

Attachment-1 Project Brief

The Indian Academy of Highway Engineers (IAHE) has been entrusted with the assignment of Project Management Consultancy Phase I including preparation of Detailed Project Report of selected stretches/corridors of National Highways/ State Roads (New NH-320G) for Two/ Four laning with paved shoulder configuration.

The Project Road started from Haat Gamhariya T-junction (Existing Chainage km 0+000) and ended at Kolebira T-junction (Existing Chainage km 180+000) in the State of Jharkhand.

For the convenience of construction, The DPR report of project has been further divided in to 4 packages

**PACKAGE- I- From Existing km 0+000(Design km. 0+000) to km Existing 43+000
(Design km. 42+250)**

PACKAGE- II- From km 43+000 to km 89+300

PACKAGE- III- From km 89+300 to km 122+700

PACKAGE- IV- From Existing chainage 122+700 (Design chainage 119+520) to Existing chainage 180+000 (Design chainage 176+310)

This report is prepared for PACKAGE- I

Project Location

The project corridor is a State Highway (SH-4). It is located in Jharkhand state starts at Haat Gamhariya in West Singhbhum district, traverses through Haat Gamhariya taluka of West Singhbhum district which ends at bokna village. The project road lies between latitude 22°15'38.05"N to 22° 9'53.64"N and longitude 85°44'9.41"E to 85°22'46.66"E The project corridor also connects the major urban centers of the region, viz. Jagannathpur, Baraiburu, Bokna.

Existing Project Road Feature

The proposed project is sections in the state of Jharkhand from Haat gamhariya on NH-20 – Baraiburu – Manoharpur – Anandpur – Bokna on NH-20. The length of the project road is approximately 43 Kms.

A brief description of the salient features of this corridor is given in table below.

Table- 1 Project Summary

Length of the Project Road (Km)	42.250 km
Right of Way	2 lane without paved shoulder - 20 to 25 m
Major Junctions	4
Minor Junctions	28
Major Bridges	NIL
Minor Bridges	13
Culverts	Box/Slab Type- 55

Level Crossings	3
Traffic (Base year)	2020

Table -2 Existing Built-Up Area

Sl.No.	Existing Chainage		Village Name
	FROM	TO	
1	0.400	0.600	PARASAI VILLAGE
2	1.200	1.800	JAIPUR VILLAGE
3	3.000	3.600	BARMUDA VILLAGE
4	4.800	5.200	JARPI VILLAGE
5	6.400	6.800	DHAMORPUR VILLAGE
6	8.800	9.000	KOLASI VILLAGE
7	11.000	12.400	JAGANNATHPUR VILLAGE
8	14.400	14.600	BARAMADA VILLAGE
9	18.000	18.600	LOKASAI VILLAGE
10	20.800	21.000	DHANAVALLEE VILLAGE
11	21.600	22.000	DONDAPASSI Village
12	22.200	22.600	KOTGRARH Village
13	23.800	24.400	KUDINGKETH VILLAGE
14	28.600	31.200	NOAMUNDI BUILTUP AREA
15	39.000	41.000	BARAJAMDA VILLAGE
16	41.800	42.000	BOKNA VILLAGE

Project Development Plan

The proposed improvement plans were laid in terms required lane configuration based on the findings and the potential of the project area to attract diversion from various corridors. All the improvement plans was prepared strictly adhering to the IRC guidelines prepared for public and private participation development of projects, any specific deviations such necessitates will be discussed with IAHE and MoRTH before they are put in the project design.

Structural proposal – The structure proposal was prepared on the structural soundness, the remaining life and future requirements. In general, all submersible bridges will be replaced by high level bridges and all the pipe culverts will be replaced by box culverts as predominantly NP-2 has been used based on the earlier specification and project requirements.

The project improvement proposals identified for the project road are:

- Lane configuration (Two lane with paved shoulder)
- Typical cross section for Urban and Rural section of Two lane with paved shoulder
- Widening Schedules (Concentric widening)

- Proposals for CD Structures and other structures
- Project facilities like Bus bay, Truck lay bye, Rest area etc.,

Table- 3 Traffic volume (AADT)

Categories	TVC Noamundi		TVC Barajamda		TVC Manoharpur		TVC Lachragarh	
	Vehicles	PCU	Vehicles	PCU	Vehicles	PCU	Vehicles	PCU
2W	1940	970	2483	1242	2838	1419	3204	1602
Auto Rick	26	26	26	26	345	345	592	592
Car/ Van/ Jeep	802	802	812	812	268	268	435	435
Mini Bus	16	24	16	24	15	22	18	28
Std. Bus	60	179	63	190	13	38	36	107
LCV	151	226	175	262	102	154	228	342
2-Axle Truck	230	690	531	1594	46	138	209	628
3-Axle Truck	281	842	764	2291	10	31	129	386
Multi Axle Truck	255	1149	754	3395	18	83	40	181
Agr. Tractor Without Trailer	1	2	1	2	2	3	2	3
Agr. Tractor With Trailer	7	31	7	31	37	166	95	430
Animal Drawn	4	24	4	24	0	0	0	0
Cycle	174	87	176	88	2612	1306	741	371
Cycle Rick	0	0	0	0	8	16	11	22
Motorised	3768	4940	5632	9868	3695	2667	4989	4734
Non-Motorised	178	111	180	112	2620	1322	752	393
Total	3946	5051	5812	9980	6315	3989	5741	5127

