre	500	26.00	13,000.00
13	Supplying and making indoor end termination with double ended brass compression gland and aluminium lugs for following size of XLPE insulated, armoured, FRLS, PVC outer sheath, aluminium conductor cable of 1.1 KV grade as required. (ISI marked)		0		-
i)	3.5 x 120 sqmm	Each	12	518.00	6,216.00
ii)	3.5 X 70 sq. mm	Each	30	500.00	15,000.00
iii)	3.5 X 35 sq. mm	Each	30	292.00	8,760.00
iv)	4 X 16 sq. mm	Each	60	264.00	15,840.00
14	Supply of 100 KVA ,11/0.433 KV,50 hz, oil immersed, naturally cooled ONAN, vector group Dyn - 11, Copper wound distribution type outdoor transformer complete with all accessories including one spare barrel of 200 litres of transformers oil	No	2	350000	700,000.00
(ii)	Erection, testing & commissioning	No	2	35000	70,000.00
15	Supply of 3 Core,185 sqmm, 11KV(E),XLPE insulated , PVC inner & outer sheath , armoured , aluminium cable	Mtr	1000	925	925,000.00
16	Laying of one no 3 Crore, 185 sqmm, 11 KV (E) XLPE insulated armoured cable direct in ground including excavation,sand cushioning, protective brick covering and refilling the trench etc as required	Mtr	1000	324	324,000.00
17	Supply and making straight through cable jointing with heat shrinkable jointing kit complete with all accessories including ferrule and other jointing materials, for 3C of 120 to 240 Sq. mm of 3 core, XLPE aluminium/ copper conductor cable of 33 kV grade as required.		0		-
a	Supply	Each	12	16268.00	195,216.00
b	Erection	Each	12	1178.00	14,136.00
18	Termination	Nos	24	1052.00	25,248.00
19	Misc and unforeseen works	LS		100000	100,000.00
20	**TOTAL AMOUNT**				**17,925,476.00**

20.10.21
SADALA SATYANARAYAN
Project Officer
Magadh OCP

DETAILED PROJECT REPORT

CONSTRUCTION OF ADDITIONAL RAILWAY INFRASTRUCTURE AT MAGADH OCP (51 MTY,PHASE-II, JHARKHAND)

