

BORDER ROADS ORGANISATION
Ministry of Defence
CHIEF ENGINEER PROJECT DANTAK

NAME OF WORK: **EXECUTION OF SURFACING WORK BETWEEN KM 0.00 TO KM 31.50 (PHASE-I) AND BETWEEN KM 31.50 TO KM 55.00 (PHASE-II) FOR PROVIDING AND LAYING OF WMM 75 MM (2 LAYERS) COMPACTED THICKNESS, DBM 50 MM COMPACTED THICKNESS AND BC 30 MM COMPACTED THICKNESS INCLUDING APPLICATION OF PRIME COAT,TACK COAT,ROLLING AND COMPACTION AS PER MORT&H SPECIFICATIONS AND ROAD MARKING WITH THERMOPLASTIC PAINT AS PER IRC:35 INCLUDING PROVIDING AND FIXING OF ROAD STUD AND DELINEATOR FOR CONSTRUCTION OF PANBANG-NGANGLAM ROAD UNDER 63 RCC/19 BRTF OF PROJECT DANTAK INSIDE BHUTAN UNDER JOB NO. H-2112/01**

Name of Contractor: _____

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(Signature of the Contractor)

(For Accepting Officer)

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May 2026

M/s _____

EXECUTION OF SURFACING WORK BETWEEN KM 0.00 TO KM 31.50 (PHASE-I) AND BETWEEN KM 31.50 TO KM 55.00 (PHASE-II) FOR PROVIDING AND LAYING OF WMM 75 MM (2 LAYERS) COMPACTED THICKNESS, DBM 50 MM COMPACTED THICKNESS AND BC 30 MM COMPACTED THICKNESS INCLUDING APPLICATION OF PRIME COAT, TACK COAT, ROLLING AND COMPACTION AS PER MORT&H SPECIFICATIONS AND ROAD MARKING WITH THERMOPLASTIC PAINT AS PER IRC:35 INCLUDING PROVIDING AND FIXING OF ROAD STUD AND DELINEATOR FOR CONSTRUCTION OF PANBANG-NGANGLAM ROAD UNDER 63 RCC/19 BRTF OF PROJECT DANTAK INSIDE BHUTAN UNDER JOB NO. H-2112/01

Dear Sir (s),

1. A set of tender documents for the above work is forwarded herewith. Please note that tender will be received by the Accepting Officer at the office of the Chief Engineer (P) Dantak, **Simtokha, Thimphu** or at **Transit Camp located at 1644 Pioneer Company, 19 BRTF, Jaigaon, West Bengal PIN-736182, Ph 9149553650/ 9877069433** up to **1730 hrs (BST)/1700 hrs (IST) on 08 Jun 2026** and **Technical Bid (Part-I) of the tender documents will be opened at 1600 hrs (BST)/1530 hrs (IST) on the 10 Jun 2026**. Tender received after the due date and time will not be considered.
2. Tenderers or their duly authorized representative who have submitted their tenders and who wish to be present at the time of opening of tenders may attend the office of Accepting officer **Chief Engineer (P) Dantak C/O 99 APO** at the above mentioned time.
3. Tender documents may also be downloaded from CPP Portal <http://eprocure.gov.in/epublish/app> and printout is to be taken on A4 size paper. It is advisable that downloaded tender document preferably to be printed through laser printer only. Submission of photocopy of tender is not permitted. **Earnest money**, Integrity Pact duly signed on each page by the bidder(s) and undertaking given at Page No. 22 of tender must be delivered to the Chief Engineer Project along with the T Bid and if **Earnest money** and integrity pact is not submitted along with the T Bid, same shall be rejected by the Accepting officer.
4. Tendering procedure shall be single stage-two bid System and tender documents shall be prepared in two parts as under :-

Part-I ('Technical Bid' – 'T' Bid)

Part-II ('Price/commercial' – 'Q' Bid)

(Signature of the Contractor)

(For Accepting Officer)

5. **Part-I ('Technical Bid' – 'T' Bid)**

5.1 (a) The tender to be submitted (physically) by the bidder will be comprised of following documents: -

- (i) Blank.
- (ii) Bid security declaration by un-enlisted contractor and enlisted contractors who have submitted/not submitted standing security deposit.
- (iii) Signed copy of all the Eligibility/Qualification documents required as per tender conditions given at Page No. 03 to Page No.10 of tender documents.
- (iv) Signed copy of Integrity Pact.
- (v) Signed copy of undertaking by tenderer given at Serial Page No. 22 of tender.

(b) Following documents will be deemed to be part of the contract during the time of acceptance of contract: -

- (i) Part-I Technical Bid of the tender document
- (ii) Notice Inviting Tender
- (iii) Special Conditions of Contract
- (iv) Particular/Technical Specifications including Drawings, if any
- (v) Any other Amendment/errata to tender document

5.2 **Technical evaluation criteria**

5.2.1 If contractor is not enlisted with BRO or enlisted with BRO but has not submitted Standing Security Deposit, he should have submitted Earnest money.

5.2.2 All the pages of T-Bid should have been duly signed by the bidder/authorized representative having valid Power of Attorney.

6. **Eligibility Criteria:-** (A) Tenderers shall meet the following eligibility criteria for qualifying in Technical bid:-

- (a) The tenderer should have working capital and/or credit facilities of at least 10% (**i.e. Rs 294.01 Lakh**) of the estimated cost of the work (Applicable only for non – enlisted Contractors).
- (b) Engineering Establishment: Firm should have employed following Engineers on regular establishment: -

<u>Estimated cost of Work</u>	<u>Nos of Engineers</u>
Between Rs. 25 Crores to Rs.50 Crores	Seven Civil Engineers (Graduate with minimum 2 years' experience and /or Diploma with 04 years experience)

6.1 **Experience:** -

Tenderer should have successfully completed or substantially completed with any Govt agencies/PSU/Municipal Corporation/local Govt bodies

three similar works costing not less than the amount equal to 40% of estimated cost of work (**i.e. 1176.04 Lakh**) or two similar works costing not less than the amount equal to 50% of estimated cost of work (**i.e. 1470.05 Lakh**) or one similar work costing not less than the amount equal to 80% of estimated cost of work (**i.e. 2352.08 Lakh**) in last seven & current financial years.

Similar works means- Surfacing works related to construction of road works.

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Notes: -

1. Substantially completed works means those works which are 90% completed on the date of submission (i.e. gross value of work done up to the last date of submission is 90% or more of the original contract price) and continuing satisfactorily.
2. Tenderer shall submit list of work executed in the past 7 years in their letter head duly signed by the proprietor/partner/director of the firm in the proforma contained in Clause 8 .1
3. Completion cost of works shall be brought to common base date of receipt of tender as per following formula: -

Completion cost X (1 +Period in days from date of completion to date of receipt of tender/365 days) X 0.10)

6.2 Available Bid Capacity (ABC)

6.2.1 ABC as per formula given here-in-after should be more than the estimated cost of work given in NIT (i.e. $ABC > \text{Rs. } 2940.10 \text{ Lakh}$). Tenderers shall calculate ABC and submit details duly signed on letter head.

Available Bid Capacity = $2.5 \times A \times N - B$

A.- Maximum value of all Civil Engineering works in any one year during the last 5 financial years (Updated to the current price level with enhancement factor as given below) supported with duly certified Balance Sheets/ Certificates from Chartered Accountant.

<u>Year</u>	<u>Multiplying factor</u>
Last first year	1.10
Last second year	1.20
Last third year	1.30
Last fourth year	1.40
Last fifth year	1.50

N- Number of years prescribed for completion of work for which the current bid is invited.

B- Value of the balance ongoing works to be executed in period N.

6.2.2 The tenderers shall indicate actual figures of completion cost of work and value of A without any enhancement as stated above.

6.2.3 The tenderer may be accorded an opportunity to clarify or modify his qualification documents, if necessary, with respect to any rectifiable defects through option of short fall in tender documents to be submitted by the bidder. The tenderer will respond in not more than 07 days of issuance of the clarification letter through shortfall option failing which his tender is liable to be rejected.

6.3 Vehicles, Equipments and Plants (VEP) :

6.3.1 Tenderer should own or have assured access (through hire/lease/purchase agreement/ other commercial means) to the requisite Equipment, Plants and vehicles in good working condition (complete usage life not more than 7 years except stone crusher) given hereunder: -

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(For Accepting Officer)

S/No	Particulars of Veh/Eqpt/Plant	Nos Reqd
(a)	Hot Mix Plant (Fully Automated) 20/30 TPH or higher capacity	01
(b)	WMM Plant	01
(c)	Tipper/Dumpers	15
(d)	Stone Crusher 20/30TPH or higher capacity	02
(e)	Static Road Roller (8-10 Ton)	02
(f)	Vibratory Tandem Road Roller (7 Ton)	02
(g)	Motor Grader	01
(h)	Paver Finisher Hydro-Static Sensor Type.	01
(j)	Self-propelled Bitumen Emulsion Pressure Distributor	01
(k)	Air Compressor 171-190 Cfm or equivalent	01
(l)	Mechanical Broomer	01
(m)	Water Truck	02
(n)	JCB	02
(o)	Total Station/Auto Level	01

6.3.2 Tenderer shall indicate source of requisite Equipment, Plants and Vehicles along with vintage required for execution of work in following format-

- (i) Item
- (ii) Year of Manufacture
- (iii) Source from where to be arranged (Owned/ lease etc.)
- (iv) Location presently deployed.
- (v) Based on known commitments, whether will be available for use in the proposed contract.
- (vi) Copy of documentary support of ownership/assured access to the satisfaction of the Accepting Officer.

Note :- Tenderer should own critical VEP as per specific requirement of the work as decided/specified by the Tender issuing authority in the tender.

6.4 Performance and other requirements:

- (a) There should not be poor/slow progress in running work. (If yes, submit details and reasons of delay to check that these are not attributable to him or am beyond his control.)
- (b) There are no serious defect observed in works which stand unrectified (If yes submit details and reasons).
- (c) There are no Cancelled/abandoned contracts in which Govt. unrealized recoveries exist (If yes submit details and reasons).
- (d) He/They have not been blacklisted by any Govt. Deptt (If yes submit details and reasons).
- (e) There are no any Govt. dues, outstanding against the firm (If yes submit details and reasons).
- (f) Tenderer should not be habitual litigant i.e. having more than 3 unsuccessful arbitration/court cases during last years in which his views/claims substantially rejected.

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(g) Proprietor/partners/directors of firm are not involved in antinational/social activities and should have neither been convicted nor should any proceedings be pending in court for such activities.

(h) Firm should have been considered capable of taking more load in work load return circulated by DGBR. In case the firm is not considered capable for taking more work load due to unsatisfactory performance in the running works, in the prevailing report circulated by DGBR their technical bid shall be rejected.

6.5 Disqualification

6.5.1 Even though the tenderers meet the above criteria, they are liable to be disqualified if they have made misleading or false information in bidding documents submitted.

7. JOINT VENTURE IN BRO WORKS (Except for EPC Tenders)

7.1 Two firms are permitted to bid for the tender based on Joint Venture agreement between them. Joint Venture (JV) shall not comprise more than two firms (called parties of JV). The format of agreement at Annexure 'I'. The JV shall be considered as un-enlisted contractor. The JV shall submit Earnest Money Deposit for all tenders and individual Security deposit as per instructions, in contract is awarded.

7.2. JV shall be allowed for the following works: -

- (a) Road work with estimated cost more than Rs.50 crore.
- (b) Bridge work and via duct with estimated cost more than Rs.20 crores.
- (c) Tunnel Works of any value.
- (d) Runway Work any value.
- (e) PEB structure works of any value
- (f) Solar Power works of any value
- (g) Works for specialist E/M services with estimated cost more than Rs. 20 crore.
- (h) Consultancy Work for Preparation of DPR for Bridges Tunnels & EPC roads with estimated Cost more than Rs.5 Crore.
- j) Works other than the types at (a) to (h) above with estimated cost more than Rs.50 crore

7.3. No JV shall be allowed for furniture works. No JV shall be allowed to participate if either or both the parties are banned/adversely remarked in WLR of BRO or debarred from tendering by any authority.

7.4. Foreign Companies shall not be permitted to participate in JV except in case of tunnel project. Security clearance of Foreign Companies having foreign citizenship Directors shall dealt with as prescribed under subsequent para.

7.5. (a) Indian Companies having Director (s) of foreign origin and Indian Companies having Director (s) of Indian origin but residing abroad / having foreign citizenship shall be permitted to participate in JV. However, security clearance in such cases shall be obtained by following procedure laid down by Ministry of Home Affairs vide their letter No
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11/20034/2013-1S II dt 30 Jun 2015 and amendment there if vide OM No 11/20034/2013-11 dt 09 Dec 2015. These letters, being classified, are not being shared. The case for security clearance shall be processed to HQ DGBR for taking up matter with concerned authorities.

(b) Case for security clearance shall be processed to HQ DGBR on PRIORITY after opening T-bid (Cover-1). Further processing of tender to open Finance Bid (Cover 2) shall not be held up awaiting receipt of security clearance. However, if the JV requiring security clearance of Director(s) becomes L1, the tender shall be accepted only on receipt of security clearance. For this, the Accepting officer will pursue the security clearance vigorously.

(c) For runway tenders, all other policies issued vide E-in-C's Branch letter No. A/37696/OSDPL/POL/ E2W (PPC) dt 15 May 2015 as amended vide their letter even No dt 14 Mar 2017 pertaining to experience, nature of works executed, requirement of tools. plants and machinery, financial turnover, Available Bid Capacity etc shall be followed.

- 7.6 A valid agreement shall exist between the parties of JV defining clearly the role, responsibility and scope of work of each party, percentage share of each party along with nomination of leader (lead Party) for the purpose of this work and a confirmation that the parties of the JV are jointly and severally responsible.
- 7.7 JV as a single unit or each party of the JV shall have Permanent Account Number (PAN) and GSTIN. However, if the contract is awarded to the JV, then PAN & GSTIN shall be obtained by the JV as single unit.
- 7.8 The JV shall have two parties. The lead party of the JV shall meet minimum 60% or the percentage of share in the JV (whichever is higher) of the qualifying criteria pertaining to (a) past experience of completed works, (b) Average Annual Turnover, (c) Bank Solvency/ Financially Sound for engagement and (d) Working Capital. Both the parties combined shall meet minimum 120% of the above qualifying criteria. The party other than the lead party shall meet minimum 30% of the above qualifying criteria.
- 7.9 Both the Parties of JV shall jointly possess the required T&P, machinery and engineering/ supervisory staff. T&P can be either on ownership basis or lease hold as stipulated in NIT/ tender documents and documentary proof of the same shall be submitted. Other qualification criteria shall be meet fully/ Jointly by both the parties of JV or as a single unit of JV.
- 7.10 In the Residual Bid Capacity (in the formula $2.5 \times A \times N - B$, where A= Maximum turnover in last five financial years, N= Period of completion of contracted (tendered) work (in years calculated till two decimal places) and B= Value of balance work in all Govt & Private works), in respect of a JV, values of A and B shall be the sum total of the respective figures of both the parties.
- 7.11 Similarly when a Firm/ Contractor working in JV applies for tender (s) in his own capacity (i.e. independently), the part value of A and B of his JV work (s) in proportion to his percentage share in JV shall also be considered against the tender applied in his own capacity and capacity and hence these details shall be submitted by the Firm/ Contractor in his T- bid.

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- 7.12 JV concluded upto the date of bid submission is permitted to apply. Copy of JV should be uploaded. The Department reserves the right to verify the particulars furnished by the applicant independently. If any information furnished by the applicant JV is found incorrect and / or misleading and/or false representation and/or deliberately suppressed information, at a later stage, the JV and both the parties shall be liable to be debarred from tendering/taking up of any work in BRO.
- 7.13 Party/parties will not be allowed to bid for the same tender in their independent capacity as well as under JV. Also, no party will be allowed to bid for the same tender under multiple JVs. In case of violation (party/parties bidding independently as well as under JV for the same tender, party/parties bidding for the same tender under multiple JVs), the bid of the party/parties concerned as well as the bid(s) of the related JV(s) shall not be opened (i.e. shall not be qualified in T bid Cover '1').
- 7.14 The lead party shall attend all progress review meetings and shall be answerable to all issues relating to the project.
- 7.15 For any of the defaults as under of the JV, administrative action shall be taken against both the parties of the JV: -
- (a) In case of non-submission of physical original documents of cost of tender, EMD-Barring from bidding for six months.
 - (b) Due to default in performance of contract etc.- Administrative actions as per existing instructions
- 7.16 Any unrealized recovery from JV shall be recovered proportionately from the parties in proportion to their percentage share in the JV. If it is not possible to recover proportionate share (partly/fully) from one party, it shall be recovered from other party.

8 List & format of eligibility documents to be attached alongwith Part-I of tender documents to prove eligibility: -

8.1 List of works completed/substantially completed in “last seven and current” financial years and ongoing works in following format: -

Name of work & CA No	Brief scope of work	Name & address of employer/client	Accepted contract amount	Date of commencement of work	Original date of completion	Extended date of completion	Actual date of completion /present progress	Cost of completed work	Cost of balance Work	Remarks explaining reasons of delay if any

Note : Works proving eligibility criteria of experience shall be highlighted and performance certificate from client in respect of these works shall be submitted.

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(For Accepting Officer)

8.2 Available Bid Capacity:

For -A :- Balance sheets/certificates from Chartered Accountant indicating annual turnover of Civil Engineering works constructed in last 5 years.

For-B: - Contractors shall submit details of ongoing works as per format stated in Clause 8.1 of above.

Tenderers shall calculate ABC and submit details duly signed.

8.3 Equipments, Plants and Vehicles:

(a) Tenderer shall indicate source of requisite Equipment, Plants and vehicles in good working condition required for execution of work in following format: -

S/No	Item Item	Year of manufacture	Source from where to be arranged (Owned/Leased)	Location presently deployed	Whether will be available for use in the present contract

(b) Copy of documentary support of ownership/assured access to the satisfaction of the Accepting officer is required to be enclosed.

8.4. Integrity Pact (IP) (applicable for tender with estimated cost of **Rs. 5.00 Crore and above for all contract works and in tender for procurement services, stores, equipment & plants with estimated cost of **Rs. 1.00 Crore** and above).**

IP duly signed by Accepting Officer/ authorized officer has been uploaded along with this tender as **Annx-II** same shall be signed by bidder(s) on each page and scanned copy shall be submitted as part of Technical bid (cover-1) and original IP duly signed on each page shall be forwarded by post along with tender fee and EMD (if applicable). IP will be an integral part of the Contract and both parties are bound by its provision.

8.5 Performance and other requirements.

8.5.1 Tenderer shall submit undertaking that:-

(a) There is no poor/slow progress in running works. (If yes, he will submit details and reasons of delay to check that these are not attributable to him or are beyond his control).

(b) There are no serious defects observed in works which stand un-rectified (If yes, he will submit details and reasons).

(c) There are no cancelled/abandoned contracts in which Govt. unrealized recoveries exist (If yes, he will submit details and reasons).

(d) He/They have not been blacklisted by any Govt. Deptt (If yes, he will submit details and reasons).

(e) There are no any Govt. dues outstanding against the firm (If yes, he will submit details and reasons).

(f) Proprietor/partners/directors of firm are not involved in anti-national/social activities and have neither been convicted nor are any proceedings pending in court for such activities (If yes, he will submit details).

8.5.2 Tenderer shall submit information of all arbitration/court cases decided during last five & current financial years and also presently in progress as per following format: -

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(For Accepting Officer)

- (a) Name and address of employer.
- (b) Cause of dispute.
- (c) Amount involved.
- (d) Brief of Court judgment/arbitration award (if published) otherwise present progress.

8.6 **Working capital:** -

Copy of Latest balance sheet/income tax return for working capital and/or Banker's certificate for credit facilities. If necessary, Department will make inquiries with the tenderer's Banker.

8.7 Constitution of firm along with copy of partnership deed (in case of partnership firms) and memorandum of articles and association (in case of limited companies).

8.8 In case of un-enlisted firms, Copies of Passport of proprietor/partners/directors (if available). Present address & photograph for verification of character and antecedents of proprietor/partners/directors from police authorities.

8.9 Copies of PAN Card of proprietor/partners/directors.

8.10 Lowest bidder if un-enlisted firm in BRO (if his offer is decided for acceptance) will be required to fill enlistment form for provisional enlistment.

Notes:-

- 1 Documents as listed at clause 8.6 to 8.8 above are exempted for tenderers enlisted with BRO in any class.
- 2 Affidavits shall be submitted on non-judicial stamp papers of appropriate values duly attested by the Magistrate/Notary Public.
- 3 Photocopies of documents shall be attested by Gazetted officer/Public notary and also self-attested.
- 4 **The bidder should meet all the technical evaluation criteria indicated in the bid documents in order that the bid is considered to be technically responsive and the bidder qualifying to have its Financial Bid opened.**

9. **Part-II ('Price/commercial' – 'Q' Bid)**

9.1 Part-II 'Price/commercial Bid' – 'Q' Bid) shall comprise of the following: -

- (i) Schedule- 'A' Notes.
- (ii) Schedule 'A' (to be quoted by Bidder)
- (iii) Schedules 'B', 'C', & 'D'.
- (iv) Tender page

10 **Q bid evaluation**

(i) Arithmetical corrections shall be made as per General condition of contracts **6(A)(A) of IAFW-2249.**

(ii) Commercial bids will be reviewed to ensure that the figures indicated therein are consistent with the details of the corresponding Technical bids.

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(iii) For the purpose of evaluation “cost” shall be inclusive of all taxes and duties.

(iv) Cost of all items of Schedule A shall be totaled and the bidder who has quoted lowest total cost in Schedule A (L-1) shall be considered successful bidder and all other bidders shall be considered unsuccessful. Offer of successful bidder (L-1) shall only be considered for acceptance. If L-1 backs out, re-tendering shall be resorted in a fair and transparent manner. Completion period as indicated in Tender Document have been accepted.

10.1 The **Chief Engineer Project Dantak** will be Accepting Officer here-in-after referred to as such for the purpose of this contract.

10.2 If tenderers desire that any condition or stipulation given in the tender documents is to be modified or deleted, they may submit their comments/suggestions before last working date of clarification as shown in critical date details in subject tender ID for consideration by the Deptt for issue of corrigendum/amendments to tender documents. If Deptt considers comments/ suggestions suitable, corrigendum/amendments to tender documents shall be issued and also uploaded on E- tendering Portal. If Deptt does not consider comments/suggestion suitable, corrigendum/amendments to tender documents shall not be issued/uploaded on E- tendering Portal and tenderers shall quote strictly complying with the various provisions given in the tender documents. Any tender who stipulates any alterations to any of the conditions/provisions laid down in tender documents (including corrigendum/amendments) or which proposes any other conditions of any description whatsoever is liable to be rejected.

10.3 The tenderers are advised to visit the work site to acquaint themselves of working and site conditions, before submitting their tender. The submission of tender by a person implies that he has read this tender forwarding letter, the conditions of contract and has made himself aware of the scope and specifications of the work to be done and of the conditions and other factors, site conditions, taxes & levies prevailing etc which may affect the quotation and execution of the work.

10.4 Tenderer must be very careful to deliver a Bonafide tender, failing which the tenders are liable to be rejected. Tenderers are, therefore, advised to ensure that their tender must satisfy each and every condition laid down in the tender documents.

10.5 Your attention is drawn to the Indian Official Secret Act-1923 (**XIX** of 1923) as amended up to date particularly section 5 thereof.

11 **Earnest Money** :-

(a) Earnest money is not required to be attached with tender by the enlisted contractor with BRO (term “enlisted contractor” used in tender documents means “enlisted contractor with BRO”) who have submitted standing security but same is required from un-enlisted contractor/enlisted contractors with BRO, who have not submitted standing security deposit.

(b) Un-enlisted contractors with BRO/enlisted contractors with BRO, who have not submitted standing security deposit will submit the tender accompanied with Earnest Money amounting to **Rs 15,00,000.00 (Rupees Fifteen Lakh only)** in the form of Deposit at call receipt/Term deposit receipt/Special Term deposit receipt issued in favour of Chief Engineer (P) Dantak C/O 99 APO by Nationalized/ Scheduled Bank. Tender not accompanied with earnest money will not be considered for acceptance. The amount of this receipt should be basic amount and not their maturity value. Any deposit lying with the department in any form against any other tender and/or contract shall not be considered for adjustment as the earnest money in the form as indicated here-in-before or accompanied with any letter/communication containing any request for adjustment of any other deposit as earnest money shall be treated as non-Bonafide tender.

(c) Earnest money shall be returned to unsuccessful bidder (other than L-1) after opening of price bids and to successful(L-1) bidder after receipt of security deposit.

(d) However, MSME registered firm should be exempted for submission of EMD.

(Signature of the Contractor)

(For Accepting Officer)

12. **Performance security** :-

12.1 Within 28 days of receipt of the letter of acceptance, the successful contractor shall deliver to the accepting Officer a Performance Security for an amount equivalent to **5% (Amended vide HQ DGBR letter No. 24228/DGBR/Policy Instr/2023/32/E8 dated 28 Mar 2023)** of the Contract sum as laid down under condition 19 of IAFW-2249 / Condition 14 A of IAFW -1815 Z (General Conditions of Contract).

12.2 Failure of the successful contractor to comply with the requirement of sub clause 12.1 shall constitute sufficient grounds for cancellation of award of work and forfeiture of the Earnest Money. In case of BRO enlisted contractor amount equal to the Earnest Money stipulated in the Notice Inviting Tender, shall be notified to the tenderer for depositing the amount through MRO, issue of tender to such tenderers shall remain suspended till the aforesaid amount equal to the earnest Money is deposited in Government Treasury.

12.3 In the event of contract being cancelled, under Condition 52, 53 & 54 of IAFW-2249 or under conditions 26, 27 & 28 of IAFW -1815Z General Conditions of Contracts the Performance Security & retention money as per last RAR shall be forfeited. ALL T&P and material of contractor lying at site shall be confiscated by the Government and shall be absolutely at the disposal of the President of India and no compensation whatsoever shall be allowed by department.

12.4 Form for Bank Guarantee Bond against Performance Security Deposit shall be as per **Annx-III**.

12.5 The period of validity of the Bank Guarantee Bond against Performance Security shall be upto and including the scheduled date of expiry of Defects Liability Period.

13. The Accepting Officer reserves the right to accept a tender submitted by a Public Undertaking, giving a purchase preference over other tender(s) as are admissible under the Government Policy. No claim for any compensation or otherwise shall be admissible to such tenders whose tenders may be rejected on account of the said policy.

14. **The tender shall remain open for acceptance for a period of 120 days from bid submission end date.**

15. On acceptance of tender, the name of authorized representative (s) of the contractors who would be responsible for taking instructions from Engineer-in-Charge or its authorized representative shall be intimated by the contractor within 7 days of issue of Acceptance letters.

16. **Revision/Modification of quoted Price**

(a) In case the tenderer has to revise /modify /withdraw his quoted rates / offer after it is uploaded in e-tendering portal he may do so on before bid submission end date & time in in e-tendering portal only. Any revision/ modification in offer / withdrawal of offer in the form of an open letter after bid submission end date & time and the same shall be considered as revocation of offer and shall not be taken into account, while considering his originally quoted offer.

17. **Revocation of offer**

In the event of lowest tenderer revokes his offer or revise his rates upward (which will be treated as revocation of offer), after bid submission end date and before expiry of original validity period stipulated in tender documents, the earnest money deposited by him shall be forfeited. In case of BRO enlisted contractors, the amount equal to the earnest money stipulated in the Notice Tender, shall be notified to the tenderer for depositing the amount through MRO, failing which the amount shall be recovered from any payment due to such contractor or shall be adjusted from the Standing Security Deposit. In addition, L-1 tenderer revoking offer and his related firms shall not be issued the tender in second or subsequent calls of subject work.

(Signature of the Contractor)

(For Accepting Officer)

18. **Tenderers are requested to quote rates both in figure and words against each item of Schedule 'A' and extend the amount in Schedule 'A'.**

19. **All the tender documents (Part-I & Part-II) shall be submitted together at one stage but placed in separate sealed envelopes (supplied by the tenderer) duly marked Part I and Part II as stated above.** All the two envelopes containing Part I and Part II duly sealed shall be put in one large size envelope (cloth lined, outer cover to be supplied by the tenderer). This outer cover shall indicate name of work, name of tenderer, last date and time of receipt of tender prominently.

20. **The tender documents (Part-I and Part-II) should be submitted/should be dropped in Tender Box kept at the office of Accepting Officer HQ CE (P) Dantak, C/O 99 APO** or at OIC liaison cell located at Supervisor Mess, 19 BRTF, Jaigaon, West Bengal PIN-736182, Ph **9149553650/9877069433 before the date and time fixed for receipt of tender.** The tender received after due date and time shall not be considered for acceptance. BRO shall not be responsible for any postal or other delay and shall not take care to ensure the submission of tender at place and time fixed for receipt of tender.

21. Tender shall be opened immediately after time indicated in Para 1 herein before in the presence of the tenderers or their authorized representative whoever wish to be present. Part-I only shall be opened first on **___May 2026 at 1530 hrs (BST)**. Part II (Priced bid) shall not be opened. Part II (Price bid) envelopes shall be signed by the tender opening officers and some bidders present and shall be put in separate large envelope and sealed by the opening officers. Large envelop shall also be signed by the tender opening officers and some bidders present. This large size envelope containing unopened price bids shall be kept in safe custody of the officer nominated by the Accepting officer for this purpose. Part I (Technical Bid) will be evaluated as per technical evaluation criteria given in the tender documents. Unqualified tenders will also be informed and their Part II (Price Bid) shall be returned unopened separately. The date of opening of price bids will be intimated separately to the qualified firms and the Part II (Priced Bid as sealed in large size envelope) will be opened on the scheduled date in the presence of such tenderers who choose to be present and the amounts quoted by the tenderers shall be read out by the opening officer(s) to the tenderers.

Yours Faithfully

(Signature of the Contractor)

For Accepting Officer

Enclosures: Tender Documents

(Signature of the Contractor)

(For Accepting Officer)

ANNEXURE -II

To be signed by the bidder and same signatory competent/authorized to sign the relevant Contract on behalf of BRO

INTEGRITY PACT

This Integrity Pact is made aton this day of..... May 2026

BETWEEN

President of India represented through **Chief Engineer Border Roads Organisation, Ministry of Defence, CE (P) Dantak PIN : 931708, C/O 99 APO.**

'Principal/Owner', which expression shall unless repugnant to the meaning or context hereof include its successors and permitted assigns)

AND

.....

