



NATIONAL AUTOMOTIVE TEST TRACKS

Tender For

**Filling the free area of dynamic platform (T-2) with available
boulder/soil & clearing/grubbing of sapling/roots/grass etc., from
both side of HST**

**NATRAX
PITHAMPUR, DIST. DHAR (Madhya Pradesh)**

Tender No. - NATRAX/PROC/C&I/22/38

National Automotive Test Tracks (NATRAX)

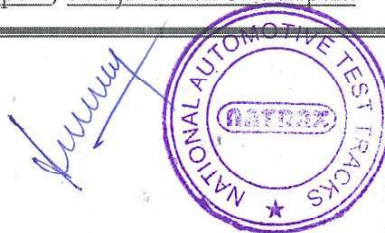
NH-52, Old Agra- Mumbai Highway, Near to Pithampur Flyover,

Post Khandwa (Near Pithampur)

Dhar District, Madhya Pradesh-454774

Phone: +919893892310, Fax - 07292-256101

Email: a.prabhakar@natrip.in, anuj.kumar@natrip.in



1. General Instructions:

National Automotive Test Tracks (NATRAX) is an Automotive Testing & Certification Centre under NATRiP Implementation Society (NATRAX)/National Automotive Board (NAB) which is an autonomous body constituted by Ministry of Heavy Industries, Government of India. NATRAX has been set up on approx. 3000 acres of land for comprehensive testing and evaluation of all types of automobiles, near Pithampur, Dist. Dhar, (Madhya Pradesh, India).

The National Automotive Test Tracks (NATRAX), invites **Password Protected OR Sealed Quotations/Bids** from the qualified and experience Bidder(s) who meets the specified eligibility criteria in this document in the prescribed Proforma for performing, executing and implementing the works on the terms and conditions contained in this Bid document. Brief description of works and the timelines for NIQ/tender are summarised in the table below:

Description of Work	Period of Contract	EMD	Date of start of floating of tender	Last date for submission of Bid	Date & Time of Bid opening	Estimated Cost
Filling the free area of dynamic platform (T-2) with available boulder/soil & clearing/grubbing of sapling/roots/grass etc from both side of HST at NATRAX, Pithampur, Dhar (MP)	60 Days from the date of Issue of Work Order.	Nil	07 th Nov 2022	16 th Nov 2022 at 1500 Hrs	16 th Nov 2022 at 1530 Hrs	Rs 8 Lakh

The Bidder(s) who meet the minimum eligibility criteria (MEC) as mentioned in the Instruction to Bidder (ITB) may be eligible to become successful in the Bidding process. **The bidder(s) in the form of JV/Consortium is not permitted.**

2. Bid Submission details:





- a. **Password protected** Bids/Quotations are to be submitted by the Bidder(s) at the following email ID's not later than the aforesaid time & date or as next convenient date & time on pre-intimation. (*for password protection details please refer Annexure IV of this document*).

mail to: a.prabhakar@natrip.in, anuj.kumar@natrip.in,

OR

Sealed Bids/quotations may also be submitted in the hard copy containing **Technical Bid and Financial Bids in TWO different sealed envelopes at NATRAX Hub office** in the aforesaid date and time. However, Bidders are encouraged to Bid/quote through electronic mode considering the ongoing Covid pandemic.

- b. No Bids will be accepted after the aforesaid date and time. However, on exceptional cases, NATRAX reserves the right to extend the time/last date of submission of Bid to a next convenient date/time before opening of the Bids.
- c. Bids sent telegraphically or through other means of transmission (telefax, etc.) which are not **Password Protected** shall be treated as defective, invalid and shall stand rejected.

Please Note: - In case of online Bid submissions Technical Bid and Financial Bid should have different passwords and in case of Bidder who are willing to submit the Bid in Sealed envelop in offline mode are advised to be present while Bid opening at NATRAX HUB.

- d. NATRAX shall not be responsible for any delays for non-receipt / non-delivery/or any technical errors or due to wrong addressee. Bidders may confirm the receipt of their Bids submission from NATRAX

3. Disclaimer:

NATRAX reserves all rights to accept/ reject/modify/split any or all proposals without assigning any reasons. Bidders shall not have any cause of action or claim against NATRAX for any of its decisions.

For NATRAX
Head Procurement & Stores





This tender further contain four Annexures

- A. Annexure-I(A)-Instructions to Bidders(ITB)
- B. Annexure-I(B)- Special conditions of contract.
- C. Annexure-II- Technical Conditions of contract.
- D. Annexure-III- Financial Proposal
- E. Annexure-IV-Method of submission (online through email).

ANNEXURE I (A)

INSTRUCTION TO BIDDERS (ITB)

1. Bidders are required to submit their Bids in two parts in a **Password Protected PDF format**, named as **"Bid for Tender No. NATRAX/PROC/C&I/22/38"** on the **subject of the email**, containing two separate **Password Protected PDF document**, as given below. The **Password Protected Bids** shall be submitted at the mentioned email ID(s) before the closure of Bid submission date/time.

OR

Sealed Bids/quotations may also be submitted in the hard copy containing Technical Bid and Financial Bids in TWO different sealed envelopes at NATRAX office in the aforesaid date and time. However, Bidders are encouraged to Bid/quote through electronic mode considering the ongoing Covid pandemic.

