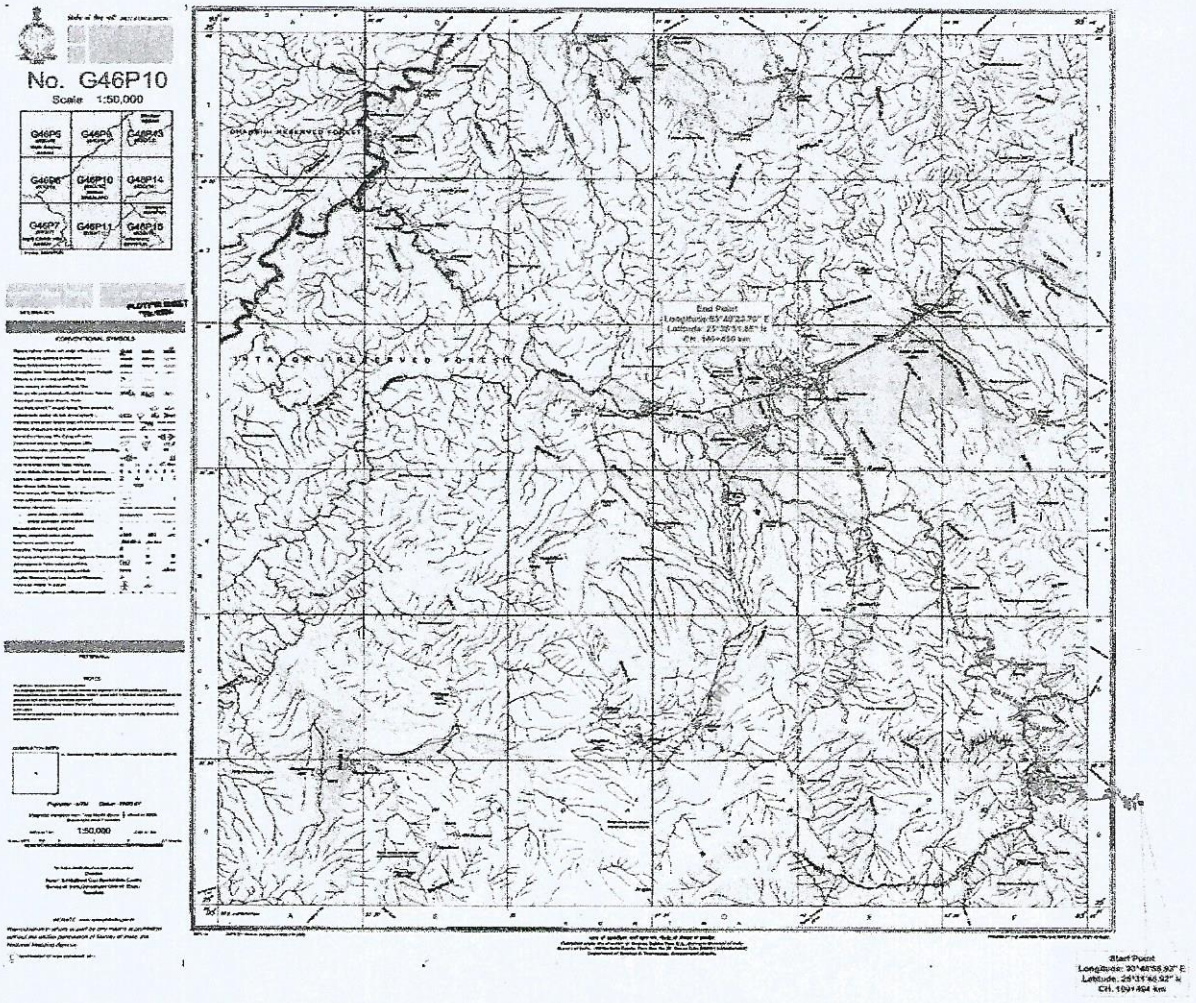
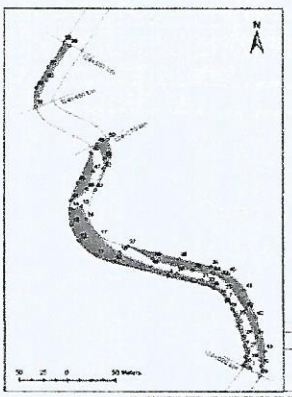
ANNEXURE - I

TOTAL FOREST LAND IN PEREN DIVISION TO BE DIVERTED OF 0.450 HA. FOR TWO LANING OF PEREN-JALUKIE SECTION OF NH-129A ON ENGINEERING, PROCUREMENT AND CONSTRUCTION MODE IN THE STATE OF NAGALAND (109+494 KM TO 146+450 KM)

TOPOGRAPHICAL MAP SHEET



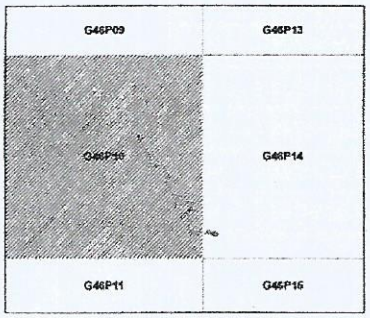


DGPS POINTS

ID	Longitude	Latitude	ID	Longitude	Latitude
1	93°47'56.83"	25°33'13.08"	21	93°47'57.05"	25°33'14.11"
2	93°47'56.54"	25°33'13.36"	22	93°47'54.68"	25°33'13.66"
3	93°47'56.44"	25°33'13.44"	23	93°47'55.79"	25°33'14.16"
4	93°47'56.43"	25°33'13.79"	24	93°47'55.49"	25°33'16.30"
5	93°47'56.39"	25°33'14.50"	25	93°47'54.26"	25°33'16.40"
6	93°47'56.75"	25°33'15.07"	26	93°47'53.29"	25°33'16.75"
7	93°47'56.65"	25°33'15.39"	27	93°47'53.36"	25°33'17.22"
8	93°47'56.57"	25°33'15.79"	28	93°47'54.23"	25°33'16.78"
9	93°47'53.87"	25°33'16.31"	29	93°47'53.40"	25°33'18.52"
10	93°47'51.85"	25°33'16.94"	30	93°47'52.98"	25°33'16.26"
11	93°47'53.20"	25°33'16.80"	31	93°47'54.40"	25°33'15.75"
12	93°47'53.05"	25°33'17.41"	32	93°47'51.05"	25°33'14.77"
13	93°47'50.27"	25°33'17.04"	33	93°47'51.21"	25°33'13.61"
14	93°47'50.27"	25°33'16.48"	34	93°47'50.26"	25°33'08.75"
15	93°47'50.64"	25°33'16.55"	35	93°47'50.51"	25°33'19.34"
16	93°47'50.82"	25°33'18.18"	36	93°47'51.03"	25°33'20.35"
17	93°47'51.33"	25°33'17.53"	37	93°47'51.28"	25°33'19.73"
18	93°47'53.05"	25°33'17.09"	38	93°47'50.85"	25°33'19.12"
19	93°47'53.21"	25°33'16.53"	39	93°47'53.13"	25°33'20.64"
20	93°47'54.17"	25°33'16.28"	40	93°47'53.64"	25°33'20.70"
21	93°47'53.87"	25°33'16.07"	41	93°47'53.79"	25°33'20.21"
22	93°47'55.63"	25°33'15.91"	42	93°47'53.16"	25°33'19.09"
23	93°47'53.98"	25°33'15.66"	43	93°47'53.48"	25°33'19.79"
24	93°47'54.20"	25°33'15.18"	44	93°47'53.53"	25°33'20.57"
25	93°47'56.60"	25°33'14.83"	45	93°47'54.56"	25°33'21.85"
26	93°47'54.64"	25°33'14.34"	46	93°47'48.86"	25°33'23.54"
27	93°47'54.77"	25°33'13.70"	47	93°47'49.45"	25°33'23.23"
28	93°47'54.61"	25°33'13.18"	48	93°47'50.06"	25°33'24.09"
29	93°47'51.18"	25°33'12.61"	49	93°47'50.20"	25°33'25.07"
30	93°47'51.12"	25°33'13.14"	50	93°47'49.57"	25°33'22.80"

LAND TO BE DIVERTED PEREN FOREST DIVISION

Village	Block	Proposed Chainage in Km.	Forest Type	Forest Class	Area to be diverted in Ha.	Area to be diverted in Ha.
PEREN TOWN	Both	124+020 to 124+370	Forest	OPEN FOREST	0.015	0.450
				DEGRADED NON-FOREST	0.299	
				MODERATELY DENSE FOREST	0.131	
	Left	124+450 to 124+530	Forest	OPEN FOREST	0.025	
				DEGRADED NON-FOREST	0.004	



Legend

- Start Point
- End Point
- LAND TO BE DIVERTED
- PROPOSED ROW
- EXISTING ROW

CONSULTANT

CETEST CE TESTING COMPANY PVT. LTD.

124-A, S.P. Mukherjee Road, 2nd Floor, Kolkata - 700026

CLIENT: NATIONAL HIGHWAYS AND INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.