.....

.....

(Name and Address of the Bidder/Contractor)

(Hereinafter referred to as the through

(Details of duly authorized signatory)

"Bidder/Contractor" and which expression shall unless repugnant to the meaning or context hereof include its successors and permitted assigns)

Preamble

WHEREAS the Principal / Owner has floated the Tender (NIT NO. **CE (P) DTK/04 OF 2026-27** (hereinafter referred to as "Tender/Bid") and intends to award, under laid down, organizational procedure, contract for

.....
NAME OF WORK: - EXECUTION OF SURFACING WORK BETWEEN KM 0.00 TO KM 31.50 (PHASE-I) AND BETWEEN KM 31.50 TO KM 55.00 (PHASE-II) FOR PROVIDING AND LAYING OF WMM 75 MM (2 LAYERS) COMPACTED THICKNESS, DBM 50 MM COMPACTED THICKNESS AND BC 30 MM COMPACTED THICKNESS INCLUDING APPLICATION OF PRIME COAT,TACK COAT, ROLLING AND COMPACTION AS PER MORT&H SPECIFICATIONS AND ROAD MARKING WITH THERMOPLASTIC PAINT AS PER IRC:35 INCLUDING PROVIDING AND FIXING OF ROAD STUD AND DELINEATOR FOR CONSTRUCTION OF PANBANG-NGANGLAM ROAD UNDER 63 RCC/19 BRTF OF PROJECT DANTAK INSIDE BHUTAN UNDER JOB NO. H-2112/01

hereinafter referred to as the "Contract"._AND WHEREAS the Principal)/Owner values full compliance with all relevant laws of the land, rules, regulations. Economic use of resources and of fairness/transparency in its relation with its Bidder(s) and Contractor(s).

AND WHEREAS to meet the purpose aforesaid both the parties have agreed to enter into this Integrity Agreement (hereinafter referred to as *Integrity Pact" or "Pact"), the terms and conditions of which shall also be read as integral part and parcel of the Tender/Bid documents and Contract between the parties.

NOW, THEREFORE, in consideration of mutual covenants contained in this Pact, the parties hereby agree as follows and this Pact witnesses as under:

(Signature of the Contractor)

(For Accepting Officer)

1. Commitment of the Principal/Owner

(a) The Principal/Owner commits itself to take all measures necessary to prevent corruption and to observe the following principles:

(i) No employee of the Principal/owner, personally or through any of his/her family members, will in connection with the Tender, or the execution of the Contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to. “

(ii) The Principal/Owner will, during the Tender process, treat all Bidder(s) with equity and reason. The Principal/Owner will, in particular, before and during the Tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential / additional

(iii) The Principal/Owner shall endeavor to exclude from the Tender process any person, whose conduct in the past has been of biased nature.

(b) If the Principal/Owner obtains information on the conduct of any of its employees which is a criminal offence under the Indian Penal code (IPC)/Prevention of Corruption Act, 1988 (PC Act) or is in violation of the principles herein mentioned or if there be a substantive suspicion in this regard, the Principal/owner will inform the Chief Vigilance Officer and in addition can also initiate disciplinary actions as per its internal laid down policies and procedures.

2. Commitment of the Bidder (s)/Contractor(s)

(a) It is required that each Bidder/Contractor (including their respective officers, employees and agents) adhere to the highest ethical standards, and report to the Government / Department all suspected acts of fraud or corruption or Coercion or Collusion of which it has knowledge or becomes aware, during the tendering process and throughout the negotiation or award of a contract,

(b) The Bidder(s)/Contractor (s) commits himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the Tender process and during the Contract execution:

(i) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm, offer, promise or give to any of the Principal/Owner's employees involved in the Tender process or execution of the Contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the Tender process or during the execution of the Contract.

(ii) The Bidder(s)/Contractor(s) will not enter with other Bidder(s) into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to cartelize in the bidding process.

(iii) The Bidder(s)/Contractor(s) will not commit any offence under the relevant IPC/PC Act. Further the Bidder(s)/ Contract(s) will not use improperly, (for the purpose of competition or personal gain), or pass on to others, any information or documents provided by the Principal/Owner as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

(Signature of the Contractor)

(For Accepting Officer)

(iv) The Bidder(s)/Contractor(s) of foreign origin shall disclose the names and addresses of agents/ representatives in India, if any. Similarly Bidder(s)/Contractor(s) of Indian Nationality shall disclose names and addresses of foreign agents/representatives, if any. Either the Indian agent on behalf of the foreign principal or the foreign principal directly could bid in a tender but not both. Further, in cases where an agent participate in a tender on behalf of one manufacturer, he shall not be allowed to quote on behalf of another manufacturer along with the first manufacturer in a subsequent/parallel tender for the same item.

(v) The Bidder(s)/Contractor(s) will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the Contract.

(c) The Bidder(s)/Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

(d) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm indulge in fraudulent practice means a willful misrepresentation or omission of facts or submission of fake/forged documents in order to induce public official to act in reliance thereof, with the purpose of obtaining unjust advantage by or causing damage to justified interest of others and/or to influence the procurement process to the detriment of the Government interests.

(e) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm use Coercive Practices (means the act of obtaining something, compelling an action or influencing a decision through intimidation, threat or the use of force directly or indirectly, where potential or actual injury may befall upon a person, his/ her reputation or property to influence their participation in the tendering process).

3. Consequences of Breach

Without prejudice to any rights that may be available to the Principal/owner under law or the Contractor its established policies and laid down procedures, the Principal/Owner shall have the following rights in case of breach of this Integrity Pact by the Bidder(s)/Contractor(s) and the Bidder/ Contractor accepts and undertakes to respect and uphold the Principal/Owner's absolute right:

(a) If the Bidder(s)/Contractor(s), either before award or during execution of Contract has committed a transgression through a violation of Para 2 above or in any other form, such as to put his reliability or credibility in question, the Principal/Owner after giving 14 days notice to the contractor shall have powers to disqualify the Bidder(s)/Contractor(s) from the Tender process or terminate/determine the Contract, if already executed or exclude the Bidder/Contractor from future contract award processes. The imposition and duration of the exclusion will be determined by the severity of transgression and determined by the Principal/Owner. Such exclusion may be forever or for a limited period as decided by the Principal/owner.

(b) Forfeiture of EMD /Performance Guarantee/Security Deposit: If the Principal/Owner has disqualified the Bidder(s) from the Tender process prior to the award of the Contract or terminated/determined the Contract or has accrued the right to terminate/determine the Contract according to para 3(a), the Principal/owner apart from exercising any legal rights that may have accrued to the Principal/Owner, may in its considered opinion forfeit the entire amount of Earnest Money Deposit / Performance Guarantee / Security Deposit of the Bidder/Contractor.

(c) Criminal Liability: If the Principal/Owner obtains knowledge of conduct of a Bidder or Contractor, or of an employee or a representative or an associate of a Bidder or Contractor which constitutes corruption within the meaning of IPC Act, or if the

(Signature of the Contractor)

(For Accepting Officer)

Principal/Owner has substantive suspicion in this regard, the Principal/owner will inform the same to law enforcing agencies for further investigation.

4. Previous Transgression

(a) The Bidder declares that no previous transgressions occurred in the last 5 years with any other Company in any country confirming to the anticorruption approach or with Central Government or State Government or any other Central/State Public Sector Enterprises in India that could justify his exclusion from the Tender process.

5. Previous Transgression

(a) The Bidder declares that no previous transgressions occurred in the last 5 years with any other Company in any country confirming to the anticorruption approach or with Central Government or State Government or any other Central/State Public Sector Enterprises in India that could justify his exclusion from the Tender process.

(b) If the Bidder makes incorrect statement on this subject, he can be disqualified from the Tender process or action can be taken for banning of business dealings/ holiday listing of the Bidder/Contractor as deemed fit by the Principal/ Owner.

(c) If the Bidder/Contractor can prove that he has resorted / recouped the damage caused by him and has installed a suitable corruption prevention system, (he Principal/Owner may, at its own discretion, revoke the exclusion prematurely.

6. Equal Treatment of all Bidders/Contractors/Subcontractors

(a) The Bidder(s)/Contractor(s) undertake(s) to demand from all subcontractors a commitment in conformity with this integrity Pact. The Bidder/Contractor shall be responsible for any violation(s) of the principles laid down in this agreement/P act by any of its Subcontractors/sub-vendors.

(b) The Principal/Owner will enter into Pacts on identical terms as this one with all Bidders and Contractors.

(c) The Principal/owner will disqualify Bidders, who do not submit, the any signed Pact between the Principal/owner and the bidder, along with the Tender or violate its provisions at any stage of the Tender process, from the Tender process.

7. Duration of the Pact

This Pact begins when both the parties have legally signed it. It expires for the Contractor/Vendor after the final payment under the contract has been made or till the continuation of defect liability period, whichever is more and for all other bidders, till the Contract has been awarded.

If any claim is made/lodged during the time, the same shall be binding and continue to be valid despite the lapse of this Pacts as specified above, unless it is discharged/determined by the Competent Authority, BRO.

8. Other Provisions

a. This Pact is subject to Indian Law, place of performance and jurisdiction is the Headquarters of the formation of the Principal/Owner, who has floated the Tender.

b. Changes and supplements need to be made in writing. Side agreements have not been made.

c. If the Contractor is a partnership or a consortium, this Pact must be signed by all the partners or by one or more partner holding power of attorney signed by all partners and consortium members. In case of a Company, the Pact must be signed by a representative duly authorized by board resolution.

(Signature of the Contractor)

(For Accepting Officer)

d. Should one or several provisions of this Pact turn out to be invalid; the remainder of this Pact remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

e. It is agreed term and condition that any dispute or difference arising between the parties with regard to the terms of this Integrity Agreement / Pact, any action taken by the Owner/Principal in accordance with this Integrity Agreement/ Pact or interpretation thereof shall not be subject to arbitration.

9. Legal and Prior Rights

All rights and remedies of the parties hereto shall be in addition to all the other legal rights and remedies belonging to such parties under the Contract and/or law and the same shall be deemed to be cumulative and not alternative to such legal rights and remedies aforesaid. For the sake of brevity, both the Parties agree that this Integrity Pact will have precedence over the Tender/Contact documents with regard any of the provisions covered under this Integrity Pact.

10. Independent Monitors

a. That the MoD has appointed following Independent Monitors for this Pact:-

(i) **Shri Narayan Murthy Ganapathy, IFoS (Retd)**

E Mail : gana_narayan@yahoo.com Mob No. 94151 47429

(ii) **Shri Lalatendu Mohanty , IPS (Retd)**

E Mail: L.mohanti@gamil.com, Mob No. 97170 95659

(iii) **Shri Sanjay Singh, Dir (Contracts),**

Email: bro-ddgepcncontract@bro-gov.in Mob No. 9935551617

Any complaint with regard to violation of IP, whenever received, will be referred to the Independent Monitors for their comments / enquiry.

b. The task of the Monitor is to review independently and objectively, any complaint received with regard to violation of Integrity Pact and offer comments or carry out enquiry as deemed fit.

c. That the Monitor is not subject to any instructions by the representatives of the parties and would perform his functions neutrally and independently.

d. That the, Bidder/Contractor accepts that if the Monitor needs to access any records then the Monitor shall have the right to access without restriction to all project documentation of the Principal / owner including that provided by the Bidder/Contractor. The Bidder/Contractor will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation including minutes of meeting. The same is applicable to Sub - Contractors and Associates. The Monitor is under obligation to treat the information and documents of the principal/owner and Bidder/Contractor/ Sub- Contractors/ Associates with confidentiality.

e. That if the Monitor has reported to the Principal/Owner a substantiated suspicion of an offence under relevant Anti Corruption Laws of India and the Principal/owner has not,

f. within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Department, the Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.

g. The word 'Monitor' would include singular and plural.

(For and on behalf of Bidder/Contractor)

(For and on behalf of Principal/Owner)

WITNESSES:

1.....

(Signature, name and address)

2.....

(Signature, name and address)

Dated:

(Signature of the Contractor)

(For Accepting Officer)

INTEGRITY PACT

To,

The Chief Engineer
HQ Project Dantak
Accepting Officer

Sub: Submission of “**EXECUTION OF SURFACING WORK BETWEEN KM 0.00 TO KM 31.50 (PHASE-I) AND BETWEEN KM 31.50 TO KM 55.00 (PHASE-II) FOR PROVIDING AND LAYING OF WMM 75 MM (2 LAYERS) COMPACTED THICKNESS, DBM 50 MM COMPACTED THICKNESS AND BC 30 MM COMPACTED THICKNESS INCLUDING APPLICATION OF PRIME COAT,TACK COAT,ROLLING AND COMPACTION AS PER MORT&H SPECIFICATIONS AND ROAD MARKING WITH THERMOPLASTIC PAINT AS PER IRC:35 INCLUDING PROVIDING AND FIXING OF ROAD STUD AND DELINEATOR FOR CONSTRUCTION OF PANBANG-NGANGLAM ROAD UNDER 63 RCC/19 BRTF OF PROJECT DANTAK INSIDE BHUTAN UNDER JOB NO. H-2112/01**”

Dear Sir,

I/We acknowledge that BRO is committed to follow the principles thereof as enumerated in the integrity Pact enclosed with the tender/bid document.

I/We agree that the Notice Inviting Tender (NIT) is an invitation to offer made on the condition that I/We will sign the integrity Pact, which is an integral part of tender document, failing which I/We will stand disqualified from the tendering process. I/We acknowledge that **THE MAKING OF THE BID SHALL BE REGARDED AS AN UNCONDITIONAL AND ABSOLUTE ACCEPTANCE** of the conditions of the NIT.

I/We confirm acceptance and compliance with the Integrity Pact in letter and spirit and further agree that execution of the said integrity Pact shall be separate and distinct from the main contract, which will come into existence when tender/bid is finally accepted by BRO. I/We acknowledge and accept the validity of the Integrity Pact, which shall be in line with para 15 of the enclosed Integrity Pact

I/We acknowledge that in the event of my/our failure to sign and accept the Integrity Pact, while submitting the tender/bid, BRO shall have unqualified, absolute and unfettered right to disqualify the tender/bidder and reject the tender/bid in accordance with terms and conditions of the tender/bid.

Yours faithfully

(Duly authorized signatory of the Bidder)

(Signature of the Contractor)

(For Accepting Officer)

INTEGRITY PACT

To,

SUB: EXECUTION OF SURFACING WORK BETWEEN KM 0.00 TO KM 31.50 (PHASE-I) AND BETWEEN KM 31.50 TO KM 55.00 (PHASE-II) FOR PROVIDING AND LAYING OF WMM 75 MM (2 LAYERS) COMPACTED THICKNESS, DBM 50 MM COMPACTED THICKNESS AND BC 30 MM COMPACTED THICKNESS INCLUDING APPLICATION OF PRIME COAT, TACK COAT, ROLLING AND COMPACTION AS PER MORT&H SPECIFICATIONS AND ROAD MARKING WITH THERMOPLASTIC PAINT AS PER IRC:35 INCLUDING PROVIDING AND FIXING OF ROAD STUD AND DELINEATOR FOR CONSTRUCTION OF PANBANG-NGANGLAM ROAD UNDER 63 RCC/19 BRTF OF PROJECT DANTAK INSIDE BHUTAN UNDER JOB NO. H-2112/01

Dear Sir,

It is hereby declared that BRO is committed to follow the principle of transparency, equity and competitiveness in public procurement.

The subject Notice Inviting Tender (NIT) is an invitation to offer made on the condition that the Bidder will sign the integrity Pact which is an integral part of tender/bid documents, failing which the tender/bidder will stand disqualified from the tendering process and the bid of the bidder would be summarily rejected.

This declaration shall form part and parcel of the Integrity Pact and signing of the same shall be deemed as acceptance and signing of the Integrity Pact on behalf of the BRO.

Yours faithfully

Chief Engineer
Project Dantak

(Signature of the Contractor)

(For Accepting Officer)

ANNEXURE -III
PERFORMANCE GUARANTEE BOND

1. In consideration of the President of India (hereinafter called "the government") having agreed to **exempt**..... (hereinafter called "the said Contractor's) from the demand. under the terms and conditions of an Agreement dated.....Made between.....and.....for..... (hereinafter called "the said Agreement") of Security deposit for the due fulfilment by the said contractors of the terms and conditions contained in the said Agreement on production of a Bank Guarantee for Rs(Rupees.....only) we.....bank Ltd (hereinafter referred as the Bank) do hereby undertake to pay to the Government an amount not exceeding. RsAgainst any loss or damage caused to or would be caused to or suffered by the Government, by reason of any breach by the said contractor(s) of any the terms or conditions contained in the said Agreement.

2. We..... Bank Ltd. Do hereby undertake to pay the amounts due and payable under this guarantee without any demur, merely on a demand from the Government, stating that the amount claimed is due by way of loss or damage caused to or would be caused to or suffered by the Government by reason of any breach by the said Contractor(s) of any of the terms or conditions contained in the said Agreement or by reason of the contractor's (s) failure to perform the said Agreement. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee shall be restricted to an amount not exceeding Rs.. ..

3. We..... Bank Ltd. Further agree that guarantee.: herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Agreement and that it shall continue to be enforceable till all the dues of the Government under or by the virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till... ..(Office/ Department). Ministry of..... Certifies that the terms and conditions of the said Agreement have been fully and properly carried out by the said Contractor(s) and accordingly discharges the guarantee. Unless a demand or claim under this guarantee is made to us in writing on a before thewe shall be discharged from all liability: under this guarantee thereafter.

4. We..... Bank Ltd. Further agree with the Government that the Government shall have the fullest liberty without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Agreement or to extend time of performance by the said Contractor(s) from time to time: or to postpone for any time or from time to time any of the powers exercisable by the Government against the said contractor(s) and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation or extension being granted to the said contractor(s) or for any forbearance act or omission on the part of Government or any indulgence by the Government to the said contractor(s) or any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

5. We..... Bank Ltd. lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Government in writing.

(Signature of the Contractor)

(For Accepting Officer)

Appendix 'A'
(Ref Para-15 (f) of Forwarding Letter)

UNDERTAKING BY AUTHORISED SIGNATORY

I, the undersigned do hereby under take that our firm M/s _____
_____ ag

ree to abide by Terms and Conditions of subject Tender for **EXECUTION OF SURFACING WORK BETWEEN KM 0.00 TO KM 31.50 (PHASE-I) AND BETWEEN KM 31.50 TO KM 55.00 (PHASE-II) FOR PROVIDING AND LAYING OF WMM 75 MM (2 LAYERS) COMPACTED THICKNESS, DBM 50 MM COMPACTED THICKNESS AND BC 30 MM COMPACTED THICKNESS INCLUDING APPLICATION OF PRIME COAT,TACK COAT,ROLLING AND COMPACTION AS PER MORT&H SPECIFICATIONS AND ROAD MARKING WITH THERMOPLASTIC PAINT AS PER IRC:35 INCLUDING PROVIDING AND FIXING OF ROAD STUD AND DELINEATOR FOR CONSTRUCTION OF PANBANG-NGANGLAM ROAD UNDER 63 RCC/19 BRTF OF PROJECT DANTAK INSIDE BHUTAN UNDER JOB NO. H-2112/01** from Page No. 01 to 196 is advertised on the **www.eprocure/epublish/app** and it shall be binding on us and may be accepted at any time before the expiration of stipulated tender conditions.

(Signed by an Authorized Officer of the firm)

Title of Officer

Name of Firm

Date

[In lieu of IAFW-1779-A (to be use in conjunction with General Conditions
Of Contract based on and IAFW-2249) (1989 Print)]

(Signature of the Contractor)

(For Accepting Officer)

CHIEF ENGINEER PROJECT DANTAK

http : //www.bro.gov.in

E-mail : bro-dtk@nic.in

Tele : +975 - 2351082/2351086/2351088

Fax : +975 - 2351285

Headquarters
Chief Engineer
Project Dantak
PIN : 931708
C/O 99 APO

80634/ /E8

May 2026

NAME OF WORK: EXECUTION OF SURFACING WORK BETWEEN KM 0.00 TO KM 31.50 (PHASE-I) AND BETWEEN KM 31.50 TO KM 55.00 (PHASE-II) FOR PROVIDING AND LAYING OF WMM 75 MM (2 LAYERS) COMPACTED THICKNESS, DBM 50 MM COMPACTED THICKNESS AND BC 30 MM COMPACTED THICKNESS INCLUDING APPLICATION OF PRIME COAT,TACK COAT,ROLLING AND COMPACTION AS PER MORT&H SPECIFICATIONS AND ROAD MARKING WITH THERMOPLASTIC PAINT AS PER IRC:35 INCLUDING PROVIDING AND FIXING OF ROAD STUD AND DELINEATOR FOR CONSTRUCTION OF PANBANG-NGANGLAM ROAD UNDER 63 RCC/19 BRTF OF PROJECT DANTAK INSIDE BHUTAN UNDER JOB NO. H-2112/01

Dear Sir (s),

Mrs/Mr _____ of _____ is/are hereby authorized to tender for the above work. The tender is to be delivered at the Office of the Chief Engineer, Project DANTAK, **Semtokha, Thimphu** or at **Transit Camp located at 1644 Pioneer Company, 19 BRTF, Jaigaon, West Bengal PIN-736182, Ph 9149553650/ 9877069433** up to 1730 hrs (BST)/1700 hrs (IST) on 08 Jun 2026 and Technical Bid (Part-I) of the tender documents will be opened at 1600 hrs (BST)/1530 hrs (IST) on the 10 Jun 2026 addressed to Headquarters, Chief Engineer, Project Dantak, PIN – 931708, C/o 99 APO “: **EXECUTION OF SURFACING WORK BETWEEN KM 0.00 TO KM 31.50 (PHASE-I) AND BETWEEN KM 31.50 TO KM 55.00 (PHASE-II) FOR PROVIDING AND LAYING OF WMM 75 MM (2 LAYERS) COMPACTED THICKNESS, DBM 50 MM COMPACTED THICKNESS AND BC 30 MM COMPACTED THICKNESS INCLUDING APPLICATION OF PRIME COAT,TACK COAT,ROLLING AND COMPACTION AS PER MORT&H SPECIFICATIONS AND ROAD MARKING WITH THERMOPLASTIC PAINT AS PER IRC:35 INCLUDING PROVIDING AND FIXING OF ROAD STUD AND DELINEATOR FOR CONSTRUCTION OF PANBANG-NGANGLAM ROAD UNDER 63 RCC/19 BRTF OF PROJECT DANTAK INSIDE BHUTAN UNDER JOB NO. H-2112/01**” to be opened on 10 Jun 2026 1530 hrs (BST).

All documents must be returned whether or not a tender has been submitted.

Any correction concerning this tender should be addressed as indicated at the top of this sheet, quoting the reference as given.

THE PRESIDENT OF INDIA DOES NOT BIND HIMSELF TO ACCEPT THE LOWEST TENDER OR ANY TENDER

(Signature of the Contractor)

(For Accepting Officer)

BORDER ROADS ORGANISATION
CHIEF ENGINEER PROJECT DANTAK
NOTICE INVITING TENDER- 04 OF 2026-27

1. A sealed tender is invited for **“EXECUTION OF SURFACING WORK BETWEEN KM 0.00 TO KM 31.50 (PHASE-I) AND BETWEEN KM 31.50 TO KM 55.00 (PHASE-II) FOR PROVIDING AND LAYING OF WMM 75 MM (2 LAYERS) COMPACTED THICKNESS, DBM 50 MM COMPACTED THICKNESS AND BC 30 MM COMPACTED THICKNESS INCLUDING APPLICATION OF PRIME COAT, TACK COAT, ROLLING AND COMPACTION AS PER MORT&H SPECIFICATIONS AND ROAD MARKING WITH THERMOPLASTIC PAINT AS PER IRC:35 INCLUDING PROVIDING AND FIXING OF ROAD STUD AND DELINEATOR FOR CONSTRUCTION OF PANBANG-NGANGLAM ROAD UNDER 63 RCC/19 BRTF OF PROJECT DANTAK INSIDE BHUTAN UNDER JOB NO. H-2112/01”.**

2. Tender documents may be downloaded from central public procurement portal site <http://eprocure.gov.in/epublish/app>, BRO website www.bro.gov.in and CAB website www.cab.org.bt as per the schedule as given in **CRITICAL DATE SHEET** as under and printout is to be taken on A4 size paper. It is advisable that the downloaded tender document to be printed through laser printer preferably. Submission of photocopy of tender is not permitted.

CRITICAL DATE SHEET

01	Publishing date & time on CPPP website	19 May 2026 at 1630 Hrs
02	Bid document download start date	19 May 2026 at 1700 Hrs
03	Clarification start date & time (Pre Bid queries)	20 May 2026 at 1100 Hrs
04	Clarification end date & time	25 May 2026 at 1600 Hrs
05	Bid submission start date & time	26 May 2026 at 1100 Hrs
06	Bid submission end date & time	08 Jun 2026 at 1700 Hrs
07	Opening date & time of Technical bid	10 Jun 2026 at 1530 Hrs
08	Opening date of Financial bid	Will be intimated later

3. The estimated cost of work is **Rs. 2940.10 Lakh (Rupees Twenty Nine Crore Forty Lakh and Ten Thousand only)** approximately or as subsequently amended in tender documents and uploaded in central public procurement portal site <http://eprocure.gov.in/epublish/app>, BRO website www.bro.gov.in and CAB website www.cab.org.bt. This estimate, however, is not a guarantee and is merely given as a rough guide, and if work costs more or less, tenderer shall have no claim on that account of what so ever nature.

4. The tender shall be based on Specifications, **General Conditions of Contracts IAFW-2249 and item rate contract form based on IAFW 1779-A with Schedule "A"** (List of works) to be priced by tenderers.

5. Not more than one tender shall be submitted by one contractor or contractors having business relationship. Under no circumstances will a father or his son(s) or other close relations who have business relationship with one another (i.e. when one or more partner(s)/director(s) are common), be allowed to tender for the same contract as separate competitors. A breach of this condition will render the tenders of both the parties liable to rejection.

6. The work is to be completed within **300 days for Phase-I and 240 days for Phase-II** or as subsequently amended in tender documents or uploaded on central public procurement portal site <http://eprocure.gov.in/epublish/app>, BRO website www.bro.gov.in and CAB website www.cab.org.bt in accordance with the phasing, if any, indicated in the tender from the date of handing over the site, which will be generally within one month from the date of issue of Acceptance letter. **Phase-I of the subject work has to be started first.**

(Signature of the Contractor)

(For Accepting Officer)

NOTICE INVITING TENDER (CONTD)

7. Tender (in full) either downloaded from CPP Portal website will be received at HQ CE (P) Dantak, C/o 99 APO or at OIC liaison cell located at Supervisor Mess 19 BRTF, Jaigaon, West Bengal, PIN-736182, Ph **9149553650/ 9877069433** up to **1730 hrs (BST)/1700 hrs (IST) 08 Jun 2026 and Technical Bid (Part-I) of the tender documents will be opened at 1600 hrs (BST)/1530 hrs (IST) on the 10 Jun 2026.** Tender received after due date shall not be considered for opening and no reason for delay or claim whatsoever shall be entertained.
8. **The Chief Engineer (P) Dantak, C/O 99 APO will be Accepting Officer** hereinafter, referred to as such for the purpose of this contract.
9. Intending tenderers are advised to visit central public procurement portal site **<http://eprocure.gov.in/epublish/app>**, BRO website www.bro.gov.in and CAB website www.cab.org.bt three days prior to date of opening of tender for any corrigendum/addendum/amendment.
10. Earnest money is not required to be attached with tender by the valid enlisted contractors with BRO who have submitted standing security deposit and MSME registered firms as per Rule 170 (i) of GFR 2017 but it is required from other contractors and to be attached with Technical Bid **Rs 15,00,000.00 (Rupees Fifteen Lakh only)** in the shape of Call Deposit Receipt/Term Deposit Receipt/Special Term Deposit Receipt /Bank Guarantee in favour of Chief Engineer Project Dantak C/o 99 APO obtained from any Nationalized /Schedule Bank having maturity/validity period 90 days more than validity period of his offer.
11. **Successful Bidder (L-1) shall deposit to Accepting Officer a Performance Security for an amount of 5% of contract sum (Amended vide HQ DGBR letter No. 24228/DGBR/Policy Instr/2023/32/E8 dated 28 Mar 2023) in the shape of Bank Guarantee or FDR within 28 days of issue of LoA.**
12. Copies of drawings (if applicable) and other documents pertaining to the work (signed for the purpose of identification by the Accepting Officer or his accredited representative) and sample of materials and stores to be supplied by the contractor will be opened for inspection at the following locations:-
Chief Engineer (P) Dantak, C/o 99 APO
13. The tenderer are advised to visit the site by making prior appointment with Commander, 19 Border Roads Task Force, C/o 99 APO sufficiently in advance (Telephone No of Commander, 19 BRTF at **+975 – 2252201**). A tenderer shall be deemed to have full knowledge of all relevant documents, local conditions, sites etc. For further details tenderer may contact telephonically if required, SW, Project Dantak at **+975 – 2351082/2351086** during office hours.
14. A tenderer shall be deemed to have full knowledge of all relevant documents, samples, site etc whether he has inspected them or not.
15. Any qualification documents/tender which stipulates any alterations to any of the conditions laid down or proposes any other conditions of any description what so ever, is liable to be rejected.
16. The Accepting Officer reserves his right to accept a tender submitted by a public undertaking, giving a price preference over other tender (s) which may be lower, as are admissible under the Govt. policy. No claim for any compensation or otherwise shall be admissible from such tenderer (s) whose tenders may be rejected on account of the said policy.
17. **The submission of tender by a tenderer implies that he had read this notice and conditions of contract and has made himself aware of the scope and specifications of the work to be done and of the conditions rates at which stores, tools and plants etc will be issued to him, local conditions and other factors bearing on the execution of the work**
18. The Pre-Contract Integrity Pact has been signed by Accepting Officer or by the Officer specifically designated by him and scanned copy uploaded as part of NIT along with tender documents. Integrity Pact duly signed on each page by the bidder(s) shall be submitted as part of technical bid (Cover-I).

