



GOVERNMENT OF INDIA
MINISTRY OF ROAD TRANSPORT & HIGHWAYS

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

NH-12013/25/2009/Ar.P/SARDP -NE/P-9

New Delhi, 2nd December 2009

To,

The Commissioner, PWD
Government of Arunachal Pradesh,
Itanagar-791111

Sub: Strengthening of NH 37 from Shantipur to Meka (Length = 19.50 km) in Arunachal Pradesh, under Arunachal Pradesh Package of Roads and Highway of SARDP-NE.

Sir,

Reference is invited to your letter No. SPWD/NH/2009-10/Camp:1 dated 13.07.2009 forwarding therewith DPR and cost estimate amounting to Rs. 52.75 crore for the proposal mentioned above.

2. The DPR and the cost estimate of the work mentioned above has been examined in the Ministry and modified to Rs. 42.75 crore based on the comments contained in the enclosed technical note.

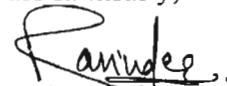
3. 'In principle' approval to the modified proposal / estimate amounting to Rs. 42.75 crore is hereby accorded. The Bidding document for the work may be prepared in accordance with the bidding document and procedure approved by the Ministry, for SARDP-NE works in Assam, vide letter No. NH-12013/ 69/ 2006/ AS/ NH-10 dated 26th July, 2006 and dated 12th October, 2006 (Copy enclosed).

4. The invitation of bids shall be widely publicized as per Ministry's guidelines for works costing more than Rs 5 crore each, contained in circular No. RW/NH-11024/3/99-US/D-I dated 9.3.2000. It may also be ensured that the bids be allowed to be submitted simultaneously at Itanagar and in the Ministry (Room No. 242) to ensure wider participation of the bidders. After successful bidding, estimate based on tender rates of lowest bidder may be submitted to the Ministry for consideration and sanction.

5. Copy of BOQ is enclosed

enclo: as stated above.

Yours faithfully,


(Ravinder)

Executive Engineer

For Director General (Road Development) and Special Secretary

Copy forwarded to:

- (i) Chief Engineer, NH, PWD, Arunachal Pradesh for information and necessary action,
- (ii) Regional Officer, Itanagar

Government of India
Ministry of Road Transport and Highways

TECHNICAL NOTE

NH-12013/25/2009/Ar.P/SARDP-NE/P-9

New Delhi, 2nd December, 2009

1.	Name of work	Strengthening of NH 37 from Shantipur to Meka (Length = 19.50 km) in Arunachal Pradesh, under Arunachal Pradesh Package of Roads and Highway of SARDP-NE. (Job No. SARDP-NE/NH 37Extn/Ar.P/PWD/2009-10/)	
2.	State	ARUNACHAL PRADESH	
3.	NH	37	
4.	Estimated cost (Rs. in lakh)	As furnished by the State PWD 5275.00	As approved by Ministry 4295.00
5.	Length (km)	19.50	19.50
6.	Rate / km (Rs. lakh)	270.51	220.26
7.	Reference	Letter No. SPWD/NH/2009-10/Camp:1 dated 13.07.2009, from the Commissioner (PWD), Govt. of Arunachal Pradesh, Itanagar.	

COMMENTS

1. Scope of work

- (i) Strengthening of existing 2-lane road from Shantipur to Meka on NH-37 along with 1.5m wide Hard shoulders.
- (ii) Construction of 9Nos. new double rows HP culverts and replacement of 14Nos. slab culverts with double row HP culverts, in replacement of existing weak and inadequate culverts;
- (iii) Improvement of 2 Nos. junctions with NH-52;
- (iv) Centre line marking, road sign boards and km stones,

2. Alignment

2.1 The alignment is reported to be passing through plain and partial rolling terrain. The proposed alignment passes along the existing alignment and geometric improvement has been proposed where necessary. The proposed gradient of the road is fairly flat, conforming to NH standards for plain terrain.

3. Formation

- 3.1 Provision of 12m formation width throughout from Shantipur to Meka has been allowed in the estimate.
- 3.2 The provision for earthwork in embankment has been restricted to 3.75km, where raising/realignment is required as the existing gradient of the road conform to NH standards.
- 3.2 In order to achieve heavy compaction of earth, the mandatory use of vibratory roller shall be specified in the bid documents. It may 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.