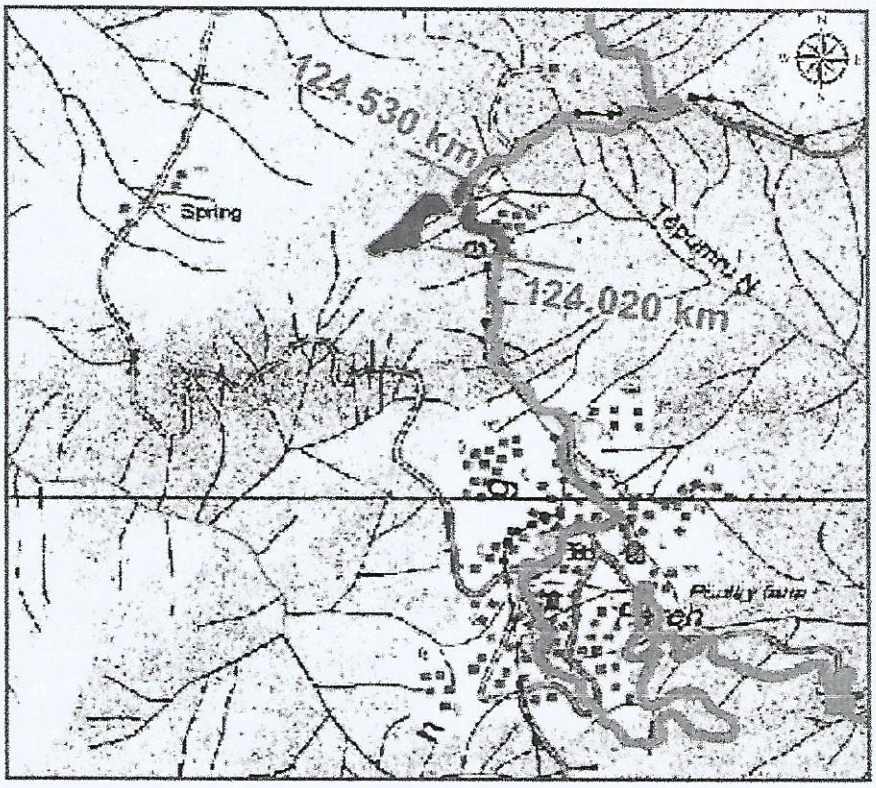
PIU Building, 3rd Floor, 4, Parliament Street, New Delhi - 110001

ANNEXURE – II

State Govt. is to clarify the actual CA area proposed as the CA area is proposed in 0.45 ha in Forest Colony in Peren Range, in purchased land whereas the submitted SoI map indicating the proposed CA area is for 0.9 ha and the financial outlay submitted is for 0.9 ha i.e Rs. 1.575 lacs.

The proposed CA area is mentioned as 0.45 ha, however as per para 2.5 of the F[C]Act, 1980 guidelines, the CA is proposed in area double in the degraded forest land

MAP SHOWING DEGRADED FOREST AREA IDENTIFIED FOR COMPENSATORY AFFORESTATION



BP No.	Latitude	Longitude
1	25°33'16.75"N	93°43'48.49"E
2	25°33'19.15"N	93°43'48.15"E
3	25°33'20.32"N	93°43'50.42"E
4	25°33'21.21"N	93°43'48.68"E
5	25°33'20.66"N	93°43'47.30"E
6	25°33'17.42"N	93°43'46.31"E
7	25°33'16.06"N	93°43'45.20"E
8	25°33'15.61"N	93°43'45.09"E
9	25°33'15.44"N	93°43'45.68"E

Location	Peren-Peletkie Road
Division	Peren Forest Division
Range	Peren Range
Area	0.90 ha.

LEGEND	
	CA Area
	Road
	Drainage
	Settlement

(M.Obed Zeliang)
Divisional Forest Officer
Peren Division

Divisional Forest Officer
Peren Forest Division
Jalukie : Nagaland

Addl. Principal Chief Conservator of Forests
(Territorial)
Nagaland : Kohima

ANNEXURE - III

DETAILED COMPENSATORY AFFORESTATION SCHEME

1. Model of afforestation : Artificial Regeneration
2. Species proposed to be planted : Terminalia myriocarpa (Hollock)
   Prunus cerasoides (Cherry)
3. Implementing Agency : Department of Environment, Forests & Climate Change, Nagaland
4. Time scheduled : Advanced work and creation of plantation and maintenance upto 8 years.

ANALYSIS OF PER HA RATE FOR VARIOUS WORK ITEMS UNDER COMPENSATORY AFFORESTATION TO BE TAKEN UP UNDER FOREST (CONSERVATION) ACT, 1980

(Rs. 380/- per manday) *(1100 plants per ha.)*

Sl. No.	*Item of work*	*Manday required (in No.)*	*Labour Component (in Rs.)*	*Material Component (in Rs.)*	*Cost/Ha (in Rs.)*
1	*2*	*3*	*4*	*5*	*6*
1	**Advance works including nursery**				
	(a) Survey & demarcation including mapping	3	1140		1140
	(b) Area preparation by cutting grasses & shrubs	20	7600		7600
	(c) Fire line cutting, burning and maintenance	6	2280		2280
	(d) Clearance of site for nursery, preparation of nursery bed, filling of poly-bags, manuring, shed erection	20	7600		7600
	(e) Cost of seeds, poly-bags, implements etc	0		1890	1890
	(f) Treatment and sowing of seeds	5	1900		1900
	(g) Weeding & watering	11	4180		4180
	Sub-Total	***65***	***24700***	***1890***	***26590***
2	**Creation of plantation**				
	(a) Site preparation, alignment, preparation of stakes, digging of pits, preparation of planting materials, carriage to planting site, planting/sowing, construction of camp shed, inspection path, signboard and other misc, works	25	9500		9500
	(b) Weeding 3 times including gap filling and water & ward	67	25460		25460
	(c) Fire protection measures like fire line cutting, engagement of fire watchers	3	1140		1140
	Sub-Total	**95**	**36100**		**36100**

	Maintenance of Plantation				
	(i) Maintenance after 1st year				
	(a) Weeding 3 times + gap filling (10+9+5)	24	9120		9120
	(b) Fire protection measures	3	1140		1140
	Sub-Total	***27***	***9120***		***9120***
	(ii) Maintenance after 2 years				
	(a) Weeding 2 times (10+5)	15	5700		5700
	(b) Fire protection measures	3	1140		1140
	Add 25% for anticipated revision of wage rate				1710
	Sub-Total		***6840***		***8550***
	(iii) Maintenance after 3 years				
	(a) Weeding 2 times (8+5)	13	4940		4940
	(b) Fire protection measures	3	1140		1140
	Add 25% for anticipated revision of wage rate				1520
	Sub-Total				***7600***
3	***(iv) Maintenance after 4 years***				
	(c) Weeding 2 times (8+5)	13	4940		4940
	(d) Fire protection measures	3	1140		1140
	Add 50% for anticipated revision of wage rate				3040
	Sub-Total				***9120***
	(v) Maintenance after 5 years				
	(e) Weeding /tending	12	4560		4560
	(f) Fire protection measures	2	760		760
	Add 50% for anticipated revision of wage rate				2660
	Sub-Total				***7980***
	(vi) Maintenance after 6 years				
	(g) Weeding /tending	12	4560		4560
	(h) Fire protection measures	2	760		760
	Add 75% for anticipated revision of wage rate				3990
	Sub-Total				***9310***

	(vii) Maintenance after 7 years				
	(i) Weeding /tending	10	3800		3800
	(j) Fire protection measures	2	760		760
	Add 75% for anticipated revision of wage rate				3420
	Sub-Total				***7980***
	(viii) Maintenance after 8 years				
	(k) Weeding /tending	10	3800		3800
	(l) Fire protection measures	2	760		760
	Add 100% for anticipated revision of wage rate				4560
	Sub-Total				***9120***
	Total of Plantation Cost	***289***		***1890***	***132610***
4	Soil & Moisture Conservation measures including construction of check dams, gully plugging, contour trenching, water harvesting structures etc. whatever necessary within the project area (15% of plantation cost)				19892
5	Fencing (5% of plantation cost)				6631
6	Monitoring & Evaluation (2% of plantation cost)				2652
7	Overheads (10% of plantation cost)				13261
	Grand Total				**175046**

Resultant cost of CA for widening of NH29A (package-I) – Deem Forest area (0.90 x 175046) = Rs. 1,57,541/-

(Rupees One lakh fifty seven thousand five hundred forty one) only

Prepared by

(M.Obed Zeliang)
Divisional Forest Officer
Peren Forest Division
Jalukie : Nagaland

Divisional Forest Officer
Peren Forest Division
Jalukie . Nagaland

ANNEXURE – III A

ESTIMATE FOR CARRYING OUT AVENUE PTANTATION ALONG NH-29A ROAD, PACKAGE-I (DEEMED FOREST AREA)

1. Project Name : 2-laning of Peren-Jalukie section on NH-129A Engineering, Procurement and construction mode in the state of Nagaland.
2. Species proposed to be Planted : Prunus cerasoides (Cherry)
3. Implementing Agency : Department of Environment, Forests & Climate Change, Nagaland
4. Time scheduled : Advanced work, creation of plantation and maintenance upto 3 yrs

(Rs.3S0 /- per manday) (1100 plants per ha/1100 plants per 3 km)

(Spacing 3X3 m)

Sl. No.	*Item of work*	*Manday required (in No.)*	*Labour Component (in Rs.)*	*Material Component (in Rs.)*	*Total cost per seedling (in Rs.)*
1	*2*	*3*	*4*	*5*	*6*
1	**Advance works including nursery**				
	(a) Survey & demarcation of Nursery site and planting site	12	4560	-	4560
	(b) Preparation of nursery bed, shed erection with netlon	20	7600		7600
	(c) Cost of seed			2700	2700
	(d) Cost of materials like poly bags, netlon and fertilizers etc.			8100	8100
	(e) Pre-treatment of seeds including cost of fungicides, fumigants, soil sterilants etc	17	6460		6460
	(f) Sowing of seeds and weeding, watering	16	6080	-	6080
	(g) Fire protection	5	1900	-	1900
	Sub-Total	***70***	***26600***	***10800***	***37400***
2	**Creation of plantation**				
	(a) Alignment, preparation of stakes, digging of pits, preparation of planting materials, carriage to planting sites, planting/sowing, construction of camp sheds, inspection parts, signboards and other misc. works	40	15200	-	15200
	(b) Weeding 4 times including vacancy filling (30+20+20+20)	90	34200	-	34200
	(c) Fire protection measures ward and Watch (5+5)	10	3800	-	3800