ELECTRICAL ENGINEERING ESTIMATE
ILLUMINATION OF PATHWAY FOR GDR CHECK

Sl No	Description of Item	Unit	Qty	Rate (Rs)	Amount (Rs)
1	Supply, erection, testing and commissioning including foundation by M-15 grade concrete for 3.0M long octagonal pole for path way luminaries including the arm bracket of 0.5 mtr long and 70mm top cap.	No	62	5718.00	354,516.00
2	Supply, fixing, testing and commissioning of outdoor integral type LED Street light Fittings IP-65 (bracket light) complete with **1 X 20** watt LED lamp, driver etc. (ISI marked)	Set	62	3187.00	197,594.00
3	Earthing with G.I. earth pipe (ISI marked) 4.5 metre long, 40 mm dia including accessories, and providing masonry enclosure with CI cover plate having locking arrangement and watering pipe etc. with charcoal/ coke and salt as required.	Each	12	3803.00	45,636.00
4	Supplying and laying 6 SWG G.I. wire at 0.50M below ground level for conductor earth electrode, including connection/termination with GI thimble etc.as required.	Metre	150	24.00	3,600.00
5	Drawing, Designing, Supply, Erection, Testing & Commissioning of LT Panel for GDR Pathway illuminationand with ingress protection of IP-66 rated including 1 no 63A 4Pole MCCB-1 no as incommer, 1 set 125A rated TPN tin plated Cu busbar (current density >1.6A/sqmm), 1 set phase indication LED lamp(R-Y-B), 1 no Digital Ammeter, 1 no digital Voltmeter with phase selection option, Astronomical Timer & contactor for 12 hrs supply provision, 6A 4P 'C' curve 10kA rated MCB- 3 no (for outgoing).				
a	Supply	Set	1	55750.00	55,750.00
b)	Erection, testing & commissioning	Set	1	6075.00	6,075.00
6	Supply of 1.1 kV grade, XLPE insulated, armoured, FRLS, PVC outer sheath aluminium cable of following sizes conforming to IS:7098-(Pt-I)-1998 or latest and ISI marked.				
a)	3.5 C X 25 sqmm	Metre	1200	541.00	649,200.00
7	Laying of one number XLPE insulated, armoured, FRLS, PVC outer sheath power cable of 1.1 KV grade of following size direct in ground of minm 750mm depth including excavation, sand cushioning, protective covering and refilling the trench etc as required.				
i)	Upto 35 sq mm	Metre	950	100.00	95,000.00
8	Laying of one number XLPE insulated, armoured, FRLS, PVC outer sheath power cable of 1.1 KV grade of following size in the existing HDPE pipe as required.				
i)	Upto 35 sq mm	Metre	950	19.00	18,050.00
9	Providing, laying following dia HDPE pipe(IS:4984-2016 or latest) in ground as required (ISI marked)				
a)	40 mm dia (PN-6, PE-63)	Metre	950	94.00	89,300.00
10	Laying of following size XLPE insulated, armoured, FRLS, PVC outer sheathcable in the existing masonary duct as required				
i)	Upto 35 sq mm	Metre	120	14.00	1,680.00
11	Laying and fixing of one number XLPE insulated, armoured, FRLS, PVC outer sheath power cable of 1.1 KV grade of following size on wall surface as required.				
i)	Upto 35 sq. mm (clamped with 1mm thick saddle)	Metre	120	26.00	3,120.00

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SADALA SATYANARAYAN
Project Officer
Magadh OCP

Sl No	Description of Item	Unit	Qty	Rate (Rs)	Amount (Rs)
12	Supplying and making indoor end termination with double ended brass compression gland and aluminium lugs for following size of XLPE insulated, armoured, FRLS, PVC outer sheath, aluminium conductor cable of 1.1 KV grade as required. (ISI marked)				
i)	3½ X 25 sq. mm	Each	130	266.00	34,580.00
13	Supplying and making straight through joint with cast resin compound including ferrules and other jointing materials for following size of PVC insulated and PVC sheathed / XLPE insulated, armoured, FRLS, PVC outer sheath, aluminium conductor cable of 1.1 KV grade as required (ISI marked)				
i)	3½ X 25 sq. mm	Each	2	1465.00	2,930.00
14	Misc and unforeseen works				100,000.00
15	**TOTAL**				**1,657,031.00**

SADALA SATYANARAYAN
Project Officer
Magadh OCP

DETAILED PROJECT REPORT

CONSTRUCTION OF ADDITIONAL RAILWAY INFRASTRUCTURE AT MAGADH OCP (51 MTY,PHASE-II, JHARKHAND)