(Signature of the Contractor)

(For Accepting Officer)

NOTICE INVITING TENDER (CONTD)

19. The hard copy of original instruments in respect of earnest money, under taking regarding acceptance of tender conditions, Enlistment letter if firm is enlisted in BRO, EPFO, Registration letter, GST Registration and any other document required to be submitted with respect to various conditions mentioned in the tender documents should be attached with tender documents

20. Blank.

21. Blank.

22. Blank.

23. In case of rejection of technical bid, contractor may appeal to next higher engineer authority i.e. HQ DGBR on email bro-e8@nic.in with copy to the Accepting Officer i.e. CE on email bro-dtk@nic.in against rejection within 05 days from the date of publishing of result of technical bid qualification on CPP Portal whose decision shall be final and binding. If the appeal is not made within this period, the bidder shall forfeit his right of appeal against rejection of his technical bid. Any appeal received after 05 days of such publication of result shall not be entertained under any circumstances. The next higher engineering authority shall preferably try to resolve the issue within 05 days of such representation. However, contractor/bidder shall not be entitled for any compensation whatsoever on account of rejection of technical bid.

24. For any further particulars, you may refer central public procurement portal site <http://eprocure.gov.in/eprocure/app>, BRO website www.bro.gov.in and CAB website www.cab.org.bt.

25. Blank.

26. In the event of lowest tenderer revoking his offer or revising his rates upward (which will be treated as revocation of offer), after opening of tenders, the earnest money deposited by him shall be forfeited. In case of BRO enlisted contractors, the amount equal to the earnest money stipulated in the Notice of tender, shall be notified to the tenderer for depositing the amount through MRO, failing which the amount shall be recovered from payment due to such Contractor or shall be adjusted from the Standing Security Deposit. In addition, such tenderer and his related firm shall not be issued the tender in second or subsequent calls.

27. Important- Above particulars may change due to Administrative or any other reasons and shall be available in central public procurement portal site <http://eprocure.gov.in/epublish/app>, BRO website www.bro.gov.in and CAB website www.cab.org.bt Therefore, bidders/contractors are requested to visit central public procurement portal site <http://eprocure.gov.in/epublish/app>, BRO website www.bro.gov.in and CAB website www.cab.org.bt frequently and at least once again 03 (three) days prior to bid submission date as per critical date sheet, for any changes in above particulars.

28. Blank

29. The tender shall remain open for acceptance for a period of **120 days** from bid submission end date.

30. The tender may be accepted as whole.

31. This notice of tender shall form part of the contract.

No.80634/ /E8

Headquarter

Cheif Engineer
Project Dantak
PIN : 931 708
C/O 99 APO

EE (Civ)
For Accepting Officer
Dated : May 2026

(Signature of the Contractor)

(For Accepting Officer)

NOTICE INVITING TENDER (CONTD)

Distribution :- For info and wide publicity please.

1.	HQ DGBR/E8 Seema Sadak Bhawan Ring Road, Delhi Cantt New Delhi – 110 010	2.	HQ DGBR/B&T Dte Seema Sadak Bhawan Ring Road, Delhi Cantt New Delhi – 110 010	3.	HQ DGBR/East Dte Seema Sadak Bhawan Ring Road, Delhi Cantt New Delhi – 110 010
4.	HQ ADGBR (North-West), Sec-48-C, Near Motor Market, Chandigarh-160047	5.	HQ ADGBR (East) PIN-900885 C/o 99 APO	6.	R&D Estt PIN-931723 C/o 99 APO
7.	The Chief Engineer, MES, Shillong Zone, Shillong, Meghalaya	8.	MES Builders Association of India, 807, Sahyog 58, Nehru Place, New Delhi-110 019.	9.	HQ 19 BRTF PIN : 930019 C/O 99 APO
10.	60 RCC (GREF) PIN : 930060 C/O 99 APO	11	63 RCC (GREF) PIN : 930 063 C/O 99 APO	12	64 RCC (GREF) PIN : 930 064 C/O 99 APO
13.	102 RCC (GREF) PIN : 930102 C/O 99 APO	14	Builder Association of India, G1/G20 Commerce Centre, Dodajee Road, Tardeo, Mumbai-400034.	15	CPWD Contractor's Association, B-Wing, I.P. Bhawan, New Delhi-110002
16.	HQ CE (P) Arunank, PIN 931719, C/o 99 APO	17	HQ CE (P) Brahmank, PIN 931722, C/o 99 APO	18	HQ CE (P) Beacon, PIN 931706, C/o 56 APO
19	HQ CE (P) Chetak, PIN 931707, C/o 56 APO	20	HQ CE (P) Deepak, PIN 931709, C/o 56 APO	21	HQ CE (P) Himank, PIN 931710, C/o 56 APO
22.	HQ CE (P) Sampark, PIN 931712, C/o 56 APO	23	HQ STF HIRAK, PIN 931724, C/o 56 APO	24	HQ CE (P) Shivalik, PIN 931718, C/o 56 APO
25.	HQ CE (P) Yojak, PIN 931720, C/o 56 APO	26	HQ CE (P) Vijayak, PIN 931721, C/o 56 APO	27	HQ CE (P) Pushpak, PIN 931711, C/o 99 APO
28.	HQ CE (P) Sewak, PIN 931714, C/o 99 APO	29	HQ CE (P) Vartak, PIN 931716, C/o 99 APO	30	HQ CE (P) Udayak, PIN 931715, C/o 99 APO
31.	HQ CE (P) Swastik, PIN 931717, C/o 99 APO	32	CE Siliguri Zone (MES) Sevoke Road Post Salugara, West Bengal- 734001 cezs2-mes@nic.in	33	Shri Narayan Murthy Ganapathy, IFoS (Retd) E Mail : gana_narayan@yahoo.com
34.	Shri. Lalatendu Mohanty, IPS (Retd) L.mohanti@gmail.com				

(Signature of the Contractor)

(For Accepting Officer)

NAME OF WORK:	EXECUTION OF SURFACING WORK BETWEEN KM 0.00 TO KM 31.50 (PHASE-I) AND BETWEEN KM 31.50 TO KM 55.00 (PHASE-II) FOR PROVIDING AND LAYING OF WMM 75 MM (2 LAYERS) COMPACTED THICKNESS, DBM 50 MM COMPACTED THICKNESS AND BC 30 MM COMPACTED THICKNESS INCLUDING APPLICATION OF PRIME COAT,TACK COAT,ROLLING AND COMPACTION AS PER MORT&H SPECIFICATIONS AND ROAD MARKING WITH THERMOPLASTIC PAINT AS PER IRC:35 INCLUDING PROVIDING AND FIXING OF ROAD STUD AND DELINEATOR FOR CONSTRUCTION OF PANBANG-NGANGLAM ROAD UNDER 63 RCC/19 BRTF OF PROJECT DANTAK INSIDE BHUTAN UNDER JOB NO. H-2112/01
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GENERAL CONDITION OF CONTRACTS
IAFW -2249
FOR
ITEM RATE CONTRACTS (IAFW-1779 A)

1. A copy of General Conditions of Contract (IAFW-2249: Print 1989) with Errata 1 to 20 and Amendments Nos. 1 to 48 is in my/our possession. I/we has/have read and understood the provisions contained in the aforesaid GENERAL CONDITIONS OF CONTRACTS before submission of this tender and I/we agree that I/we shall abide by the terms and conditions thereof.
2. It is hereby further agreed and declared by me/us that the GENERAL CONDITIONS OF CONTRACT, including Condition No. 70 thereof pertaining to the settlement of disputes by Arbitration (IAFW-2249) and Condition No 71 pertaining to appointment of Dispute resolution Board shall form part of this tender documents.
3. Wherever the phrases Commander Works Engineer (CWE) and Garrison Engineer (GE) have been used in the General Conditions of Contract (IAFW-2249) the same are considered as Task Force Commander (TFC) and OC Contract respectively as applicable in Border Roads Organisation.

Note: - Copy of General Condition of Contracts IAFW-2249 can be referred in the office of HQ CE (P) Dantak/HQ 19 BRTF (GREF), if required.

(Signature of the Contractor)

(For Accepting Officer)

SPECIAL CONDITIONS

EXECUTION OF SURFACING WORK BETWEEN KM 0.00 TO KM 31.50 (PHASE-I) AND BETWEEN KM 31.50 TO KM 55.00 (PHASE-II) FOR PROVIDING AND LAYING OF WMM 75 MM (2 LAYERS) COMPACTED THICKNESS, DBM 50 MM COMPACTED THICKNESS AND BC 30 MM COMPACTED THICKNESS INCLUDING APPLICATION OF PRIME COAT, TACK COAT, ROLLING AND COMPACTION AS PER MORT&H SPECIFICATIONS AND ROAD MARKING WITH THERMOPLASTIC PAINT AS PER IRC:35 INCLUDING PROVIDING AND FIXING OF ROAD STUD AND DELINEATOR FOR CONSTRUCTION OF PANBANG-NGANGLAM ROAD UNDER 63 RCC/19 BRTF OF PROJECT DANTAK INSIDE BHUTAN UNDER JOB NO. H-2112/01

1. GENERAL

The following Special Conditions shall be read in conjunction with General Conditions of contracts **IAFW-2249**, including amendments thereto, and whereas variation exists the Special Conditions shall take precedence over the aforesaid General Conditions.

The Special Conditions given in succeeding paragraphs shall be read in conjunction with Schedule A, technical specifications and General Conditions of Contracts IAFW-2249. In case of any discrepancies in the various provisions of the contract, the following order of precedence shall be observed:-

- (a) Description given in Schedule 'A'.
- (b) Particular/Technical Specifications.
- (c) Drawings and sketches.
- (d) Ministry of Road Transport & Highways (MoRTH) specifications for Road and bridge works published by Indian Roads Congress New Delhi (Vth Revision).
- (e) Special conditions.
- (f) General conditions of contracts.

2. INSPECTION OF SITES

The contractor is particularly advised to inspect the site (s) of work by making prior appointment with the **Chief Engineer Project Dantak, C/o 99 APO/ Commander 19 BRTF, C/o 99 APO/ OC 63 RCC , C/o 99 APO** so as to acquaint himself with regard to the nature and conditions of site, nature and means of local communication, working hours, conditions of access and all other cognate matters concerning the execution and completion of the work. Any paths, tracks, approaches etc, required for the movement of plants, equipments, machines and vehicles etc to the work site and plate form, bund etc required for the execution of work will be responsibility of the contractor and rates quoted must include these aspects also where required. The tenderer shall be deemed to have inspected the site and made himself familiar with various factors which may affect his quotation where he actually inspects the site or not. No extra charges consequent on misunderstanding or otherwise will be allowed.

3. LAND FOR OFFICES ETC

The contractor shall have to make his/her own arrangements for the land as may be required by him/her for housing of staff and labour and for erection of store sheds, offices, godowns etc., required by him/her for this work. The contractor must ensure that the staff, labour, plant, equipments, machines, vehicles, stores etc., employed or collected in connection with the work are so located that there is no hindrance to free flow of traffic on the roads/highway. Suitable cautionary and warning signs and other measures are to be installed/provided by the contractor at his own cost for the safety of traffic.

(Signature of the Contractor)

(For Accepting Officer)

SPECIAL CONDITIONS (CONTD)

4. MINIMUM FAIR WAGES PAYMENT TO LABOUR

(a) The contractor shall pay wages not less than the minimum fair wages fixed from time to time by the Central Govt/State Govt/Local Authorities. He shall have no claim whatsoever, if on account of any local regulations and/or otherwise, he is required to pay wages in excess of the wages so fixed.

(b) The contractor shall observe the laws/regulations applicable in the area regarding the employment of labour, payment of wages and other cognate matters relating to the conditions.

(a) In case local labourers are not available, the contractor may have to obtain written permit from the appropriate authority of State Govt. to import labour from outside the state.

(d). The contractor shall ensure compliance to all the labour wages laws and benefit rules for the labour employed by him.

(e) The contractor shall maintain muster roll of labourer engaged in the work along with wages being paid to labourer (trade wise). The muster roll shall be available at site for inspection by Engineer-in-Charge or any authorized Govt. Officials.

5. ROYALTIES. The Contractor shall make his own arrangement for procuring materials required under the contract and he shall ensure that the royalty for the material procured by him under this CA has been correctly paid to the concerned authority. **In this connection, a letter issued by Natural Resources Development Corporation Limited, RGoB vide letter No. NRDCL/HO/MRD/02/2024/303 dated 08 Mar 2024 shall be followed.** Any claim of royalty by the concerned department on the material procured under this CA shall be settled with concerned authority directly by Contractor. Further the contractor should ensure that the supply of material is not arranged illegally. An undertaking to this account will be given by contractor before payment of RAR/Final bill

SPECIMEN COPY OF UNDERTAKING

I / We, M/s _____ hereby declare that I /We have supplied the following materials against CA No. CE (P) Dantak/ /2025-26 during the period from _____ to _____.

<u>Srl No.</u>	<u>Materials</u>	<u>Gross Quantity supplied</u>
(a)		
(b)		
(c)		

It is further certified that the royalty for the above quantity of materials at the applicable rates have been paid by us to the concerned department of the Govt.

(M/s _____)

(Signature of the Contractor)

(For Accepting Officer)

SPECIAL CONDITIONS (CONTD)

6. BLASTING ROCKS

(a) The contractor shall be responsible for the safe custody and storage of blasting materials in accordance with the rules on the subject. Written authority of the Engineer-in-Charge/OC Contract shall be obtained before any blasting operations are commenced.

(b) The contractor shall ensure that the charges in blasting are not excessive and that the charged bore holes are properly protected before firing and that proper precautions are taken for the safety of men and property.

(c) Blasting should be generally avoided. In case it is unavoidable less charge controlled blasting may be resorted with the prior permission of the Engineer-in-Charge/OC Contract. The contractor shall be bound to abide by the instructions of the Engineer-in-Charge/OC Contract regarding the necessity of blasting and the type, number size and pattern of holes to be drilled and also the type, amount and method of firing of explosive to be used. The Engineer-in-Charge/OC Contract shall reserve the right to restrict the number of charge to be fired at a time so that the hillside is not adversely affected. The contractor shall fire the charges only at such time as approved by the Engineer-in-Charge/OC Contract and shall have no claim, whatsoever, on account of any delay and extra cost due to carrying out the instructions of the Engineer-in-Charge/OC Contract and / or taking the safety precautions directed by him.

7. MOVEMENT OF CONTRACTOR VEHICLES

7.1. Minimum classification of existing bridges on the roads are Class 24/70 R bridges, contractor should not bring any heavier vehicle/plant/equipment as such vehicle/plant/equipment shall not be allowed on the bridges. The contractor's vehicle may be required to ply in convoys as per directions given by the concerned Civil/Military authorities. No extra payment/time will be admissible on this account.

7.2. In case the condition of these bridges warrants further downwards load classification due to any unforeseen circumstances, the same will be done by OC Contract whose decision shall be final and binding. In case of any such eventuality, the contractor may have to unload his heavy load carried at locations, indicated to suit the load classification indicated by the OC Contract. Any such heavy load carriage thus necessitated across such indicated bridge(s) shall have to be done by the contractor without any additional payment and no claim whatsoever on this account will be entertained.

8. SECURITY RESTRICTIONS

8.1 Contractor intention is invited to condition 25 of IAFW-2249 contractor shall employ only Indian National/Bhutanese after verifying their antecedents and loyalty. The contractor shall on demand by the Engineer-in-Charge / OC Contract, submit list of his agents, employees and work people concerned and shall satisfy the Engineer-in-Charge / OC Contract as to the bonafide credential of such people.

8.2 The contractor and his workmen shall observe all the rules promulgated by the authority controlling the area in which work is to be carried out e.g. prohibition of smoking, lighting, fire precautions, search of persons on entry and exit, keeping to specified routes and restricted hours of work etc. Thorough search of all persons and transport may be conducted by the departmental authorities at the site of works at any time and any number of times for security reasons Necessary Permits are to be obtained from Civil Authorities by the contractor, for himself, his staff and labour. Nothing shall be paid extra on this account. During currency of the contract, if anybody is suspected to have any connection with anti-national elements/activities, he will immediately be removed and contractor shall have no claim whatsoever on this account.

(Signature of the Contractor)

(For Accepting Officer)

SPECIAL CONDITIONS (CONTD)

8.3 Necessary assistance will be extended to the contractor by the department for providing passes/permits to the contractor, his representative and workmen to enter the state.

9. FREE ACCESS TO SITES AND LOOKING AFTER OF WORKS

The contractor shall give all reasonable facilities to this department personal for the inspection of the works being executed under this contract. He will also provide free access to the works if being executed by this department or other agencies and if such works are located near the sites covered under this contract. Responsibility of all the works covered in this contract will lie on the contractor and these works will be fully completed and accordingly handed over to this department.

10. TAXES ETC

The tendered amount shall inter-alia be deemed to be inclusive of all taxes, viz work Contract Tax, terminal taxes, toll taxes, Royalty, octroi, **GST**, sale tax/VAT, Service Tax, or any other taxes and the like levies payable under the respective existing country/states etc. No claim on account of any taxes will be payable to contractor whatsoever except as provided in sub Para 11 (b) here-in-after.

10.1 **10.1 GST/Sales Tax are applicable as per applicable laws in Bhutan.** For any query regarding **applicability of GST/ sales tax** on import of goods and services **from India to Bhutan**, kindly refer to the Govt of Bhutan websites for detailed information.

11. RE-IMBURSEMENT/REFUND ON VARIATION IN "TAXES DIRECTLY RELATED TO CONTRACT VALUE"(As per latest policy dated 24228/DGBR/Policy Instr/2017/100/E8 dated 25 Aug 2017)

(a) The rates quoted by the contractor shall be deemed to be inclusive of all taxes, (including GST on materials, GST on Work Contracts, turnover tax, Labour Welfare cess /tax Ecological and Environment cess etc), duties, Royalties, Octroi & other levies payable under the respective statutes. No re-imburement /refund for variation in rates of taxes, duties royalties, Octroi & other levies, and / or imposition / abolition of any new/existing taxes, duties, royalties, Octroi & other levies shall be made except as provided in sub Para (b) here-in-below:-

(b) (i) The taxes which are levied by Govt. at certain percentage rates of Contract Sum / Amount shall be termed as "taxes directly related to contract value" such as GST on works contracts, turnover tax, Labour Welfare Cess /Tax and like but excluding Income Tax. The tendered rates shall be deemed to be inclusive of all "taxes directly related to contract value" with existing percentage rates as prevailing on last due date for receipt of tenders. Any increase in percentage rates of "taxes directly related to contract value" with reference to prevailing rates on last due date for receipt of tenders shall be reimbursed to the contractor and any decrease in percentage rates of "taxes directly related to contract value" with reference to prevailing rates on last due date for receipt of tenders shall be refunded by the contractor to the Govt. / deducted by the Govt. from any payment due to the contractor. Similarly, imposition of any new "taxes directly related to contract value" after the last due date for receipt of tenders shall be reimbursed to the contractor and abolition of any "taxes directly related to contract value" prevailing on last due date for receipt of tenders shall be refunded by the contractor to the Govt. /deducted by the Govt. from the payments due to the contractor.

(b) (ii) The contractor shall, within a reasonable time of his becoming aware of variation in percentage rates and/or imposition of any "taxes directly related to contract value" give written notice thereof to the OC Contract stating that the same is given pursuant to this Special Condition, together with all information relating thereto which he may be in a position to supply. The contractors shall submit the other documentary poof /information as the OC may require.

(Signature of the Contractor)

(For Accepting Officer)

SPECIAL CONDITIONS (CONTD)

(b) (iii) The contractor shall, for the purpose of this condition keep such books of account and other documents as are necessary and shall allow inspection of the same by a duly authorized representative of Govt., and shall further, at the request of the OC furnish, verified in such a manner as the OC Contract may require, any documents so kept and such other information as the OC may require.

(b) (iv) Reimbursement for increase in percentage rates /imposition of “taxes directly related to contract value” shall be made only if the contractor necessarily & properly pays additional “taxes directly related to contract value” to the Govt. without getting the same adjusted, against any other tax liability or without getting the same refunded from the concerned Govt. Authority and submits documentary proof for the same as the OC may require”.

12. SECURITY OF DOCUMENTS

The contractor shall not communicate any classified information regarding works/organisation either to the sub contractor or others without prior approval of the Engineer-in-Charge. Any violation on this aspect will be forfeit the right of the contractor to claim any amount due to the contractor whatsoever held with organisation.

13. FOREIGN EXCHANGE/IMPORT LICENCE

No foreign exchange and/or import license will be arranged by the Department in the connection of work under this contract.

14. CONTRACTOR’S VEHICLES/PLANT AND EQUIPMENT AT SITE

(a) The contractor shall furnish to the Engineer-in-Charge a distribution return of his plant/equipment on the site of works, stating the following particulars: -

- i) Particulars of Plant/equipment i.e. Make, Manufacture’s No, Model No, if any, Registration No, if any, capacity, yearn of manufacture, year of purchase etc.
- ii) Total quantity on site of work.
- iii) Location indicating quantity at the site of work.

(b) For the purpose of this condition, plant/equipment shall include vehicles, trucks, Cranes, Heavy Lifting Equipment, Welding Machine, Gas cutter and lorries but not the workmen’s tools and/or any manually operated tools/equipment.

(c) The Engineer-in-Charge shall record the particulars supplied by the contractor as aforesaid, in the works diary and send a return to OC Contract for record in his office.

(d) The first return shall be submitted immediately after any plant or equipment is brought to the site. Thereafter every week changes in the return shall be furnished in the following form:

-

S/No	Particulars of plant/ equipment	Total No at site of work	Location	Remarks

Addition Since.....
Reduction Since.....

(e) A complete return showing the upto-date position of plant/equipment at site shall be submitted on 15th of every month till the works are completed and the site cleared.

(f) The contractor’s attention is invited to condition 34 of General Conditions of Contracts according to which no tool, plant/equipment shall be removed off the site without written approval of the OC Contract.

(Signature of the Contractor)

(For Accepting Officer)

SPECIAL CONDITIONS (CONTD)

15. RECORD OF CONSUMPTION OF CEMENT:

15.1 The contractor shall maintain a "bound register" with serially numbered pages with all pages initialed by Engineer-in-Charge against numbering showing quantities of cement received, used in work and balance at the end of each day. The form of record shall be as approved by representative of BRO and the contractor in token of verification of its correctness and will be checked by Engineer-in-Charge, at least once a week and on the day, cement is brought by the contractor to the site.

15.2 The register shall be kept at site in safe custody of the contractor's representative during the progress of the work and shall on demand be produced for verification to the inspecting officer(s).

15.3 On completion of the work, the contractor shall deposit the cement register with the Engineer-in-Charge for record.

16. SECURITY OF CLASSIFIED DOCUMENTS

Contractor's special attention is drawn to Condition 2-A and 3 of General Conditions of Contracts (IAFW-2249). The contractor shall not communicate any classified information regarding works either to sub-contractors or others without prior approval of the Engineer-in-Charge. The contractor shall also not make copies of the design/drawings and other documents furnished to him in respect of the works and he shall return all documents on completion of the work or on earlier determination of the contract. The contractor shall alongwith final bill attach a receipt from Engineer-in-Charge in respect of his having returned the classified documents as per Condition 3 of General Conditions of Contracts (IAFW-2249).

17. FIXING OF PERMANENT AND TEMPORARY BENCH MARKS:

Pmt Bench Mark be fixed at any nearby safe location or considered from any existing Permanent Building. RL be transferred and TBM be fixed at an interval of appx 200 mtr along the existing alignment at safe place. These temp Bench Marks should remain intact till completion of the work.

18. TOTAL STATION EQUIPMENT:

The total station eqpt with its accessories be provided by the contractor and will remain at site till completion of job.

19. Deleted.

20. RECORD OF MATERIALS AND PURCHASE VOUCHERS

20.1 The quantity of materials such as cement, steel, paints, water proofing compound, chemicals for anti-termite treatment and the like, as directed by Engineer-in-Charge (the quantity of which cannot be checked after incorporation in the works), shall be recorded in Measurement Books and signed by the contractor and the Engineer-in-Charge as a check to ensure that the required quantity has been brought to site for incorporation in the work.

20.2 Materials brought to site shall be stored as directed by the Engineer-in-Charge and those already recorded in Measurement Book shall be suitably marked for identification.

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20.3 Contractor shall produce vouchers/invoices from the manufacturers and/or their authorised agents for the full quantity of the following materials as applicable as a pre-requisite before submitting claims for payment for advance on account of the work done and/or materials collected in accordance with Condition 64 of General Conditions of Contracts (IAFW-2249):-

- (a) Cement / Lime.
- (b) Bitumen.
- (c) Bitumen Emulsion.

20.4 The contractor shall, on demand, produce to the OC Contract, original receipted vouchers/invoices in respect of the materials other than as stated in condition 18.3 above. Vouchers/invoices so produced and verified shall be stamped by Engineer-in-Charge indicating contract number. The contractor shall ensure that the materials are brought to site, in original sealed containers/packing, bearing manufacturer's marking except in the case of the requirement of materials(s) being less than smallest packing.

20.5 Bitumen shall be purchased directly from manufacturers only. These vouchers/invoices shall be defaced by the Engineer-in-Charge, indicating reference to the contract number, under his dated signature, and CTC thereof shall be kept on record so as to avoid their being used again.

20.6 The vouchers/invoices will clearly indicate the contract number and the IS No., specific alternative to which the material conforms in case of various alternative in IS.

21. FOSSILS

21.1 All fossils, coins, articles of value or antiquity, and structures and other remains or items of geological or archaeological interest found on the site shall be placed under the care and authority of the Employer. The contractor shall take reasonable precautions to prevent Contractor's Personnel or other persons from removing or damaging any these findings.

21.2 The Contractor shall, upon discovery of any such finding, promptly give notice to the Engineer-in-Charge/OC Contract, who shall issue instructions for dealing with it. If the Contractor suffers delay and/or incurs Cost from complying with the instructions, the Contractor shall give a further notice the Engineer- in-Charge/ OC Contract describing in detail the delay sustained by him and cost measured by him for following the instructions of the Engineer-in-Charge/OC Contract in dealing with the fossils along with all supporting documents/proof, within 7 days of the occurrence. The Contractor then be certified for the following: -

- (a) An extension of time for any such delay, if completion is or will be delayed due to such act in following the instructions of the Engineer-in-Charge/OC Contract.
- (b) Payment of any such cost, which shall be included in the Contract Price.

21.3 After receiving this further notice, the Engineer-in-Charge/OC Contract shall examine the case with facts and figures and disagreements if any will be communicated to the contractor.

21.4 In case of any disputes, the matter shall be referred to the Accepting Officer whose decision shall be final and binding.

22. TIME AND PROGRESS CHART

(a) The time and progress chart to be prepared as per the General Condition of Contract shall consist of detailed network analysis and a time schedule. The critical path network will be drawn jointly by the OC Contract and the Contractor soon after acceptance of the

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Tender. The time scheduling of the activities including a network for the preliminary arrangements for mobilization of resources e.g. manpower, plants and machineries will be done by the Contractor, so as to complete the work within stipulated time.

(b) On completion of the time schedule a firm calendar date schedule will be prepared and submitted by the contractor to the OC Contract who will approve if after due scrutiny. The schedule will be submitted in quadruplicate within six weeks from the date of handing over the site.

(c) During the currency of work, the Contractor is expected to adhere to the time schedule and this adherence will be a part of the contractor's performance under the contract. During the execution of the work, the Contractor is expected to participate in the review and updating the network undertaken by OC Contract. These reviews may be undertaken at the discretion of the OC Contract either as periodical appraisal measure or when the quantum of work ordered on the Contractor is substantially changed through deviation order or amendments. Any revision of the schedule as a result of the review will be submitted by the Contractor to the OC Contract within a week who will approve it after due scrutiny. The Contractor will adhere to the revised schedule thereafter. In case of the contractor's not agreeing to the revised schedule the same will be referred to the Accepting Officer whose decision will be final, conclusive and binding. OC's approval to the revised schedule resulting in a completion date beyond the stipulated date(s) of completion shall not automatically amount to grant of extension of time. Extension of time shall be considered and decided by the appropriate authority mentioned in condition 11 of General Conditions of Contracts and separately regulated.

(d) The Contractor is expected to mobilize and employ sufficient resources to achieve the detailed time schedule within the broad framework of the accepted methods of working and safety.

(e) No additional payment will be made to the contractor for any multiple shift work or other incentive methods contemplated by him in his work schedule even though the time schedule is approved by the department.

23. PERMIT FROM LOCAL AUTHORITIES FOR PLYING VEHICLES

Contractor shall make his own arrangements for obtaining necessary permit from local authorities for plying his equipments for the work in accordance with the rules and regulations of the land.

24. ELECTRICITY AND WATER SUPPLY

No electricity or water will be supplied by the department. The contractor shall make his own arrangement for execution of the work.

25. RATE QUOTED

(a) Unit rate shall be deemed to include the provisions for all materials, stores, labour, process, operations and requirements detailed in particular specifications irrespective of whether these appear as specific items or not in the Schedule A.

(b) The rate quoted shall also include transportation of equipment upto work site including loading/unloading.