	(d) Manurins & Watering				
	(e) Cost of manures/fertilizers			5400	5400
	(f) Fencing /tree guard (Local materials) including subsequent maintenance.	-	-	37800	37800
	Sub-Total	**150**	**57000**	**43200**	**100200**
	Maintenance of Plantation				
	(i) Maintenance after 1st year				
	(c) Weeding 3 times including vacancy filling, manuring & watering (20+20+20+10)	70	26600		26600
	(d) Fire protection measures & watch and ward (5+5)	10	3800		3800
	(e) Cost of manures/fertilizers	-	-	5400	5400
	(f) Signboard and labeling etc	-	-	5400	5400
	Sub-Total	***80***	***30400***	***10800***	***41200***
	(ii) Maintenance after 2 years				
	(c) Weeding 2 times vacancy filling, manuring & watering (15+15+10+10)	50	19000	-	19000
	(d) Fire protection measures & watch and ward (5+5)	10	3800	-	3800
	(e) Cost of fertilizers/manures	-	-	5400	5400
	Sub-Total	***60***	***22800***	***5400***	***28200***
3	***(iii) Maintenance after 3 years***				
	(a) Weeding 2 times vacancy filling, manuring & watering (15+15+10+10)	50	19000	-	19000
	(b) Fire protection measures & watch and ward (5+5)	10	3800	-	3800
	(c) Cost of fertilizers/manures	-	-	5400	5400
	Sub-Total	***60***	***22800***	***5400***	***28200***
	(iv) Maintenance after 4 years				
	(a) Weeding 2 times vacancy filling, manuring & watering (15+15+10+10)	50	19000	-	19000
	(b) Fire protection measures & watch and ward (5+5)	10	3800	-	3800
	(c) Cost of fertilizers/manures	-	-	5400	5400
	Sub-Total	***60***	***22800***	***5400***	***28200***
	(v) Maintenance after 5 years				
	(a) Weeding 2 times vacancy filling, manuring & watering (15+15+10+10)	50	19000	-	19000

	(b) Fire protection measures & watch and ward (5+5)	10	3800	-	3800
	(c) Cost of fertilizers/manures	-	-	5400	5400
	Sub-Total	***60***	***22800***	***5400***	***28200***
	(vi) Maintenance after 6 years				
	(a) Weeding 2 times vacancy filling, manuring & watering (15+15+10+10)	50	19000	-	19000
	(b) Fire protection measures & watch and ward (5+5)	10	3800	-	3800
	(c) Cost of fertilizers/manures	-	-	5400	5400
	Sub-Total	***60***	***22800***	***5400***	***28200***
	Grand Total	**600**	**228000**	**91800**	**319800**

Length of the proposed road for diversion of forest land for Widening of NH-129A (Package-I) -
Deem forest area = 0.51 km (For 3 x 3m spacing, 1100 plants could be planted on 3 kms)

Component wise breakup				
Sl. No.	Component	Forest Land (ha.)	Non-Forest Land (ha.)	Length (in km)
1	Road Ch 124+020 to 530	0.45		0.51

Hence, cost of raising Avenue Plantation along 0.51 km= $\frac{0.51 \times 319800}{3}$ = Rs. 54,366/-

Prepared by

(M.Obed Zeliang)
Divisional Forest Officer
Peren Forest Division,
Jalukie : Nagaland

Addl. Principal Chief Conservator of Forests
(Territorial)
Nagaland : Kohima

Divisional Forest Officer
Peren Forest Division
Jalukie : Nagaland

ANNEXURE - IV

Component wise break up of Proposed Road

Road: Peren-Dimapur(Pkg-IA & IB),Length of Road : 36.714 Km

DESCRIPTION OF WORKS		TOTAL COST	WEIGHTAGE PERCENTAGE (%)
A.	ROAD WORKS	(IN LAKHS.)	
1	Site Clearance and Dismantling	375.09	1.03
2	Earth work and Subgrade	10688.9	29.43
3	Sub-Base & Base	6114.05	16.83
4	Bituminous Courses	3717.59	10.24
5	Junction Improvement (Major & Minor)	163.16	0.45
6	Traffic signs, Road marking & other road appurtenances	1278.39	3.52
7	Bus bay & Passenger Shelter	143.92	0.4
8	Drainage and Protective Works		
a.	Longitudinal Drains (Trapezoidal Drain)	1470.81	4.05
b.	RCC Covered Drain	830.74	2.29
c.	Composite RE wall	420.65	1.16
d.	Retaining wall	3569.92	9.83
e.	Breast wall	3483.27	9.59
f.	Hydro seeding	605.87	1.67
B.	**BRIDGES & CULVERTS**		
9	Culvert	3459.35	9.52
C.	**COST OF CIVIL WORKS IN LAKHS(AS PER SOR 2016)**	**36,321.71**	

Katra
General Manager (Projects)
NHIDCL, PIU-Dimapur
Nagaland

ANNEXURE - V

FORM-II

(For linear projects other than Plantations)

[Rule 6(3) (e) of Forest (Conservation) Rules, 2003 as amended up to date]

GOVERNMENT OF NAGALAND
OFFICE OF THE DEPUTY COMMISSIONER
PEREN: NAGALAND

No.**PRN/DEV-15(PART-I)/2015/** Dated **Peren**, the **2nd November 2021**

TO WHOMSOEVER IT MAY CONCERN

In compliance of the Rule 6(3)(e) of the Forest (Conservation) Rules, 2003 [as amended vide the Forest (Conservation) Amendment Rules 2014; Forest (Conservation) Second Amendment Rules 2014; and Forest (Conservation) Amendment Rules, 2016 it is certified that 0.45 hectares of forest land proposed to be diverted in favour of National Highways & Infrastructure Development Corporation Limited (NHIDCL) for "**Construction of 2-Laning with Hard Shoulder of Peren-Dimapur Section on NH- 129A from Design Km 109.494 to Km 126.775 (Length -17.281 Km) in the state of Nagaland on EPC Mode (Package-1) under NH(O)-TSP**" in the Peren district falls within the jurisdiction of Old Jalukie Village, in Peren Taluk. It is further certified that:

(a) The complete process for identification and settlement of rights under the FRA has been carried out for the entire **0.45 Ha** of forest land proposed for diversion. The Gram Sabha's consent is not required vide Ministry of Environment and Forests (FC Division), Govt. of India letter F.No. 11-9/98-FC(pt) dated 05.02.2013.

(b) The diversion of forest land for facilities managed by the Government as required under section 3 (2) of the FRA, 2006 have been completed and the Gram Sabha's consent is not required vide Ministry of Environment and Forests (FC Division), Govt. of India letter F.No. 11-9/98-FC(pt) dated 05.02.2013.

(c) The proposed area does not involve recognized rights of Primitive Tribal Groups and Pre-Agriculture Communities.

2/11/21

(SENTIWAPANG AIER), NCS
Deputy Commissioner
Peren: Nagaland

No.**PRN/DEV-15(PART-I)/2015/** 787 Dated **Peren**, the **2nd November 2021**

1. The Commissioner, Nagaland, Kohima for kind information.
2. The Nodal Officer, FCA, Govt. of Nagaland for kind information.
3. The Divisional Forest Officer, Peren for information.
4. The General Manager (Project), NHIDCL, PMU-Dimapur for information and necessary action.
5. Office copy.

2/11/21

(SENTIWAPANG AIER), NCS
Deputy Commissioner
Peren: Nagaland

ANNEXURE - VI

Existing ROW and Proposed ROW Details		
Design Ch.(m)	EROW Width (m)	PROW Width (m)
109+500	11.7	19.0
109+600	9.7	19.0
109+700	Realignment	19.0
109+800	Realignment	19.0
109+900	Realignment	24.0
110+000	Realignment	24.0
110+100	Realignment	24.0
110+200	Realignment	19.0
110+300	Realignment	19.0
110+400	Realignment	19.0
110+500	Realignment	19.0
110+600	Realignment	19.0
110+700	Realignment	19.0
110+800	Realignment	19.0
110+900	Realignment	19.0
111+000	Realignment	19.0
111+100	Realignment	19.0
111+200	Realignment	19.0
111+300	Realignment	19.0
111+400	8.7	19.0
111+500	Realignment	19.0
111+600	Realignment	19.0
111+700	Realignment	19.0
111+800	Realignment	19.0
111+900	Realignment	19.0
112+000	Realignment	19.0
112+100	Realignment	19.0
112+200	Realignment	24.0
112+300	Realignment	24.0
112+400	Realignment	24.0
112+500	Realignment	20.0
112+600	Realignment	20.0
112+700	Realignment	20.0
112+800	Realignment	20.0
112+900	Realignment	20.0
113+000	Realignment	20.0
113+100	Realignment	24.0
113+200	Realignment	24.0
113+300	Realignment	24.0
113+400	Realignment	24.0
113+500	11.3	24.0
113+600	Realignment	24.0
113+700	Realignment	24.0
113+800	Realignment	24.0
113+900	Realignment	24.0
114+000	Realignment	20.0
114+100	Realignment	20.0

Existing ROW and Proposed ROW Details		
Design Ch.(m)	EROW Width (m)	PROW Width (m)
114+200	Realignment	20.0
114+300	Realignment	20.0
114+400	Realignment	20.0
114+500	Realignment	20.0
114+600	Realignment	20.0
114+700	Realignment	20.0
114+800	Realignment	20.0
114+900	Realignment	20.0
115+000	Realignment	20.0
115+100	Realignment	20.0
115+200	Realignment	24.0
115+300	Realignment	24.0
115+400	7.4	24.0
115+500	8.1	24.0
115+600	8.0	24.0
115+700	8.9	24.0
115+800	9.3	24.0
115+900	9.6	24.0
116+000	8.9	24.0
116+100	Realignment	24.0
116+200	10.0	24.0
116+300	9.0	24.0
116+400	10.0	24.0
116+500	9.5	24.0
116+600	9.7	24.0
116+700	9.2	24.0
116+800	8.6	24.0
116+900	9.3	24.0
117+000	11.5	24.0
117+100	10.6	24.0
117+200	10.0	24.0
117+300	13.8	24.0
117+400	8.5	24.0
117+500	8.5	24.0
117+600	10.4	24.0
117+700	8.6	24.0
117+800	11.3	24.0
117+900	11.3	24.0
118+000	9.5	24.0
118+100	Realignment	24.0
118+200	Realignment	24.0
118+300	8.8	20.0
118+400	11.0	20.0
118+500	Realignment	20.0
118+600	Realignment	20.0
118+700	Realignment	20.0
118+800	Realignment	20.0

