



GOVERNMENT OF INDIA
MINISTRY OF SHIPPING, ROAD TRANSPORT & HIGHWAYS
(DEPARTMENT OF ROAD TRANSPORT & HIGHWAYS)

Transport Bhawan, 1, Parliament Street,
 New Delhi - 110001

Dated: 10TH July, 2009

NH-12013/61/2008/Ar.P/SARDP/NH-10

To

The Commissioner & Special Secretary,
 Public Works Department,
 Government of Arunachal Pradesh, Itanagar

(Job No.SARDP-NE/NH-153/Ar.P/PWD/2009-10/ 135)

Subject: 2-laning of Ledo-Pangsu pass section of NH-153 from Km.40.00- to 56.485 in the State of Arunachal Pradesh under Phase 'A' of Special Accelerated Road Development Programme North Eastern Region (SARDP-NE)

Ref No.: Letter No. CEAP (EZ)/WTC-10/MoST-NH/SARDP-NE/2009-10/1047-49 dated 12.06.2009

Sir,

I am directed to convey the administrative approval and technical & financial sanction of the President to the estimate for the work mentioned in the subject heading as per the following details, subject to the conditions stipulated herein and in the attached technical note.

(i)	Amount as indicated in the estimate sent by the State PWD, Arunachal Pradesh	Rs. 4893.61 lakh
(ii)	Amount as modified in the Ministry	Rs. 4893.61 lakh
(iii)	Amount of technical approval	Rs. 4893.61 lakh
(iv)	Amount of financial sanction	Rs. 4893.61 lakh

(Rupees Forty-Eight Crore Ninty-three Lakh and Sixty one thousand only).

2. This sanction is further subject to the following condition: -

- (i) The work should be completed as per the targets indicated in paragraph 8 below and the stipulations made in the enclosed technical note.
- (ii) In accordance with the order contained in this Ministry's circular No.RW/NH-11026/2/99-US(D-I) dated 29.10.2001, which was issued in supper-session of earlier circular No.RW/NH-11026/2/99-US(D-I) dated 13.01.2000, if the cost of work exceeds 5% of the sanctioned amount, revised estimate be got sanctioned from the Ministry. Further, it may be ensured that the guidelines issued by this Ministry vide circular No.RW/NH-11024/3/99-US(D-I) dated 9.3.2000 regarding invitation of tenders for execution of works on National Highways and other centrally financed schemes relating to advertisements should be adhered to, depending on the requirements

3. On completion of 50% work, if the appraisal of the project shows that it will necessitate revision of the estimate based upon the physical completion of the project vis-à-vis financial expenditure, immediate action should be taken to submit the revised estimate, so as to ensure that the sanctioned revised estimate is available before necessity of incurring expenditure beyond permissible limits arises;

4. The expenditure during current financial year on this work as also on other sanctioned works should not exceed the allotment placed at the disposal of the State Government during the year, under the head mentioned in paragraph 6 below.

Contd...2/-

5. The expenditure should be incurred consistent with the completion of finished road. The work programme shall be prepared accordingly by the Executive Agency.

6. The expenditure is Debitable to the Major Head '5054' Capital Outlay on Roads & Bridges (Major Head), 01-National Highways (Sub Major Head); 01.337-Road works (Minor Head); 02 – Special Accelerated Road Development Programme in North Eastern Areas; 02.00.53 – Major Works; 02.03 works under Roads Wing/State PWD, corresponding Demand No. '87', Ministry of Shipping, Road Transport & Highways, Department of Road Transport & Highways for the current financial year 2009-10.

7. Quarterly progress reports in the stipulated proforma should be sent to this Ministry till the work is completed. On completion of the work, project completion report shall also be submitted in the prescribed proforma.