26. OFFICIAL SECRET ACT: The contractor shall be bound by the Official Secret Act 1923.

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- 27. CLEANING DOWN:** Refer Condition 49 of General Conditions of Contracts (IAFW-2249). The Contractor shall clean all floors, remove cement, lime or paint drops, clean joinery, glass panels etc, touch up all paint work and carryout all necessary items of work in connection therewith and have the whole premises clean and tidy to the entire satisfaction of Engineer-in-Charge before handing over the items/works. No extra payment shall be admissible to the contractor for the operation.
- 28. OCTROI, SALES TAX AND OTHER DUTIES:** The tenderer's rates shall be deemed to include all Duties, such as Octroi, GST, Excise, etc as referred in condition 10 of General Conditions of Contracts (IAFW-2249) and also include state Govt. sales tax on works contracts payable under respective states according to the condition (46th Amendment Act 1982). Any other conditions stipulated by the tenderer regarding sales tax on works contracts would not be considered and such tender shall be liable for rejection.
- 29. DAMAGE TO EXISTING STRUCTURES:** Any damage to the existing structures, any existing road etc., during the execution of work shall be made good by the contractor at his own expense. Rectification, replacement, making good and touching up etc, shall be carried out, conforming to the materials and workmanship originally provided and to the satisfaction of the Engineer-in-Charge. In case of any dispute on this account, the decision of the OC Contract shall be final, binding and conclusive.
- 30. APPROACHES:** The contractor shall make arrangements for and provide at his own cost all temporary approaches, if required to the site(s), after obtaining approval in writing of the OC Contract to the layout of such approaches.
- 31. WATCH/LIGHTING:** The contractor shall at his own cost take all possible precautions to ensure safety of life and property by providing necessary fencing, barrier, light, watchmen etc., during the progress of work and as directed by the Engineer-in-Charge.
- 32. HANDING OVER OF SITE:** Site for execution of work will be available as soon as the work is awarded. In case it is not possible to make the entire site available on the award of work, the contractor will have to arrange his working programme accordingly. No claim whatsoever, for not giving entire site on award of work and for giving site gradually, will be tenable.
- 33. QUALIFIED TRADESMEN** In compliance with the condition 26 of IAFW-2249 (General Condition of Contracts), the contractor shall employ skilled/semi skilled tradesmen who are qualified and possessing certificate in particular trade from Industrial Training Institute (ITI)/National Institute of Construction Management and Research (NICMAR)/National Academy of Construction (NAC) Hyderabad, similar reputed and recognized-Institutes by State/Central Government, to execute the works of their respective trade. The number of such qualified tradesmen shall not be less than 25% of total skilled/semi skilled tradesmen required in each trade. The contractor shall submit the list of such tradesmen along with requisite certificate to OC Contract for verification and approval. Notwithstanding the approval of such tradesmen by OC Contract, if the tradesmen are found to have inadequate skill to execute the work of their trades, leading to unsatisfactory workmanship, the contractor shall remove such tradesmen within a week after written notice to this effect by the OC Contract and shall engage other qualified tradesmen after prior approval of OC Contract. OC Contract decision whether a particular tradesman possesses requisite qualification, skill and expertise commensurate with nature of work, shall be final and binding. No compensation what so ever on this account shall be admissible.
- 34. APPOINTMENT OF ARBITRATOR IN CASE OF CONTRACT AGREEMENTS TO BE EXECUTED BETWEEN BRO AND GOVT OF INDIA UNDERTAKINGS/ ENTERPRISES.**

In the event of any dispute or difference between the parties hereto, such dispute of difference shall be resolved amicably by mutual consultation or through the good offices of

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empowered agencies of the Government. In the event of any such dispute or differences relating to the interpretation and application of the provisions of contracts where such resolution is not possible then the unresolved dispute or differences shall be referred by either party to the Arbitration of one of the Arbitrators in the department of Public Enterprises to be nominated by the Secretary to the Government of India In charge of the Bureau of Public Enterprises, and in such case the **Arbitration and Conciliation Act,1996** shall not be applicable to the arbitration under this clause. The award of the Arbitrator shall be binding upon both the parties in the dispute. Provided, however, any party, aggrieved by such award, may make a further reference for setting aside or revision of the award to the Law Secretary, Department of Legal Affairs, Ministry of Law & Justice, Govt. of India. Upon such reference the dispute shall be decided by the Law Secretary or the Special Secretary/Additional Secretary when so authorized by the Law Secretary, whose decision shall bind the parties finally and conclusively. The parties to the dispute will share equally the cost of arbitration as intimated by the Arbitrator.

35. MEASUREMENT

Measurements pertaining to the work completed under this contract will be recorded and signed in the measurement book (IAFW-2261) by the Junior Engineer after taking in to account that the required laboratory tests have been done as per the limits stipulated and as per the frequencies laid down in the "Particular Specifications" of this contract agreement and MORTH Specifications for Road and Bridge Works (Latest revision) and connected documents thereof and test results are found satisfactory and proper records are maintained.

- (a) The measurement recorded by the Junior Engineer shall be 100% checked and signed by the Engineer-in-Charge.
- (b) 25% test check will be carried out by OC Contract on each day of measurement by the Engineer-in-Charge.
- (c) 5% test check will be carried out by the Cdr Task Force before making payment to the Contractor.
- (d) The measurements should also be signed by the contractor as token of acceptance of the measurement.
- (e) In case of discrepancies in arriving out work done details, the decision of the Accepting Officer will be final and binding for both the parties.

36. ACCEPTANCE OF WORK DONE

The Engineer-In-Charge shall exercise control over the quality of materials and work done by carrying out tests for the specified properties as per frequencies given in particular specifications and specifications of MORTH (Ministry of Road Transports and Highways) for Roads And Bridge (latest revision).

**37. RE-IMBURSEMENT/REFUND ON VARIATION IN PRICES-WAGES OF LABOUR
(THIS SUPERSEDES CONDITION 63 OF IAFW-2249)
(APPLICABLE ONLY IN CASE OF ORIGINAL COMPLETION PERIOD OF THE
WORK IS MORE THEN 18 MONTH)**

Increase or decrease in prices consequent on variation in wages of labour shall be adjusted on the basis stipulated hereinafter irrespective of the actual variation in price wages of labour to the contractor :-

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LABOUR

The labour component for the work under the contract as a whole shall be taken as KL of the value of the work executed under the contract. Variation in labour wages shall be worked out by adopting the following formula:-

$$EL = \frac{KL \times Vg1}{100} \times \frac{(L1 - Lo)}{Lo}$$

Where –

- EL = Variation in wages of labour re-imburement to be made to the contractor or refund to be made by the contractor.
- KL = Constant representing the percentage cost of labour element as compared to the total value of the work under the contract as a whole. The value of KL for the work shall **be 20 (Twenty)**.
- Vg1 = Gross value of work done at contract rates during the period of reckoning less value of work paid or payable to the contractor based on actual cost (e.g. star rate(s), work executed under prime cost sum etc) during the period of reckoning.
- L1 = Minimum wages in rupees of an unskilled adult male mazdoor as fixed under Minimum Wages Act, as on the date of commencement of the period of reckoning.
- Lo = As for L1 but the minimum wages as fixed under Minimum Wages Act in rupees of an unskilled adult male mazdoor as on the actual date of opening of priced bid (Q bid) of tender.

Notes:

1. The contract shall within reasonable time of his becoming aware of any alteration to the rate of wages of labour consequent on fixation of minimum wages under Minimum Wages Act, give written notice thereof to the OC Contract stating that the same is given pursuant to this special condition together with all information relating thereto which he may be in a position to supply.
2. Irrespective of the variations in minimum/fair wages for any category of labour; for the purpose of adjustment under this special condition, the variation in minimum wages fixed under Minimum Wages Act, for an unskilled adult mazdoor, if any, shall only form the basis.
3. Periodicity of working out the variation in wages of labour will be three months commencing from the actual date of opening of Price Bid (Part 'Q') of tender, the last adjustment for variation in wages of labour shall, however, be done for the period up to the stipulated date of completion given in the first work order, or extended date of completion. Valuation of price adjustment due to increase/decrease in minimum wages under Minimum Wages Act, for the purpose of making reimbursement /refund in RARs, will be timed in such a manner that relevant data required for quarterly calculation under this special condition is available from the RARs. The first price adjustment in respect of variation in wages of labour will be worked out for the relevant quarter during which the variation took place. For implementing this provision, the period of reckoning in such quarter will be divided into two period, i.e. the first period up to the RAR payable immediately after the date of variation and the other up to the end of the quarter. Value of L1 at the beginning of the other period shall be altered minimum wage. If there are more than one change(s) in wages in a quarter, there will be more than two periods of reckoning on similar basis. Amount payable relevant to work done for any quarter will be worked out after the minimum wages of an unskilled adult male mazdoor as fixed under Minimum Wages Act for the relevant quarter is available. Once the amount

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adjustable for any quarter is worked out, the same shall be adjusted in subsequent RAR as "advance on account" adjustments.

4. No adjustments in prices shall be made for any work done after the stipulated date of completion given in the first work order or extension of time granted under condition 11 of IAFW-2249 (whichever is later) for the work under this contract.

5. No adjustment, whatsoever, due to variation in wages of Labour on account of coming into force of any fresh law or statutory rule or order as provided in Condition 63 of IAFW-2249 or otherwise, than provided in this special condition shall be made. In short once this special condition is operative condition 63 of IAFW-2249 stands superseded.

6. Any dispute arising out of interpretation of application of this special condition shall be referred to the Accepting Officer whose decision shall be final and binding.

7. For purpose of calculation of retention money, liquidated damages, GST on work contracts, deduction of Income tax at source and recovery of water charges (on case of unmetered supply), the value of contract as revised by the above price variation will be taken into account.

38. RE-IMBURSEMENT/REFUND ON VARIATION IN PRICES : MATERIALS & FUEL (THIS SUPERSEDES CONDITION 63 OF IAFW-2249) (APPLICABLE ONLY IN CASE OF ORIGINAL COMPLETION PERIOD OF THE WORK IS MORE THEN 18 MONTH)

Increase or decrease in prices of materials and fuel shall be adjusted on the basis stipulated hereinafter irrespective of the actual variation in prices (to the contractor) :-

(a) **MATERIAL :**

(i) **For Cement**

The cement cost component including the cost of cement issued under Schedule 'B' in accordance with condition 10 (B) of IAFW-2249, for the contract as a whole shall be taken as KC % of the value of works executed under the contract, value of KC is given herein below :-

$$Emc = (Vmc2 - VmC1) \times \frac{(C1 - Co)}{Co}$$

$$Vmc = \frac{(Kc \times VG)}{100} + (Vsc - VBC)$$

Where :-

Emc = Variation in price of Cement to be adjusted.

Kc = Constant representing the percentage cost of cement, including Schedule 'B' Cement, as compared to the total value of work under the contract as a whole. The value of KC for this work shall be **25 (Twenty five)**.

VG = Gross value of work done at contract rates upto the last date of the period of reckoning.

Vsc = Value of all cement lying at the site for incorporation in the work including cement issued under Schedule 'B' and including cement brought and paid or payable to contractor under Prime Cost Sum and or Star Rate(s).

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VBC = Value of all cement (out of VG and VSC) issued under Schedule 'B' plus value of all Cement brought and paid or Payable to contractor under Prime Cost Sum and/or Star Rate(s).

C1 = Whole Sale Price index for Ordinary Portland Cement cement (Base 2011-12 =100) published by the economic Advisor to the Govt of India, as on date of commencement of the period of reckoning. In case the original contract period is extended under condition-11 of IAFW-2249, the price index as applicable on the date of commencement of last period of reckoning before the original completion date shall only be applicable during the extended period.

Co = As for C1 but the index as on the actual date of opening of Price Bid (Part 'Q') of tender.

Vmc2 = Value of Cement upto the last date of the period of reckoning for which price variation is adjustable as worked out as per formula for VMC.

Vmc1 = -do- but as on date of immediate preceding period of reckoning.

(ii) **For steel:-**

The Steel cost component including the cost of Steel issued under Schedule 'B' in accordance with condition 10 (B) of IAFW-2249, for the contract as a whole shall be taken as KS % of the value of works executed under the contract, value of KS is given herein below :-

$$Ems = (Vms2 - Vms1) \times \frac{(S1 - So)}{So}$$

$$Vms = \frac{(Ks \times VG)}{100} + (Vss - VBS)$$

Where :-

ms = Variation in price of Steel to be adjusted.

Ks = Constant representing the percentage cost of steel, including Schedule 'B' Steel, as compared to the total value of work under the contract as a whole. The value of KS for this work shall be **27 (Twenty seven)**.

VG = Gross value of work done at contract rates upto the last date of the period of reckoning.

Vss = Value of all steel lying at the site for incorporation in the work including Steel issued under Schedule 'B' and including steel brought and paid or payable to contractor under Prime Cost Sum and or Star Rate(s).

VBS = Value of all Steel (out of VG and VSS) issued under Schedule 'B' plus value of all Steel brought and paid or Payable to contractor under Prime Cost Sum and/or Star Rate(s).

S1 = Whole sale Price index for Mild Steel long products (Base 2011-12=100) published by the economic Advisor to the Govt of India, as on date of commencement of the period of reckoning. In case the original contract period is extended under condition-11 of IAFW-2249, the price index as applicable on the date of commencement of last period of reckoning before the original completion date shall only be applicable during the extended period.

So = As for S1 but the index as on the actual date of opening of Price Bid (Part 'Q') of tender.

Vms2 = Value of Steel upto the last date of the period of reckoning for which price variation is adjustable as worked out as per formula for VMC.

Vms1 = -do- but as on date of immediate preceding period of reckoning.

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(iii) For Bitumen

The Bitumen cost component including the cost of Bitumen issued under Schedule 'B' in accordance with condition 10 (B) of IAFW-2249, for the contract as a whole shall be taken as K_s % of the value of works executed under the contract, value of K_s is given herein below :-

$$E_m = (V_{MB}^2 - V_{MB}^1) \times \frac{(B_1 - B_0)}{B_0}$$
$$V_{MB} = \frac{(K_B \times V_G)}{100} + (V_{SB} - V_{BB})$$

Where :-

E_{MB} = Variation in price of "Bitumen" to be adjusted.

K_B = Constant representing the percentage cost of "Bitumen", including Schedule 'B' "Bitumen", as compared to the total value of work under the contract as a whole. The value of K_s for this work shall be **10 (Ten)**.

V_G = Gross value of work done at contract rates up to the last date of the period of reckoning.

V_{SB} = Value of all "Bitumen" lying at the site for incorporation in the work including "Bitumen" issued under Schedule 'B' and including "Bitumen" brought and paid or payable to contractor under Prime Cost Sum and or Star Rate(s).

V_{BB} = Value of all "Bitumen" (out of V_G and V_{SB}) issued under Schedule 'B' plus value of all "Bitumen" brought and paid or Payable to contractor under Prime Cost Sum and/or Star Rate(s).

B_1 = Monthly Whole sale Price index for Bitumen (Base 2011-12 =100) published by the economic Advisor to the Govt of India, as on date of commencement of the period of reckoning. In case the original contract period is extended under condition-11 of IAFW-2249, the price index as applicable on the date of commencement of last period of reckoning before the original completion date shall only be applicable during the extended period.

B_0 = As for B_1 but the index as on the last date of receipt of tender.

V_{MB}^2 = Value of "Bitumen" up to the last date of the period of reckoning for which price variation is adjustable as worked out as per formula for V_{MB} .

V_{MB}^1 = -do- but as on date of immediate preceding period of reckoning.

(iv) **Other Materials (Materials except cement, steel and Bitumen)** : The "other materials" cost component including the cost of "other materials" issued under Schedule 'B' in accordance with condition 10 (B) of IAFW-2249, for the contract as a whole shall be taken as K_M % of the value of works executed under the contract, value of K_M is given herein below :-

$$E_m = (V_m^2 - V_m^1) \times \frac{(W_1 - W_0)}{W_0}$$
$$V_m = \frac{(K_M \times V_G)}{100} + (V_s - V_B)$$

Where :-

E_m = Variation in price of "other materials" to be adjusted.

K_m = Constant representing the percentage cost of "other materials", including Schedule 'B' "other materials", as compared to the total value of work under the contract as a whole. The value of K_M for this work shall be **10 (Ten)**.

V_G = Gross value of work done at contract rates up to the last date of the period of reckoning.

V_s = Value of all "other materials" lying at the site for incorporation in the work including "other materials" issued under Schedule 'B' and including "other materials" brought and paid or payable to contractor under Prime Cost Sum and or Star Rate(s).

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VB = Value of all “other materials” (out of VG and VS) issued under Schedule ‘B’ plus value of all “other materials” brought and paid or Payable to contractor under Prime Cost Sum and/or Star Rate(s).

W1 = Whole sale Price index for all commodities (Base 2011-12 =100) published by the economic Advisor to the Govt of India, as on date of commencement of the period of reckoning. In case the original contract period is extended under condition-11 of IAFW-2249, the price index as applicable on the date of commencement of last period of reckoning before the original completion date shall only be applicable during the extended period.

Wo = As for W1 but the index as on the actual date of opening of Price Bid (Part ‘Q’) of tender.

Vm2 = Value of “other materials” up to the last date of the period of reckoning for which price variation is adjustable as worked out as per formula for VM.

Vm1 = -do- but as on date of immediate preceding period of reckoning.

W1 = Whole sale Price index for all commodities (Base 2011-12= 100) published by the economic Advisor to the Govt of India, as on date of commencement of the period of reckoning. In case the original contract period is extended under condition-11 of IAFW-2249, the price index as applicable on the date of commencement of last period of reckoning before the original completion date shall only be applicable during the extended period.

Wo= As for W1 but the index as on the actual date of opening of Price Bid (Part ‘Q’) of tender.

Vm2= Value of materials up to the last date of the period of reckoning for which price variation is adjustable as worked out as per formula for VM.

Vm1= -do- But as on date of immediate preceding period of reckoning.

(b) **FUEL** : Fuel cost component for the contract as a whole shall be taken as KP% of the value of work executed under the contract. Value of KP given herein below :-

$$E_p = \frac{K_p \times V_{G1}}{100} \times \frac{(F_1 - F_o)}{F_o}$$

Where :-

E_p = Variation in price of fuel to be adjusted.

K_p = Constant representing the percentage of cost of fuel as compared to the total value of work under the contract as a whole. The value of KP for this work shall be **03 (Three)**.

V_{G1} = Gross value of work done during the period of reckoning, using value of Vg for calculating VM1 and VM2 under (a) above.

F_1 = Whole sale price index for sub group for fuel & Power (base 2011-12 = 100) published by Economic Adviser to Government of India as on the date of commencement of the period of reckoning.

F_o = As for F_1 but the index as on the actual date of opening of Price Bid (Part ‘Q’) of tender.

NOTES :-

1. No adjustments, whatsoever, due to variation in prices of materials and fuel on account of coming into force of any fresh law or statutory rule or order as provided in condition 63 of

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IAFW-2249 or otherwise than provided in this condition shall made. In short, once this special condition is operative condition 63 of IAFW-2249 stands superseded.

2. No adjustment in prices shall be made for any work done with materials brought at site after the stipulated date of completion given in work order No. 1 or extension of time granted under condition 11 of IAFW-2249 (whichever is later) for the work under the contract.

3. Periodicity of working out the variations will be at three months commencing from the actual date of opening of price Bid (Part 'Q') of the tender. The last calculation shall however be done for the value of work at contract rates and materials lying at site for incorporation in the work as on date of completion or extension thereof as mentioned in Note 2 above valuation of RARs is to be timed in such a manner that relevant data required for quarterly calculation under this condition is available from RARs. Amount payable relevant to work done and materials collected in any quarter will be worked out after final wholesale price indices for the relevant quarter are available. Once the amount adjustable for any quarter is worked out the same shall be adjusted as and alongwith advance on account payment under condition 64 of IAFW-2249 in the subsequent RAR (s).

4. Any dispute arising out of interpretation of application of this special condition shall be referred to the Accepting Officer whose decision shall be final and binding.

5 For purpose of calculation of retention money, liquidated damages, sales tax/service tax on works contracts, deduction of income tax at source and recovery of water charges (in case of unmetered supply) the value of contract as revised by the above price variation will be taken into account.

39. RECORD/CONSUMPTION OF MAJOR CONSTRUCTION STORES / MATERIALS

- (a) (i) For the purpose of keeping a record of Major Construction Stores like **Cement, Bitumen, Bitumen Emulsion, Antistripping Agent, Warm Mix Additives and filler materials** consumed in works, the contractor shall maintain a pucca bound register in the form approved by the Engineer-in-Charge/OC Contract showing daily quantity used in works. The register shall be signed daily by the contractor's representative and the Engineer-in-Charge/OC Contract in token of their verification of its correctness. The check will not, however, absolve the contractor of his responsibility to justify the consumption of bitumen at the time of finalization of his work.
- (ii) The register shall be kept at site in the safe custody of the contractor during progress of the work and shall, on demand, be produced for verification of inspecting officers.
- (b) (i) The quantity of materials such as paints, water proofing compound and the like as directed by the Engineer-in-Charge (the quantity of which cannot be checked after incorporation in the works), shall be recorded in the register and signed by the contractor and the Engineer-in-Charge as a check to ensure that the required quantity has been brought to site for incorporation in the work.
- (ii) Materials brought to site shall be stored as directed by the Engineer-in-Charge in Measurement Book and shall be suitably marked for identification.
- (iii) The contractor shall, on demand produce the OC original receipted vouchers in respect of the supplies. Vouchers so produced shall be verified and stamped by Engineer-in-Charge indicating contract number. The contractor shall ensure that the materials are brought to site in original sealed containers/packing, bearing

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manufacturer's marking except in the case of the requirement of materials(s) being less than smallest packing.

(iv) Contractor shall produce original vouchers from the manufactures and/ or their authorized agents for the full quantity of the following materials, as applicable as a prerequisite before submitting for payment for any advances on account of the work done and/or materials collected in accordance with condition 64 of General Condition of Contracts IAFW-2249.

- (a) Cement / Lime.
- (b) Bitumen.
- (c) Bitumen Emulsion.

40. PAYMENT

Payment to the parties will be made in INR in the following manner: -

- (a) No advance payment will be made to the contractor against any material if not properly safeguarded against loss / damage due to natural calamities / theft. (Condition 64 of IAFW-2249 shall be deemed amended to this extant).
- (b) No payment shall be made for any rejected work
- (c) Taxes (Income tax, GST, Labour Cess etc) shall be deducted at source from the payment due to contractors as per prevailing laws / statutory orders and TDS certificate shall be issued to the contractor.
- (d) All payments will be made by e-payment / account payee cheque.

41. CO-OPERATION WITH OTHER AGENCIES

The contractor shall permit free access and generally afforded reasonable facilities to other agencies or departmentally workmen engaged by the Govt to carry out their part of the work, is any, under separate arrangements.

42. SUPPLY OF COLOUR RECORD PHOTOGRAPHS, ALBUMS AND VIDEO CDs

Contractor shall provide/supply of colour record photographs, Album and video CDs at various stages/facts of the work without any extra cost as per clause 121 of MoRT&H specification for road and bridge works (Fifth Revision).

43. FIELD LABORATORY : To maintain proper quality control at site, contractor shall establish adequately equipped field laboratory without any extra cost. The following minimum testing equipments shall be provided in field laboratory:-

- (a) Electrically operated, thermostatically controlled oven range upto 200⁰C sensitivity 1⁰C.
- (b) Balance 20 kg capacity self indicating type.
- (c) Water bath-electrically operated and thermostatically controlled with adjustable shelves, sensitivity 1⁰C.
- (d) Thermometers:-
 - (i) Mercury in glass –range upto 250⁰C.
 - (i) Mercury in Steel –range upto 300⁰C with 30 Cm stem
- (e) Gas Stove or electric hot plate.
- (f) Set of Sieves with lid & pan : 450 mm dia - 63mm to 75 micron.
- (g) First aid box.
- (h) AIV & Los Angles Abrasion test apparatus.
- (j) Flakiness and Elongation test gauges.
- (k) Core cutter apparatus 10 cm dia,10/15 cm height, complete with dolly, rammer etc.

(Signature of the Contractor)

(For Accepting Officer)

SPECIAL CONDITIONS (CONTD)

B₁ = Ex-refinery price of Bitumen inclusive of all taxes / duties at “refinery nearest to the work site” of Indian Oil Corporation as available on web site of IOC Ltd (i.e. www.iocl.com) as on the date of purchase of bitumen. (In Rs/ MT)

(Factor of 1.15 has been used to cover contractor’s overhead and profit)

Notes:-

1. No adjustments, what so ever, due to variation in prices of materials and fuel on account of coming into force of any fresh law or statutory rule or order as provided in condition 63 of IAFW-2249 or otherwise than provided in this condition shall be made. In short once this special condition is operative condition 63 of IAFW-2249 stands superseded.
2. No adjustment in prices shall be made for any work done with materials brought at site after the stipulated date of completion given in work order No. 1 or extension of time granted under condition 11 of IAFW-2249 (whichever is later) for the work under the contract.
3. Any dispute arising out of interpretation of application of this special condition shall be referred to the Accepting Officer whose decision shall be final and binding.
4. For purpose of calculation of retention money, liquidated damages, sales tax / service tax on works contracts, deduction of income tax at source and recovery of water charges (in case of unmetered supply) the value of contracts as revised by the above price variation will be taken into account.

48. CONCILIATION

1. Conciliation shall be conducted as laid down u/s 61 to 81 of Arbitration and Conciliation Act 1996 (Part III) unless specified otherwise here-in-after.

48.1.1 The scope of conciliation shall be restricted to the following types of disputes with financial limits as indicated therein: -

- (a) Disputes relating to levy of compensation for delay in completion, actual amount of compensation.
- (b) Disputes relating to technical examination of works.
- (c) Disputes relating to interpretation of the provisions of the contract with reference to their application to parties.
- (d) Disputes relating to non return of Schedule ‘B’ stores over-issued to contractor.
- (e) Disputes relating to assessment of loss/damage occurred in executed work only (and not for contractor’s material & V/E/P) due to natural calamities.
- (f) Any other disputes having fair chances of being resolved by conciliation and considered fit to be conciliation by the parties.

48.1 COMMENCEMENT OF CONCILIATION PROCEEDINGS

48.1.1 The party initiating conciliation shall send to the other party a written invitation to conciliate, briefly identifying the subject of the dispute.

48.1.2 Conciliation proceedings shall commence when the other party accepts in writing the invitation to conciliate.

(Signature of the Contractor)

(For Accepting Officer)

SPECIAL CONDITIONS (CONTD)

48.2 Number of Conciliators

48.2.1 There shall be a sole conciliator.

48.3 Appointment of Conciliator

48.3.1 All disputes brought out in Para 1.1.1 (a) to (f) above shall be referred to the Sole Conciliator viz Serving Officer not below the rank of Superintending Engineer having degree in Engineering or equivalent to be appointed by the concerned ADGBR or in his absence the Officer Officiating as ADGBR specifically delegated by the ADGBR in writing.

48.4 STATUS OF EFFECT OF SETTLEMENT AGREEMENT

48.4.1 The settlement agreement signed by the parties as a result of conciliation proceedings shall have the same status and effect as it is an arbitral award on agreed terms.

49. DISPUTE RESOLUTION BOARD (DRB) APPLICABLE FOR CONTRACTS OF VALUE MORE THAN Rs.10 crore.

(a) During execution of this works or after completion or after determination/cancellation/termination of the contract all disputes between the parties to contract arising out of the contract (except those for which decision of Accepting Officer or any other officer is expressed to be final and binding). Including any disagreement by either party with any action, inaction, opinion, instruction, certificate or valuation by the Accepting Officer or his nominee, the matter in dispute shall, in the first place be referred to the Dispute Resolution Board (DRB). In case of disagreement with the decision of such DRB, any party may invoke arbitration clause.

(b) The constitution of the DRB shall be a three member body as under:-

(a) Chairman : DDG of the concerned ADGBR. Where DDG is not posted in the ADGBR, any other senior level Col/Director posted in ADBR shall be nominated by ADGBR at his sole discretion.

(a) Member 1 } Col/Director rank Officers of ADGBR or of any other
(b) Member 2 } CE (Project) be nominated by ADGBR

(c) The name of Chairman and members shall be notified by the Accepting Officer within one month of the date of acceptance of Contract.

(d) Once the DRB is constituted the members and Chairman shall disclose in writing their neutrality and impartiality about any personal interest in the work.

(e) The dispute shall be referred to the Chairman of DRB by the concerned party after giving notice to the other party for invoking of this clause.

(f) The DRB shall decide the dispute in accordance with the terms of the Contract, principle of natural justice, equity and fair play.

(g) The DRB may fix oral hearing at a place, date and time as decided by the Chairman.

(Signature of the Contractor)

(For Accepting Officer)

SPECIAL CONDITIONS (CONTD)

- (h) The requisite administrative support to the DRB shall be provided by the Accepting Officer.
- (i) All the contract documents pertaining to the case shall be provided by the Accepting Office for reference by the DRB.
- (j) DRB shall give its decision on the disputes within three months of notice from any party invoking the DRB clause. This period can be extended by one month with the consent of the parties.
- (k) All the decisions given by the DRB shall be by majority and such decisions shall be communicated in writing by Chairman to the parties.
- (l) If the decision of the DRB is not to the satisfaction of either party or if the DRB fails to give decision within the laid down time either party shall indicate his reservations on the decision to Accepting Officer within 30 days of such decision and to refer that dispute for arbitration.
- (m) It shall be mandatory for the party invoking arbitration on any particular dispute to have first exhausted the remedy provided under the DRB clause for that particular dispute.
- (n) The mandate of the DRB shall terminate on completion of one year from the date of completion/determination/cancellation/termination of the contract.
- (o) If any member or Chairman of the DRB is unable to function due to any reason whatsoever, or he resigns his appointment, concerned ADGBR shall fill the vacancy so caused within 125 days of happening of such vacancy.
- (p) Any dispute referred to the DRB and having been decided by the DRB and not objected to by either party within 30 days shall attain finality and shall not be referable to arbitration.
- (q) Accepting Officer shall ensure implementation of the decisions of the DRB which attain finality, i.e. except those which are objected by him or by contractor within 30 days as per Para 2 above.
- (r) Findings and decision of DRB shall be admissible as evidence, to the extent permissible as per law, in the subsequent Arbitration and/ or litigation.
- (s) DRB Chairman/member shall not in any case, be liable to be called as witness or to produce any evidence in any Arbitration or departmental proceedings of any kind.
- (t) During execution of work the disputes may be referred to the DRB as per the requirement of each party after having exhausted the decision making process provided in the contracts. In case of completion of work or after determination/cancellation/termination of the contract all the disputes including payment/non-payment/delay in final bill shall be simultaneously referred to the DRB within six months of completion/determination/cancellation/termination of contract.

(Signature of the Contractor)

(For Accepting Officer)

SPECIAL CONDITIONS (CONTD)

(u) The department case before the DRB shall be presented by Accepting Officer himself and/ or Dir (Contract) of CE Project assisted by Task Force Commander and his SW, OC RCC/BCC and any other officer and legal counsel nominated by Accepting Officer. The Contractor may present his case by himself and/ or by his nominated reps & authorized legal/technical counsel.

50. ARBITRATION (REFER CLAUSE 70 OF CONDITION OF CONTRACT OF IAFW-2249)

All disputes or differences arising as aforementioned, other than those for which the decision of the Accepting Officer or any other person is by the contract expressed to be final and binding shall be referred to sole arbitrator under condition No 70 of General Conditions of contract IAFW-2249 after written notice by either party of the contract to the other of them. In addition to above Arbitration and conciliation (Amendment) Act 2015 will also prevail.

51. LEGAL JURISDICTION: Legal jurisdiction for this contract agreement shall be “**Courts at Kamrup (M) /Guwahati in the State of Assam**”.

52. HIRING CHARGES OF LAND: Payment of rent for road side land if any where crusher and HMP plants will be installed based on the requirement of Daily works will be payable by Contractor and this will not be reimbursable by the Deptt.

53. CONTRACT LABOUR (R&A) ACT 1970

The contractor shall get himself registered with Regional Labour Commissioner, Guwahati as required under contract labour (Regulation and Abolition) Act 1970. If he does not fall within the purview of said act, he shall obtain a no objection certificate from ALC, Jalpaiguri to above effect. A copy of the certificate of registration or the no objection certificate (as the case may be) shall be submitted by him to the Accepting Officer within 15 days of the award of the work. In the event of his non-compliance, the contractor shall be liable for punitive action under CL (R&A) Act 1970.