4. Pavement thickness and composition

4.1 Strengthening portion (length = 15.75km):

The carriageway of 7.00m wide has been allowed as proposed. Provision of 1.50m wide hard shoulders and 1.00m earthen shoulder has been allowed as against 2.50m wide earthen shoulders. The following crust composition shall be provided:

Items	Proposed by PWD	Allowed by Ministry
GSB	200mm	100mm (as leveling course over existing crust)
WMM	250mm	250mm
DBM	90mm	60mm
BC	40mm	40mm
Hard shoulders	-	150mm thick in 1.50m width on both sides

4.2 Raising portion (length = 3.75km):

The carriageway of 7.00m wide has been allowed as proposed. Provision of 1.50m wide hard shoulders and 1.00m earthen shoulder has been allowed as against 2.50m wide earthen shoulders. The following crust composition shall be provided:

Items	Proposed by PWD	Allowed by Ministry
GSB	200mm	250mm
WMM	250mm	250mm
DBM	90mm	60mm
BC	40mm	40mm
Hard shoulders	-	150mm thick in 1.50m width on both sides

5. Modalities of execution:

- 5.1 The bituminous surface over the existing road shall be removed completely and the existing pavement shall be rolled using vibratory roller to proper camber & grade. Assuming, for the purpose of design 250mm thickness of the existing pavement after removal of bituminous layer and rolling and treating this at par with GSB.
- 5.2 Over the 7.00m wide crust built as above, 100mm GSB (as leveling course), 250mm WMM in 2 layers followed by priming and surface dressing shall be provided.
- 5.3 Provide 60mm DBM and 40mm BC.
- 5.4 The 2.50m wide shoulders on either side of pavement shall be made of non-plastic earth with 150mm (compacted) topping of quarry base/river bed materials in 1.50m width.
- 5.5 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 0.5 kg/ sqm, keeping in view the high rainfall region.

5.6 Modified bitumen shall be used as binder for BC course. Since CRMB satisfies the requirement based on climatic condition of the area as per the guidelines contained in IRC:SP-53, the same may be used as binder for BC. The CRMB55 shall be preferably procured from refinery source in accordance with IRC: 53: 2002 & Ministry's circular issued from time to time. Performance of BC layer will be watched twice a year and reported to the Ministry till its life cycle.

5.7 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.

6. Culverts

6.1 The provision for re-construction of 14 Nos. slab culverts has been modified with double row NP4 Hume pipe culverts.

6.2 Construction of 9 Nos. new double row NP4 Hume pipe culverts has been allowed in stretches where raising has been allowed.

6.3 The working drawings of the culverts shall be approved by the Chief Engineer (NH), PWD keeping in view of guidelines vide IRC: SP:13, 2004. The salvage value of existing pipe may be credited into the savings of the estimate.

7. Junctions

The improvement of 2 major junctions with NH-52 has been incorporated in the estimate. The type and design of the junction shall confirm with Drawing No.24 of the Ministry's standard drawings for Intersections.

8. Other provisions

8.1 Provision for masonry covered drain has been deleted from the scope of the estimate, against this, unlined drains has been allowed at the edge of ROW in the entire stretch.

8.2 The provisions for centerline line marking, road signboards, km stone, railings and footpath have been allowed. The provision of edge marking has been deleted. The road markings 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.

8.3 Improvement of 27 Nos. cross roads, meeting with project road in a length of 15m from shoulders as proposed by the PWD has been allowed.

8.4 The provision for in-house preparation of DPR has been restricted to Rs.35,000/- per km. State PWD may engage survey party through competitive bidding and may also outsource other activities based on local tenders.

8.5 The provision for entrance gate, Police Chowki, bus terminal etc has been deleted from the scope of the estimate.

9. Rates & Leads

9.1 The estimate is based on SOR 2009 applicable for Road and Bridge Works in Arunachal Pradesh.

10. Cost of work

In the light of above comments, the estimated cost works out to Rs. 4295.00 lakh, including 9% agency charges.

11. General observations

- 11.1 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.
- 11.2 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.
- 11.3 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.
- 11.4 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.
- 11.5 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
- 11.6 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.
- 11.7 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.
- 11.8 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.
- 11.9 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".
- 11.10 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.
- 11.11 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.
- 11.12 It may be ensured that the site is free from any encumbrances before taking up the work.

12. **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	50.00
2010-11	60	2500.42
2011-12	100	4295.00


(Ravinder)

Executive Engineer
For Director General (Road Development) &SS