8. The following physical and financial targets shall be adhered to:

Finance Year	Cumulative progress	
	Physical(%)	Financial (Rs. In Lakh)
2009-10	10	500.00
2010-11	60	2500.00
2011-12	100	4893.61

9. This sanction issues with the concurrence of Finance Division vide their **U.O.No.485/TF-II/2009 dated 19.06.2009**.

Yours faithfully,

Sd/-
(K.R. GATTI)

Under Secretary to the Government of India

Encl. : As above

Copy with a copy of the technical note forwarded to :-

1. Chief Engineer (NH), PWD, Arunachal Pradesh, Itanagar-791111
2. The Regional Officer, Ministry of Shipping, Road Transport & Highways (Department of Road Transport & Highways), Rajgarh Road, Guwahati – 781 003
3. The Accountant General, Assam, Guwahati.
4. The Pay and Accounts Officer, M/o Shipping, Road Transport & Highways (Department of Road Transport and Highways), Jam Nagar House, IDA Building, New Delhi.
5. The Regional Pay and Accounts Officer (NH), M/o Shipping, Road Transport & Highways (Department of Road Transport & Highways), Hrishikeshayan, Hriday Ranjan Path, 6th Byelane (W), R.G. Baruah Road, Guwahati – 781 003.
6. The Principal Director of Audit, Economic & Services Ministries, A.G.C.R. Building, New Delhi – 02.
7. The Director (NE-II), Ministry of Home Affairs, NE Division, North Block, New Delhi w.r.t. MHA ID No. 1/15/05-NEDC dated 25.09.2006 for newsletter.

Sd/-
(K.R. GATTI)

Under Secretary to the Government of India

Copy with enclosures also forwarded to:-

CE (P-10)/SE (P-10)/EE (P-10)-3/SE (PL)/SE (Mon)/W&A Section/Finance Wing (TF-II)
Section / Guard File.

Sd/-
(A.K.. Ranjan)
Section Officer

**Government of India
Ministry of Road Transport and Highways**

TECHNICAL NOTE

NH-12013/ 61/2008/Ar. P/SARDP/NH-10

New Delhi, 10TH July, 2009

1.	Name of work	2-laning of Ledo- Pangsu pass section of NH 153 from km 40/000 to 56/485 in the state of Arunachal Pradesh under Phase 'A' of Special Accelerated Road Development Programme- North- Eastern Region (SARDP-NE) (Job No. SARDP-NE/NH 153/Ar. P/PWD/2009-10-135)	
2.	State	Arunachal Pradesh	
3.	NH	153	
4.	Estimated cost (Rs. in lakh)	As furnished by the State PWD 4893.61	As approved by Ministry 4893.61
5.	Length (km)	16.485	16.485
6.	Rate / km (Rs. lakh)	296.85	296.85
7.	Reference	Letter No. CEAP(EZ)/WTC-10/MOST-NH/SARDP-NE/2009-10/1047-49 dated 12.06.2009.	

COMMENTS

1. Scope of work

- (i) 2 laning from km 40.000 to 56.485(16.485 km) along with provision of hard crust in 1.6/1.9 m wide shoulders on either side of carriageway.
- (ii) Construction of 1 minor bridge;
- (iii) Extension of 65 slab culverts to full formation width;
- (iv) Construction of 7 new slab culverts 2m span;
- (v) Construction of Retaining Wall/Breast Wall/Toe wall;
- (vi) Centre line marking, edge line marking & road safety items, etc
- (vii) Provision of land acquisition.

2. Alignment& Gradient of the road

The existing single lane in 16.485 km is reported to be passing through hilly terrain. The alignment (horizontal & vertical) as submitted is found to be deficient. The re-alignment/curve/gradient improvements have been corrected in consultation with EE, Jairampur Division during his visit to Headquarter on 26.02.2008. The net length of re-alignment due to curve/grade improvement comes out to 7824m as per Annexure-I. The ruling design speed of 40 kmph has been adopted throughout the stretch except at km 44.500, 46.200, 46.850, 53.100 & 55.900 due to hair pin bends

and site constraints, where 30 kmph minimum design speed has been adopted. It is also reported that proposed road does not involve forest clearance.

3. Right - of - Way

Arunachal Pradesh PWD has stated that ROW of 18 km is available, which is sufficient for widening purpose, except from km. 42.460 to 43.000 (private plantation) & from km 43.210 to 44.600 (Nampong town). A provision of Rs 50.00 lakhs has been made in the estimate for acquiring marginal additional land in 1.930 km so as to provide minimum ROW of 18m throughout the stretch.

4. Formation

- 4.1 Provision of 12m formation throughout 16.485 km length has been allowed in the estimate.
- 4.2 Eccentric widening of road formation towards hill side is proposed.