Existing ROW and Proposed ROW Details		
Design Ch.(m)	EROW Width (m)	PROW Width (m)
118+900	9.4	20.0
119+000	8.3	20.0
119+100	8.8	20.0
119+200	8.5	24.0
119+300	9.2	24.0
119+400	9.4	20.0
119+500	8.4	20.0
119+600	8.6	20.0
119+700	9.4	24.0
119+800	9.5	24.0
119+900	9.2	24.0
120+000	9.1	24.0
120+100	9.9	24.0
120+200	9.9	20.0
120+300	9.3	20.0
120+400	10.5	20.0
120+500	9.4	20.0
120+600	5.8	20.0
120+700	9.5	20.0
120+800	7.0	20.0
120+900	13.4	20.0
121+000	5.2	24.0
121+100	5.5	24.0
121+200	4.7	24.0
121+300	5.1	20.0
121+400	10.7	20.0
121+500	7.0	24.0
121+600	7.0	24.0
121+700	6.8	24.0
121+800	6.8	23.0
121+900	10.6	20.0
122+000	14.4	20.0
122+100	5.1	20.0
122+200	6.5	20.0
122+300	7.2	20.0
122+400	6.7	20.0
122+500	7.6	14.0
122+600	6.7	14.0
122+700	7.0	14.0
122+800	7.0	14.0
122+900	7.4	14.0
123+000	8.6	14.0
123+100	6.9	14.0
123+200	Realignment	14.0
123+300	6.3	20.0
123+400	8.0	20.0
123+500	8.7	20.0

Existing ROW and Proposed ROW Details		
Design Ch.(m)	EROW Width (m)	PROW Width (m)
123+600	8.9	20.0
123+700	6.6	20.0
123+800	8.4	20.0
123+900	8.0	20.0
124+000	8.6	20.0
124+100	8.2	20.0
124+200	8.9	20.0
124+300	Realignment	20.0
124+400	9.9	20.0
124+500	7.9	20.0
124+600	8.5	20.0
124+700	8.0	20.0
124+800	10.5	20.0
124+900	9.3	20.0
125+000	8.5	20.0
125+100	10.3	24.0
125+200	7.0	24.0
125+300	9.1	20.0
125+400	8.8	20.0
125+500	7.1	20.0
125+600	7.2	20.0
125+700	8.0	20.0
125+800	8.4	20.0
125+900	8.3	20.0
126+000	7.9	24.0
126+100	8.2	24.0
126+200	6.5	20.0
126+300	6.7	24.0
126+400	6.0	24.0
126+500	7.9	24.0
126+600	7.2	20.0
126+700	7.1	20.0
126+800	6.5	20
126+900	8.6	20
127+000	7.2	20
127+100	5.2	20
127+200	2.8	20
127+300	7.1	24
127+400	6.4	24
127+500	7.2	24
127+600	8.3	24
127+700	6.8	20
127+800	6.6	24
127+900	5.6	24
128+000	7.0	24
128+100	5.2	24
128+200	6.7	24

Existing ROW and Proposed ROW Details		
Design Ch.(m)	EROW Width (m)	PROW Width (m)
128+300	5.3	24
128+400	7.2	24
128+500	6.0	24
128+600	5.8	24
128+700	7.4	24
128+800	14.0	24
128+900	5.8	24
129+000	7.4	24
129+100	8.3	24
129+200	7.4	24
129+300	6.8	24
129+400	7.3	24
129+500	7.7	24
129+600	7.6	24
129+700	7.7	24
129+800	7.8	24
129+900	7.3	20
130+000	8.7	20
130+100	7.4	20
130+200	9.9	20
130+300	7.5	20
130+400	4.0	20
130+500	7.1	20
130+600	Realignment	20
130+700	7.0	20
130+800	8.2	20
130+900	7.6	20
131+000	7.1	20
131+100	6.6	20
131+200	7.6	20
131+300	8.6	20
131+400	6.7	20
131+500	6.2	20
131+600	7.8	20
131+700	7.4	24
131+800	6.4	24
131+900	Realignment	24
132+000	5.7	24
132+100	7.2	24
132+200	Realignment	24
132+300	7.5	24
132+400	6.9	24
132+500	6.3	24
132+600	8.4	24
132+700	7.9	24
132+800	2.8	24
132+900	7.5	24

Existing ROW and Proposed ROW Details		
Design Ch.(m)	EROW Width (m)	PROW Width (m)
133+000	6.8	24
133+100	6.9	24
133+200	7.0	24
133+300	7.0	24
133+400	7.2	24
133+500	5.3	24
133+600	6.2	24
133+700	7.8	24
133+800	8.3	24
133+900	5.9	24
134+000	5.9	24
134+100	7.8	24
134+200	5.7	24
134+300	8.4	24
134+400	9.4	24
134+500	Realignment	24
134+600	Realignment	24
134+700	Realignment	24
134+800	Realignment	24
134+900	Realignment	24
135+000	5.7	24
135+100	Realignment	24
135+200	9.0	24
135+300	8.0	24
135+400	Realignment	24
135+500	7.8	24
135+600	6.6	24
135+700	6.4	20
135+800	8.2	20
135+900	7.9	20
136+000	4.0	20
136+100	7.2	20
136+200	Realignment	20
136+300	Realignment	20
136+400	5.0	20
136+500	5.3	20
136+600	8.1	20
136+700	5.3	20
136+800	8.1	20
136+900	8.6	20
137+000	6.3	20
137+100	7.8	20
137+200	6.2	20
137+300	6.9	20
137+400	7.2	20
137+500	6.6	20
137+600	5.0	20

Existing ROW and Proposed ROW Details		
Design Ch.(m)	EROW Width (m)	PROW Width (m)
137+700	Realignment	20
137+800	5.8	20
137+900	Realignment	20
138+000	7.7	20
138+100	3.7	24
138+200	7.5	24
138+300	6.3	24
138+400	6.3	24
138+500	9.0	24
138+600	5.5	24
138+700	7.3	24
138+800	7.9	20
138+900	8.0	20
139+000	5.9	20
139+100	9.6	20
139+200	6.7	20
139+300	8.5	20
139+400	7.9	24
139+500	14.8	24
139+600	Realignment	24
139+700	Realignment	24
139+800	7.3	24
139+900	Realignment	24
140+000	8.4	24
140+100	Realignment	24
140+200	8.6	24
140+300	7.5	24
140+400	8.0	24
140+500	2.0	24
140+600	Realignment	24
140+700	10.0	24
140+800	8.8	24
140+900	8.8	24
141+000	Realignment	24
141+100	7.9	24
141+200	8.1	24
141+300	10.8	24
141+400	2.4	24
141+500	7.9	24
141+600	Realignment	24
141+700	10.8	24
141+800	Realignment	24
141+900	7.3	24
142+000	8.5	20
142+100	7.1	20
142+200	7.8	20
142+300	7.9	20

Existing ROW and Proposed ROW Details		
Design Ch.(m)	EROW Width (m)	PROW Width (m)
142+400	8.7	20
142+500	8.7	20
142+600	8.4	20
142+700	8.0	20
142+800	7.5	20
142+900	7.3	20
143+000	7.9	20
143+100	8.3	20
143+200	7.6	20
143+300	8.2	20
143+400	8.2	20
143+500	8.4	20
143+600	8.8	20
143+700	9.0	20
143+800	11.0	20
143+900	9.0	20
144+000	8.0	20
144+100	9.7	14
144+200	7.9	14
144+300	7.3	14
144+400	7.9	14
144+500	8.2	14
144+600	7.8	14
144+700	8.5	14
144+800	9.6	14
144+900	9.6	14
145+000	9.2	14
145+100	9.8	14
145+200	8.2	14
145+300	9.5	14
145+400	9.1	20
145+500	9.6	20
145+600	8.7	20
145+700	10.5	20
145+800	9.7	20
145+900	10.2	20
146+000	6.7	20
146+100	8.5	20
146+200	9.5	20
146+208	9.5	20

Existing ROW and Proposed ROW Details		
Design Ch.(m)	EROW Width (m)	PROW Width (m)
142+400	8.7	20
142+500	8.7	20
142+600	8.4	20
142+700	8.0	20
142+800	7.5	20
142+900	7.3	20
143+000	7.9	20
143+100	8.3	20
143+200	7.6	20
143+300	8.2	20
143+400	8.2	20
143+500	8.4	20
143+600	8.8	20
143+700	9.0	20
143+800	11.0	20
143+900	9.0	20
144+000	8.0	20
144+100	9.7	14
144+200	7.9	14
144+300	7.3	14
144+400	7.9	14
144+500	8.2	14
144+600	7.8	14
144+700	8.5	14
144+800	9.6	14
144+900	9.6	14
145+000	9.2	14
145+100	9.8	14
145+200	8.2	14
145+300	9.5	14
145+400	9.1	20
145+500	9.6	20
145+600	8.7	20
145+700	10.5	20
145+800	9.7	20
145+900	10.2	20
146+000	6.7	20
146+100	8.5	20
146+200	9.5	20
146+208	9.5	20

Katra

ANNEXURE - VII

APPROVED

MUCK DUMPING PLAN

BY

DFO

onsultancy Services for Carrying out Feasibility Study, Preparation f Detailed Project Report and providing pre-construction services in respect of 2 laning of Maram-Peren- Dimapur section on NH 129A (Manipur & Nagaland) on Engineering, Procurement and Construction mode in the state of Manipur & Nagaland. (Package No. NHIDCL/DPR/SN-DMP-PC/Manipur/2016)