ELECTRICAL ENGINEERING ESTIMATE

LT POWER SUPPLY ARRANGEMENT FOR INPLANT YARD

Sl No	Description of Item	Unit	QTY	Rate (Rs)	AMOUNT (Rs.)
	MAIN LT PANEL				
1	Supply, erection, testing & commissioning of Main LT cubicle panel comprising of 4 no, electrolytic grade, tin plated, copper busbar of capacity 1000 A. **Incomer:** 2no, 800 A, 50 kA for 1 sec, four pole, electrically draw out type Air Circuit Breaker with microprocessor based intellegent protection releases i.e over current, short circuit, earth fault, under voltage release as incomer & 1 no same capacity circuit breaker without any release as Bus Coupler with mechanical and electrical interlocking arrangement. **Metering:** 2 no Analog ammeter & voltmeter with selector switch, 2 no digital energy meter, 800/5 Amp CT of accuracy class 1.0 and burden 15 VA, LED type indication lamp as per the direction of EIC and approved drawing. **Outgoing:** MCCB: FP, 630A, 50 kA, Adjustable thermal & magnetic setting - 2 nos, FP, 125A, 35 kA, Adjustable thermal & magnetic setting- 6 nos; FP, 63 A, 35kA, Adjustable thermal & magnetic setting - 2no.				
a)	Supply	Each	1	2021725.00	2,021,725.00
b)	Erection, testing & commissioning	Each	1	168300.00	168,300.00
	LT CABLE WORK				
2	Supply of 1.1 kV grade, XLPE insulated, armoured, FRLS, PVC outer sheath aluminium cable of following sizes conforming to IS:7098-(Pt-I)-1998 or latest and ISI marked.				
a)	4 C X 95 sqmm	Metre	500	865.00	432,500.00
b)	4 C X 35 sqmm	Metre	1000	321.00	321,000.00
c)	4 C X 16 sqmm	Metre	300	234.00	70,200.00
3	Laying of one number XLPE insulated, armoured, FRLS, PVC outer sheath power cable of 1.1 KV grade of following size direct in ground of minm 750mm depth including excavation, sand cushioning, protective covering and refilling the trench etc as required.				
i)	Upto 35 sq mm	Metre	1500	206.00	309,000.00
ii)	Above 95 sq. mm and upto 185 sq. mm	Metre	400	234.00	93,600.00
4	Laying of one number XLPE insulated, armoured, FRLS, PVC outer sheath power cable of 1.1 KV grade of following size in the existing HDPE pipe as required.				
i)	Upto 35 sq mm	Metre	1500	30.00	45,000.00
ii)	Above 95 sq. mm and upto 185 sq. mm	Metre	400	63.00	25,200.00
5	Providing, laying following dia HDPE pipe(IS:4984-2016 or latest) in ground as required (ISI marked)				
a)	90 mm dia (PN-6, PE-80)	Metre	400	336.00	134,400.00
b)	50 mm dia (PN-6, PE-63)	Metre	1500	127.00	190,500.00
6	Laying of following size XLPE insulated, armoured, FRLS, PVC outer sheathcable in the existing masonary duct as required				
i)	Upto 35 sq mm	Metre	350	23.00	8,050.00
ii)	Above 95 sq. mm and upto 185 sq. mm	Metre	50	51.00	2,550.00

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SADALA SATYANARAYAN
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MAGADH OCP