5. Earth-work

- 5.1 Heavy compaction of earth with mandatory use of vibratory roller shall be specified in the bid documents and ensured during execution. It may also be ensured by PWD that the earthwork in embankment is carried out strictly as per clause 305 of Ministry's specification for road & bridge works, 4th revision. Density/ compaction requirements as per table 300-1 & 300-2 of above mentioned specification shall be met with fully.
- 5.2 The earth to be used for filling has been proposed to be utilized from cutting of the hill.

6. Pavement thickness and composition in carriageway (See enclosed cross-sections)

- 6.1 The stretch aggregating to 8.661 km (16.485 km – 7.824 km) where widening to 2 lane has been proposed with following crust composition (existing 3.75m C/w width having crust of 375mm):

Items	Proposed by PWD	Allowed by Ministry
GSB	250mm	250mm
WMM	125 mm	125mm

Over 7m carriageway, 200mm WMM, 60 mm DBM & 40mm BC has been provided.

- 6.2 Realigned stretches aggregating to 7.824 km, where new crust with following composition has been proposed:

Items	Proposed by PWD	Allowed by Ministry
GSB	250mm	250mm
WMM	325 mm	325mm
DBM	-	60mm
BC	-	40mm
BM	75mm	-
SDBC	25mm	-

- 6.3 Extra provision of 5% as proposed by State PWD, has been allowed in the estimate to enable extra width on curves.

7. Methodology of construction of pavement

- 7.1 200 mm WMM in 2 layers as strengthening course (in widening stretches) be provided in such a manner so that proper camber of 2.5% slope shall be achieved in first 100 mm layer of WMM; which shall be provided after scrapping existing PC & SC layer.
- 7.2 The GSB and WMM layers shall be properly compacted using vibratory rollers of appropriate specifications. This will be incorporated in the contract as an essential requirement.
- 7.3 The tack and prime coats shall be provided with bitumen emulsion, complying with the requirements of clause No. 503 and 502 of Ministry's specifications for road & bridge works, 4th revision, respectively. Further, the prime coat shall be provided @1 kg/ sqm, instead of 0.6 kg/ sqm, keeping in view the high rainfall in the region.
- 7.4 WMM finished with Surface Dressing shall be overlaid by 60mm DBM & 40mm BC, instead 50mm BM and 25mm SDBC (proposed by State PWD), which has been deleted. DBM + BC has been allowed in view of high rainfall area.
- 7.5 It shall be ensured by State PWD that the earthen shoulders are constructed simultaneously with the strengthening layers, as per the guidelines of the Ministry contained in circular No. RW/NH-33054/20/88-DII dated 10.05.89.

8. Shoulders

- 8.1 The shoulders of 1.9 m width on valley side and 1.6 m on hill side has been provided with the following crust:-

Item	As proposed by PWD	As modified in Ministry
GSB	150 mm	-
WMM	100 mm	-
GSBC (Locally available material)	-	510 mm
WBM Gr. II	-	75 mm
WBM Gr. III	-	75 mm
Surface dressing	Proposed	Allowed as proposed

The earthen shoulder width of 30 cm has been left on hill side so that the layers of crust in shoulders is not exposed to earthen drains

9. Culverts

- 9.1 The provision of extension of 65 slab culverts (24 having 1m span, 22 having 2m span, 18 having 3m span and 1 having 4m span) from 10 m to 12 m has been allowed in the estimate.
- 9.2 Provision has also been allowed in the estimate for construction of 7 new slab culverts having 2m span at km 40.446, 42.670, 43.010, 43.366, 44.327, 50.748 & 51.240 km due to realignment of road for improvement of horizontal curves and gradient correction. The working drawing of culverts shall be approved by the Chief Engineer, PWD keeping in view the guidelines vide IRC:SP:13, 2004.

10. Bridge at km 44.011

- 10.1.1 PWD has proposed to construct a single span bridge of 14 m span with 12 m width without footpath with open foundation over river Nampong. CE(EZ), PWD, satisfy itself about the detailed design of the foundation, sub structure and super structure of the bridge for 12m width as per relevant IRC codes and ensure the safety and adequacy of the structure including sub structure and foundation before work is put to tender.
- 10.1.2 This bridge is proposed to be constructed at the existing steel girder/ bridge site. Provision has been kept in the estimate for providing temporary diversion/subway during construction period. The same has been allowed.