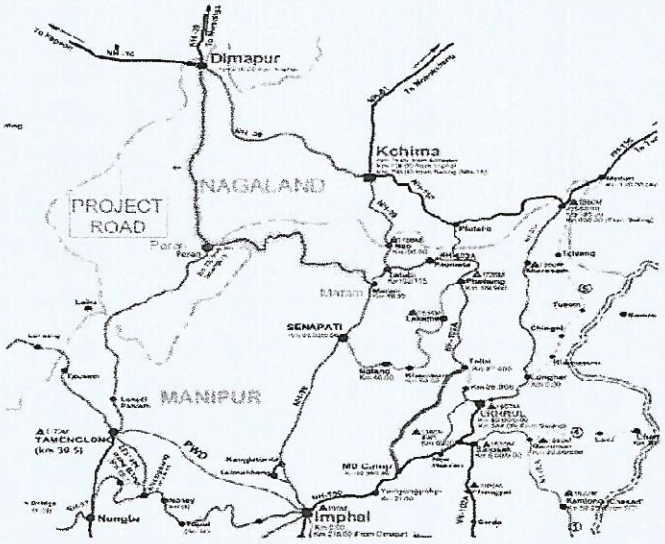
MUCK DISPOSAL REPORT

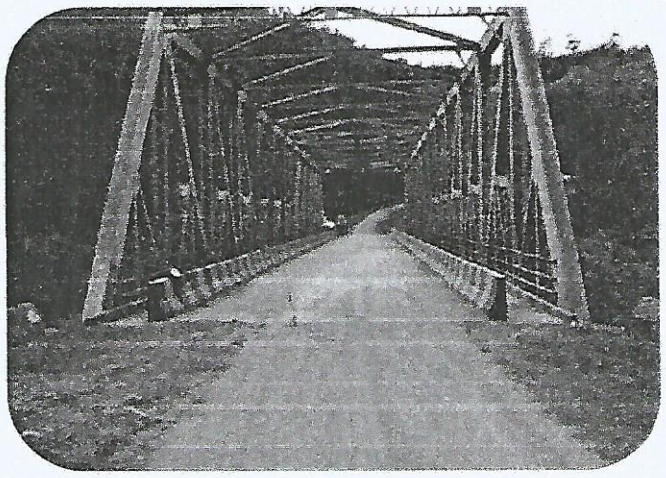
(Peren-Dimapur Section in the State of Nagaland)

• PKG-I: KM 109+494 TO KM 126+775

National Highways & Infrastructure Development Corporation Ltd.

PTI Building, 3rd Floor, 4,Parliament Street, New Delhi-110001





CETEST Engineering Consultants

C. E. Testing Company Pvt. Ltd.

124-A, NSC Bose Road, Kolkata -700092

Contents

C.E. TESTING CO. PVT. LTD. KOLKATA 700 092 124A, N.S.C. BOSE ROAD

MUCK DISPOSAL REPORT

1.1 Introduction

National Highways and Infrastructure Development Corporation (NHIDCL) is a fully owned company of the Ministry of Road Transport & Highways (MoRT&H), Government of India. The company promotes, surveys, establishes, design, build, operate, maintain and upgrade National Highways and Strategic Roads including interconnecting roads in parts of the country which share international boundaries with neighboring countries. The regional connectivity so enhanced would promote cross border trade and commerce and help safeguard India's international borders. This would lead to the formation of a more integrated and economically consolidated South and South East Asia. In addition, there would be overall economic benefits for the local population and help integrate the peripheral areas with the mainstream in a more robust manner.

As a part of the above mentioned endeavor, National Highways & Infrastructure Development Corporation Limited (NHIDCL) has been entrusted with the assignment of Consultancy Services for Carrying out Feasibility Study, Preparation of Detailed Project Report and providing pre-construction services in respect of 2 laning of Peren-Dimapur road Section of NH-129A on Engineering, Procurement and Construction mode in the state of Nagaland.

National Highways & Infrastructure Development Corporation Ltd. is the employer and executing agency for the consultancy services and the standards of output required from the appointed consultants are of international level both in terms of quality and adherence to the agreed time schedule.

National Highways & Infrastructure Development Corporation Limited (NHIDCL), MoRT&H, New Delhi has appointed C.E. Testing Company Pvt. Ltd. (CETEST) as consultant to prepare the Detailed Project Report for the above road stretches vide Letter of Acceptance No. NHIDCL/DPR/SN-DMP-PC/MANIPUR/2016/Vol-II/390 dated 26.10.2017.

1.2 Project Background

The project road starts from existing Ch. 109.767km [Dzuko Bridge (Manipur & Nagaland State border) near Peren town] under Peren district and ends at existing Ch. 190.896km(7th Mile junction with NH-39 in Chumukhdima Town) under Dimapur district.

The project road is located in mountainous & steep terrain. The entire road passes through Peren town, Old Jalukie Sector A, Old Jalukie Sector B, Old Jalukie Sector C, Jalukie B, Jalukie town, Nkwakreu village, New Jalukie, Mhainamsti village, Kiyevi village, Heningkunglwa village, Ngwalwa Village, Chumukedima village, Chumukedima 'A' village, Virazouma village, Tenyiphe-II village and Chumukedima town.

The project road has been divided into five packages. Details are summarized in below table 1.1.

Table 1.1: Package Details

Package No	Existing Chainage (Km)		Existing Length (KM)	Design Chainage (Km)		Design Length (KM)
	From	To		From	To	
PKG-I	109+767	125+203	15.436	109+494	126+775	17.281
PKG-II	125+203	145+393	20.190	126+775	146+208	19.433
PKG-III	145+393	162+890	17.497	146+208	163+592	17.384
PKG-IV	162+890	173+850	10.960	163+592	173+850	10.258
PKG-V	173+850	190+896	17.046	173+850	190+850	17.000
	Total existing length		**81.129**	**Total design length**		**81.356**

In context of the above mentioned table 1.1, Package-I start from Km 109+494 to Km 126+775 (Length 17.281 Km) on at NH-129A in the district of Peren in the state of Nagaland has been proposed 2-Lane configuration as per specification.

The consultancy services for the same is to include design of best possible alignment follow the existing alignment in addition to Financial Analysis of costs, prioritization of this road depending on project viability and anticipation of hazards during construction, preparation of Land Acquisition Plan, if required and obtaining of all requisite clearances.

Geo Reference Map of the project road stretch is enclosed in Figure 1.1

C.E. TESTING CO. PVT. LTD. KOLKATA 700 092 124, N.S.C. BOSE ROAD

View of existing Road condition along proposed alignment

	
Origin Point at Dzuko Bridge	**Peren Town**

1.3 Salient Features of the Project Road (Package-I)

Sl. No	Descriptions		Existing	Proposed
1	Start Point		Starts from Ext. Ch. 109.767km [Dzuko bridge (Manipur & Nagaland state border) near Peren town]	Starts from Ext. Ch. 109.494km [Dzuko bridge (Manipur & Nagaland state border) near Peren town]
2	End Point		Ends at Ext. Ch. 125.203km	Ends at Design Ch. 126.775km
3	Length	:	Existing Length = 15.436 Km (As per topographic survey)	Proposed Design Length =17.281 Km
4	Terrain	:	**Mountainous Terrain**	**Mountainous Terrain**
5	Horizontal Alignment	:	The horizontal alignment of the existing road has many sub-standard and sharp curves including reverse S-curves. There is also deficiency in transition length as per MoRT&H standards. The details are given below –	Horizontal curves including the sharp/blind curves as well as zigzag ones has been improved to achieve required design speed and super elevation reversal for riding safety and comfort in conformation to MoRT&H standards.
6	Design Speed	:	Avg. 20-40 kmph	**Design Speed:** 60 - 40 kmph in general. However as per site constraint design speed is reduced up to 20 kmph.
7	Cross-Section	:		**(1) In Semi Built Up Area at Plain/Mountainous Terrain** Carriageway = 7.0 m Hard Shoulder = 2 x 1.5m Footpath cum Covered Drain/Utility Corridor

Types of Curves	From (km)	To (km)
Sharp Curves/ Blind Curves	Package-I	
	118+190	125+203
Hair-Pin Bends	Package-I	
	109+767	117+940
	123+690	125+203

Chainage (km)		Average Carriageway Width (m)
From	To	
Package-I		
109.494	125.203	3.5 - 5.0

	Descriptions		Existing	Proposed
			Earthen Shoulder/Gravel Shoulder: 1.0m – 3.5m **Total Formation Width:**5.5m – 11.0m	= 2 x 1.0m Space for Utility Corridor = 2 x 1.0m ***Total Roadway Width = 12.0m*** **(2) In Congested Built up Area at plain terrain** Carriageway = 7.5 m Footpath cum Covered Drain = 2 x 1.0 m Space for Utility Corridor = 2 x 1.25 m ***Total Roadway Width = 9.5 m*** **(3) In Rural/Open Area at Plain Terrain** Carriageway = 7.0m Hard Shoulder = 2 x 1.5m Earthen Shoulder = 2 x 1.0m ***Total Roadway Width = 12.00m*** **(4) In Rural/Open Area at Mountainous Terrain without Retaining Wall on Valley Side** Carriageway = 7.0m Hard Shoulder = 2 x 1.5m Earthen Shoulder = 1 x 1.0m ***Total Road Width = 11.00m*** **(5) In Rural/Open Area at Mountainous Terrain with Retaining Wall on Valley Side** Carriageway = 7.0m Hard Shoulder = 2 x 1.5 m ***Total Road Width = 10.00m***
8	CBR Considered	:	-	10%
9	Traffic (January, 2018)	:	**<u>For Homogenous section – II</u>** Base year Traffic (Yr. 2019) Total Vehicle in numbers=373 nos. Total Vehicles in PCU = 322 PCU Total CVPD = 4 nos. **<u>For Homogenous section – III</u>** Base year Traffic (Yr. 2019) Total Vehicle in numbers=3304 nos. Total Vehicles in PCU = 2938 PCU Total CVPD = 217 nos.	**<u>For Homogenous section – II</u>** Projected Traffic (Yr. 2042) Total Vehicle in numbers=1966 nos. Total Vehicles in PCU = 1701 PCU Total CVPD = 22 nos. **<u>For Homogenous section – III</u>** Projected Traffic (Yr. 2042) Total Vehicle in numbers= 17437 nos. Total Vehicles in PCU = 15504 PCU Total CVPD =1146 nos.
10	Traffic Growth Rate	:	-	7.5 % growth of traffic is considered
11	Pavement Design Life	:	-	Flexible Pavement - 20 Years
12	Design msa	:	-	**For Homogenous section – II** (Ext. Ch. 115+280 km to Ch. 141+690 km) : **Calculated MSA = 0.06 MSA** **For Homogenous section – III** (Ext. Ch. 141+690 km to Ch. 178+937 km) **Calculated MSA = 3 MSA**