54. LOSS OR DAMAGE ON ACCOUNT OF ENEMY ACTION

(a) If as a result of enemy action, the contractor suffers any loss or damage, the Government shall reimburse to the contractor such loss or damages, to the extend and in the manner herein after provided:-

(i) The loss suffered by him on account of any damage or destruction of his equipment (as defined in condition 11 (2) above), the amount of losses assessed by the Accepting Officer of the contract on this account shall be final and binding.

(ii) Compensation paid by him under any law for the time being in force to any workmen employed by him for any injury caused to him or the workmen's legal successor for loss of the workmen's life.

(b) No requirement shall be made nor shall any compensation be payable under the above provisions unless the contractor had taken Air Defence Precautions ordered in writing by OC concerned or in the absence of such orders, reasonable precautions. No re-imbursement shall be made nor shall any compensation be payable for any equipments not laying on the site of work at the time of enemy action.

(Signature of the Contractor)

(For Accepting Officer)

SPECIAL CONDITIONS (CONTD)

55. REGISTRATION FEE/TRADE TAX/INCOME TAX ETC.

Tendered rates/amount shall also be deemed to include the payment of all taxes like Registration fee, Trade Tax, Income Tax and other taxes/levies to be paid to the Govt of India/Royal Govt of Bhutan already in force and as may be modified from time to time. The contractor may ascertain full details on this respect from the concerned department(s).

56. ADJUSTMENT OF TAX CONSEQUENT UPON AMENDMENT TO CONSTITUTION

The tendered rate shall also be inclusive of all statute levies and State / Union Territory / shall tax on works contract payable under the respective statutes pursuant to the constitution stipulated by the tenderers regarding sales tax on works contracts will not be considered and such tender will be liable for reject

57. ESCALATION:- Deleted.

58. INCOME TAX:- Indian Income Tax @ 2% and BCT (@ 3% for Indian Contractors and @ 2% for Bhutanese Contractors will be deducted at source as applicable.

59. DEDUCTION OF TAX AT SOURCE:- Indian Income tax and BCT shall be deducted at source as applicable

60. REGISTRATION:- Contractor is required to get his firm registered with GST and Asst Labour Commissioner of the area under Contract Labour (R&A) Act and Building and other construction workers Act. A Copy of valid registration certificate issued will be submitted to OC Contract while processing RARs / Bills.

61. MANDATORY REQUIREMENT FOR MAKING PAYMENTS: E-PAYMENT THROUGH NEFT/RTGS/ECS/EBS (THIS SUPERSEDES CONDITION 66 OF GENERAL CONDITIONS OF CONTRACT OF IAFW-2249.

61.1 All payment will be made through E-payment and hence tenderers must furnish NEFT Form duly signed by the Bank Authorities.

Appendix-A to special conditions No 51

NEFT / RTGS MANDATE FORM

1.	Name of Firm / contractor as per account in the Bank	
2.	Beneficiary's Account Number (As appearing on the Cheque Book)	
3.	Name of Bank where a/c is held	
4.	Name of Branch	
5.	Address of Branch	
6.	Telephone No. of Branch	
7.	IFSC Code of Branch	
8.	9-digit MICR Code Number of the Bank & Branch	
9.	E-mail ID of Contractor	

Note:- Please attach a blank cancelled cheque for verification of the above particulars.

I, hereby, declare that the particulars given above are correct and complete. If the transaction is delayed or not effected due to incomplete or incorrect information of the bank details, I will not hold the payment releasing authority responsible for it.

Dated:

Signature of the Contractor (Seal)

CERTIFICATE BY BANK

Certified that the particulars furnished above are correct as per our records.

Seal of Bank

(Signature of the branch manager of the Bank)

Dated :

(Signature of the Contractor)

(For Accepting Officer)

SPECIAL CONDITIONS (CONTD)

Annexure-I to special conditions

FORMAT FOR BANK GURANTEE FOR ADVANCE PAYMENT

From:
Bank _____
To
The President of India
Sir,

1. With reference to contract Agreement No _____ concluded between the president of India, hereinafter referred to as "The Government" and M/S _____ hereinafter referred to as the "the contractor" for _____ as detailed in the above contract agreement hereinafter referred to as "the said contract" and in consideration of the Government having agreed to make an advance payment in accordance with the terms of the said contract to the said contractor, we the _____ bank, hereinafter call 'the Bank' hereby irrevocably undertake and guarantee to you that if the said contractor would fail to provide works in accordance with the terms & conditions of the said contract for any reason whatsoever or fail to perform the said contract in any respect or should whole or part of the said on account payments at any time become repayable to you for any reason whatsoever, we shall, on demand and without demur pay to you all and any sum up to a maximum of Rs. _____ (Rupees _____ only) paid as advance to the Contractor in accordance with the provisions contained in clause _____ of the said contract.

2. We further agree that the Government shall be the sole judge as to whether the contract has failed to provide works in accordance with the terms & conditions of the said contract or has failed to perform the said contract in any respect or the whole or part of the advance payment made to contractor has become repayable to the Government and to the extent and monetary consequences thereof by the Government.

3 We further hereby undertake to pay the amount due and payable under this Guarantee without any demur merely on a demand from the Government stating the amount claimed. Any such demand made on the Bank shall be conclusive and binding upon us as regards the amounts due and payable by us under this Guarantee and without demur, However, our liability under this Guarantee shall be restricted to an amount not exceeding Rs _____ Rupees _____ only).

4. We further agree that the Guarantee herein contained shall remain in full force and effect for a period upto _____ (03 months+due date of recovery of advance) unless the Government in his sole discretion discharges the Guarantee earlier.

5. We further agree that any change in the constitution of the Bank or the constitution of the contractor shall not discharge our liability hereunder

6. We further agree that the Government shall have that fullest liberty without affecting in any way our obligations hereunder with or without our consent or knowledge to vary any of the terms and conditions of the said contract or extend the time of development/delivery from time to time or to post pone for any time or from time to time any of the powers exercisable by the Government against the contractor and either to forebear or enforce any of the terms and conditions relating to the said contract and we shall not be relieved from our liability by reason of any such variation or any indulgence or for bearance shown or any act omission on the Government or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have the effect of so relieving us.

7. We lastly undertake not to revoke the Guarantee during the currency of the above said contract except with the prior consent of the Government in writing.

Place: _____

Date : _____

Yours faithfully,

For _____ Bank
(Authorised Attorney)
Seal of Bank

(Signature of the Contractor)

(For Accepting Officer)

PARTICULAR SPECIFICATIONS

EXECUTION OF SURFACING WORK BETWEEN KM 0.00 TO KM 31.50 (PHASE-I) AND BETWEEN KM 31.50 TO KM 55.00 (PHASE-II) FOR PROVIDING AND LAYING OF WMM 75 MM (2 LAYERS) COMPACTED THICKNESS, DBM 50 MM COMPACTED THICKNESS AND BC 30 MM COMPACTED THICKNESS INCLUDING APPLICATION OF PRIME COAT,TACK COAT,ROLLING AND COMPACTION AS PER MORT&H SPECIFICATIONS AND ROAD MARKING WITH THERMOPLASTIC PAINT AS PER IRC:35 INCLUDING PROVIDING AND FIXING OF ROAD STUD AND DELINEATOR FOR CONSTRUCTION OF PANBANG-NGANGLAM ROAD UNDER 63 RCC/19 BRTF OF PROJECT DANTAK INSIDE BHUTAN UNDER JOB NO. H-2112/01

SCOPE OF WORK: The scope of work shall consist of Surfacing works. All materials to be used, all methods adopted and all works performed shall be strictly in accordance with the requirements of the specifications mentioned herein.

GENERAL

The specifications contained in Ministry of Road Transport and Highways “Specifications for Road and Bridge Works (Fifth Revision)” published by Indian Road Congress during Apr 2013 (hereinafter referred to as MoRT&H Specifications) shall generally be followed.

1. SURFACING WORKS

1.1 CONTROL OF ALIGNMENT, LEVEL AND SURFACE REGULARITY

1.1.1 General

All works performed shall conform to the lines, grades, cross sections and dimensions shown on the drawings or as directed by the Engineer-in-Charge/OC Contract, subject to the permitted tolerances described herein-after.

1.1.2 Horizontal Alignment

Horizontal alignments shall be reckoned with respect to the centre line of the carriageway as shown on the drawings. The edges of the carriageway as constructed shall be correct within a tolerance of ± 10 mm there from. The corresponding tolerance for edges of the roadway and lower layers of pavement shall be ± 25 mm.

1.1.3 Surface Levels

- i) The levels of the subgrade and different pavement courses as constructed, shall not vary from those calculated with reference to the longitudinal and cross-profile of the road shown on the drawings or as directed by the Engineer-in-Charge/OC Contract beyond the tolerances mentioned in Table 900-1 MoRT&H specifications for road and bridge works (Fifth Revision).

Table 900-1. Tolerances in surface levels

1.	Subgrade	± 20 mm
2.	Sub-base	
	(a) Flexible pavement	± 10 mm
	(b) Concrete pavement	± 6 mm
3.	Base-course for flexible pavement	
	(a) Bituminous Base/Binder course	± 6 mm
	(b) Granular	
	(i) Machine laid	± 10 mm
	(ii) Manually laid	± 15 mm

(Signature of the Contractor)

(For Accepting Officer)

PARTICULAR SPECIFICATIONS (CONTD)

4. Wearing course for flexible pavement
- | | | |
|-----|---------------|-------------|
| (a) | Machine laid | ± 6 mm |
| (b) | Manually laid | ± 10 mm |
- ii) Provided, however, that the negative tolerance for wearing course shall not be permitted in conjunction with the positive tolerance for base course, if the thickness of the former is thereby reduced by more than the following limits :-
- | | |
|-----|--|
| (a) | 4 mm for bituminous wearing course of thickness 40 mm or more. |
| (b) | 3 mm for bituminous wearing course of thickness less than 40 mm. |
- iii) For checking compliance with the above requirement for subgrade, sub-base and base courses, measurements of the surface levels shall be taken on a grid of points placed at 6.25 m longitudinally and 3.5 m transversely. For any 10 consecutive measurements taken longitudinally or transversely, not more than one measurement shall be permitted to exceed the tolerance as above, this one measurement being not in excess of 5 mm above the permitted tolerance.
- iv) For checking the compliance with the above requirement for bituminous wearing courses and concrete pavements, measurements of the surface levels shall be taken on a grid of points space at 6.25 mm along the length and at 0.5 mm from the edges and at the centre of the pavement. In any length of pavement, compliance shall be deemed to be met for the final road surface, only if the tolerance given above is satisfied for any point on the surface.

1.1.4 Surface Regularity Of Pavement Courses

- i) The longitudinal profile shall be checked with a 3 metre long straight edge/moving straight-edge as desired by the Engineer-in-Charge/OC Contract at the middle of each traffic lane along a line parallel to the centre line of the road.
- ii) The maximum permitted number of surface irregularities shall be as per Table 900-2 MoRT&H specifications for road and bridge works (Fifth Revision).

Surfaces of carriageways and paved shoulders					Surfaces of laybye, service areas and all bituminous base courses				
Irregularity	4 mm		7 mm		4 mm		7 mm		
Length (m)	300	75	300	75	300	75	300	75	
National Highways/ Expressways	15	9	2	1	40	18	4	2	
Roads of lower category	40	18	4	2	60	27	6	3	

(Signature of the Contractor)

(For Accepting Officer)

PARTICULAR SPECIFICATIONS (CONTD)

- iii) The maximum allowable difference between the road surface and underside of a 3 m straight-edge when placed parallel with, or at right angles to the centre line of the road at points decided by the Engineer-in-Charge/OC Contract shall be:
- | | |
|---|-------|
| For pavement surface (bituminous and cement concrete) | 3 mm |
| for DBM/bituminous base courses | 6 mm |
| for granular sub base/base course | 8 mm |
| for sub-bases under concrete pavements | 10 mm |
| for subgrade | 15 mm |

1.1.5 Rectification

Where the surface regularity of subgrade and the various pavement courses fall outside the specified tolerances in Clause 902.4 of MoRT&H specifications for road and bridge works (Fifth Revision), the Contractor shall be liable to rectify these in the manner described below and to the satisfaction of the Engineer-in-Charge/OC Contract.

- (i) **Scarifying existing BT surface** : Scarifying of existing BT surface disposal of rubbish up to 50m and consolidation of the aggregate received from scarifying and as directed by EIC/OC contract.
- (ii) **WMM/Base** : Where the surface is high or low, the top 75 mm shall be scarified, reshaped with added materials as necessary and recompacted as per Clause 406 of MoRT&H Specifications for road and Bridge works (Fifth Revision).
- (iii) **Bituminous Constructions** : For bituminous construction other than wearing course, where the surface is low, the deficiency shall be corrected by adding fresh materials over a suitable tack coat, if needed, and recompacting as per specifications. Where the surface is high, the extra thickness in the affected layer shall be removed and replaced with fresh material and compacted to specifications.

For wearing course, where the surface is high or low, the full depth of the layer shall be removed and replaced with fresh material and compacted to specifications. In all cases where the removal and replacement of a bituminous layer is involved, the area treated shall not be less than 5 m in length and not less than 3.50 m in width.

1.2 SCARIFYING OF EXISTING BT SURFACE

1.2.1 Scope: This work shall consist of scarifying of existing BT layer to specific depth to ensure new material layer bonds with the old. Disposal of rubbish up to 50m from the site and consolidation of the aggregate received from scarifying with required density in such way that to maintain required grade and camber for laying of upper surfacing layers.

1.2.2 Compaction: After the scarifying of existing BT layer. Grade crossfall/camber the same shall be uniformly compacted, to the full depth with suitable roller.

1.2.3 Measurement for Payment

The work shall be measured as finished work in position in “**Sqm**” as specified in Bill of quantity” of Bid Documents. Suitable arrangement shall be made by the contractor to facilitate measurement by the unit specified.

(Signature of the Contractor)

(For Accepting Officer)

PARTICULAR SPECIFICATIONS (CONTD)

1.3 WET MIX MACADAM 150 mm thick (75 mm each in 02 layers)

1.3.1 Scope: This work shall consist of laying and compacting clean, crushed, graded aggregate and granular material, premixed with water, to a dense mass of compacted thickness on a prepared subgrade/sub-base/base or existing pavement as the case may be in accordance with the requirements of these specifications. The material shall be laid in three layers as necessary to lines, grades and cross-sections shown on the approved drawings or as directed by the Engineer-in-Charge/OC Contract.

1.3.2 Materials

1.3.2.1 Aggregates

1.3.2.1.1 Physical requirements: Coarse aggregates shall be crushed stone. If crushed gravel/shingle is used, not less than 90 % by weight of the gravel/shingle pieces retained on 4.75 mm sieve shall have at least two fractured faces. The aggregates shall conform to the physical requirements set forth in Table 400-12 of MoRT&H Specifications for Road and Bridge Works (Fifth Revision).

1.3.2.1.2 If the water absorption value of the coarse aggregate is greater than 2%, the soundness test shall be carried out on the material delivered to site as per IS : 2386 (Part-5).

Table 400-12 : Physical Requirements of Coarse aggregates for Wet Mix Macadam for sub-base/Base Course

S./No.	Test	Test Method	Requirements
1.	Los Angeles Abrasion value	IS : 2386 (Part-4)	40 % (Max)
	or * Aggregate impact value	IS : 2386 (Part-4) or IS : 5640	30 % (Max)
2.	Combined Flakiness and Elongation indices (Total)	IS : 2386 (Part-I)	35 % (Max)

* To determine this combined proportion, the flaky stone from a representative sample should first be separated out. Flakiness index is weight of flaky stone metal divided by weight of stone sample. Only the elongated particles be separated out from the remaining (non- flaky) stone metal. Elongation index is weight of elongated particles divided by total non-flaky particles. The value of flakiness index and elongation index so found are added up.

1.3.2.1.3 Grading requirements : The aggregates shall conform to the following grading as per Table 400-13 of MoRT&H Specifications for Road and Bridge Works (Fifth Revision):-

IS Sieve Designation	% age weight passing the IS Sieve
53.00 mm	100
45.00 mm	95-100
26.50 mm	-
22.40 mm	60-80
11.20 mm	40-60
4.75 mm	25-40
2.36 mm	15-30
600.00 micron	8-22
75.00 micron	0-5

(Signature of the Contractor)

(For Accepting Officer)

PARTICULAR SPECIFICATIONS (CONTD)

Material finer than 425 micron shall have Plasticity Index (PI) not exceeding 6.

The final gradation approved within these limits shall be well graded from coarse to fine and shall not vary from the low limit on one sieve to the high limit on the adjacent sieve or vice versa.

1.3.3 Job Mix Formula : The contractor shall submit through Engineer-in-Charge/OC Contract for approval of Commander Contract at least 21 days before the start of the work, the job mix formula proposed to be used for use in the work and shall give the following details :

- (a) Source and location of all materials.
- (b) Proportions of all materials expressed as follows where each is Applicable
 - (i) Coarse/fine aggregate as percentage by weight of total aggregate.
 - (ii) Water as percentage by weight of total mix.
- (c) A single definite percentage passing each sieve for the mixed aggregate.

1.3.4 Construction Operations

1.3.4.1 Preparation of base : The surface of the sub-base/base to receive the Wet Mix Macadam course shall be prepared to the specified grade and camber and cleaned of dust, dirt and other extraneous material. Any ruts or soft yielding places shall be corrected in an approved manner and rolled until firm surface is obtained.

1.3.4.2 Where the WMM is to be laid on an existing metalled road, damaged area including depressions and potholes shall be repaired and made good with the suitable material. The existing surface shall be scarified and re-shaped to the required grade and camber before spreading the coarse aggregate for WMM.

1.3.4.3 As far as possible, laying WMM course over existing bituminous layer may be avoided since it will cause problems of internal drainage of the pavement at the interface of two courses. It is desirable to completely pick out the existing thin bituminous wearing course where WMM is proposed to be laid over it.

1.3.4.4 Provision of lateral confinement of aggregates : While constructing wet mix macadam, arrangement shall be made for the lateral confinement of wet mix. This shall be done by laying materials in adjoining shoulders along with that of wet mix macadam layer and following the sequence of operations described in Clause 404.3.3 of MoRT&H Specifications for Road and Bridge Works (Fifth Revision).

1.3.4.5 Preparation of Mix: Wet Mix Macadam shall be prepared in an approved mixing plant of suitable capacity for controlled addition of water and forced/positive mixing arrangement like pugmill or pan type mixer of concrete batching plant. The plant shall have the following features:-

- i) For feeding aggregates-three/four bin feeders with variable speed motor.
- ii) Vibrating Screen for removal of oversize aggregates.
- iii) Conveyor Belt.
- iv) Controlled system for addition of water.
- v) Forced/positive mixing arrangement like pug-mill or pan type mixer.

(Signature of the Contractor)

(For Accepting Officer)

PARTICULAR SPECIFICATIONS (CONTD)

- vi) Centralised control panel for sequential operating of various devices and precise process control
- vii) Safety devices.

Optimum moisture for mixing shall be determined in accordance with IS : 2720 (part-8) after replacing the aggregate fraction retain on 22.40 mm sieve with material of 4.75 mm to 22.40 mm size. While adding water, due allowance should be made for evaporation losses. However, at the time of compaction, water in the wet mix should not vary from the optimum value by more than agreed limits. The mixed material should be uniformly wet and no segregation should be permitted.

1.3.4.6 Spreading of Mix: Immediately after mixing, the aggregates shall be spread uniformly and evenly upon the prepared sub-grade/sub-base/base in required quantities. In no case shall these be dumped in heaps directly on the areas where these are to be laid nor shall their hauling over a partly completed stretch be permitted. The mix be spread by a paver finisher. The paver finisher shall be self-propelled of adequate capacity with following features :

- (i) Loading hoppers and suitable distribution system, so as to provide a smooth uninterrupted material flow for different layer thickness from the tipper to the screen
- (ii) Hydraulically operated telescopic screed for paving width upto 8.5 m and fixed screed beyond this. The screed shall have tamping and vibrating arrangement for initial compaction to the layer.
- (iii) Automatic leveling control system with electronic sensing device to maintain mat thickness and cross slope of mat during laying procedure.

1.3.4.7 The surface of the aggregate shall be carefully checked with templates and all high or low spots remedied by removing or adding aggregate as may be required. The layer may be tested by depth blocks during construction. No segregation of larger and fine particles should be allowed. The aggregates as spread should be of uniform gradation with no pockets of fine materials.

1.3.4.8 Compaction: After the mix has been laid to the required thickness, grade crossfall/camber the same shall be uniformly compacted, to the full depth with suitable roller. If the thickness of single compacted layer does not exceed 100 mm, a smooth wheel roller of 80 to 100 KN weight may be used. For a compacted single layer upto 200 mm, the compaction shall be done with the help of vibratory roller of minimum static weight 80 to 100 KN with an arrangement for adjusting the frequency and amplitude. An appropriate frequency and amplitude may be selected. The speed of the roller shall not exceed 5 Km/h.

1.3.4.9 In portions having unidirectional cross fall/superelevation, rolling shall commence from the lower edge and progress gradually towards the upper edge. Thereafter, roller should progress parallel to the centre line of the road, uniformly over-lapping each preceding track by at least one third width until the entire surface has been rolled. Alternate trips of the roller shall be terminated in stops at least 1 m away from any preceding stop.

1.3.4.10 In portions in camber, rolling should begin at the edge with the roller running forward and backward until the edges have been firmly compacted. The roller shall then progress gradually towards the centre parallel to the centre line of the road uniformly overlapping each of the preceding track by at least one third width until the entire surface has been rolled.

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1.3.4.11 Any displacement occurring as a result of reversing of the direction of a roller or from any other cause shall be corrected at once as specified and/or removed and made good.

1.3.4.12 Along forms, kerbs, walls or other places not accessible to the roller, the mixture shall be thoroughly compacted with mechanical tampers or a plate compactor. Skin patching of an area without scarifying the surface to permit proper bonding of the added materials shall not be permitted.

1.3.4.13 Rolling should not be done when the subgrade is soft or yielding or when it causes a wave-like motion in the sub-base/base course or subgrade. If irregularities develop during rolling which exceed 12 mm when tested with a 3 metre straight edge, the surface should be loosened and premixed materials added or removed as required before rolling again so as to achieve a uniform surface conforming to the desired grade and crossfall. In no case shall the use of unmixed materials be permitted to make up the depressions.

1.3.4.14 Rolling shall be continued till the density achieved is at least 98% of the maximum dry density for the materials as determined by the method outlined in IS : 2720 (Part-8).

1.3.4.15 After completion, the surface of any finished layer shall be well-closed, free from movement under compaction equipment or any compaction planes, ridges, cracks and loose materials. All loose, segregated or otherwise defective areas shall be made good to the full thickness of the layer and re-compacted.

1.3.5 Setting and drying : After final compaction of wet mix macadam course, the road shall be allowed to dry for 24 hours.

1.3.6 Opening to Traffic : No vehicular traffic shall be allowed on the finished wet mix macadam surface. Construction equipment may be allowed with the approval of the Engineer-in-Charge/OC Contract.

1.3.7 Surface Finish and Quality Control of Work:

1.3.8 Surface Evenness : The surface finish of construction shall conform to the requirement of Clause 902 of MoRT&H Specifications for Road & Bridge Works (Fifth Revision)

1.3.9 Quality control: Control on the quality of materials and works shall be exercised by the Engineer-in-Charge/OC Contract in accordance with Section 900 of MoRT&H Specifications for Road & Bridge Works (Fifth Revision).

1.3.10 Rectification of Surface Irregularity : Where the surface irregularity of the wet mix macadam course exceeds the permissible tolerances or where the course is otherwise defective due to subgrade soil getting mixed with the aggregates, the full thickness of the layer shall be scarified over the affected area, re-shaped with added premixed material or removed and replaced with fresh premixed material as applicable and re-compacted in accordance with Clause 406.3 of MoRT&H Specifications for Road & Bridge Works (Fifth Revision). The area treated in the aforesaid manner shall not be less than 5 m long and 2 m wide. In no case shall depressions be filled up with unmixed and upgraded materials or fines.

1.3.11 Arrangement for Traffic : During the period of construction, arrangements for traffic shall be done as per Clause 112 of MoRT&H Specifications for Road & Bridge Works (Fifth Revision).

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1.3.12 Rate

1.3.12.1 The contract unit rate for the work shall be payment in full for carrying out the required operations including all components for :-

- i) Making arrangement for traffic as per Clause 112 of MoRT&H Specifications for Road & Bridge Works (Fifth Revision) except for initial treatment to verges, shoulders and construction of diversions.
- ii) Supplying all materials to be incorporated in the work including, all royalties, fees, rents where necessary and all leads and lifts;
- iii) All labour, tools, equipments, and incidentals to complete the work to the specifications.
- iv) Carrying out the work in part widths of the road where directed, and
- v) Carrying out all tests for quality control.

1.3.13 Measurement for Payment:-

1.3.13.1 The work shall be measured as finished work in position in “**Cum**” as specified in Bill of quantity” of Bid Documents. Suitable arrangement shall be made by the contractor to facilitate measurement by the unit specified.

1.3.13.2 Contractor shall arrange labour and other tools required for taking the measurements. Contractor shall not be entitled for any extra payment on this account. In case the contractor or his accredited representative fails to report for taking joint measurements at the appointed date and time, as intimated by the Engineer-in-Charge/OC Contract in writing, the measurements shall be taken by the Engineer-in-Charge/OC Contract ex-parte without presence of contractor or his accredited representative and measurement thus taken shall be final and binding on the contractor.

1.3.13.3 Quality Control Tests and their minimum frequency for Wet Mix Macadam in accordance with Table 900-3 of MoRT&H Specifications for road & bridge works (Fifth Edition)

TABLE 900-3.

S/No	Type of Material	Test	Frequency (Min)
(a)	Wet Mix Macadam	i) Aggregate Impact Value	One test per 1000 m ³ of Aggregate
		ii) Grading of aggregate	One test per 200 m ³
		iii) Combined Flakiness and Elongation Index	One test per 500 m ³ of aggregate
		iv) Atterberg limits of portion of aggregate passing 425 micron sieve	One test per 200 m ³ of aggregate
		v) Density of Compacted Layer	One set of three tests per 1000 m ²

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1.4 PRIME COAT OVER GRANULAR BASE/ WMM

1.4.1 The work shall consist of application of a single coat flow viscosity liquid bituminous material to a porous granular surface preparatory to the superimposition of bituminous treatment or mix.

1.4.2 Choice of primer: The primer shall be cationic bitumen emulsion SS1 grade conforming to IS: 8887 of a type and grade as specified in the contract or as directed by the Engineer-in-Charge/OC Contract.

Type of surface	Rate of Spray (kg/sqm)
WMM	0.750

1.4.3 Weather and Seasonal Limitations: Primer shall not be applied during a dust storm or when the weather is foggy, rainy or windy or when the temperature in the shade is less than 10°C. Surfaces which are to receive emulsions primer should be damp, but no free or standing water shall be present. Surface can be just wet by very light sprinkling of water.

1.4.4 Equipment : The primer shall be applied by a self-propelled or towed bitumen pressure sprayer equipped for spraying the material uniformly at specified rates and temperatures. Hand spraying shall not be allowed except in small areas, inaccessible to the distributor, or in narrow strips where primer shall be sprayed with a pressure hand sprayer, or as directed by the OC Contract/Engineer In-Charge.

1.4.5 Preparation of road surface: The granular surface to be primed shall be prepared in accordance with Clause 502.4.2 of MoRT&H specifications (Fifth Revision).

1.4.6 Application of Bituminous Primer: The bituminous primer shall be sprayed uniformly at the specified rate. The method for application of the primer will depend on the type of equipment to be used, size of nozzles, pressure at the spray bar and speed of forward movement. The Contractor shall demonstrate at a spraying trial, that the equipment and method to be used is capable of producing a uniform spray, within the tolerances specified.

1.4.7 Curing : Curing quality control of work, arrangement for traffic, measurement for payment etc shall be in conformity with Clause 502.4.4 to 502.8 of MoRT&H specifications (Fifth Revision).

1.4.8 Measurement for Payment :

1.4.8.1 The work shall be measured as finished work in position in “**Sqm meter**” as specified in Bill of quantity” of Bid Documents. Suitable arrangement shall be made by the contractor to facilitate measurement by the unit specified.

1.4.8.2 Contractor shall arrange labour and other tools required for taking the measurements. Contractor shall not be entitled for any extra payment on this account. In case the contractor or his accredited representative fails to report for taking joint measurements at the appointed date and time, as intimated by the Engineer-in-Charge/OC Contract in writing, the measurements shall be taken by the Engineer-in-Charge/OC Contract ex-parte without presence of contractor or his accredited representative and measurement thus taken shall be final and binding on the contractor.

1.4.9 Rate : The contract unit rate for prime coat shall be payment in full for carrying out the required operations including full compensation for all components listed in clause 401.7 (i) to

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(v) of MoRT&H specifications for road and bridge works (Fifth Revision) and as applicable to the works specified in these specifications.

1.4.10 Quality Control Tests and their minimum frequency for Prime Coat in accordance with Table 900-4 of MoRT&H Specifications for road & bridge works (Fifth Edition) .

TABLE 900-4.

S/No	Type of Material	Test	Frequency (Min)
(a)	Primer Coat	i) Quality of binder	Number of samples per lot and test as per IS: 73, IS: 217 and IS: 8887 as applicable.
		ii) Binder temperature for application	At regular close intervals
		iii) Rate of spread of Binder	Three tests per day.

1.5 TACK COAT

1.5.1 The work shall consists of the application of a single coat of low viscosity liquid bituminous materiel to existing bituminous ~~or primed granular surface~~ preparatory to the superimposition of a bituminous mix when specified in the contract or as instructed by the OC Contract/Engineer-in-Charge.

1.5.2 Binder : The binder used for tack coat shall be bitumen VG-10/Bitumen Emulsion. The type and grade of binder for tack coat shall be specified in the Contract or as directed by the OC Contract/Engineer-in-Charge.

1.5.3 Equipment : The tack coat shall be applied by a self-propelled or towed bitumen pressure sprayer, equipped for spraying the material uniformly at a specified rate. Hand spraying shall not be permitted except in small areas, inaccessible to the distributor, or narrow strips, shall be sprayed with a pressure hand sprayer, or as directed by the OC Contract/Engineer-in-Charge.