Sl No	Description of Item	Unit	QTY	Rate (Rs)	AMOUNT (Rs.)
7	Laying and fixing of one number XLPE insulated, armoured, FRLS, PVC outer sheath power cable of 1.1 KV grade of following size on wall surface as required.				
i)	Upto 35 sq. mm (clamped with 1mm thick saddle)	Metre	350	37.00	12,950.00
ii)	Above 95 sq. mm and upto 185 sq. mm (clamped with 40x3mm MS flat clamp)	Metre	50	119.00	5,950.00
8	Supplying and making indoor end termination with double ended brass compression gland and aluminium lugs for following size of XLPE insulated, armoured, FRLS, PVC outer sheath, aluminium conductor cable of 1.1 KV grade as required. (ISI marked)				
i)	4 X 95 sq. mm	Each	2	416.00	832.00
ii)	4 X 35 sq. mm	Each	12	275.00	3,300.00
iii)	4 X 16 sq. mm	Each	6	244.00	1,464.00
9	Supplying and making straight through joint with heat shrinkable kit including ferrules and other jointing materials for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required				
i)	4 X 95 sq. mm	Each	1	2795.00	2,795.00
ii)	4 X 35 sq. mm	Each	3	2028.00	6,084.00
	SAFETY ITEMS				
10	Supply & erection of MS chequered plate of 600 X 400 X 7mm (thick) to cover the cable trench as required.	Each	6	2173.00	13,038.00
11	Supply, erection & fixing of ISI marked CO_2 fire extinguisher suitable for 6.5 Kg.	Each	2	11822.00	23,644.00
12	Supply, testing & laying of 11kV Rubber Mat for electrical insulation purposes of size 6 ft X 3 ft X 0.5 at both the sub - station.	Each	4	4607.00	18,428.00
13	Supply & fixing of 6 No, GI fire bucket made from 24 SWG sheet of capacity 9 litre fitted on MS 50mm X 50mm X 6mm angle iron structure filled with clean & dry sand.	Set	1	1695.00	1,695.00
14	Supply & erection of shock treatment chart covered with glass & aluminium frame.	Each	2	408.00	816.00
15	Supply and ficing of Schematic data on metal sheet of size 1200mmX600mm with aluminium frame	Each	2	5169.00	10,338.00
16	Supply & fixing of schematic diagram of HT/LT installation of suitable size.	Each	2	2585.00	5,170.00
17	Supply & erection of cable route marker for HT/LT cable made of CI plate duly engraved "Danger 11kV HT cable" & "440 V Cable".	Each	50	342.00	17,100.00
	Provision of Lightning Protection				
18	Providing and fixing of lightning conductor finial (Lightning Arrester), made of 25 mm dia 300mm long, copper tube, having single prong at top, with 85 mm dia 3mm thick copper base plate including holes etc. complete as required.	Each	4	411.00	1,644.00
19	Providing and fixing testing joint, made of 20 mm X 3 mm thick copper strip, 125 mm long, with 4 nos. of tinned brass bolts, nuts, chuck nuts and spring washers etc. complete as required.	Each	4	99.00	396.00
20	Electrification of Switching Room	LS		100000.00	100,000.00
21	**Total**				**4,047,669.00**
22	Misc. and Unfoeseen Work				100,000.00
23	**Total**				**4,147,669.00**
24	**Civil Work**				
25	Provision of Switching Room	Sqm	9	25000.00	225,000.00

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SADALA SATYANARAYAN
Project Officer
Magadh OCP

DETAILED PROJECT REPORT

CONSTRUCTION OF ADDITIONAL RAILWAY INFRASTRUCTURE AT MAGADH OCP (51 MTY,PHASE-II, JHARKHAND)

ELECTRICAL ENGINEERING ESTIMATE

DG SUPPLY THROUGH CABLE

Sl No	Description of Item	Unit	QTY	Rate (Rs)	AMOUNT (Rs.)
	MAIN LT PANEL				
1	Switch Cubicle consisting with 160A MCCB as I/C along with Busbar and and O/G MCCB of 125A - 2 no and other accessorries.				
a)	Supply	Each	1	95000.00	95,000.00
b)	Erection, testing & commissioning	Each	1	10500.00	10,500.00
	LT CABLE WORK				
2	Supply of 1.1 kV grade, XLPE insulated, armoured, FRLS, PVC outer sheath aluminium cable of following sizes conforming to IS:7098-(Pt-I)-1998 or latest and ISI marked.				
a)	4 C X 95 sqmm	Metre	500	865.00	432,500.00
3	Laying of one number XLPE insulated, armoured, FRLS, PVC outer sheath power cable of 1.1 KV grade of following size direct in ground of minm 750mm depth including excavation, sand cushioning, protective covering and refilling the trench etc as required.				
i)	Above 95 sq. mm and upto 185 sq. mm	Metre	400	234.00	93,600.00
4	Laying of one number XLPE insulated, armoured, FRLS, PVC outer sheath power cable of 1.1 KV grade of following size in the existing HDPE pipe as required.				
i)	Above 95 sq. mm and upto 185 sq. mm	Metre	400	63.00	25,200.00
5	Providing, laying following dia HDPE pipe(IS:4984-2016 or latest) in ground as required (ISI marked)				
a)	90 mm dia (PN-6, PE-80)	Metre	400	336.00	134,400.00
6	Laying of following size XLPE insulated, armoured, FRLS, PVC outer sheathcable in the existing masonary duct as required				
i)	Above 95 sq. mm and upto 185 sq. mm	Metre	50	51.00	2,550.00
7	Laying and fixing of one number XLPE insulated, armoured, FRLS, PVC outer sheath power cable of 1.1 KV grade of following size on wall surface as required.				
i)	Above 95 sq. mm and upto 185 sq. mm (clamped with 40x3mm MS flat clamp)	Metre	50	119.00	5,950.00
8	Supplying and making indoor end termination with double ended brass compression gland and aluminium lugs for following size of XLPE insulated, armoured, FRLS, PVC outer sheath, aluminium conductor cable of 1.1 KV grade as required. (ISI marked)				
i)	4 X 95 sq. mm	Each	2	416.00	832.00