	Descriptions		Existing	Proposed
				Adopted MSA = 20 MSA as per IRC:SP:73-2015 clause no. 5.4.1
13	Flexible Pavement Thickness	:	Bituminous Surface = 10 – 30 mm Stone Aggregate + Sand = 200 – 720 mm Total Pavement Thickness = 210– 750 mm	**For New/Widening & Strengthening portion:** BC = 40mm DBM = 70mm WMM = 250mm GSB = 200mm **Total = 560mm**
14	Bridges	:	**Package-I** Nil	**Package-I** Nil
15	Culverts	:	**Package : I** Total Culvert = 49 nos. • Pipe Culverts = 42 nos. • Slab Culverts = 7 nos.	**Package : I** Reconstruction with Box culverts=32 nos. New Box culverts =7 nos.
16	ROB	:	Nil	**Package-I** Nil
17	Protection Work	:	-	**Package – I** Total length of Retaining Wall=5500 m • Length of 1.5m Retaining Wall=250m • Length of 2.0m Retaining Wall=1200m • Length of 3.0m Retaining Wall=2750m • Length of 4.0m Retaining Wall=1300m Length of Breast Wall = 6850 m Metal Beam Crash Barrier = 2888 m Length of composite RE Wall=250m Hydro seeding=50800Sq m
18	Longitudinal Drains	:	-	**Package – I** Length of RCC Cover Drain = 4584 m Length of RR Masonry Trapezoidal Drain = 13779.46 m
19	Bus Bay with Passenger Shelter	:	Nil	Total 6 nos. bus bay are proposed at 3 nos. locations. Package wise details are given below:

Sl. No	Chainage (km)	Name of the habitation	Side
Package-I			
1	114.15	Peren Town	Both
2	121.29	Old Jalukie Sec A	Both
3	124.54	Old Jalukie Sec B	Both

20	Truck Lay Bye	:	Nil	Nil
21	ROW	:	5.0m to 14.0m	Open Area = 18m - 24m Semi Built-up Area = 14m Congested Built-up Area = 12m
22	Land Details	:	**Package : I** Available land is 27 Ha. (Approx.)	**Package : I** Land to be acquired 26.77 Ha. (Approx)

<table>
<tr><th>o</th><th>Descriptions</th><th></th><th>Existing</th><th>Proposed</th></tr>
<tr><td>23</td><td>Forest Stretch</td><td>:</td><td colspan="2">Peren District – Alignment Passes through forest land at Peren Range with roadside plantation.</td></tr>
<tr><td>24</td><td>Major Intersection</td><td>:</td><td>3Nos. (All junctions are 3-legged)
<table><tr><th>Sl. No.</th><th>Existing Chainage (Km)</th><th>Name of Junction</th><th>Leads To</th></tr><tr><td colspan="4">Package-I</td></tr><tr><td>1</td><td>119.000</td><td>Kiepeuzang</td><td>Tenning</td></tr><tr><td>2</td><td>119.560</td><td>Peren town</td><td>Peren Town</td></tr><tr><td>3</td><td>124.250</td><td>Pelekie</td><td>Kohima</td></tr></table></td><td>3 Nos. of Major Intersections will be improved at grade.<table><tr><th rowspan="2">Sl. No.</th><th colspan="2">Proposal</th></tr><tr><th>Design Chainage (Km)</th><th>Type</th></tr><tr><td colspan="3">Package - I</td></tr><tr><td>1</td><td>120.900</td><td>At Grade 3-Legged</td></tr><tr><td>2</td><td>121.400</td><td>At Grade 3-Legged</td></tr><tr><td>3</td><td>125.870</td><td>At Grade 3-Legged</td></tr></table></td></tr>
<tr><td>25</td><td>Minor Intersection</td><td>:</td><td><u>Package: I</u>
11 nos.</td><td><u>Package: I</u>
11 nos.</td></tr>
<tr><td>26</td><td>Realignment</td><td>:</td><td>Nil</td><td><u>Package: I</u>
Total Length = 6.722 km
• Major Realignment due to vertical grade correction = 6.622 km (from Ch. 109 + 494 to Ch. 116+116).
• Minor Realignment- 1 Location of total length 0.100 km.</td></tr>
<tr><td>27</td><td>Bypass</td><td>:</td><td>Nil</td><td>Nil</td></tr>
<tr><td>28</td><td>Flyover</td><td>:</td><td>Nil</td><td>Nil</td></tr>
<tr><td>29</td><td>Underpasses (VUP/LVUP/PUP)</td><td>:</td><td>Nil</td><td>Nil</td></tr>
<tr><td>30</td><td>Service Road</td><td>:</td><td>Nil</td><td>Nil</td></tr>
<tr><td>31</td><td>Toll Plaza</td><td>:</td><td>Nil</td><td>Nil</td></tr>
<tr><td>32</td><td>Total Civil Cost(Including Escalation based on WPI @ 3.40% for 4 year) (Rs.)</td><td>:</td><td>-</td><td><u>Package: I</u>
Rs. 212.26 Cr. (Rs. 12.28 Cr. / Km)</td></tr>
</table>

1.4 Quantity of Muck Generated and its consumptive use

During Construction of different components of the project, muck is generated both from soil or slide material and from rock excavation. Total quantity of muck/debris generated due to the project, shall be **11081.00** cum which shall amount to **14405.30** cum considering 30% swell factor. Out of the total muck generated, **2139.00** cum shall be utilized on project road for filling purpose and remaining **12266.30** cum to be dumped with 20% compaction at designated sites. The muck shall be properly roller compacted and dumped on sites to match with the surrounding environment with least change in landscape. Abstract of muck generated and its disposal is presented in **Table 1.1**

Table 1.1: Abstract of Muck Generated and its Disposal

Sl. No.	Quantity of Muck / Debris generated	Quantity of Muck with 30% swell factor	Total Quantity of Muck / Debris including swell factor	Estimated Quantity of Muck/Debris proposed to be utilized in Filling	Balance quantity of muck /debris proposed to be dumped	Effective Muck to be Dumped (With 20% compaction)	Name of the Dumping Site
	(Cum)	(Cum)	(Cum)	(Cum)	(Cum)	(cum)	
1	11081.00	3324.30	14405.30	2139.00	12266.30	9813.04	Muck Disposal Area 1
Total	**11081.00**	**3324.30**	**14405.30**	**2139.00**	**12266.30**	**9813.04**	

1.5 Selection of Muck Disposal Site

The selection of muck disposal sites was carried out considering the quantity of muck, landscape, cost effectiveness, nearness to source of generation, absence of ground and surface water, relief and scope of afforestation works. Subsequently the spoil tips (muck disposal sites) will be developed by taking up plantation through bio technological methods to generate forest type canopy over them. The dumping location shall be well supported at base and at higher elevation by suitable retaining structures like Gabion Wall. Details of Dumping site and amount of muck to be disposed has been summarized in **Table 1.2.**

Table 1.2: Details of Muck Disposal Site

Sl. No.	Name of Dumping Site	Location of Dumping Site	Dumping Area (sqm)	Average Dumping Height (m)	Volume of Muck to be Dumped (with 20% Compaction) (Cum)
1	Muck Disposal Area 1	NEAR PEREN TOWN (Valley Side)	3,400.00	36.00	9813.04
		Total	**3,400**	**36.00**	**9813.04**

The layout Plan of Muck disposal Site is shown in **Fig 1.2.**

1.6 Description of Muck Disposal Sites

The proposed muck disposal site is located nearest valley side from the existing road. The details are given below.

MUCK ID - 01	LATITUDE(N)	LONGITUDE(E)	Side of Nearest Valley from Existing Road
M1	25°32'05.599"	93°45'25.212"	Right Hand Side (Existing Ch. 112.375km /Proposed Ch. 113.600km)
M2	25°32'07.686"	93°45'25.210"	
M3	25°32'07.703"	93°45'23.430"	
M4	25°32'05.641"	93°45'23.385"	

The Plan area of the site is 3400 Sq. m. = 0.34 Ha.

1.7 Implementation of Engineering Measures at Muck Disposal Site

It has been observed that after disposal of muck, it creates problem as it is susceptible to scattering unless the muck disposal sites are supported with Gabions. All the dumping sites need proper handling to avoid spilling of muck into the river water, present of settlement in valley side while dumping and in the post dumping stages. The muck disposal site has to be developed from the ground level by providing gabion structure. The costing of engineering measures has been worked out based on gabion structure. In the muck disposing site, muck brought in dumpers shall be dumped and manually spread behind the crates and compacted with the roller in such a manner that rock mass is properly stacked behind the crates with minimum of voids.

1.8 Implementation of Biological Measures at Muck Disposal Site

Biological measures, however, require special efforts as the disposed muck will be devoid of nutrients and soil contents to support vegetation. The selection of soil for spreading over such an area would require nutrient profiling of soil for different base elements. Suitable mixtures of nutrients would be done before placing the soil on the top surface of muck disposal area to have administrative growth of forest canopy.