1.5.4 Preparation of Base : The surface on which the tack coat is to be applied shall be clean and free from dust, dirt, and any extraneous material, and be otherwise prepared in accordance with the requirements of Clause 501.8 of MoRT&H specifications (Fifth revision). The granular or stabilized surfaces shall be primed as per Clause 502 of MoRT&H specifications (Fifth revision). Immediately before the application of the tack coat, the surface shall be swept clean with a mechanical broom, and high pressure air jet, or by other means as directed by the OC Contract/Engineer-in-Charge.

1.5.5 Application of Tack Coat : The application of tack coat shall be at the rate specified in the Contract, and shall be applied uniformly in accordance with Clause 503.4.3 of MoRT&H specifications (Fifth Revision). Curing, quality control, arrangement of traffic and measurement for payment shall be in accordance with Clause 503 of MoRT&H specifications. Rate of application of tack coat as per Table 500-5 of MoRT&H specifications is as under :-

Type of surface	Rate of Spray of Binder in kg/Sqm
Bituminous surface	0.25

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1.5.6 Measurement for payment : Tack coat shall be measured in terms of surface area of application in **square metres**.

1.5.7 Rate : The contract unit rate for prime coat shall be payment in full for carrying out the required operations including full compensation for all components listed in clause 401.8 (i) to (v) of MoRT&H specifications for road and bridge works (Fifth Revision) and as applicable to the works specified in these specifications.

1.5.8 Quality Control Tests and their minimum frequency for Tack Coat in accordance with Table 900-4 of MoRT&H Specifications for road & bridge works (Fifth Edition)

TABLE 900 - 4

S/No	Type of Material	Test	Frequency (Min)
(a)	Tack Coat	i) Quality of binder	Number of samples per lot and test as per IS: 73, IS: 217 and IS: 8887 as applicable.
		ii) Binder temperature for application	At regular close intervals
		iii) Rate of spread of Binder	Three tests per day.

1.6 DENSE BITUMINOUS MACADAM CONSOLIDATED THICKNESS

1.6.1 Scope of Work The work consists of providing, laying, spreading and compaction of Dense Bituminous Macadam compacted thickness with HMP mix, including cleaning of road surface (bituminous and non bituminous), applying of primer and tack coat, laying by paver finisher and rolling to specified thickness for surfacing works as directed by Engineer-In-Charge/OC Contract as per clause 505 of MoRT&H Specifications for Road and Bridge Works-Fifth Revision.

1.6.2 Material

1.6.2.1. Bitumen The bitumen shall be viscosity graded paving bitumen complying with Indian Standard Specification, IS:73, modified bitumen complying with Clause 501.2.1 of MoRT&H Specifications for road and bridge works (Fifth Revision) or as otherwise specified in the contract.

1.6.2.2 Coarse Aggregates

The coarse aggregate shall consist of crushed rock crushed gravel or other hard material retained on 2.36 mm sieve. It shall be clean, hard, durable and cubical shape, free from dust and soft organic and other deleterious substances. Where the contractor's selected source of aggregates has poor affinity to bitumen, the contractor shall produce test results that with the use of anti stripping agent, the stripping value is improved to satisfy the specification requirements. The Engineer-in-Charge/OC Contract may approve such a source and as a condition for the approval of the source, the bitumen shall be treated with an approved anti stripping agent, as per the manufacturers recommendations, at the cost of the contractor. The aggregate shall satisfy the requirements specified in Table 500-8 of MoRT&H Specifications for road and bridge works (Fifth Revision).

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Where crushed gravel is proposed for use as aggregate, not less than 90 % by weight of the crushed material retained on the 4.75 mm sieve shall have at least two fractured faces.

1.6.2.3 Fine Aggregate

Fine aggregate shall consist of crushed or naturally occurring mineral material, or a combination of two, passing 2.36 mm sieve and retained on 75 micron sieve. It shall be clean, hard, durable, dry and free from dust, and soft organic and other deleterious substances. Natural sand shall not be used in the binder course.

1.6.2.4 Filler

Filler shall consist of finely divided mineral matter such as rock dust, hydrated lime or cement approved by the Engineer In-Chrg/OC Contract. The filler shall be graded within the limits indicated in Table 500-9 of MoRT&H Specifications for road and bridge works (Fifth Revision).

TABLE 500 - 9

IS Sieve (mm)	Cumulative %age passing by weight of total aggregate
0.60	100%
0.30	90 – 100%
0.075	85 – 100%

The filler shall be free from organic impurities and have a plasticity index not greater than 4. The Plasticity Index requirement shall not apply if filler is cement or lime. Where the aggregates fail to meet the requirements of the water sensitivity test in Table 500-8 of MoRT&H Specifications for road and bridge works (Fifth Revision), then 2 percent by total weight of aggregate, of hydrated lime shall be used and percentage of fine aggregate reduced accordingly.

1.6.3 Aggregate Grading and Binder Content

1.6.3.1 The combined grading of the coarse aggregates and fine aggregates and filler when tested in accordance with IS-2386 Part I (Wet sieving method) the combined aggregate grading for the particular mixture shall fall within the limit as per table 500-10 (MoRT&H Specifications, Fifth revision) shown as under for grading 2. To avoid gap grading, the combined aggregate gradation shall not vary from the lower limit on one sieve to higher limit on the adjacent sieve.

Table 500-10: Composition of Dense Graded Bituminous Macadam

Grading	2
Nominal Aggregate Size *	26.50 mm
Layer Thickness	50-75 mm
IS Sieve Designation	Percentage by weight passing
37.50	100
26.50 mm	90-100
19 mm	71-95
13.2 mm	56-80
4.75 mm	38-54
2.36	28-42
0.3 mm	7-21
0.075 mm	2-8
Bitumen content, percent by weight of total mixture – Min 4.5 % **	

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Notes:-

(*) Nominal maximum particle size is the largest specified sieve size upon which any of the aggregate is retained.

(**) Bitumen Content corresponds to specific gravity of the Aggregate being 2.7. In case aggregates have specific gravity more than 2.7, the minimum bitumen content can be reduced proportionately. Further, for regions where highest daily mean air temperature is 30°C or lower and lowest daily mean air temperature is (-) 10°C or lower, the bitumen content may be increased by 0.50 percent subject to the approval of OC Contract/Engineer-in-Charge/OC Contract-In-Charge.

1.6.3.2 Bitumen content indicated in Table 500-10 is the minimum quantity. The quantity shall be determined in accordance with Clause 505.3 of MoRT&H specifications for road & bridge works (Fifth revision).

1.6.3.3 The aggregate for Dense Bituminous Macadam shall satisfy the physical requirement set forth as per table No 500-8 (MoRT&H specifications, Fifth revision) as under:-

Property	Test	Test method	Requirements
Cleanliness	Grain size analysis	IS : 2386 Part I	Max 5% passing 0.075 mm sieve
Particle shape	Flakiness and Elongation Index (Combined)	IS : 2386 Part I	Max 35%
Strength (*)	Los Angels Abrasion value	IS : 2386 Part IV	Max 35%
	Aggregate Impact Value	IS : 2386 Part IV	Max 27%

Property	Test	Test method	Requirements
Durability	Soundness		
	(a) Sodium Sulphate	IS : 2386 Part V	Max 12%
	(b) Magnesium Sulphate	IS : 2386 Part V	Max 18%
Water absorption	Water absorption	IS : 2386 Part III	Max 2%
Stripping	Coating and Stripping of bitumen aggregate	IS : 6241	Minimum retained coating 95%
Water Sensitivity (**)	Retained Tensile strength	AASHTO 283	Min 80%

(*) Aggregate may satisfy requirement of either of these two tests.

(**) If the minimum retained tensile strength falls below 80 percent, use of antistripping agent is recommended to meet the minimum requirement.

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1.6.4 Anti Stripping Agent

Where the proposed aggregate fails to pass the stripping test, then an approved anti stripping agent (Appendix 4 of MoRT&H specifications for road and bridge works (fifth revision) for details) may be added to the binder in accordance with the manufacturer's instructions. The effectiveness of the proposed anti-stripping agent must be demonstrated by the Contractor, before approval by the Engineer-in-Charge/OC Contract-in-Charge.

1.6.5 Warm Mix Additives

An approved Warm Mix Additives may be used for the work as per the provisions of IRC:SP:101-2014 and as per the directions of Engineer-in-Charge/OC Contract-in-Charge. Mixing, Laying and Rolling temperature for WMA will be as per Table 1 of IRC:SP:101-2014 as under :-

Bitumen Grade	Mix Temperature (°C)	Laying Temperature (°C)	Rolling Temperature (°C)
VG-30	130 max	115 min	90 min
VG-10	120 max	110 min	80 min

In case of special conditions including but not limited to long hauls, cold paving conditions etc. the recommendations of the WMA technology supplier shall be followed.

1.6.6 Mix Design

The bitumen content required shall be determined following the Marshall mix design procedure contained in Bituminous Institute Manual MS-2. The fines to Bitumen (F/B) ratio by weight of total mix shall range from 0.60 to 1.20.

1.6.7 Requirements for the Mix

Apart from conformity with the grading and quality requirements for individual ingredients, the mixture shall meet the requirements set out in Table 500-11 of MoRT&H specifications for road & bridge works (Fifth Revision) as under :-

Properties	Viscosity Grade Paving bitumen	Modified Bitumen		Test Method
		Hot Climate	Cold Climate	
Compaction Level	75 Blows on each face of the specimen			
Minimum Stability (kN at 600 C)	9.0	12.0	10.0	AASHTO T245
Marshall flow (9mm)	2-4	2.5-4	3.5-5	AASHTO T245
Marshall Quotient (Stability/Flow)	2-5	2.5-5		MS-2 and ASTM D2041
% air voids	3-5			
% voids Filled with Bitumen (VFB)	65-75			
Coating of Aggregate Particle	95% minimum			
Tensile Strength ratio	80% minimum			
% Voids in Mineral aggregate (VMA)	Minimum percent voids in mineral aggregate (VMA) are set out in Table 500-13			

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1.6.8 Binder Content

1.6.8.1 The binder content shall be optimized to achieve the requirements of the mix set out I Table 500-11 of MoRT&H Specifications for road and bridge works (Fifth Revision). The binder content shall be selected to obtain 4 percent air voids in the mix design. The Marshall method for determining the optimum binder content shall be adopted as described in the Bituminous Institute Manual MS-2.

1.6.8.2 Where maximum size of the aggregate is more than 26.5 mm, the modified Marshall method using 150 mm diameter specimen described in MS-2 and ASTM D 5581 shall be used. This method requires modified equipment and procedures. When the modified Marshall test is used, the specified minimum stability values in Table 500-12 of MoRT&H Specifications for road and bridge works (Fifth Revision) shall be multiplied by 2.25 and the minimum flow shall be 3 mm.

Nominal Particle Size (mm)	Maximum	Minimum VMA Percent Related to Design Percentage Air Voids		
		3.0	4.0	5.0
26.50		11.0	12.0	13.0
37.50		10.0	11.0	12.0

Note : Interpolate minimum voids in the mineral aggregate (VMA) for designed percentage air voids values between those listed.

1.6.9 Job Mix Formula

1.6.9.1 The contractor shall submit through Engineer-in-Charge/OC Contract **for approval of Commander Contract** at least 21 days before the start of the work, the job mix formula proposed for use in the works, together with the following details:

- (i) Source and location of all materials.
- (ii) Proportions of all materials expressed as follows:-
 - (a) Binder type and percentage by weight of total mix.
 - (b) Coarse aggregate/fine aggregate/mineral filler as percentage by weight of total aggregate including mineral filler.
- (iii) A single definite percentage passing each sieve for the mixed aggregate.
- (iv) The individual grading of the individual aggregate fraction and the proportion of each in the combined grading.
- (iv) The results of mix design such as maximum specific gravity of loose mix (Gmm), compacted specimen densities, Marshall stability flow, flow air voids, VMA, VFB and related graphs and test results of AASHTO T 283 Moisture susceptibility test.
- (v) Where the mixer is a batch mixer, the individual weights of each type of aggregate and binder per batch.
- (vi) Test results of physical characteristics of aggregates to be used.
- (viii) Mixing temperature and compacting temperature.

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1.6.9.2 While establishing the job mix formula, the contractor shall ensure that it is based on a correct and truly representative sample of the materials that will actually be used in the work and that the mix and its different ingredients satisfy the physical and strength requirements of these specifications.

1.6.9.3 Approval of the job mix formula shall be based on independent testing by the Engineer-in-Charge/OC Contract for which samples of all ingredients of the mix shall be furnished by the contractor as required by the Engineer-in-Charge/OC Contract.

1.6.9.4 The approved job mix formula shall remain effective unless and until a revised job mix formula is approved by OC Contract/Commander Contract. Should a change in the source of materials be proposed, a new job mix formula shall be forwarded by the contractor to the Engineer-in-Charge/OC Contract for approval before the placing of the material.

1.6.10 Permissible Variation in Job Mix Formula

Once the laboratory job mix formula is approved, the Contractor shall carry out plant trial to establish that the plant can produce a uniform mix conforming to the approved job mix formula. The permissible variation of the individual percentage of the various ingredients in the actual mix from the job mix formula to be used shall be within the limits as specified in Table 500-13 and shall remain within the gradation band. These variations are intended to apply to individual specimens taken for quality control tests in accordance with section 900 of MoRT&H Specifications for road and bridge works (Fifth Revision).

Table 500-13 Permissible Variations in the Actual Mix from the Job Mix Formula

Aggregate passing 19 mm sieve or larger	<u>+8%</u>
Aggregate passing 13.2 mm, 9.50 mm	<u>+7%</u>
Aggregate passing 4.75 mm	<u>+6%</u>
Aggregate passing 2.36 mm, 1.18 mm, 0.60 mm	<u>+5%</u>
Aggregate passing 0.30 mm, 0.15 mm	<u>+4%</u>
Aggregate passing 0.075 mm	<u>+2%</u>
Binder content	<u>+0.30%</u>
Mixing temperature	<u>+10°C</u>

1.6.11 Laying

1.6.11.1 Once the plant trials have been successfully completed and approved, the Contractor shall carry out laying trials, to demonstrate that the proposed mix can be successfully laid and compacted all in accordance with Clause 501 of MoRT&H Specifications for road and bridge works (Fifth Revision). The laying trial shall be carried out on a suitable area which is not form part of the works. The area of the laying trials shall be a minimum of 100 sqm of construction similar to that of the project road, and it shall be in all respects, particularly compaction, the same as the project construction, on which the bituminous material is to be laid.

1.6.11.2 The contractor shall previously inform the Engineer-in-Charge/OC Contract of the proposed method for laying and compacting the material. The plant trials shall then establish if the proposed laying plant, compaction plant, and methodology is capable of producing satisfactory results. The density of the finished paving layer shall be determined

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by taking cores, no sooner than 24 hours after laying, or by other approved method. The compacted layer of Dense Graded Bituminous Macadam (DBM) shall have a minimum field density equal to or more than 92% of the density based on theoretical maximum specific gravity (Gmm) obtained on the day of compaction in accordance with ASTM D 2041.

1.6.11.3 Once the laying trials have been approved, the same plant and methodology shall be applied to the laying of the material on the project, and no variation of either shall be acceptable, unless approved in writing by the Engineer-in-Charge/OC Contract, who may at his discretion require further laying trials.

1.6.12 Construction Operations

1.6.12.1 Weather and Seasonal Limitations Laying shall be suspended:-

- (a) In presence of standing water on the surface.
- (b) When rain is imminent, and during rains, fog or dust storm.
- (c) When the base/binder course is damp.
- (d) When the air temperature on the surface on which it is to be laid is less than 10°C for mixes with conventional bitumen and is less than 15°C for mixes with modified bitumen.
- (e) When the wind speed at any temperature exceeds the 40 km per hour at 2 m height.

1.6.13 Preparation of the Base

The base on which Dense Graded Bituminous Material is to be laid shall be prepared in accordance with Clause 501 and 902 of MoRT&H Specifications for road and bridge works (Fifth Revision) as appropriate, or as directed by the Engineer-in-Charge/OC Contract-in-Charge.

1.6.14 Prime Coat

Where the material on which the Dense Bituminous Macadam is to be laid is other than a bitumen bound layer, a prime coat shall be applied @ 0.75 kg/sqm, as specified in accordance with the provisions of Clause 502 of MoRT&H Specifications for road and bridge works (Fifth Revision) or as directed by the Engineer-in-Charge/OC Contract.

1.6.15 Tack Coat

Where the material on which the Dense Bituminous Macadam is to be laid is either bitumen bound layer ~~or primed granular layer~~, tack coat shall be applied @ 0.25kg/sqm, as specified in accordance with the provisions of Clause 503 of MoRT&H Specifications for road and bridge works (Fifth Revision) or as directed by the Engineer-in-Charge/OC Contract.

1.6.16 Blank

1.6.17 Mixing and Transportation of the Mix

The provisions as specified in Clauses 501.3 and 501.4 of MoRT&H specifications for road and bridge works (Fifth Revision) shall apply

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Mixing

1.6.17.1 Pre-mixed bituminous materials shall be prepared in a Hot Mix Plant of adequate capacity and capable of yielding a mix of proper and uniform quality with thoroughly coated aggregates. Appropriate mixing temperature are given as under as per Table 500-2 :-

Bitumen Viscosity Grade	Bitumen Temperature	Aggregate Temperature	Mixed Material Temperature	Laying Temperature	* Rolling Temperature
VG-30	150-165	150-170	150-165	140 Min	90 Min
VG-10	140-160	140-165	140-160	130 Min	80 Min

- Rolling must be completed before the material cools to these minimum temperatures.

1.6.17.2 The difference in temperature between the binder and aggregate shall at no time exceed 14°C. In order to ensure uniform quality of the mix and better coating of aggregates, the hot mix plant shall be calibrated from time to time. The essential features of the mix plants are given in Annexure A of IRC:27. If a continuous type mixing plant is used, the contractor must demonstrate by laboratory analysis that the cold feed combined grading is within the grading limits specified for that bituminous bond material. In case of a designed job mix, the bitumen and filler content shall be derived using this combined grading.

1.6.18 Transportation Bituminous materials shall be transported in clean insulated and covered vehicles. A Bituminous release agent, such as sop or lime water, may be applied to the interior of the vehicle to prevent sticking and to facilitate discharge of the material.

1.6.19 Spreading

1.6.19.1 Prior to spreading the mix, the base shall be prepared by carrying out the required operations as per Clause 501.8 depending upon the site conditions. Except in areas where paver cannot get access, bituminous materials shall be spread, leveled and tamped by an approved self propelled paving machine equipped with an electronic sensing device. The essential features of the paver finisher shall conform to Annexure A of IRC:27. As soon as possible after arrival at site, the materials shall be supplied continuously to the paver and laid without delay. The rate of delivery of the material to the paver shall be regulated to enable the paver to operate continuously. The travel rate of the paver and its method of operations shall be adjusted to ensure an even and uniform flow of bituminous material across the screed, free from dragging, tearing and segregation of the material. In areas with restricted space (such as confined space, foot ways, of irregular shape and varying thickness, approaches to expansion joints etc) where paver cannot be used, the material shall be spread, raked and leveled with suitable hand tools trained staff.

1.6.19.2 The minimum thickness of the material laid in each paver pass shall be in accordance with the minimum values given in the relevant parts of these specifications. When laying binder course or wearing course approaching an expansion joint of a bridge, machine laying shall stop 300 mm short of the joints. The remainder of the pavement up to the joint, and the corresponding area beyond it, shall be laid by hand, and the joint or joint cavity shall be kept clear of surfacing material.

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1.6.19.3 Bituminous material with a temperature greater than 145°C shall not be laid or deposited on bridge deck water-proofing systems, unless precautions against heat damage have been approved by the.

1.6.20 Rolling

The General Provisions of Clauses 501.6 and 501.7 of MoRT&H specifications for road and bridge works (Fifth Revision) shall apply:-

Compaction

1.6.20.1 Bituminous materials shall be laid and compacted in layers, which enable the specified thickness, surface level, regularity requirements and compaction to be achieved.

1.6.20.2 Compaction of bituminous materials shall commence as soon as possible after laying. Compaction shall be substantially completed before the temperature falls below the minimum specified in para 29.9.7.1 above. Rolling of the longitudinal joints shall be done immediately behind the paving operation. After this, rolling shall commence at the edges and progress towards the center longitudinally, except that on super-elevated and unidirectionally cambered portions, it shall progress from the lower to the upper edge parallel to the centerline of the pavement. Rolling shall continue until all roller marks have been removed from the surface. All deficiencies in the surface after laying shall be made good by the attendants behind the paver, before initial rolling is commenced. The initial or break down rolling shall be done with 8–10 tones static weight smooth wheeled rollers. The intermediate rolling shall be done with 8–10 Tones static weight or vibratory roller or with a pneumatic tyre roller of 12–15 tones weight with a tyre pressure of 0.56 MPA. The contractor shall demonstrate the efficiency of the equipment proposed to be used by carrying compaction trials. The procedure for site trials shall be submitted to the for approval. The finish rolling shall be done with 6–8 tone smooth wheeled tandem rollers. Rolling shall continue until the specified compaction is achieved.

1.6.20.3 Where compaction is to be determined by density of cores the requirement to prove the performance of rollers shall apply in order to demonstrate that the specified density can be achieved. In such cases the contractor shall specify the plant, and the method by which he intends to achieve the specified level of compaction and finish at temperatures above the minimum specified rolling temperature. Laying trials shall then demonstrate the acceptability of the plant and method used. Bituminous materials shall be rolled in a longitudinal direction with the driven rolls nearest the paver. The roller shall first compact material adjacent to joints and then work from the lower to the upper side of the layer, overlapping on successive passes by at least one third of the width of the rear roll or, in the case of a pneumatic tyred roller, at least the nominal width of 300 mm.

1.6.20.4 In portions with super elevated and uni-directional camber, after the edge has been rolled, the roller shall progress from the lower to the upper edge. Rollers should move at a speed of not more than 5 Km per hour. The roller shall not be permitted to stand on pavement which has not been fully compacted, and necessary precautions shall be taken to prevent dropping of oil, grease, petrol/diesel or other foreign matter on the pavement either when the rollers are operating or standing. The wheels of rollers shall be in good working order, to prevent the mix from adhering to the wheels. Only sufficient moisture to prevent adhesion between the wheels of rollers and the mix should be used. Surplus water shall not be allowed to stand on the partially compacted pavement.

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1.6.21 Joints Where joints are made, the materials shall be fully compacted and the joints made flush in one of the following ways :-

1.6.21.1 All joints shall be cut vertical to the full thickness of the previously laid mix. All loosened material shall be discarded and the vertical face coated with a suitable viscosity grade hot bitumen, or cold applied emulsified bitumen. While spreading the material along the joint, the material spread shall overlap 25 mm to 50 mm on the previously laid mix beyond the vertical face of the joint. The thickness of the loose overlap material should be approximately a quarter more than the final compacted thickness. The overlapped mix shall be dragged back to the hot lane so that the roller can press the small excess into the hot side of the joint to obtain a high joint density.

1.6.21.2 By using two or more pavers operating in echelon, where this is practicable and in sufficient proximity for adjacent widths to be fully compacted by continuous rolling.

1.6.21.3 All longitudinal joints shall be offset at least 300 mm from parallel joints in the layer beneath or as directed, and in a lay out approved by the . Joints in wearing course shall coincide with either the lane edge or the lane marking, whichever is appropriate. Longitudinal joints shall not be situated in wheel track zones.

1.6.21.4 For transverse joints method (i) above shall apply. Transverse joints in the successive and adjoining layers have a minimum offset of 2 m.

1.6.22 Opening to Traffic

1.6.22.1 It shall be ensured that the traffic is not allowed without the approval of the Engineer-in-Charge/OC Contract in writing, on the surface until the dense bituminous layer has cooled to the ambient temperature.

1.6.23 Surface Finish and Quality Control of Work

The surface finish of the completed construction shall conform to the requirement of Clause 902 of MoRT&H Specifications (Fifth Revision). For Control of the quality of materials and the works carried out, the relevant provisions of section 900 shall apply.

1.6.24 Arrangement For Traffic

During the period of construction, arrangements for traffic shall be made in accordance with the provisions of Clause 112.

1.6.25 Measurement for Payment.

Dense Graded Bituminous Macadam shall be measured as finished work in **square meters for compacted thickness** by any standard means to be decided by the Engineer-in-Charge/OC Contract.

1.6.26 RATE

The contract unit rate of Dense Graded Bituminous Macadam shall be payment in full for carrying out all the required operations as specified and shall include, to all components listed in Clause 501.8.8.2 of MoRT&H Specifications for road and bridge works (Fifth Revision). The rate shall include the provision of bitumen at 4.5 percent by weight of the total mixture for grading 2.

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1.6.27 Quality Control Tests and their minimum frequency for DBM in accordance with Table 900-4 of MoRT&H Specifications for road & bridge works (Fifth Edition)

TABLE 900-4.

S/No	Type of Material	Test	Frequency (Min)
(a)	Dense Bituminous Macadam	i) Quality of binder	Number of samples per lot and tests as per IS:73 or IRC:SP:53, IS:15462
		ii) Aggregate Impact Value/Los Angeles Abrasion Value	One test per 350 cum of aggregate for each source and whenever there is change in the quality of aggregate.
		iii) Flakiness Index and Elongation Index	One test per 350 cum of aggregate for each source and whenever there is change in the quality of aggregate.
		iv) Soundness (Magnesium and Sodium Sulphate)	One test for each source and whenever there is change in the quality of aggregate.
		v) Water absorption of aggregates	-do-
		vi) Sand equivalent test	-do-
	Dense Bituminous Macadam	vii) Plasticity Index	-do-
		viii) Polished stone value	-do-
		ix) Percentage of fractured faces	One test per 350 cum of aggregate when crushed gravel is used.
		x) Mix Grading	One test for individual constituent and mixed aggregate from dryer for each 400 tonnes of mix subject to minimum of two tests per day per plant
		xi) Stability and voids analysis of mix including theoretical maximum specific of loose mix	Three tests for stability, flow value, density and void contents for each 400 tonnes of mix subject to minimum of two tests per day per plant
		xii) Moisture Susceptibility of mix (AASHTO T283)	One test for each mix type whenever there is change in the quality of source of coarse or fine aggregate.

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S/No	Type of Material	Test	Frequency (Min)
		xiii) Temperature of binder in boiler, aggregate in dryer and mix at the time of laying and compaction	At regular intervals
		xiv) Binder Content	One set for each 400 tonnes of mix subject to minimum of two tests per day per plant
		xv) Rate of spread of mix materials	After every 5 th truck load
		xvi) Density of compacted layer	One test per 700 sqm area.

1.7 ASPHALT/BITUMINOUS CONCRETE COMPACTED THICKNESS

1.7.1 SCOPE: The work consists of providing; laying, spreading and compaction of Bituminous Concrete compacted including rolling to required density, cleaning & scrubbing of previous base course, laying of Tack Coat in accordance with the requirements of specifications as given in succeeding Paras. The work also includes preparation of Mix in HMP of adequate capacity to be established by the contractor and transportation of Mix to the laying site duly spread by pavers, and compacted to the specified thickness for surfacing works as directed by Engineer-In-Charge/OC Contract. The work to be executed as per clause 507 of MoRT&H Specifications for Road and Bridge Works-Fifth Revision.

1.7.2 Materials

1.7.1 Bitumen The bitumen shall be viscosity graded paving bitumen complying with Indian Standard Specification, IS:73, modified bitumen complying with Clause 501.2.1 of MoRT&H Specifications for road and bridge works (Fifth Revision) or as otherwise specified in the contract.

1.7.2 Coarse Aggregates The Coarse aggregates shall consist of crushed rock or other hard material retained on 2.36 mm sieve. It shall be clean, hard, durable and cubical in shape, free from dust and soft organic and other deleterious substances. The aggregate shall satisfy the physical requirements specified in table No 500-16. Before approval of the source, the aggregates shall be tested for stripping. Where the Contractor's selected source of aggregates have poor affinity for bitumen, as a condition for the approval of that source, the bitumen shall be treated with approved anti-stripping agents, as per the manufacturer's recommendations, without additional payment.

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Table 500-16: Physical Requirement for Coarse Aggregate for Bituminous Concrete

Property	Test	Specification	Method of Test
Cleanliness (dust)	Grain size analysis	Max 5% passing 0.075 mm sieve	IS : 2386 Part I
Particle shape	Flakiness and Elongation Index (Combined)	Max 35%	IS : 2386 Part I
Strength	Los Angeles Abrasion value	Max 30%	IS : 2386 Part IV
	Aggregate Impact Value	Max 24%	
Durability	Soundness		
	(a) Sodium Sulphate	Max 12%	IS : 2386 Part V
	(b) Magnesium Sulphate	Max 18%	IS : 2386 Part V
Polishing	Polished Stone Value	Min 55	BS:812-114
Water absorption	Water absorption	Max 2%	IS : 2386 Part III
Stripping	Coating and Stripping of Bitumen Aggregate Mix	Minimum retained coating 95%	IS : 6241
Water Sensitivity	Retained Tensile strength *	Min 80%	AASHTO 283

- If the minimum retained tensile test strength falls below 80 percent, use of Anti Stripping Agent is recommended to meet the requirement.

1.7.3 Fine Aggregate

Fine aggregate shall consists of crushed or naturally occurring mineral material, or a combination of the two passing the 2.36 mm sieve and retained on the 75 micron sieve. They shall be clean, hard, durable, dry and free from dust and soft or friable matter, organic or other deleterious matter.

1.7.4 Filler

Filler shall consist of finely divided mineral matter such as rock dust, hydrated lime or cement approved by the Engineer-in Charge/OC Contract. The filler shall be graded within the limits shown in table No 500-9 of MoRT&H specifications (Fifth Revision) as under:-

IS Sieve (mm)	Cumulative per cent passing by weight of total aggregate
0.6	100
0.3	95-100
0.075	85-100

The filler shall be free from organic impurities and have a Plasticity Index not greater than 4. The plasticity index requirement shall not apply if filter is cement or lime. When the aggregates fail to meet the requirements of the water sensitivity test in Table 500-8 of MoRT&H specifications for road and bridge works (Fifth Revision), then 2 percent by total weight of aggregate of hydrated lime shall be used and percentage of fine aggregate reduced accordingly.

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1.7.5 Aggregate Grading and Binder Content

When tested in accordance with IS:2386 Part 1 (Wet grading method), the combined grading of the coarse and fine aggregates and filler shall fall within the limits shown in Table 500-17.