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Magadh OCP

Sl No	Description of Item	Unit	QTY	Rate (Rs)	AMOUNT (Rs.)
9	Supplying and making straight through joint with heat shrinkable kit including ferrules and other jointing materials for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required				
i)	4 X 95 sq. mm	Each	1	2795.00	2,795.00
10	Electrification of DG Room	LS		50000.00	50,000.00
11	**Total**				**853,327.00**
12	Misc. and Unfoeseen Work				25,000.00
13	**Total**				**878,327.00**

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Magadh OCP

Department	Basic Cost of work for CCL MAGADH Siding PH-II (Rs. In Lakhs)	Labour welfare cess @1% on Basic Cost (Rs)	GST @ 12% on Basic cost (Rs)	TRD @ 6.25% on Basic Cost (Rs)	General @4% on Basic Cost (Rs)	Environmental Cess @1% on (Basic Cost + Labour Welfare Cess) (Rs)	TOTAL
	2059.84	20.60	247.18	128.74		20.80	2477.16
	340.79	3.41	40.89		13.63	3.44	402.16
	2400.62	24.01	288.07	128.74	13.63	24.25	2879.32

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DIVISIONAL OPTG COMMENT

1. All lines at pre silo and post silo yard (04 lines in each yard) of Phase I and Phase II should be long haul lines.

2. Two long loop lines at Bukru station are also required.

3. Pre- weightometer system in silo should be adopted.

4. "Y" connection should be provided for dispatch of loaded rakes in both end. (i.e. Tori end and Shivpur end).

HQ COMMERCIAL

The following commercial aspects also required to be added under Chapter V of the subject FSR -

(1) Compliance of Policy regarding siding matter enumerated under FM Circular No.11 of 2016 and its amendment under Rate Circular No.6 of 2021 on above Policy on Private siding.

(2) Proposed siding will work on EOL system. So it shall come up with Engine - on - Load Concept in terms of FM Circular No.5 of 2013 issued by Board vide letter no.2012/TC(FM)/18/21 dt 7.3.13 and party should also develop facilities for loading/unloading on Engine on Load Concept and design yard layouts to facilitate the same.

(3) Staff cost should be paid as per siding policy mentioned above. Their accommodation should also be as per extant rule.

(4) Environmental clearance should be taken from concerned Pollution Control Board.

(5) Railway land cannot be provided normally for construction of proposed siding.

(6) Tori - Shivpur section is under process of electrification. So, to maintain the uniformity of traction it is necessary to electrify the proposed siding keeping advantages of EOL concept in view and also to notify the siding on through distance basis.

(7) All the six proposed EIMWBs should conform to schedule of Technical Requirements as per RDSO's specification. EIMWBs should be linked with FOIS Terminal and a separate office for EIMWBs with necessary infrastructure should be provided at the cost of siding owner.

SADALA SATYANARAYAN
Project Officer
Magadh OCP

(8) Terminal Management System with FOIS access, as prescribed by Indian Railway, shall be installed at the proposed siding.