1.8.1 Plantation Technique

In view of the site condition, particularly the soil condition, the planting technique for all the categories of the plants has to be very site specific and suited to the stress conditions as anticipated and discussed above. The planting substrates would need to be considerably improved to support the plants in their initial stages of establishment. The moisture retention capability, availability of nutrients and soil aeration, permeability and porosity would require intervention and assistance.

Plantations are proposed to be raised on the muck dumping sites using grass carpeting in the under storey and trees in the upper story. Tree species would be planted in the area combined with grass showing in patches. Intimate mixture of species would be avoided right at the planning stage and would be strictly followed during planting. Grass carpeting would be mixed by groups in rows.

Grass slip planting and grass seed sowing would be done in strips at 0.1 m x 0.1 m spacing in prepared staggered patches of 1 m x 0.5 m with a depth of 0.3 m. Soil mixture would be used while filling the patches.

Planting trees as compensatory afforestation at the rate of 290 nos. trees per hectare at a spacing of 6m by grubbing and leveling the ground up to a depth of 150mm, digging holes 0.9m dia., 1m deep

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mixing farm yard/sludge manure with soil, planting of sapling 2 m high with 25 cm diameter stem, backfilling the hole and watering.

The stabilization sites from the time of execution of biological measures would be protected with barbed wire fencing on 1.65 m high RCC posts and provided with inspection paths.

The plantations under biological measures would be maintained for a period of one year by watering the plantation during dry season, mortality replacement and repair of fencing and inspection paths within the area. The proposed costs include raising plants, grass carpeting and also for mortality replacement.

1.8.2 Species for Plantation

Afforestation with suitable plant species of high ecological and economic value and adaptable to local conditions will be undertaken in accordance with canopy cover requirement. Selection of plant species, propagation and cultivation will be done in co-ordination with Concerned Forest Department in Nagaland.

1.9 Budget for Muck Disposal Plan

Estimation has been made for engineering measures of muck disposal plan as **Rs. 0.76 Cr.** whereas biological measures as **Rs. 0.06 Cr.** Thus, Total budget for Muck.Disposal Plan has been estimated as **Rs. 0.82 Cr.**

The cost break-up of engineering and biological measures are detailed in **Table 1.3** and **Table 1.4** respectively.

Table 1.3: Cost Estimate for Engineering Measures

Sl. No.	SOR Item No.	Name of the work	Unit	Qty	Rate	Amount (Rs. Lakhs)
Muck Disposal Site						
1		**Gabion Wall Construction**				
	12.1 I B (i)	Earth Work	Cum	129.6	75.00	0.10
	12.8 A (I)	PCC M15	Cum	21.6	10094.95	2.18
	12.7	Stone Masonry	Cum	324	8648.63	28.02
2	3.11	Removal of unserviceable soil from excavation to muck disposal site (for extra lead above 1km upto 12Km)	Cum	9813.00	394.00	38.66
		Total quantity of Muck	Cum	**9813**		
					Sub-Total (1+2) =	**68.96**
					Contingencies @ 10%=	**6.90**
					Total =	**75.86**

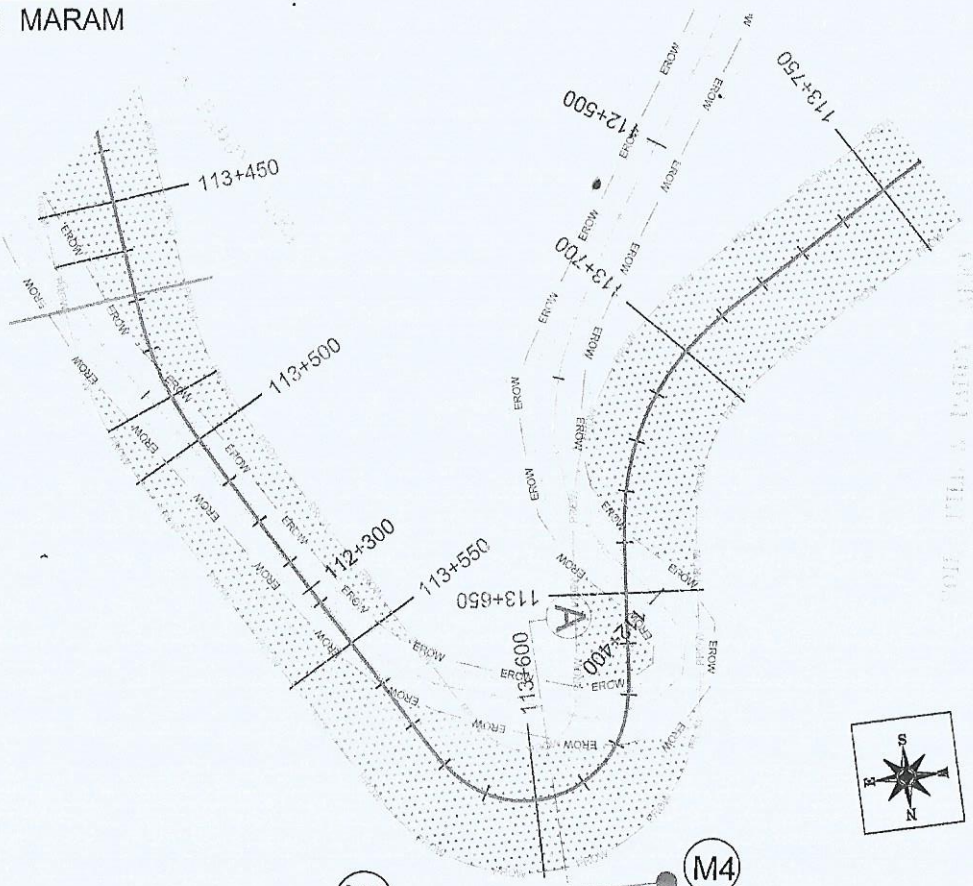
Table 1.4: Cost Estimate for Biological Measures

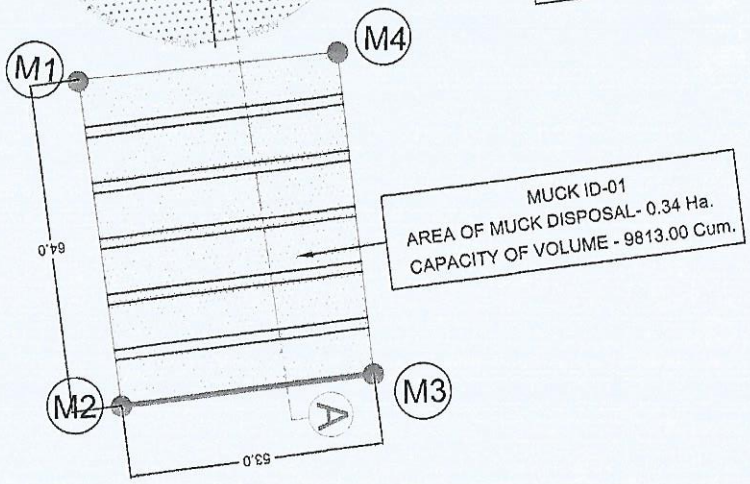
Sl. No.	SOR Item No.	Name of the work	Unit	Qty	Rate	Amount (Rs. Lakhs)
1		Raising of Plantation (Creation Cost)				
	LS	Survey / demarcation / plantation /site clearance	Days	2	450	0.009
	11.21	Compensatory afforestation	Hectare	0.34	126431.00	0.43
2		**Fencing Cost**				
	8.17	G.I Barbed wire Fencing 1.2 metre high (Providing and fixing 1.2 metres high GI barbed wire fencing with 1.8 m angle iron posts 40 mm x 40 mm x 6 mm placed every 3 metres center to center	Meter	154	616.00	0.95
		ii) Maintenance of barbed wire fencing @5% of erection cost for 2nd and 3rd year				0.05
3	11.5	Turfing lawns with fine grassing	Sqm	3400	126.00	4.28
					Sub-Total (1+2+3) =	**5.72**
					Contingencies @ 10%=	**0.57**
					Total Cost for Biological Treatment=	**6.29**

Total budget for Muck Disposal Plan = 82.15 Lakhs i.e. 0.82 Cr.

MARAM

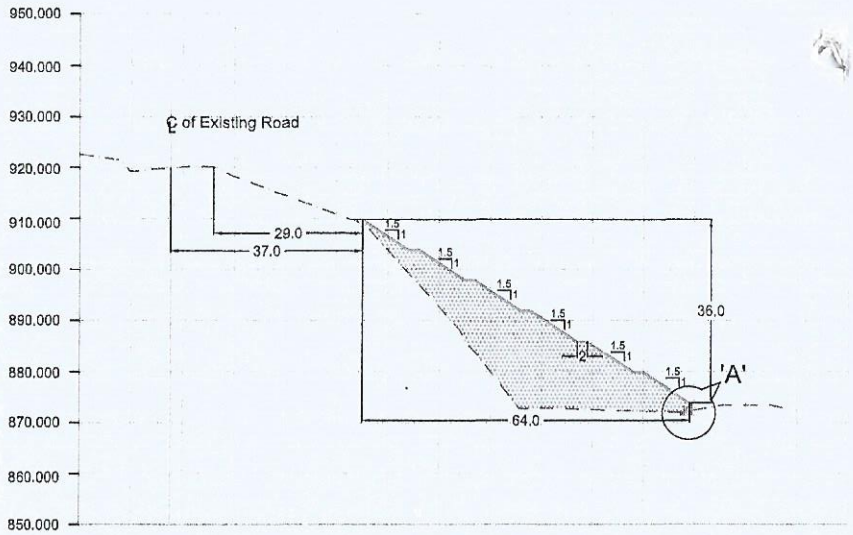
DIMA





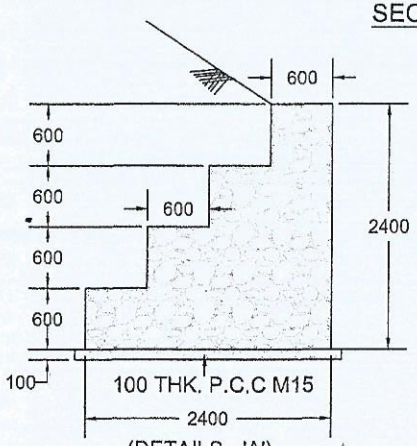
MUCK ID-01
AREA OF MUCK DISPOSAL- 0.34 Ha.
CAPACITY OF VOLUME - 9813.00 Cum.