Grading	2
Nominal Aggregate size*	13.2 mm
Layer thickness	30 mm
IS Sieve Designation	Percentage by weight passing
19 mm	100
13.2 mm	90-100
9.50 mm	70-88
4.75 mm	53-71
2.36 mm	42-58
1.18 mm	34-48
0.6 mm	26-38
0.3 mm	18-28
0.15 mm	12-20
0.075 mm	4-10
Bitumen content, percent by mass of total mix – Min 5.4 % *	

- Corresponds to specific gravity of aggregate being 2.7. In case aggregate have specific gravity more than 2.7, the minimum bitumen content can be reduced proportionately. Further the region where highest daily mean air temperature is 30°C or lower and lowest daily air temperature is - 10°C or lower, the bitumen content may be increased by 0.50 percent.

1.7.6 Anti Stripping Agent

Where the proposed aggregate fails to pass the stripping test, then an approved anti stripping agent (Appendix 4 of MoRT&H specifications for road and bridge works (fifth revision) for details) may be added to the binder in accordance with the manufacturer's instructions. The effectiveness of the proposed anti-stripping agent must be demonstrated by the Contractor, before approval by the Engineer-in-Charge/OC Contract-in-Charge.

1.8 Mix Design

1.8.1 Requirement For The Mix: Apart from conformity with the grading and quality requirements for individual ingredients, the mixture shall meet the requirements set out in Table 500-11 of MoRT&H Specifications Fifth revision as under.

Properties	Viscosity Grade Paving bitumen	Modified Bitumen		Test Method
		Hot Climate	Cold Climate	
Compaction Level	75 Blows on each face of the specimen			
Minimum Stability (kN at 600 C)	9.0	12.0	10.0	AASHTO T245
Marshall flow (mm)	2-4	2.5-4	3.5-5	AASHTO T245

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Properties	Viscosity Grade Paving bitumen	Modified Bitumen	Test Method
		Hot Climate/ Cold Climate	
Marshall Quotient (Stability/Flow)	2-5	2.5-5	MS-2 and ASTM D2041
% air voids		3-5	
% voids Filled with Bitumen (VFB)		65-75	
Coating of Aggregate Particle		95% minimum	
Tensile Strength ratio		80% minimum	
% Voids in Mineral aggregate (VMA)	Minimum percent voids in mineral aggregate (VMA) are set out in Table 500-13		

1.8.2 Binder Content

The binder content shall be optimized to achieve the requirements of the mix set out in Table 500-11 of MoRT&H Specifications (Fifth revision). The binder content shall be selected to obtain 4 percent air voids in the mix design. The Marshall method for determining the optimum binder content shall be adopted as described in the Asphalt Institute Manual MS-2.

Where maximum size of the aggregate is more than 26.50 mm, the modified marshal method using 150 mm diameter specimen described in MS-2 and ASTM D 5581 shall be used. This method requires modified equipment and procedures. When the modified Marshall test is used, the specified minimum stability values in Table 500-12 shall be multiplied by 2.25 and the minimum flow shall be 3 mm.

Nominal Maximum Particle Size (mm) *	Minimum VMA Percent Related to Design Percentage Air Voids		
	3.0	4.0	5.0
26.50	11.0	12.0	13.0
37.50	10.0	11.0	12.0

Note: Interpolate minimum voids in the mineral aggregate (VMA) for designed percentage air voids values between those listed.

1.8.3 Job Mix Formula

The contractor shall submit through OC Contract **for approval from Commander Contract** at least 21 days before the start of the work, the job mix formula proposed to be used for use in the work and shall give the following details:-

- (i) Source and location of all materials.
- (ii) Proportions of all materials expressed as follows:-
 - (a) Binder type, and percentage by weight of total mixture.
 - (b) Coarse aggregate/fine aggregate/mineral filler as percentage by weight of total aggregate including mineral filler.

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- (iii) A single definite percentage passing each sieve for the mixed aggregate.
- (iv) The individual grading of the individual aggregate fraction, and the proportions of each in the combined grading.
- (v) The results of mix design such as maximum specific gravity of loose mix (Gmm), compacted specimen densities, Marshall stability, flow, air voids, VMA, VFB and related graphs and test results of AASHTO T 283 Moisture susceptibility test.
- (vi) Where the mixture is a batch mixture, the individual weights of each type of aggregate, and binder per batch.
- (vii) Test results of physical characteristics of aggregate to be used.
- (viii) Mixing temperature and compacting temperature.

While establishing the job mix formula, the contractor shall ensure that it is based on a correct and truly representative samples of the material that will actually be used in the work and that the mixture and its different ingredients satisfy the physical and strength requirement of these specifications.

Approval of the Job Mix Formula shall be based on independent testing by the Engineer-in-Charge/OC Contract for which samples of all ingredients of the mix shall be furnished by the Contractor as required by the Engineer-in-Charge/OC Contract.

The approval of the job mix formula shall remain effective unless and until a revised job mix formula is approved. Should a change in the source of materials be proposed, a new job mix formula shall be forwarded by the contractor to the Engineer-in-Charge/OC Contract for approval before the placing of the material.

1.8.4 Plant Trials-Permissible Variation in Job Mix Formula

Once the laboratory job mix formula is approved, the Contractor shall carry out plant trials to establish that the plant can produce a uniform mix conforming to the approved job mix formula. The permissible variations of the individual percentages of the various ingredients in the actual mix from the job mix formula to be used shall be within the limits as specified in Table 500-18 and shall remain within the gradation band. These variations are intended to apply to individual specimens taken for quality control tests in accordance with Section 900 of MoRT&H specifications Fifth revision.

Table 500-18: Permissible Variations in Plant Mix from the Job Mix Formula

Description	Permissible Variation
Aggregate Passing 19 mm sieve or larger	+/- 7%
Aggregate Passing 13.2 mm,9.5 mm	+/- 6%
Aggregate Passing 4.75 mm	+/- 5%
Aggregate Passing 2.36 mm,1.18mm,0.60mm	+/- 4%
Aggregate Passing 0.30mm, 0.15 mm	+/- 3%
Aggregate Passing 0.075 mm	+/- 1.5%
Binder Content	+/- 0.3%
Mixing Temperature	+/- 10°C

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1.8.5 Laying Trials

Once the plant trials have been successfully completed and approved, the contractor shall carry out laying trials, to demonstrate that the proposed mix can be successfully laid, and compacted all in accordance with Clause 501 of MoRT&H Specifications (Fifth Revision). The laying trial shall be carried out on a suitable area which is not to form part of the works. The area of laying trials shall be a minimum of 100 sqm of construction similar to that of the project road, and it shall be in all respects, particularly compaction, the same as the project construction, on which the bituminous material is to be laid.

The contractor shall previously inform the Engineer-in-Charge/OC Contract of the proposed method for laying and compacting the material. The plant trials shall then establish if the proposed laying plant, compaction plant, and methodology is capable of producing satisfactory results. The density of the finished paving layer shall be determined by taking cores no sooner than 24 hrs after laying or by other approved method. The compacted layers of Asphaltic Concrete (AC) shall have a minimum field density equal to more than 92% of the average theoretical maximum specific gravity (g/mm) obtained on the day of compaction in accordance with ASTM D 2041.

Once the laying trials have been approved, the same plants and methodology shall be applied to the laying of the material on the project, and no variation of either shall be acceptable, unless approved in writing by the Engineer-in-Charge/OC Contract who may at his discretion require further laying trials.

1.9 Construction Operation

1.9.1 Weather and Seasonal Limitations. Laying shall be suspended:-

- (i) In presence of standing water on the surface.
- (ii) When rain is imminent and during rains, fog or dust storm.
- (iii) When the base/binder course is damp.
- (iv) When the air temperature on the surface on which it is to be laid is less than 10°C for mixes with conventional bitumen and is less than 15°C for mixes with modified bitumen.
- (v) When the wind speed at any temperature exceeds the 40 km per hour at 2 m height.

1.9.2 Preparation of Base

The surface on which the Asphaltic Concrete is to be laid shall be prepared in accordance with Clauses 501 and 902 of MoRT&H Specifications (Fifth revision) as appropriate, or as directed by the Engineer-in-Charge. The surface shall be thoroughly swept clean by mechanical broom and dust removed by compressed air. In locations where a mechanical broom cannot get access, other approved methods shall be used as directed by the Engineer-in-Charge.

1.9.3 Tack Coat

Where the material on which the Bituminous Concrete is to be laid is bitumen bound layer, tack coat shall be applied @ 0.25kg/sqm, as specified in accordance with the provisions of Clause 503 of MoRT&H Specifications for road and bridge works (Fifth Revision) or as directed by the Engineer-in-Charge/OC Contract.

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1.9.4. Mixing and Transportation of Mix

Mixing : Pre-mixed bituminous materials shall be prepared in a Hot Mix Plant (weight batch) type of adequate capacity and capable of yielding a mix of proper and uniform quality with thoroughly coated aggregates. The mixing temperature shall be as under. The difference in temperature between the binder and aggregate shall at no time exceed 14°C. In order to ensure uniform quality of the mix and better coating of aggregates, the hot mix plant shall be calibrated from time to time.

Bitumen Viscosity Grade	Bitumen Temperature (°C)	Aggregate Temperature (°C)	Mixed Material Temperature (°C)	Laying Temperature (°C)	Rolling Temperature (°C) *
VG-30	150-165	150-170	150-165	140 Min	90 Min
VG-10	140-160	140-165	140-160	130 Min	80 Min

- o Rolling must be completed before the material cools to these minimum temperatures.

If a continuous type mixing plant is used, the contractor must demonstrate by laboratory analysis that the cold feed combined grading is within the grading limits specified for that bituminous bound material. In the case of a designed job mix, the bitumen and filler content shall be derived using this combined grading.

Transportation: Bituminous material shall be transported in clean insulated and covered vehicles. An asphalt release agent, such as soap or lime water, may be applied to the interior of the vehicle to prevent sticking and to facilitate discharge of the material.

1.9.5 Spreading

Prior to spreading the mix, the base shall be prepared by carrying out the required operations as per Clause 501.8 depending upon the site conditions. Except in areas where paver cannot get access, bituminous materials shall be spread, leveled and tamped by an approved self propelled paving machine equipped with an electronic sensing device. The essential features of the paver finisher shall conform to Annexure A of IRC:27. As soon as possible after arrival at site, the materials shall be supplied continuously to the paver and laid without delay. The rate of delivery of the material to the paver shall be regulated to enable the paver to operate continuously. The travel rate of the paver and its method of operations shall be adjusted to ensure an even and uniform flow of bituminous material across the screed, free from dragging, tearing and segregation of the material. In areas with restricted space (such as confined space, foot ways, of irregular shape and varying thickness, approaches to expansion joints etc) where paver cannot be used, the material shall be spread, raked and leveled with suitable hand tools trained staff.

The minimum thickness of the material laid in each paver pass shall be in accordance with the minimum values given in the relevant parts of these specifications. When laying binder course or wearing course approaching an expansion joint of a bridge, machine laying shall stop 300 mm short of the joints. The remainder of the pavement up to the joint, and the corresponding area beyond it, shall be laid by hand, and the joint or joint cavity shall be kept clear of surfacing material.

Bituminous material with a temperature greater than 145°C shall not be laid or deposited on bridge deck water-proofing systems, unless precautions against heat damage have been approved by the Engineer-in-Charge .

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1.9.6 Compaction

Bituminous materials shall be laid and compacted in layers, which enable the specified thickness, surface level, regularity requirements and compaction to be achieved.

Compaction of bituminous materials shall commence as soon as possible after laying. Compaction shall be substantially completed before the temperature falls below the minimum specified in Para 4.4.4 above. Rolling of the longitudinal joints shall be done immediately behind the paving operation. After this, rolling shall commence at the edges and progress towards the center longitudinally, except that on super-elevated and in directionally cambered portions, it shall progress from the lower to the upper edge parallel to the centerline of the pavement. Rolling shall continue until all roller marks have been removed from the surface. All deficiencies in the surface after laying shall be made good by the attendants behind the paver, before initial rolling is commenced. The initial or break down rolling shall be done with 8–10 tones static weight smooth wheeled rollers. The intermediate rolling shall be done with 8–10 Tones static weight or vibratory roller or with a pneumatic tyre roller of 12–15 tones weight with a tyre pressure of 0.56 Mpa. The contractor shall demonstrate the efficiency of the equipment proposed to be used by carrying compaction trials. The procedure for site trials shall be submitted to the for approval. The finish rolling shall be done with 6–8 tone smooth wheeled tandem rollers. Rolling shall continue until the specified compaction is achieved.

Where compaction is to be determined by density of cores the requirement to prove the performance of rollers shall apply in order to demonstrate that the specified density can be achieved. In such cases the contractor shall specify the plant, and the method by which he intends to achieve the specified level of compaction and finish at temperatures above the minimum specified rolling temperature. Laying trials shall then demonstrate the acceptability of the plant and method used.

Bituminous materials shall be rolled in a longitudinal direction with the driven rolls nearest the paver. The roller shall first compact material adjacent to joints and then work from the lower to the upper side of the layer, overlapping on successive passes by at least one third of the width of the rear roll or, in the case of a pneumatic tyred roller, at least the nominal width of 300 mm.

In portions with super elevated and uni-directional camber, after the edge has been rolled, the roller shall progress from the lower to the upper edge.

Rollers should move at a speed of not more than 5 Km per hour. The roller shall not be permitted to stand on pavement which has not been fully compacted, and necessary precautions shall be taken to prevent dropping of oil, grease, petrol/diesel or other foreign matter on the pavement either when the rollers are operating or standing. The wheels of rollers shall be in good working order, to prevent the mix from adhering to the wheels. Only sufficient moisture to prevent adhesion between the wheels of rollers and the mix should be used. Surplus water shall not be allowed to stand on the partially compacted pavement.

1.9.7 Joints. Where joints are made, the materials shall be fully compacted and the joints made flush in one of the following ways:-

- (i) All joints shall be cut vertical to the full thickness of the previously laid mix. All loosened material shall be discarded and the vertical face coated with a suitable viscosity grade hot bitumen, or cold applied emulsified bitumen. While spreading the material along the joint, the material spread shall overlap 25 mm to 50 mm on the

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previously laid mix beyond the vertical face of the joint. The thickness of the loose overlap material should be approximately a quarter more than the final compacted thickness. The overlapped mix shall be dragged back to the hot lane so that the roller can press the small excess into the hot side of the joint to obtain a high joint density.

(ii) By using two or more pavers operating in echelon, where this is practicable and in sufficient proximity for adjacent widths to be fully compacted by continuous rolling.

(iii) All longitudinal joints shall be offset at least 300 mm from parallel joints in the layer beneath or as directed, and in a lay out approved by the . Joints in wearing course shall coincide with either the lane edge or the lane marking, whichever is appropriate. Longitudinal joints shall not be situated in wheel track zones.

(iv) For transverse joints method (i) above shall apply. Transverse joints in the successive and adjoining layers have a minimum offset of 2 m.

1.9.8 Opening to Traffic

The Bituminous Concrete surface shall be covered with a wearing course within 48 hours. If there is to be any delay, by the contractor, the course shall be covered by a seal coat to the requirement of Clause 512 before opening to any traffic. The seal coat in such cases shall be considered incidental to the work and shall not be paid for separately.

1.9.9 Surface Finish and Quality Control of Work

The surface finish of the completed construction shall conform to the requirement of Clause 902 of MoRT&H Specifications (Fifth Revision). For Control of the quality of materials and the works carried out, the relevant provisions of section 900 shall apply. The levels of the pavement courses as constructed shall not vary from those calculated with reference to the longitudinal and cross profile of the road shown on the drawings or as directed by the Engineer-in-Charge and OC Contract beyond the tolerance mentioned in Table 900-1.

Table 900-1: Tolerance in surface levels

1	Wearing course for flexible pavement (a) Granular (i) Machine laid (ii) Manually laid	 ± 6 mm ± 10 mm
---	--	---------------------------------------

Provided, however that the negative tolerance for wearing course shall not be permitted in conjunction with the positive tolerance for base course, if the thickness of the former is thereby reduced by more than the following limits:

- 4 mm for bituminous wearing course of thickness 40 mm or more.
- 3 mm for bituminous wearing course of thickness less than 40 mm.

For checking the compliance with the above requirement for bituminous wearing courses and concrete pavements, measurements of the surface levels shall be taken on a grid of points spaced at 6.25 m along the length and at 0.5 m from the edges and at the centre of the pavement. In any length of pavement, compliance shall be deemed to be met for the final road surface, only if the tolerance given above is satisfied for any point on the surface.

(Signature of the Contractor)

(For Accepting Officer)

PARTICULAR SPECIFICATIONS (CONTD)

1.9.10 Surface Regularity of Pavement Courses

The longitudinal profile shall be checked with a 3 mtr long straight edge/moving straight edge as directed by the Engineer-in-Charge /OC Contract at the middle of the each traffic lane along a line parallel to the centre line of the road. The maximum permitted number of surface irregularity shall be as per table 900-2.

Table 900-2: maximum permitted number of surface irregularities

Irregularity	Surface of carriage way and paved shoulders			
	4 mm		7 mm	
Length (m)	300	75	300	75
Number of surface Irregularities on National Highway	15	9	2	1
Number of surface Irregularities on Roads of lower category	40	18	4	2

The maximum allowable difference between the road surface and under side of a 3 m straight edge when placed parallel with, or at right angles to the centre line of the road at points decided by the Engineer-in-Charge shall be ;

For pavement surface (bituminous and cement concrete)	3 mm
For bituminous base courses	6 mm
For granular sub base/base courses	8 mm

1.9.11 Arrangement for Traffic

During the period of execution, arrangements for traffic shall be made in accordance with the provisions of Clause 112.

1.9.12 Measurement for Payment. Bituminous concrete shall be measured as finished work in **square meter** for 40 mm compacted thickness by any standard means to be decided by the Engineer-in Charge/OC Contract. The work shall be measured by area in Square meters at the specified thickness as specified in Schedule-‘A’ of tender documents.

1.9.13 Rate

The contract unit rate for the work shall be paid in full for carrying out the required operations including full compensation for:-

- (i) Making arrangement for traffic to Clause 112 of MoRT&H Specifications except for initial treatment to verge, shoulders and construction of diversions;
- (ii) Cleaning of the surface.
- (iii) Providing all materials to be incorporated in the work including arrangement for stock yards all royalties, fees, rents where necessary and all leads and lifts.
- (iv) Mixing, transporting, laying and compacting the mix as specified including all wastage in cutting joints.
- (v) All labour, tools, equipments, plant including installation of Hot Mix Plant, power supply units and all machinery, incidental to complete the work to these specifications.
- (vi) Carrying out the work in part widths of the road where directed.

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(For Accepting Officer)

PARTICULAR SPECIFICATIONS (CONTD)

- (vii) Carrying out all tests for control of quality.
- (viii) The rates include for all testing, mix design transporting and testing of samples, and cores and tests as directed by the Engineer-in-Charge/OC Contract-in-Charge. The contractor shall make all required facilities for carrying out different tests at the work site. If there is not a project specific laboratory, the Contractor must arrange to carry out all necessary testing at an outside laboratory, approved by the E-I-C and all costs incurred are deemed to be included in the rate quoted for the items or work. In case the test results are not produced by the contractor, quality control tests as per the frequency mentioned in the contract will be conducted by the department and the cost of testing charges as per the rates fixed by HQ CE (P) Dantak will be deducted from the contractor.
- (ix) The cost of all plant and laying trials as specified to prove the mixing and laying method shall be deemed to be included in the Contractor's rates.

1.9.14 Quality Control Tests and their minimum frequency for BC in accordance with Table 900-4 of MoRT&H Specifications for road & bridge works (Fifth Edition)

TABLE 900-4.

S/No	Type of Material	Test	Frequency (Min)
(a)	Bituminous Concrete	i) Quality of binder	Number of samples per lot and tests as per IS:73 or IRC:SP:53, IS:15462
		ii) Aggregate Impact Value/Los Angeles Abrasion Value	One test per 350 cum of aggregate for each source and whenever there is change in the quality of aggregate.
		iii) Flakiness Index and Elongation Index	One test per 350 cum of aggregate for each source and whenever there is change in the quality of aggregate.
		iv) Soundness (Magnesium and Sodium Sulphate)	One test for each source and whenever there is change in the quality of aggregate.
		v) Water absorption of aggregates	-do-
		vi) Sand equivalent test	-do-
		vii) Plasticity Index	-do-
		viii) Polished stone value	-do-
		ix) Percentage of fractured faces	One test per 350 cum of aggregate when crushed gravel is used.
		x) Mix Grading	One test for individual constituent and mixed aggregate from dryer for each 400 tonnes of mix subject to minimum of two tests per day per plant
		xi) Stability and voids analysis of mix including theoretical maximum specific of loose mix	Three tests for stability, flow value, density and void contents for each 400 tonnes of mix subject to minimum of two tests per day per plant
		xii) Moisture Susceptibility of mix (AASHTO T283)	One test for each mix type whenever there is change in the quality of source of coarse or fine aggregate.

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PARTICULAR SPECIFICATIONS (CONTD)

	xiii) Temperature of binder in boiler, aggregate in dryer and mix at the time of laying and compaction	At regular intervals
	xiv) Binder Content	One set for each 400 tonnes of mix subject to minimum of two tests per day per plant
	xv) Rate of spread of mix materials	After every 5 th truck load
	xvi) Density of compacted layer	One test per 700 sqm area.

2. MARKING OF CENTRE AND EDGE LINE

2.1 Scope

The work shall consists of providing road markings of specified width (Centre line 100 mm and edge line 150 mm), layout and design using paint of the required specifications as given in the Contract and as per guidelines contained in IRC: 35-1997 and BTS 33:2017.

2.2 Materials

Road marking shall be hot applied thermoplastic compound, as specified in the item and the material shall meet the requirements as specified below.

2.3 Hot applied Thermoplastic Road marking

2.3.1 Thermoplastic Material

2.3.1.1 General

The thermoplastic material shall be homogeneously composed of aggregate, pigment, resins and glass reflectorising beads. The colour of the compound shall be white or yellow (IS Colour No 356) as specified in the drawings or as directed by the Engineer-in-Charge/OC Contract.

2.3.1.2 Requirements:

(i) **Composition:** The pigment, beads, and aggregate shall be uniformly dispersed in the resin. The material shall be free from all skins, dirt and foreign objects and shall comply with requirements indicated in Table No 800-9 of MoRT&H Specifications for Road & Bridge Works (Fifth Revision) below:-

PROPORTIONS OF CONSTITUENTS OF MARKING MATERIAL

(Percentage by weight)		
Component	White	Yellow
Binder	18.0 min.	18.0 min.
Glass beads	30-30	30-30
Titanium Dioxide	10.0 min.	-
Calcium Carbonate and Inert Fillers	42.0 max.	See note below
Yellow Pigments	-	See note below

Note: Amount of yellow pigment, calcium carbonate and inert fillers shall be at the option of the manufacturer, provided all other requirements of this specification are met.

(Signature of the Contractor)

(For Accepting Officer)

PARTICULAR SPECIFICATIONS (CONTD)

Properties: The properties of thermoplastics material, when tested in accordance with ASTM D36/BS-3262- (Part I), shall be as below:-

(a) **Luminance:**

White : Daylight luminance at 45° - 65% min. as per AASHTO M 249.

Yellow: Daylight luminance at 45° - 45 % min. as per AASHTO M 249.

(b) **Drying time:** When applied at a temperature specified by the manufacturer and to the required thickness, the material shall set to bear traffic in not more than 15 minutes.

(c) **Skid resistance:** not less than 45 as per BS 6044.

(d) **Cracking resistance at low temperature:** The material shall show no cracks on application to concrete blocks.

(e) **Softening point:** 102.5° + 9.5° C as per ASTM D 36.

(f) **Yellowness Index** (for white thermoplastic paint) : not more than 0.12 as per AASHTO M- 249.

(iii) **Storage life:** The material shall meet the requirements of these Specifications for a period of one year. The thermoplastic material must also melt uniformly with no evidence of skins of un-melted particles for the one year storage period. Any material not meeting the above requirements shall be replaced by the manufacturer/supplier/Contractor.

(vii) **Reflectorisation:** Shall be achieved by incorporation of beads, the grading and other properties of the beads shall be as specified in Clause 803.4.2 of MoRT&H Specifications for Road & Bridge Works (Fifth Revision)

Marking: Each container of the thermoplastic material shall be clearly and indelibly marked with the following information:

(a) The name, trade mark or other means of identification of manufacturer.

(b) Batch number

(c) Date of manufacture

(d) Colour (white or yellow)

(e) Maximum application temperature and maximum safe heating temperature.

(viii) **Sampling and testing:** The thermoplastic material shall be sampled and tested in accordance with the appropriate ASTM/BS method. **The Contractor shall furnish to the Engineer-in-Charge a copy of certified test reports from the manufacturers of the thermoplastic material showing results of all tests specified herein and shall certify that the material meets all requirements of this Specification.**

2.3.2 Reflectorising Glass Beads

5.3.2.1 General: The specification covers two types of glass beads to be used for the production of reflectorised pavement markings. Type 1 beads are those which are a constituent of the basic thermoplastic compound vide Table 800-9 and Type 2 beads are those which are to be sprayed on the surface vide Clause 803.6.4 of MoRT&H Specifications for Road & Bridge Works (Fifth Revision)

(Signature of the Contractor)

(For Accepting Officer)

PARTICULAR SPECIFICATIONS (CONTD)

2.3.2.2 The glass beads shall be transparent, colourless and free from milkiness, dark particles and excessive air inclusions. These shall conform to the requirement spelt out in Clause 803.4.2.3 of MoRT&H Specifications for Road & Bridge Works (Fifth Revision)

2.3.2.3 Specific requirements

a) **Gradation:** The glass beads shall meet the gradation requirements for two types as given in Table 800-10 of MoRT&H Specifications for Road & Bridge Works (Fifth Revision) as below:-

GRADATION REQUIREMENTS FOR GLASS BEADS

Sieve size	Per cent retained	
	Type 1	Type 2
1.18 mm	0 to 3	
850 micron	5 to 20	0 to 5
600 micron	-	5 to 20
425 micron	65 to 95	-
300 micron	-	30 to 75
180 micron	0 to 10	10 to 30
Below 180 micron	-	0 to 15

- b) **Roundness:** The glass beads shall have a minimum of 70 per cent true spheres.
- c) **Refractive index:** The glass beads shall have a minimum refractive index of 1.50.
- d) **Free flowing properties:** The glass beads shall be free of hard lumps and clusters and shall dispense readily under any conditions suitable for paint striping. They shall pass the free flow –test.

2.3.2.4 Test Methods: The specific requirements shall be tested with the following method:

- (i) **Free Flow Test** : Spread 100 grams of beads evenly in a 100 mm diameter glass dish. Place the dish in a 250 mm inside diameter dessicator which is filled within 25 mm of the top of a desiccator plate with sulphuric acid water solution (specific gravity 1.10). Cover the dessicator and let it stand for 4 hours at 20 to 29°C. Remove sample from dessicator, transfer beads to a pan and inspect for lumps or clusters. Then pour beads into a clean, dry glass funnel having a 100 mm stem and 6 mm orifice. If necessary, initiate flow by lightly tapping the funnel. The glass spheres shall be essentially free of lumps and clusters and shall flow freely through the funnel.
- (ii) The requirements of gradation, roundness and refractive index of glass beads and the amount of glass beads in the compound shall be tested as per BS: 6088 and BS: 3262 (Part I).
- (iii) The Contractor shall furnish to the Engineer-in-Charge a copy of certified test reports from the manufacturer of glass beads obtained from a reputed laboratory showing result of all tests specified herein and shall certify that the material meets all requirements of this Specification. However, if so required, these tests may be carried out as directed by the Engineer-in-Charge/OC Contract.

(Signature of the Contractor)

(For Accepting Officer)

PARTICULAR SPECIFICATIONS (CONTD)

2.3.4 Application properties of thermoplastic material

2.3.4.1 The thermoplastic material shall readily get screeded/extruded at temperatures specified by the manufacturers for respective method of application to produce a line of specified thickness of 2.5 mm which shall be continuous and uniform in shape having clear and sharp edges.

2.3.4.2 The material upon heating to application temperatures shall not exude fumes, which are toxic, obnoxious or injurious to persons or property.

2.3.5 Preparation

(i) The material shall be melted in accordance with the manufacturer's instructions in a heater fitted with a mechanical stirrer to give a smooth consistency to the thermoplastic material to avoid local overheating. The temperature of the mass shall be within the range specified by the manufacturer, and shall on no account be allowed to exceed the maximum temperature stated by the manufacturer. The molten material should be used as expeditiously as possible and for thermoplastic material which has natural binders or is otherwise sensitive to prolonged heating, the material shall not be maintained in a molten condition for more than 4 hours.

(ii) After transfer to the laying equipment, the material shall be maintained within the temperature range specified by the manufacturer for achieving the desired consistency for laying.

2.3.6 Properties of finished road marking

The finished lines shall be free from ruggedness on sides and ends and be parallel to the general alignment of the carriageway. The upper surface of the lines shall be level, uniform and free from streaks.

- (a) The strip shall not be slippery when wet.
- (b) The marking shall not lift from the pavement in freezing weather.
- (c) After application and proper drying, the strip shall show no appreciable deformation or discolouration under traffic and under road temperatures upto 60° C.
- (d) The marking shall not deteriorate by contact with sodium chloride, calcium chloride or oil drippings from traffic.
- (e) The stripe or marking shall maintain its original dimensions and position. Cold ductility of the material shall be such as to permit normal movement with the road surface without chopping or cracking.
- (f) The colour of yellow marking shall conform to IS Colour No. 356 as given in IS: 164.

2.3.7 Measurement for Payment

The painted marking shall be measured in "**Square Meter**" of actual area marked (excluding the gaps, if any).

2.3.8 Rate

The Contract unit rate for road markings shall be payment in full compensation for furnishing all labour, materials, tools equipment, including all incidental costs necessary for carrying out the work at the site conforming to these Specifications complete as per the approved drawing (s) or as directed by the Engineer-in-Charge/OC Contract and all other incidental costs necessary to complete the work to these specifications.

(Signature of the Contractor)

(For Accepting Officer)

PARTICULAR SPECIFICATIONS (CONTD)

3. REFLECTIVE PAVEMENT MARKERS (ROAD STUDS/CAT EYES)

3.1 Scope

The work shall cover the providing and fixing of reflective pavement marker (RPM) or road stud, a device which is bonded to or anchored within the road surface, for lane marking and delineation for night-time visibility, as specified in the Contract.