(9) As per para 11.1 of the Siding Policy, An Integrated Agreement, comprising Private Siding Agreement and Land License Agreement shall be signed in the revised format before commercial notification of siding.

(10) Commercial notification of the proposed siding will be done on through distance basis. So, the movement pattern of the proposed siding should be in such a manner that empty/loaded rakes may be placed /withdrawn directly without being dealt at the serving station and without involving a shunting staff particularly for this purpose.

HQ ENGG COMMENT

1. The construction and operation of private siding shall strictly be governed by prevalent Freight Marketing Circular no. 11 of 2016 dtd. 22.08.2016 along with its amendments as issued from time to time.

2. The proposed line is proposed to be constructed on CCL land. However, If additional land is required on lease/license for connectivity to the existing railway network, the quantum of the same to be spelt out in the FSR which if feasible may be leased or licensed to CCL.

3. Maximum degree of curvature is proposed as 5 (Radius 350 meter) degree. This may be reviewed. In addition, feasibility to bring the degree of curvature to 4 degree or below may be explored.

4. All points and crossing should be 1 in 12 fan shaped.

5. Gradient from CH: 3/678.171 to CH: 4/212.171(1 in 1200 F) not mentioned on the Longitudinal section (4/4). Also there is change of gradient between crossover at Ch. 0 to 106 m. which can not be permitted.

6. Details of Curves of Annexure 2.2 of the FSR and Detailed plan (4/4), do not match with those indicated on the longitudinal plan (4/4). Details of curves to be indicated correctly at both the places. This may be reviewed.

7. Para 2.2.8 of the FSR indicates the parameters connected with the profile of the formation of the proposed alignment both in filling and in cutting. This profile parameters may be reviewed duly conforming to prevalent/latest RDSO guidelines/specifications and other prevalent railway provisions.

SADALA SATYANARAYAN
Project Officer
Mahanadi OCP

8. The thickness of blanketing material should be decided based on RDSO 'Guidelines and Specifications for Design of Formation for Heavy Axle load Report no. RDSO/2007/GE:0014' and 'Guidelines no. GE: G-1'.

9. The chainage of one of the proposed In-Motion Weigh Bridge is CH: 316.302 m on the Detailed Plan which is CH: 258.282 m on Longitudinal Plan. This mismatch to be corrected. In case of private sidings, electronic In-motion weighbridge should generally be installed in the private land portion. Installation of Weigh Bridged may be permitted on Railway land if unavoidably essential on account of technical on operational constraints with the approval of GM as per para 4.2.1 of Rates master circular dtd. 12.06.2014. This condition to be strictly adhered to.

10. Provision, installation and functioning of weighbridges shall strictly be governed by Rates master Circular dtd. 12.06.2014 issued by Railway Board.

11. Minimum of 100 m level tangent rail track length shall be made available on either side of the In-motion Weigh Bridge.

12. Total 11 nos. of RCC box bridges have been proposed either extension or new bridges (annex. 2.5).As per latest practice, the RCC box can be provided only at locations where the subsoil conditions is non-scour. This may lead to revision of estimated cost of the project work, therefore should be considered in submission of correct estimated cost.

HQ S&T: SAME AS DIVISION
HQ TRD: SAME AS DIVISION
HQ OPTG: SAME AS DIVISION

20.12.20

SADALA SATYANARAYAN
Project Officer
Magadh OCP

EAST CENTRAL RAILWAY

No. W500/Drg./Pt.XII Dhanbad, dt. 25.03.2021.

Sr. Divisional Operating Manager
ECR Dhanbad

Sub: - FSR for development of siding for Magadh OCP, Phase-II taking off from Bukru station.