MUCK DISPOSAL PLAN



MUCK ID-01
AREA OF MUCK DISPOSAL- 0.34 Ha.
CAPACITY OF VOLUME - 9813.00 Cum.

SECTION A-A



(DETAILS - 'A')

DETAILS OF GABION WALL

MUCH DISPOSAL AREA: SURROUNDING COORDINATES		
Muck	Longitude (E)	Latitude (N)
M-1	25°32'05.599"	93°45'25.212"
M-2	25°32'07.686"	93°45'25.210"
M-3	25°32'07.703"	93°45'23.430"
M-4	25°32'05.641"	93°45'23.385"

FIG:-1.2

Divisional Forest Officer
Peren Forest Division
Jalukie, Nagaland

Scale : As per Mts

DATE: SEP,2021

Modified as per Proposed Right of Way

CLIENT: NATIONAL HIGHWAYS AND INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.
PTI Building, 3rd Floor, 4, Parliament Street, New Delhi - 110001

PROJECT: CONSULTANCY SERVICES FOR CARRYING OUT FEASIBILITY STUDY, PREPARATION OF DETAILED PROJECT REPORT AND PROVIDING PRE-CONSTRUCTION SERVICES IN RESPECT OF 2 LANING OF PEREN- DIMAPUR SECTION ON NH 129A ON ENGINEERING, PROCUREMENT AND CONSTRUCTION MODE IN THE STATE OF NAGALAND.

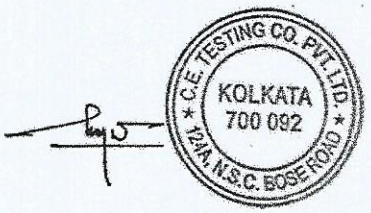
LAYOUT PLAN OF MUCK DISPOSAL SITE

CONSULTANT : CETEST Engineering Consultants — CE TESTING COM... D. 124-A, N.S.C... Kolkata

CE TESTING CO. PVT. LTD. KOLKATA 700 092 124A, N.S.C. BOSE ROAD

DWG NO :- CET/4046/NHIDCL/NH-129A/P-D/MDP			
REVISION MKD. - R0		SHEET NO. - 01	
DRAWN BY	DESIGNED BY	CHECKED BY	ISSUED BY
S.MANDAL	B.DAS	S.SADHU	MANAGER

ANNEXURE-I: FOREST NO OBJECTION CERTIFICATE



FOREST NO OBJECTION CERTIFICATE

Project Name :- Construction of 2-Laning with Hard Shoulder of Peren-Dimapur Section on NH-129A from Design Km 109.494 to Km 126.775 (Length -17.281 Km) in the state of Nagaland on EPC Mode (Package-1) under NH(O)-TSP

Village Name :- Peren			Date :-	
Chainage	Existing Chainage		Design Chainage	
	From	To	From	To
	112.333 Km	112.403 Km	113.570 Km	113.640 Km

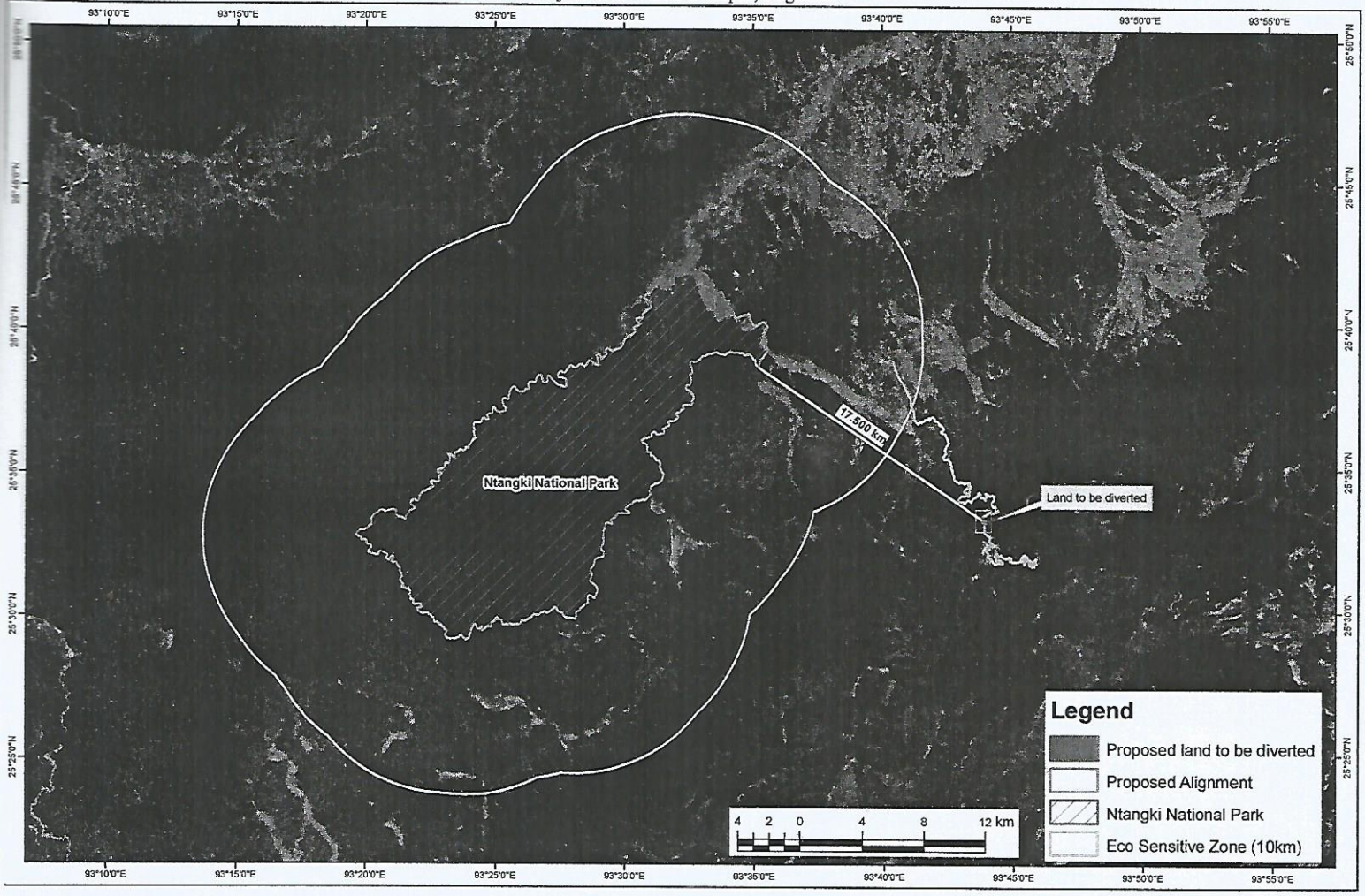
(Note :- NHIDCL will not give any compensation for the Muck Disposal Site to the local land owner.The Site will be given back after dumping the surplus material by the NHIDCL's contractor with necessary land development.)

Name of the DFO	Forest Division	Signature with date and Seal
M. OBED ZELIANG.	PEREN FOREST DIVISION	22/9/21 Divisional Forest Officer Peren Forest Division Jalukie : Nagaland
Name of the Land Owner		Signature with date and Seal
MIREULUNG SEPHE		22/09/21 Chairman Peren Village Council Peren

ANNEXURE - VIII

MAP SHOWING THE DISTANCE BETWEEN PROPOSED ALIGNMENT AND NTANGKI NATIONAL PARK

Project Road: Peren-Dimapur, Nagaland



Divisional Forest Officer
Peren Forest Division
Jalukie : Nagaland

Addl. Principal Chief Conservator of Forests
(Territorial)
Nagaland : Kohima

ANNEXURE - IX

National Highways & Infrastructure Development Corporation Limited
(Ministry of Road Transport & Highways, Govt of India)
General Manager (Projects)
PMU - Dimapur
Behind City Tower Building, NST Colony,
Dimapur, Nagaland- 797112
Email: pmu-dimapur@nhidcl.com

BUILDING INFRASTRUCTURE - BUILDING THE NATION

BHARATMALA
ROAD TO PROSPERITY

No. NHIDCL/PMU-DMP/DPR/M-P-D/FC/Vol-I/2021-22/2994(A) Dated: 10.03.2022

UNDERTAKING FOR PAYMENT FOR EXTRACTION CHARGES OF THE TREES TO BE REMOVED FROM THE PROPOSED AREA

This is to certify that the **PMU Dimapur, National Highways and Infrastructures Development Corporation Limited (NHIDCL), Government of India,** the User Agency, has applied for diversion of forest land for **"2 laning of Peren-Jalukie section on NH-129A on Engineering, Procurement and Construction mode in the State of Nagaland".** We hereby undertake and submit that the User Agency is ready for the payment for extraction charges of the trees to be removed from the proposed area, if any, as decided by the State Government. In case of revision of rates, the difference amount will also be paid by the **PMU Dimapur, National Highways and Infrastructures Development Corporation Limited (NHIDCL), Government of India.**

Date: 10.03.2022
Place: Dimapur

Batra

(Ajay Batra)
General Manager (Projects)
NHIDCL, PMU-Dimapur

General Manager (Projects)
NHIDCL, PMU Dimapur
Nagaland