11. Other provisions

- 11.1 The provision of centreline & edge line marking, signboards, km stones as made in the estimate has been retained. These marking may be provided as per IRC: 35, 1997. The work of road marking with stipulated paint (Thermoplastic) shall be done as per Cl. 803 of Ministry's latest specifications.
- 11.2 The provision of retaining wall with height varying from 3 to 5 m in an aggregating length of 370m, Breast wall with 2 m ht in a length of 254 m & toe wall having height of 2 m in a length of 120m has been allowed as proposed. This shall be provided as per relevant IRC codes.
- 11.3 Provision of boulder apron to protect abutments & approach has been made. While providing stone pitching, it may be ensured that no stone be allowed weighing less than 40 kg as per clause 5.3.5.1 of IRC:89, 1997. The quantities of boulder in wire crated apron key may be reviewed in view of clause 5.3.7.1 of IRC : 89-1997.
- 11.4 Provision of longitudinal earthen drain throughout the stretch has been made with average cross section area of 0.4 sqm. The same has been retained.
- 11.5 Provision of parapet wall at the location of retaining wall has been allowed.
- 11.6 For safety of road user, provision of hollow concrete pipe with reflectors on both sides, having outer dia of 30 cm & length of 75 mm with 45 cm above the road surface, with staggered placement of 5 m on both sides of road (200 number/ km) has been added.
- 11.7 A detailed provision of Rs.10 lakhs has been made for shifting of HT/ LT power lines, which has been retained.

12. Rates & Leads

- 12.1 The estimate is based on rates quoted by M/s Valecha Engineering Ltd. except for Shifting of Electrical Power lines as per rates of Department of Power and Lump Sum provision has been made for acquisition of land.

13. Cost of work

In the light of above comments, the estimated cost works out to Rs.4893.61 lakh, including 9% agency charges.

14. General observations

- 14.1 The contractor shall possess or undertake to procure and deploy all machinery required for the work. The list of plant and equipment shall be prepared on the basis of scope of work and enclosed with the bid documents and the same shall be enforced during the execution. It must be ensured that the work is carried out in mechanized manner using appropriate equipment.
- 14.2 Collection of material on the roadside, if any, should be commensurate with the physical progress of work, so as to avoid any hindrance to traffic. It must be ensured that contractor arranges for separate land for storage of road construction material and machinery and these shall not be allowed to be stacked on the roadside.
- 14.3 Bitumen shall be heated in boilers and heating in drums on open fire shall not be permitted in any case. Spraying of bitumen shall be done only with the mechanical sprayers and premixing of bitumen and stone aggregates should be done only in proper mechanical mixer / hot mix plant. The manufacture of WMM will be carried out in pug mill.
- 14.4 In conformity to this Ministry's circular No.RW/NHIII/Coord/32/84 dated 19.5.84, no work beyond the scope of the sanctioned estimate leading either to increase in the scope of the work or change in specifications should be undertaken without obtaining prior written approval of the Ministry.
- 14.5 Neither the work nor any item of work shall be spilt into small parts for awarding the work to more than one Contractor, except that specialized items such as road marking and signage could be executed separately. In case any splitting is essential, over and above as mentioned above, due to the specific prevailing conditions, it should be done only after prior approval of this Ministry. In this regard instructions issued in the Ministry's letter No. NHIII/P/75/78 dated 4.8.84 refers
- 14.6 The work shall be executed as per Ministry's "Specifications for Road and Bridge Works (Fourth Revision-2001)" and instructions issued by this Ministry from time to time.
- 14.7 Various measures will be taken to ensure quality of works in accordance with the "Hand Book of Quality Control for construction of Roads & Runways (Second Revision) – IRC: SP:11-1988" and the instructions contained in Ministry's letter No.NHIII/P/1/83 dated 19.4.84. Permanent record of the tests carried out shall be maintained.
- 14.8 The grade of bitumen to be used for the work shall be as per guidelines/ instructions issued vide Ministry's circulars No RW/NH-33044/3/98-(S&R) dated 04.11.99 and RW/NH-35074/7/2001-S&R(R) dated 3.4.2001.
- 14.9 During execution of the work, traffic management shall be done in accordance with the guidelines contained in Ministry's Letter No.RW/NH-11060/1/1998-D.O.1 dated 7.10.87 and IRC: SP:55-2001 "Guidelines on Safety in Construction Zone".
- 14.10 The display boards giving details of the project shall be provided as per guidelines issued vide Ministry's Letter No.RW/NH-33044/10/2000-S&R (R) dated 12.8.2002.
- 14.11 Central Government machinery if available in the area shall be used for the work as spelt out in this Ministry's Letter No.RW-14(1)/83-RMP dated 7.6.88. In case of non-availability of the Central Government machinery in the area, the work will be allotted to such contractors only who possess the required machinery or produces proof of procuring or hiring the same to the satisfaction of the Chief Engineer.