Ref: your office letter no.PL/MAGADH-PH II/11032021 Dated 15.03.2021

Subject mentioned FSR was checked and following observations raised for compliance:

1. Proposed plan should be prepared & submitted along with checklist of yard plan.
2. TPTC & TPCC point at both side of curve should be shown (Like TPTC1, TPCC1, TPCC2, TPTC2).
3. Curve details for proposed tracks should be shown with following details: Curve no., Deflection angle, Degree of curve, Tangent length, and Curve length, Length of transition curve, Super elevation & speed potential to each curve should be mentioned.
4. Distance of station building from Kathotia should be corrected as per approved ESP.
5. Name of station on both side in plan should be mentioned.
6. At the location of FOB, two chainages mentioned. This should be corrected as per approved ESP.
7. At the location of Br. No. 66, two chainages mentioned. This should be corrected as per approved ESP.
8. Existing dead end at ch. 555m from CSB should be corrected as per approved ESP.
9. Direction of flow of bridges should be shown.
10. Nomenclature of existing as well as proposed tracks should be corrected as per approved ESP.
11. Existing tracks should be in black colour. Whereas, same shown in blue colour.
12. Approach road of width 3.5m width from br. No. 65(ROB) to village Chetar on station building side should be shown as per approved ESP.
13. Distance of Railway boundary should be corrected between km. 26.995 to km. 27.050 to be corrected as per approved ESP.
14. Direction of cross over should be corrected from line no. 03 to line no. 04 between chainage 720m 945m as per approved ESP.
15. Track center for existing track should be mentioned as per approved ESP.
16. Provision of FM should be shown for every points.

25/3/21

A. A SATYANARAYAN
Project Officer
Magadh OCP

Sr.DEN/I/DHN
E.C.R. Dhanbad

East Central Railway

Dhanbad, dt- 26/03 / 2021

No. SG.662/8/Works

Sr. Divl. Operations Manager
East Central Railway
Dhanbad

Sub: FSR for development of additional rail infrastructure for Magadh OCP(phase-II, 51MTPA) taking off from BUKRU station.

Ref:- Your letter No. PL/MAGADH-PH II/11032021, dtd-15/03/2021.

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Approval of ESP of Bukru station is under process for the work of " Construction of new 3rd line between Tori – Shivpur ". This is a sanction work and the work is being executed by Dy.CE/Con-1/HZME.

Therefore the alteration work for development of siding for Magadh OCP(phase-II, 51MTPA) taking off from BUKRU station may be processed only according to the approved plan of Bukru station for the new 3rd line work executed by Dy.CE/Con-1/HZME.

This is for your information and necessary action please.

26/03/2021

Sr.Divl. Signal & Telecom. Engr
East Central Railway / Dhanbad

SADALA SATYANARAYAN
Project Officer
Magadh OCP

Office of the
Sr. DIVI. Elect. Engineer (TRD)
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No. ELD/357/FSR/Siding (Magadh OCP) Dhanbad, dt. 16/03/2021

Sr. Divl. Operations Manager,
Dhanbad.

Sub: Comments on FSR for development of additional rail infrastructure to serve Magadh OCP PH-II (for 51 MPTA) taking off from Bukru Station (Jan 2021) TRD comments

Ref : Your letter No. PL/Magadh- PH-II/11032021 dt. 15/03/2021.

The referred letter and FSR report has been received by this office on 16/03/2021. The comments on subject FSR for development of additional rail infrastructure for Magadh OCP PH-II (for 51 MPTA) taking off from Bukru Station is furnished as under towards electrification as framed by RITES Limited, Ranchi-834002 for CCL.

The siding has been proposed for elelctrification for seamless working vide para 1.5 and 4.0. of FSR.

1. Length of Siding to be ellectrified (Page- 17,para 4.2.3) = 14.0 Km. (incl. modifn.)
2. Mode of traction proposed in the siding vide 1.5 (page-6) = Electrifn.proposed.
3. Cost of electrification works (incl. SSP at Magadh siding) = Rs. 53.40 crores (excl. GST & other charges)

It is mentioned that mode of traction (TRD works) not proposed under Silo loading of the siding. Detailed cost for 14 TKM OHE, SSP at Magadh siding, 10KVA Aux. Transformer for panel cabin are enclosed at Annex. E1, E-2, E2A has been considered in the FSR.