Table 4- Traffic projections

Year	Km 30+000 at Noamundi	Km40+000 at Barajamda	Km 96+000 at Manoharpur	Km 162+500 at Lachragarh	Average Traffic on Corridor (PCU)
Base Year					
-2017	5053	9978	3987	5123	6035
2020	5849	11551	4615	5931	6987
2025	7466	14742	5891	7569	8917
2030	9528	18815	7518	9660	11380

2035	12161	24013	9595	12329	14525
2040	15520	30648	12246	15735	18537
2045	19808	39115	15630	20083	23659
2050	25281	49922	19948	25631	30195

Widening Schedule & Geometry

Concentric Widening is followed at majority of the locations along the project road where as at realignment locations eccentric widening is adopted. Design speed of 100kmph and 80kmph has been maintained all through the project road. All the horizontal curves have been designed with a desirable minimum radius of 400m and 250m respectively.

In the following sections, where improvement of the existing road geometrics to the prescribed standards is not possible, the existing road geometrics shall be improved to the extent possible within the given right of way and proper road signs and safety measures shall be provided for safe regulation of fast moving, slow moving and pedestrian traffic:

At which location where minimum design speed (80 kmph) and minimum radius (250m) does not meet.

Pavement Design

The proposed thickness of the different layers computed according to the guidelines of IRC: 58-2015 and are presented in below.

Table 5 New Pavement Composition

Homogenous Section (Km)			C B R (%)	MSA		Recommended Overlay (mm)		Adopted Composition in Widening Position (mm)				S
From	To	Length (km)		Actual	Adopted	B C	D B M	B C	D B M	W M	M G S B	
0+000	42+250	42.250	10	41.88	50	40	65	40	95	250	200	HS-I

Structures of Proposal

Table 6 Proposal for Major and Minor Bridge

Sr. No.	Type	Major Bridge	Minor Bridge	ROBs	VUPs	Total
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1	New Construction	-	2	-	-	2
2	Reconstruction	-	11	-	-	11
3	Widening	-	-	-	-	-
4	Retained	-	-	-	-	-
	TOTAL	-	13	-	-	13

*New Construction due to Realignment/bypass

Table 7 Proposal for Culverts

Sr. No.	Type	Slab/box/arch	Pipe	Total
1	New Construction	13	-	13
2	Reconstruction	17	-	17
3	Widening	24	-	24
4	Retained	1	-	1
	TOTAL	55	-	55

* New Construction due to Realignment

Junction Improvements

A total of 2 major junctions and 22 minor junctions have been proposed for improvement.

COST ABSTRACT SUMMARY

<u>PKG I, Ex Chainage 0+000 to 42+250</u>		
S.NO.	PARTICULARS	AMOUNT IN RUPEES
1	Site Clearance and Dismantling	49,844,449
2	Earth Work	123,915,562
3	Granular Base Course and Sub Base	339,659,016
4	Pavement (Asphalt & Concrete)	672,034,291
5	Construction of Culverts (Pipe/Box) - New, Widening & Reconstruction	217,918,729
6	Structures: - Major Bridge / Minor Bridge / Flyover / VUP / PUP / Repair & Rehabilitation	276,223,157

7	Drainage and Protective Works	170,200,566
8	Junctions, Traffic Signs Marking and Other Appurtenances	205,272,665
9	Traffic management during construction and Maintenance during construction	7,908,659
10	Horticulture	65,576,002
11	Project Facilities	25,788,423
12	Electrical Works	57,255,933
13	Repairs and Rehabilitation of existing Bridges	9,076,150
A	CIVIL CONSTRUCTION COST (1 TO 13) (Excluding GST & Labour Cess)	2,220,673,604
B	Add GST Charge @12% (A)	266,480,832.45
	Total(A+B)	2,487,154,436.19
C	Labour cess@1%	24,871,544.36
D	Utility Relocation Cost	44,413,472.07
I	CIVIL CONSTRUCTION COST (A+B+C+D)	2,556,439,453
II	Escalation during construction @10% of Civil Cost (I)	255,643,945
III	Contingencies @2.8% of Civil Cost (I)	71,580,305
IV	Maintenance during DLP of 5 Years 0.25% for 1 st & 2 nd year 0.5% for 3 rd & 4 th year 1.0% for 5 th year	63,910,986
V	Construction supervision @3% of Civil Cost (I)	76,693,184
VI	Administrative Charge @1% of Civil Cost (I)	25,564,395
VII	Centages (II+III+IV+V+VI)	493,392,814
VIII	Total Project Cost (I+VII)	3,049,832,267
IX	Total Environmental Cost	111,033,680
X	Land acquisition Cost	2 52,450,000
	Total capital Cost (VIII+IX+X)	3,413,315,947
	Say (Amount in crore)	341.33
	Cost per KM (Amount in crore)	8.08

Date: -17/12/2021

Place: - Chaibasa

(Vijay Kumar Sinha)
Executive Engineer
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EXECUTIVE ENGINEER
N. H. DIVISION
CHAIBASA

Signature & Seal