14.12 It may be ensured that the site is free from any encumbrances before taking up the work.

15. **Targets for the work**

The following **cumulative** physical and financial targets should be achieved depending upon the availability of funds:

Year	Physical phasing (%)	Financial phasing (Rs. in lakh)
2009-10	10	500.00
2010-11	60	2500.00
2011-13	100	4893.61



(W. Blah)

**Executive Engineer
For Director General (Road Development)**

RE-ALIGNMENT OF ROAD DUE TO CURVES AND GRADIENT CORRECTION					
Chainage	40.100	to	40.281	Km =	181.00 mtr.
Chainage	40.330	to	41.010	Km =	680.00 mtr.
Chainage	41.120	to	41.200	Km =	80.00 mtr.
Chainage	41.700	to	42.640	Km =	940.00 mtr.
Chainage	43.300	to	43.400	Km =	100.00 mtr.
Chainage	43.840	to	43.940	Km =	100.00 mtr.
Chainage	44.287	to	44.381	Km =	94.00 mtr.
Chainage	44.721	to	44.851	Km =	130.00 mtr.
Chainage	45.090	to	45.164	Km =	74.00 mtr.
Chainage	46.198	to	46.516	Km =	318.00 mtr.
Chainage	46.525	to	46.616	Km =	91.00 mtr.
Chainage	46.695	to	46.815	Km =	120.00 mtr.
Chainage	47.189	to	47.284	Km =	95.00 mtr.
Chainage	47.325	to	47.440	Km =	115.00 mtr.
Chainage	47.514	to	47.880	Km =	366.00 mtr.
Chainage	47.889	to	48.000	Km =	111.00 mtr.
Chainage	48.065	to	48.162	Km =	97.00 mtr.
Chainage	48.176	to	48.225	Km =	49.00 mtr.
Chainage	48.253	to	48.297	Km =	44.00 mtr.
Chainage	48.365	to	48.483	Km =	118.00 mtr.
Chainage	48.618	to	48.716	Km =	98.00 mtr.
Chainage	48.724	to	48.788	Km =	64.00 mtr.
Chainage	48.808	to	48.897	Km =	89.00 mtr.
Chainage	49.046	to	49.191	Km =	145.00 mtr.
Chainage	49.711	to	49.801	Km =	90.00 mtr.
Chainage	50.029	to	50.320	Km =	291.00 mtr.
Chainage	50.428	to	50.758	Km =	330.00 mtr.
Chainage	50.851	to	51.000	Km =	149.00 mtr.
Chainage	51.061	to	51.123	Km =	62.00 mtr.
Chainage	51.260	to	51.337	Km =	77.00 mtr.
Chainage	52.025	to	52.225	Km =	200.00 mtr.
Chainage	52.322	to	52.480	Km =	158.00 mtr.
Chainage	52.482	to	52.865	Km =	383.00 mtr.
Chainage	52.908	to	52.986	Km =	78.00 mtr.
Chainage	53.060	to	53.160	Km =	100.00 mtr.
Chainage	53.173	to	53.311	Km =	138.00 mtr.
Chainage	53.502	to	53.619	Km =	117.00 mtr.
Chainage	53.677	to	53.920	Km =	243.00 mtr.
Chainage	54.020	to	54.101	Km =	81.00 mtr.
Chainage	54.257	to	54.540	Km =	283.00 mtr.
Chainage	54.604	to	54.726	Km =	122.00 mtr.
Chainage	54.877	to	54.977	Km =	100.00 mtr.
Chainage	55.202	to	55.304	Km =	102.00 mtr.
Chainage	55.357	to	55.387	Km =	30.00 mtr.
Chainage	55.468	to	55.550	Km =	82.00 mtr.
Chainage	55.660	to	55.702	Km =	42.00 mtr.
Chainage	55.710	to	55.751	Km =	41.00 mtr.
Chainage	55.832	to	55.960	Km =	128.00 mtr.
Chainage	56.317	to	56.415	Km =	98.00 mtr.

Total 7824.00 mtr.