3.2. Material

3.2.1. Plastic body or RPM/road stud shall be moulded from ASA (Acrylic Styrene Acrylonitrile) or HIPS (Hi-impact Polystyrene) or Acrylonitrile Butadiene Styrene (ABS) or any other suitable material approved the Engineer. The markers shall support a load of 13,635 Kg tested in accordance with ASTM D 4280.

3.2.2. Reflective panels shall consist of number of lenses containing single or dual prismatic cubes capable of providing total internal reflection of the light entering the lens face. Lenses shall be moulded of methyl methacrylate conforming to ASTM D 788 or equivalent.

3.3 Design

The slope or retro-reflecting surface shall preferably be $35 \pm 5^\circ$ to base and the area of each retro-reflecting surface shall not be less than 13.0 sq.cm.

3.4 Optical Performance

3.4.1 Unidirectional and Bi-directional Studs

Each reflector or combination of reflectors on each face of the stud shall have a Coefficient of Luminous Intensity (C.I.L) not less than that given in Tables 800-13 or 800-14 as appropriate.

3.4.2 Omni-directional Studs

Each omni-directional stud shall have C.I.L. of not less than 2 mcd/lx.

Table 800-13 : Minimum C.I.L. Values for Category 'A' Studs

Entrance Angle	Observation Angle	C.I.L. in mcd/lx		
		White	Amber	Red
0° U 5° L&R	0.3°	220	110	44
0° U 10° L&R	0.5°	120	60	24

Table 800-14 : Minimum C.I.L. Values for Category 'B' Studs

Entrance Angle	Observation Angle	C.I.L. in mcd/lx		
		White	Amber	Red
0° U 6° L&R	0.3°	20	10	4
0° U 10° L&R	0.5°	15	7.5	3

(Signature of the Contractor)

(For Accepting Officer)

PARTICULAR SPECIFICATIONS (CONTD)

Note :

- 1) The entrance angle of 0° U corresponds to the normal aspect of the reflectors when the reflecting road stud is installed in horizontal road surface.
- 2) The stud incorporating one or more corner cube reflectors shall be included in Category 'A'. The stud incorporating one or more b-convex reflectors shall be included in Category 'B'.

3.5 Tests

3.5.1 Co-efficient of luminance intensity can be measured by procedure described in ASTM E 809 "Practice for Measuring Photometric Characteristics" or as recommended in BS:873-Part 4 : 1973.

3.5.2 Under test conditions, a stud shall not be considered to fail the photometric requirements if the measured C.I.L. at any one position of measurement is less than the values specified in Tables 800-13 or 800-14 provided that

- i) the value is not less than 80 percent of the specified minimum, and
- ii) the average of the left and right measurements for the specific angle is greater than the specified minimum.

4 ROAD DELINEATORS

4.1.1 Scope

The work shall cover supplying and fixing roadway indicators, hazard markers and object markers. Roadway indicators shall be properly installed to indicate the horizontal alignment and vertical profile of the roadway so as to outline the vehicle path for safe driving. Hazard markers shall be installed immediately ahead of obstruction of vehicular path such as just before a narrow bridge. Object markers shall be erected where obstruction within the roadway starts such as channelizing island in approaches to intersections.

4.1.2 The MS post delineator of minimum 1mm thickness will have an ellipsoidal design with the height of the pole 900mm above the ground and about 300mm base which can be anchored onto the ground. Width of the MS delineator will be min 100mm end to end. The MS post will be powder coating with minimum 40 micron thickness along its entire length with no exposed surface left without powder coating.

The delineators will be retro reflectorized with 3 strips of white Type XI sheeting of 150mm width with specifications as per IRC:67-2022 and ASTM D 4956 to obtain clear visibility of 300m under clear weather conditions when illuminated by the upper beam of the car headlights. The alternate band of black paint and white retro reflective sheet as per Figure 1 of IRC:79-2019 shall be in place on both sides of the MS post.

4.1.3. Installation

The delineators shall be so installed that their posts do not change their orientation and the reflectorized faces are always perpendicular to the direction of travel.

4.1.4. Measurement for Payments.

The measurement shall be made in number of delineators supplied and fixed at site.

4.1.5. Rates

The Contract unit rates of delineators shall be payment in full compensation for furnishing all Labour, materials, tools equipment including incidental costs necessary to complete the work to these Specifications.

(Signature of the Contractor)

(For Accepting Officer)

5. Miscellaneous

The specification of any item not covered in the above technical specification; the Indian Standard Specification applicable for the Border Roads Organization shall be followed.

6. Drawing of Surfacing Works (Cross Section)

Drawings of Surfacing works such as Cross Section can be seen in the office of Chief Engineer Project Dantak for reference purpose. However, drawings for surfacing works (Cross Section) will be provided by OC Contract to execute work at the time of execution. Contractor shall execute work as per drawing provided by OC Contract.

(Signature of the Contractor)

(For Accepting Officer)

PART-II PRICED BID

SCHEDULE - "A" NOTES

EXECUTION OF SURFACING WORK BETWEEN KM 0.00 TO KM 31.50 (PHASE-I) AND BETWEEN KM 31.50 TO KM 55.00 (PHASE-II) FOR PROVIDING AND LAYING OF WMM 75 MM (2 LAYERS) COMPACTED THICKNESS, DBM 50 MM COMPACTED THICKNESS AND BC 30 MM COMPACTED THICKNESS INCLUDING APPLICATION OF PRIME COAT, TACK COAT, ROLLING AND COMPACTION AS PER MORT&H SPECIFICATIONS AND ROAD MARKING WITH THERMOPLASTIC PAINT AS PER IRC:35 INCLUDING PROVIDING AND FIXING OF ROAD STUD AND DELINEATOR FOR CONSTRUCTION OF PANGBANG-NGANGLAM ROAD UNDER 63 RCC/19 BRTF OF PROJECT DANTAK INSIDE BHUTAN UNDER JOB NO. H-2112/01

1. Quantity shown in Schedule 'A' is approximate and is inserted as guide only. These shall, however not be varied beyond the limits laid down in condition 7 of IAFW-2249 General Condition of contracts. **The contract will be accepted as a whole or as per the discretion of the Accepting Officer.**

2. The rates and amount in Schedule 'A' are to be filled in by the tenderer. The rates shall be filled both in figures as well as in words. In case of variation between the rates quoted in figure and words, the rates in words shall take precedence.

3. **Period of Completion** :- The entire works of Schedule 'A' under this contract shall be completed within **300 days for Phase-I and 240 days for Phase-II** in accordance with the phasing, if any, indicated in the tender from the date of placing of work order, which will be usually within two week from the date of issue of Acceptance letter.

4. Any drawings mentioned in the tender documents/particular specifications but it is inadvertently not included in the list of drawings, shall also be deemed to form part of the contract and Tenderer may see such drawings/details in the office of Accepting Officer/concerned OC Contracts and shall be supplied by Deptt.

5. The layout of work as indicated in site plan/layout plan is tentative and may be varied where necessary at the discretion of the OC Contact. The contractor shall not be entitled for any claim on account of any such variation.

6. The rates to be quoted by the tenderer in the schedule 'A' shall be deemed to include for the provision of all labour and materials, loading and unloading of materials and transportation if required, tools, plant, equipment and tackle, process, operations and specific requirements details in the schedule in the particular specification and elsewhere in this tender documents and for the full, entire and final completion of the work in accordance with the provisions of these tender documents.

7. The rate quoted by the contractor shall be deemed to be inclusive of all Taxes (including Sales Tax/VAT on materials, Sales, Tax/VAT on works contracts, Turnover Tax, Service Tax, etc), duties, Royalties, Octroi, State Entry Tax & other levies payable under the respective statutes. No re-imburement/refund for variation in rates of taxes, duties royalties, Octroi, State Entry tax & other levies, and or imposition/abolition of any new/existing taxes, duties, royalties, octroi, state entry Tax & other levies shall be made except as provided in Special Condition.

8. The rate to be quoted by the tenderer in respect of this work shall be deemed to include for all minor details of construction which are obviously and fairly intended and which may not have been specifically mentioned in the tender documents but which are essential for satisfactory execution and completion of work. In case of difference of opinion between the OC Contract and the Contractor as to what constitutes a minor detail of construction, the decision of Accepting Officer shall be final and binding.

(Signature of the Contractor)

(For Accepting Officer)

SCHEDULE – ‘A’ NOTES (CONTD.....)

9. Rates to be quoted by the contractors shall be deemed to include for all items of work as described, specified in particular specification and on drawing.
10. The rates to be quoted by the contractor for various items shall include for “material and labour”/”Supply and fix” connecting’ Jointing, Testing and Commissioning complete unless otherwise specifically mentioned therein.
11. The amount of contract is not firm but shall be treated as the contract sum as referred to in condition 1 (n) of IAFW-2249.
12. Work shall be executed on locations as shown in site plan or as directed by the OC Contract/Engineer-in-Charge.
13. Measurements of work done shall be as per units of items given in Schedule ‘A’ and this mode of measurement shall take as per Clause 113 of MoRT&H Specification for road & Bridge works (Fifth Revision). The rate be quoted considering Clause 114 of MoRT&H Specification road & Bridge works (Fifth Revision).
14. Unit RM, mm, Cum or Cm, Sqm, Kg and quintal or Qtl wherever mentioned in the tender documents denotes the unit, Running Metre, Millimetre, Cubic Metre, Square Metre, Kilogram and Quintal respectively.
15. The works under this contract will be carried out within the working hours as per directions of Accepting Officer or the officer so detailed by him for administration of this contract.
16. The security will be arranged by the contractor for his personnel and equipment during the execution of work. No compensation will be paid by BRO on account of any loss/damage to personnel, property, veh/eqpt/plant of contractor during execution of work or on any account.
17. Site for execution of work shall be handed over on the date of commencement of the work as indicated in the work order No 01. In case it is not possible for the department to handover the entire site on the date of commencement and certain portion of the site is handed over later on then contractor shall make his planning/deployment of resources accordingly and no claims of whatsoever nature on the account shall be entertained.
18. The contract will be accepted as a whole or as per the discretion of the Accepting Officer.
19. **Phase-I of the subject work has to be started first.**

(Signature of the Contractor)

(For Accepting Officer)

EXECUTION OF SURFACING WORK BETWEEN KM 0.00 TO KM 31.50 (PHASE-I) AND BETWEEN KM 31.50 TO KM 55.00 (PHASE-II) FOR PROVIDING AND LAYING OF WMM 75 MM (2 LAYERS) COMPACTED THICKNESS, DBM 50 MM COMPACTED THICKNESS AND BC 30 MM COMPACTED THICKNESS INCLUDING APPLICATION OF PRIME COAT,TACK COAT,ROLLING AND COMPACTION AS PER MORT&H SPECIFICATIONS AND ROAD MARKING WITH THERMOPLASTIC PAINT AS PER IRC:35 INCLUDING PROVIDING AND FIXING OF ROAD STUD AND DELINEATOR FOR CONSTRUCTION OF PANBANG-NGANGLAM ROAD UNDER 63 RCC/19 BRTF OF PROJECT DANTAK INSIDE BHUTAN UNDER JOB NO. H-2112/01

SCHEDULE 'A'/BILL OF QUANTITIES CONTD

S/No	Description of Works	A/U	Qty	Rate per Unit to be quoted by the Bidder		Amount		
				Figures	Words	Figures	Words	
<u>Surfacing works between km 0.00 to 31.50 (Phase-I)</u>								
01.	Scarifying metalled (water bound) road surface disposal of rubbish up to 50m and consolidation of the aggregate received from scarifying all as specified in particular specifications and as directed by EIC/OC Contract.	Sqm	85474.62					300 days for Phase-I and 240 days for Phase-II from placing of work order
02	Providing and laying wet mix macadam graded aggregate base course to required degree of compaction with proper formation of cross fall by using well graded crushed aggregates premixed with OMC using suitable mixer, motor grader as per material gradation and aggregates quality specified (WMM 75 mm thick 2nd Layer) all as specified in particular specifications and as directed by EIC/OC Contract.	Cum	13520.53					
03	Providing and applying prime coat using bitumen emulsion conforming to IS:8887, using asphalt/bitumen sprayer including preparing the surface and cleaning with road broom on WMM @ 0.75 Kg/sqm and as directed by EIC/OC	Sqm	85474.62					
Total of srl page No. 189								

(Signature of the Contractor)

(For Accepting Officer)

SCHEDULE 'A'/BILL OF QUANTITIES CONTD

EXECUTION OF SURFACING WORK BETWEEN KM 0.00 TO KM 31.50 (PHASE-I) AND BETWEEN KM 31.50 TO KM 55.00 (PHASE-II) FOR PROVIDING AND LAYING OF WMM 75 MM (2 LAYERS) COMPACTED THICKNESS, DBM 50 MM COMPACTED THICKNESS AND BC 30 MM COMPACTED THICKNESS INCLUDING APPLICATION OF PRIME COAT,TACK COAT,ROLLING AND COMPACTION AS PER MORT&H SPECIFICATIONS AND ROAD MARKING WITH THERMOPLASTIC PAINT AS PER IRC:35 INCLUDING PROVIDING AND FIXING OF ROAD STUD AND DELINEATOR FOR CONSTRUCTION OF PANBANG-NGANGLAM ROAD UNDER 63 RCC/19 BRTF OF PROJECT DANTAK INSIDE BHUTAN UNDER JOB NO. H-2112/01

S/N o	Description of Works	A/U	Qty	Rate per Unit to be quoted by the Bidder		Amount		300 days for Phase-I and 240 days for Phase-II from placing of work order
				Figures	Words	Figures	Words	
04.	Providing and laying Dense Bituminous Macadam (DBM) 50 mm compacted thickness layer to required degree of compaction based on Job Mix Formula (JMF) approved by the supervising engineer by mechanized method using asphalt plant, Paver, steel roller, tyre roller etc. complete as per material gradation and aggregate quality specified and as directed by EIC/OC Contract.	Sqm	85474.62					
05	Providing and applying tack coat using Bitumen emulsion conforming to IS: 8887, using Asphalt/bitumen pressure distributor including preparing the surface and cleaning with road broom on DBM/Prime coat @ 0.3 kg/sqm as specified in particular specifications and as directed by EIC/OC Contract.	Sqm	181241.45					
06	Providing and laying of 30 mm thick Bituminous Concrete compacted thickness layer to required degree of compaction based on Job Mix Formula (JMF) approved by the supervising engineer by mechanized method using asphalt plant, Paver, steel roller, tyre roller etc. complete as per material gradation and aggregate quality specified and as directed by EIC/OC Contract.	Sqm	181241.45					
Total of srl page No. 190								

(Signature of the Contractor)

(For Accepting Officer)

SCHEDULE 'A'/BILL OF QUANTITIES CONTD

EXECUTION OF SURFACING WORK BETWEEN KM 0.00 TO KM 31.50 (PHASE-I) AND BETWEEN KM 31.50 TO KM 55.00 (PHASE-II) FOR PROVIDING AND LAYING OF WMM 75 MM (2 LAYERS) COMPACTED THICKNESS, DBM 50 MM COMPACTED THICKNESS AND BC 30 MM COMPACTED THICKNESS INCLUDING APPLICATION OF PRIME COAT,TACK COAT,ROLLING AND COMPACTION AS PER MORT&H SPECIFICATIONS AND ROAD MARKING WITH THERMOPLASTIC PAINT AS PER IRC:35 INCLUDING PROVIDING AND FIXING OF ROAD STUD AND DELINEATOR FOR CONSTRUCTION OF PANBANG-NGANGLAM ROAD UNDER 63 RCC/19 BRTF OF PROJECT DANTAK INSIDE BHUTAN UNDER JOB NO. H-2112/01

SCHEDULE 'A'/BILL OF QUANTITIES CONTD

S/N o	Description of Works	A/U	Qty	Rate per Unit to be quoted by the Bidder		Amount		300 days for Phase-I and 240 days for Phase-II from placing of work order
				Figures	Words	Figures	Words	
07.	Providing and apply Road marking with hot applied thermoplastic compound with reflectorizing glass beads on Bituminous surface as per IRC:35 and technical specifications. The finished surface to be level and free from streaks and holes all as specified in particular specifications and as directed by EIC/OC Contract.	Sqm	10910.14					
08	Providing and fixing of Road Stud 100mm x 100mm, diecast in aluminum, resistant to corrosive effect of salt and grit, fitted with lens reflectors, installed in concrete or asphaltic surface by drilling hole 30 mm upto depth of 60mm and embedded in suitable bituminous grout or epoxy mortar all as per BS 873 (Part 4) 1973 (Cat Eye) and as directed by EIC/OC Contract.	Nos	16741.00					
09	Supply and Installation of delineators (600mm) (road way indicators, hazard marker, object marker) 80-100 cm high above ground level, painted black and white in 15cm wide strips, fitted with 80x 100 mm rectangular or 75mm dia circular reflectorized panels at the top, buried or pressed into the ground and conforming to IRC: 79 and the drawings all complete as per clauses 805 of MoRTH specification and as directed by EIC/OC Contract.	Nos	2303.00					
Total of srl page No. 191								

(Signature of the Contractor)

(For Accepting Officer)

EXECUTION OF SURFACING WORK BETWEEN KM 0.00 TO KM 31.50 (PHASE-I) AND BETWEEN KM 31.50 TO KM 55.00 (PHASE-II) FOR PROVIDING AND LAYING OF WMM 75 MM (2 LAYERS) COMPACTED THICKNESS, DBM 50 MM COMPACTED THICKNESS AND BC 30 MM COMPACTED THICKNESS INCLUDING APPLICATION OF PRIME COAT,TACK COAT,ROLLING AND COMPACTION AS PER MORT&H SPECIFICATIONS AND ROAD MARKING WITH THERMOPLASTIC PAINT AS PER IRC:35 INCLUDING PROVIDING AND FIXING OF ROAD STUD AND DELINEATOR FOR CONSTRUCTION OF PANBANG-NGANGLAM ROAD UNDER 63 RCC/19 BRTF OF PROJECT DANTAK INSIDE BHUTAN UNDER JOB NO. H-2112/01

SCHEDULE 'A'/BILL OF QUANTITIES

S/No	Description of Works	A/U	Qty	Rate per Unit to be quoted by the Bidder		Amount		300 days for Phase-I and 240 days for Phase-II from placing of work order
				Figures	Words	Figures	Words	
<u>Surfacing works between km 31.50 to km 55.00 (Phase-II)</u>								
01.	Scarifying metalled (water bound) road surface disposal of rubbish up to 50m and consolidation of the aggregate received from scarifying all as specified in particular specifications and as directed by EIC/OC Contract.	Sqm	90069.21					
02	Providing and laying wet mix macadam graded aggregate base course to required degree of compaction with proper formation of cross fall by using well graded crushed aggregates premixed with OMC using suitable mixer, motor grader as per material gradation and aggregates quality specified (WMM 75 mm thick 2nd Layer) all as specified in particular specifications and as directed by EIC/OC Contract.	Cum	14247.31					
03	Providing and applying prime coat using bitumen emulsion conforming to IS:8887, using asphalt/bitumen sprayer including preparing the surface and cleaning with road broom on WMM @ 0.75 Kg/sqm and as directed by EIC/OC	Sqm	90069.21					
Total of srl page No. 192								

(Signature of the Contractor)

(For Accepting Officer)

EXECUTION OF SURFACING WORK BETWEEN KM 0.00 TO KM 31.50 (PHASE-I) AND BETWEEN KM 31.50 TO KM 55.00 (PHASE-II) FOR PROVIDING AND LAYING OF WMM 75 MM (2 LAYERS) COMPACTED THICKNESS, DBM 50 MM COMPACTED THICKNESS AND BC 30 MM COMPACTED THICKNESS INCLUDING APPLICATION OF PRIME COAT,TACK COAT,ROLLING AND COMPACTION AS PER MORT&H SPECIFICATIONS AND ROAD MARKING WITH THERMOPLASTIC PAINT AS PER IRC:35 INCLUDING PROVIDING AND FIXING OF ROAD STUD AND DELINEATOR FOR CONSTRUCTION OF PANBANG-NGANGLAM ROAD UNDER 63 RCC/19 BRTF OF PROJECT DANTAK INSIDE BHUTAN UNDER JOB NO. H-2112/01

SCHEDULE 'A'/BILL OF QUANTITIES CONTD

S/N o	Description of Works	A/U	Qty	Rate per Unit to be quoted by the Bidder		Amount		300 days for Phase-I and 240 days for Phase-II from placing of work order
				Figures	Words	Figures	Words	
04.	Providing and laying Dense Bituminous Macadam (DBM) 50 mm compacted thickness layer to required degree of compaction based on Job Mix Formula (JMF) approved by the supervising engineer by mechanized method using asphalt plant, Paver, steel roller, tyre roller etc. complete as per material gradation and aggregate quality specified and as directed by EIC/OC Contract.	Sqm	90069.21					
05	Providing and applying tack coat using Bitumen emulsion conforming to IS: 8887, using Asphalt/bitumen pressure distributor including preparing the surface and cleaning with road broom on DBM/Prime coat @ 0.3 kg/sqm as specified in particular specifications and as directed by EIC/OC Contract.	Sqm	135043.76					
06	Providing and laying of 30 mm thick Bituminous Concrete compacted thickness layer to required degree of compaction based on Job Mix Formula (JMF) approved by the supervising engineer by mechanized method using asphalt plant, Paver, steel roller, tyre roller etc. complete as per material gradation and aggregate quality specified and as directed by EIC/OC Contract.	Sqm	135043.76					
Total of srl page No. 193								

(Signature of the Contractor)

(For Accepting Officer)

EXECUTION OF SURFACING WORK BETWEEN KM 0.00 TO KM 31.50 (PHASE-I) AND BETWEEN KM 31.50 TO KM 55.00 (PHASE-II) FOR PROVIDING AND LAYING OF WMM 75 MM (2 LAYERS) COMPACTED THICKNESS, DBM 50 MM COMPACTED THICKNESS AND BC 30 MM COMPACTED THICKNESS INCLUDING APPLICATION OF PRIME COAT,TACK COAT,ROLLING AND COMPACTION AS PER MORT&H SPECIFICATIONS AND ROAD MARKING WITH THERMOPLASTIC PAINT AS PER IRC:35 INCLUDING PROVIDING AND FIXING OF ROAD STUD AND DELINEATOR FOR CONSTRUCTION OF PANBANG-NGANGLAM ROAD UNDER 63 RCC/19 BRTF OF PROJECT DANTAK INSIDE BHUTAN UNDER JOB NO. H-2112/01

SCHEDULE 'A'/BILL OF QUANTITIES CONTD

S/N o	Description of Works	A/U	Qty	Rate per Unit to be quoted by the Bidder		Amount		300 days for Phase-I and 240 days for Phase-II from placing of work order
				Figures	Words	Figures	Words	
07.	Providing and apply Road marking with hot applied thermoplastic compound with reflectorizing glass beads on Bituminous surface as per IRC:35 and technical specifications. The finished surface to be level and free from streaks and holes all as specified in particular specifications and as directed by EIC/OC Contract.	Sqm	8158.86					
08	Providing and fixing of Road Stud 100mm x 100mm, diecast in aluminum, resistant to corrosive effect of salt and grit, fitted with lens reflectors, installed in concrete or asphaltic surface by drilling hole 30 mm upto depth of 60mm and embedded in suitable bituminous grout or epoxy mortar all as per BS 873 (Part 4) 1973 (Cat Eye) and as directed by EIC/OC Contract.	Nos	12472.00					
09	Supply and Installation of delineators (600mm) (road way indicators, hazard marker, object marker) 80-100 cm high above ground level, painted black and white in 15cm wide strips, fitted with 80x 100 mm rectangular or 75mm dia circular reflectorized panels at the top, buried or pressed into the ground and conforming to IRC: 79 and the drawings all complete as per clauses 805 of MoRTH specification and as directed by EIC/OC Contract.	Nos	1715.00					
	Total of srl page No. 194							

(Signature of the Contractor)

(For Accepting Officer)

(a)	Total brought forward from srl page No.189	Rs.	
(b)	Total brought forward from srl page No.190	Rs.	
(c)	Total brought forward from srl page No.191	Rs.	
(d)	Total brought forward from srl page No.192	Rs.	
(e)	Total brought forward from srl page No.193	Rs.	
(f)	Total brought forward from srl page No.194	Rs.	
Grand Total		Rs	

Total (Rupees _____)

(Signature of the Contractor)

(For Accepting Officer)

SCHEDULE `B`
(ISSUE OF STORES TO THE CONTRACTOR)

EXECUTION OF SURFACING WORK BETWEEN KM 0.00 TO KM 31.50 (PHASE-I) AND BETWEEN KM 31.50 TO KM 55.00 (PHASE-II) FOR PROVIDING AND LAYING OF WMM 75 MM (2 LAYERS) COMPACTED THICKNESS, DBM 50 MM COMPACTED THICKNESS AND BC 30 MM COMPACTED THICKNESS INCLUDING APPLICATION OF PRIME COAT,TACK COAT,ROLLING AND COMPACTION AS PER MORT&H SPECIFICATIONS AND ROAD MARKING WITH THERMOPLASTIC PAINT AS PER IRC:35 INCLUDING PROVIDING AND FIXING OF ROAD STUD AND DELINEATOR FOR CONSTRUCTION OF PANBANG-NGANGLAM ROAD UNDER 63 RCC/19 BRTF OF PROJECT DANTAK INSIDE BHUTAN UNDER JOB NO. H-2112/01

1. The contractor has to make his own arrangement for all stores/materials required for completion of the entire work contracted for.

S No	Particulars	A/U	Rate at which stores will be issued to the contractor	Place of issue	Remarks
		Nil			

(Signature of the Contractor)

(For Accepting Officer)

SCHEDULE `C`

**LIST OF TOOLS AND PLANT
(OTHER THAN TRANSPORT) WHICH WILL BE HIRED TO THE CONTRACTOR)**

EXECUTION OF SURFACING WORK BETWEEN KM 0.00 TO KM 31.50 (PHASE-I) AND BETWEEN KM 31.50 TO KM 55.00 (PHASE-II) FOR PROVIDING AND LAYING OF WMM 75 MM (2 LAYERS) COMPACTED THICKNESS, DBM 50 MM COMPACTED THICKNESS AND BC 30 MM COMPACTED THICKNESS INCLUDING APPLICATION OF PRIME COAT,TACK COAT,ROLLING AND COMPACTION AS PER MORT&H SPECIFICATIONS AND ROAD MARKING WITH THERMOPLASTIC PAINT AS PER IRC:35 INCLUDING PROVIDING AND FIXING OF ROAD STUD AND DELINEATOR FOR CONSTRUCTION OF PANBANG-NGANGLAM ROAD UNDER 63 RCC/19 BRTF OF PROJECT DANTAK INSIDE BHUTAN UNDER JOB NO. H-2112/01

S/ No	Quantity/ Particulars	Details of crew supplied	Hire charges per unit per working day	Stand by charges per unit per OFF day	Place of issue by name	Remarks
NIL						

SCHEDULE `D`

TRANSPORT TO BE HIRED TO THE CONTRACTOR

EXECUTION OF SURFACING WORK BETWEEN KM 0.00 TO KM 31.50 (PHASE-I) AND BETWEEN KM 31.50 TO KM 55.00 (PHASE-II) FOR PROVIDING AND LAYING OF WMM 75 MM (2 LAYERS) COMPACTED THICKNESS, DBM 50 MM COMPACTED THICKNESS AND BC 30 MM COMPACTED THICKNESS INCLUDING APPLICATION OF PRIME COAT,TACK COAT,ROLLING AND COMPACTION AS PER MORT&H SPECIFICATIONS AND ROAD MARKING WITH THERMOPLASTIC PAINT AS PER IRC:35 INCLUDING PROVIDING AND FIXING OF ROAD STUD AND DELINEATOR FOR CONSTRUCTION OF PANBANG-NGANGLAM ROAD UNDER 63 RCC/19 BRTF OF PROJECT DANTAK INSIDE BHUTAN UNDER JOB NO. H-2112/01

S/No	Quantity/Particulars	Rate per unit per working day	Place of issue	Remarks
NIL				

(Signature of the Contractor)

(For Accepting Officer)

TENDER

To

The President of India
Through the Chief Engineer
Project DANTAK* (*Referred to also as Accepting Officer elsewhere in the tender documents).

Having examined and perused the following documents forming part of tender documents :-

1. Particular/technical specifications.
2. Ministry of Road Transport & Highways (MoRTH) specifications for Road and Bridge works (Fifth Revision) published by Indian Road Congress New Delhi.
3. Detailed specifications/other tender documents.
4. Schedule 'A', 'B', 'C' & 'D' attached here to
5. Special Conditions of the Contract
6. General Conditions of Contracts IAFW-2249 (1989 Print) including amendments 1 to 48 and errata No 1 to 20.
7. All other documents forming part of tender documents

Should this tender be accepted, I/We agree:-

To execute all the works referred to in the said documents upon the terms and conditions contained or referred to therein at the item rates continued in the aforesaid Schedule 'A' or at such other rates to be fixed under the provision of condition **62** of IAFW-2249 and to carry out such deviations as may be ordered vide condition **7** of General Condition of Contacts up to a maximum of **10 percent** and further agree to refer all disputes as required by condition **70 & 71** of the General Conditions of the contract (IAFW-2249) to the Sole Arbitration of an serving Engineer Officer to be appointed by the **Director General Border Roads, New Delhi or in his absence, by the officer officiating as Director General Border Roads**, whose decision shall be final, conclusive and binding. However, in case of disputes with **PSC** and or **PSU** the same will be referred to a Sole Arbitrator to be appointed by Secretary, Bureau of Public Sector Enterprises (refer Special condition **24** of tender documents).

Signature of Contractor

in the capacity of _____ duly

Witness:

authorized to sign the tender for and on behalf

(Name in Block letters)

of M/s _____

Address-----

(In Block letters)

Postal address: - _____

(Signature of the Contractor)

(For Accepting Officer)

ACCEPTANCE

_____ alterations have been made in this document and as evidence that these alterations were made before the execution of this contract agreement, they have been initialed by the contractor and Shri _____, HQ CE (P) DANTAK. The said Officer(s) is/are hereby authorized to sign and initial on my behalf the documents, forming part of the contract on my behalf.

The above tender was accepted by me on.....day of 2026, on behalf of the President of India for the contract sum of Rs. _____ (Rupees _____ Only) at the item rates quoted in Schedule 'A' in favour of _____

Signature

Brig
Chief Engineer
Project Dantak
Accepting Officer
For and on behalf of the President of India

Signed this ____ day of _____ 2026