The siding maintenance has not been considered in FSR. As per FMC No. 6 of 2020 vide No. 2018/TC(FM)/14/04 dt. 23/06/2020 (Amendment 5 of FMC 11 of 2016) as implemented for private siding where OHE maintenance (at para 1.4) cost for new as well as old siding to be borne by siding owner. A provision for siding maintenance of Phase –I & Phase-II shall be kept in the estimate to start the outsorcing as soon as warranty expired. Present cost of siding OHE malnatence per TKM is approx. 0.60 lakhs/TKM through outsorcing the OHE maintenance activities except PSI maintenance.

As such, detailed comments will be given on submission of DPR with layout plan, sectioning diagram, wiring diagram & OHE key plan and detailed estimate of OHE, PSI, SCADA work.

The above may please be looked into and ensured before finalization of FSR.

Sr. Divl. Elect. Engineer(TRD),
East Central Railway, Dhanbad.

Copy to :-
PCEE/ECR/HJP. for kind information.

A.V.A SATYANARAYAN
Project Officer
Magadh OCP

Sr. Divl. Elect. Engineer(TRD),
East Central Railway, Dhanbad.

East Central Railway

No. XG.90/Sdg/FSR/2021

Office of the
Coal Area Manager
Dhanbad, dt. 25.03.2021

Sr. Divisional Operations Manager,
E.C.Rly/Dhanbad.

Sub: - FSR for development of additional rail infrastructure for Magadh OCP (phase – II, 51 MTPA) taking off from Bukru station.

Ref: - (i) RITES letter no. RITES/Ranchi/CCL/Ph-II/Magadh – FSR/2018/34/95 dated 10.03.21.

(ii) Your office letter No.

In connection with your letter under ref (ii), dtd. 15.03.21 the feasibility study report for construction of Magadh OCP (phase –II, 51 MTPA) of CCL as per commercial norms is furnished below:-

1. As per Railway Board's letter No. TC-I/2019/108/1, dtd. 11.07.19, all loading points should be covered by weighbridge, siding owner provide the weighbridge at its own cost. Such weighbridges also be Integrated with FOIS and cost of integration shall also be borne by siding owner.

2. The siding owner should bear the cost of staff cost in each shift.

3. TMS (FOIS) terminal shall be installed at the siding and all costs related to Installation bore by siding owner, siding owner shall also provide all facilities like room, furniture, electricity, network connectivity for issuing of Railway Receipt (RR).

4. Siding owner shall sign the Private Siding Agreement in the revised Format before Commissioning of the siding and before issue of Commercial Notification of the siding.

5. This siding will work on Engine on load scheme, siding owner should develop fraction for loading and unloading on "Engine on load", Concept and design of yard in such manner the loading and unloading of same rake by same Engine under free time. The siding owner will be required to opt for the Engine on load operation under agreement.

6. Siding owner should also take environment clearance by Union Ministry of Environment and Forest for the Construction of silo & operation for Magadh OCP (phase – II, 51 MTPA)

7. Joint Survey of TI/Coal, FIO under Sr. DME(C&W)/DHN, TI/Movement/Tori, SSE(P.Way)/ Tori, SSE(Works)/ Tori, Signal Inspector/ Tori & S.M/ Tori should be conducted from Railway side for feasibility study of proposed site & Joint Survey report should include gradient, centre to centre distance, turn out, length of siding from siding from serving station and also shunting is required for placement and drawn rakes.

8. CCL should agree with all the terms & suitable condition on private siding of Freight Marketing Circular No 11 of 2016 (modified circular dtd. 23.06.20) & other extant circular from time to time.

This is for your information and necessary action please.

25/3/21
Coal Area Manager
E.C.Rly,Dhanbad

ADALA SATYANARAYAN
Project Officer
Magadh OCP