- a) The first **Password Protected document** marked as **"Technical Bid for Tender No. NATRAX/PROC/C&I/22/38"** shall consist of all the technical details eligibility, commercial terms and conditions and documents sought in the NIQ/Tender along with the signed copy the NIQ/Tender document. **Further, the Technical Bid must include a copy of the unfilled Financial Bid of the Bidder without any information on the prices**

OR

In case of offline Bid submission, the sealed document marked as **"Technical Bid for Tender No. NATRAX/PROC/C&I/22/38"** shall consist of all the technical details eligibility, commercial, terms and conditions and documents sought in the NIQ/Tender along with the signed copy the NIQ/Tender document. **Further, the Technical Bid must include a copy of the unfilled Financial Bid of the Bidder without any information on the prices**

- b) The second **Password Protected document** marked as **"Financial Bid for**



Tender No. NATRAX/PROC/C&I/22/38" should consist of the Financial Bid duly filled and signed by an authorised person from the Bidder's.

OR

In case of offline Bid submission, the sealed document marked as "Financial Bid for Tender No. NATRAX/PROC/C&I/22/38" shall consist of Financial Bid duly filled and signed by an authorised person from the Bidder's.

- c) In case of online Bid submission, the password of the documents shall be submitted by the Bidders at the time of the Technical Bid opening and the Financial Bid Opening respectively.
- d) *The bidders are advised to submit the bid after due signed on each page and numbered, the bids received without sign and numbered may be rejected by NATRAX.*

Please Note: - Technical Bid and Financial Bid should have different passwords.

The Meeting link for the Technical Bid Opening is as follows:

TO BE SHARED BEFORE BID OPENING

2. Technical Bid Opening:

The Technical Bids are opened at the first instance and evaluated. At the second stage, financial Bids of only technically qualified Bidder shall be opened with prior intimation about the date and time for further scrutiny, evaluation, ranking & placement of order.

- 3. The Bidders are expected to meet the minimum eligibility criteria (MEC) as given in this document. NATRAX will disqualify the Bid(s) those do not meet the minimum eligibility criteria as laid down, based on their submission along with the Tender documents even after the Bid opening process is concluded.
- 4. The Contract shall be governed by the terms and conditions specified in this tender document including amendments, work order etc.,
- 5. All Bidders are hereby explicitly informed that "CONDITIONAL OFFERS" or "OFFERS WITH DEVIATIONS" from the conditions of Contract, the quotation not meeting the minimum eligibility criteria, technical specifications, or any other requirements as stipulated in the Tender documents are liable to be



"REJECTED".

6. Bidders should give details of their technical soundness and provide list of customers/client of previous works of similar nature in Government Departments/ Undertakings/ Public / Private sectors/Autonomous etc.,

7. **Minimum Eligibility Criteria: -**

Documents to be submitted along with the Bid:

The Bidders who's Bid meet the following criteria would only be considered as responsive and evaluated by NATRAX.

i. **MEC 1: -**

Legal Valid Entity: The Bidder shall necessary be a legal valid entity either in the form of Proprietary/Private Partnership/ Public Limited Company/ Private/ Govt./ Public/ Autonomous, documentary evidence should be submitted. **In form of JV/Consortium not permitted.**

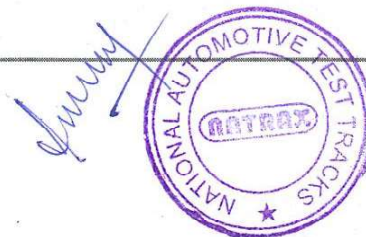
Following List of acceptable documents should also be submitted along with under above-

- a) Certificate of Incorporation/Commercial establishment of firm/License certificate of the firm, etc.
- b) PAN Card/GST registration, PF registration, ESI Registration, Labor License and any other applicable statutory requirements, etc.,

ii. **MEC - 2: Financial Capabilities:** The Bidder should have minimum 3 years' experience with **Minimum Average Annual Financial** turnover during the last three years, ending on 31st March of the previous financial year (2018-19, 2019-20 & 2020-21), should be as **Rs 5 Lakh**. Documentary evidence in the form of certified Audited Balance Sheets of relevant periods OR a Certificate (with UDIN NO.) from the Chartered Accountant / Cost Accountant indicating the turnover details for the relevant period shall be submitted with the Bid.

In case the date of constitution / incorporation of the Bidder are less than 3-year-old, the average turnover in respect of the completed financial years after the date of constitution shall be taken into account for this criterion. For startups registered firms, no turnover is required.

Any of the following acceptable documents to be submitted with Bid:



- a) Certified balance sheets for relevant period mentioned above, must necessarily have UDIN.
- b) Certificate from chartered accountant / cost accountant indicating turnover details for relevant period mentioned above, must necessarily have UDIN.

iii. MEC-3 –Similar works: The Bidder should have successfully completed **similar works*** component in the last 7 years meeting the following criteria: -

- a. Three similar completed works costing not less than the amount equal to 40 (forty) percent of the estimated cost; or
- b. Two similar completed works costing not less than the amount equal to 50 (fifty) percent of the estimated cost; or
- c. One similar completed work costing not less than the amount equal to 80 (eighty) percent of the estimated cost;

Similar Works: successfully completed work pertaining to Civil construction/maintenance works for Roads/bridges/test tracks/Runways/Highways etc., for any Govt Dept./Reputed firm Private Institution/Academic Institutions/etc.*

List of accepted documents as proof of MEC (iii) above:

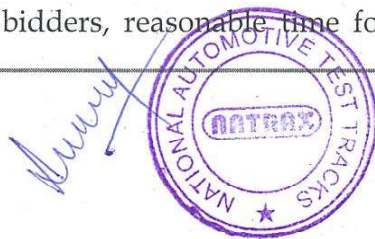
- a) Completion certificate along with PO/ work order, with value of works, etc.,
- b) Incase completion certificate/Purchase order (PO) does not clearly mention the value of work executed, then the Bidder shall submit the fresh summary & proof as TDS, CA certificate, Excise, GST returns etc.,
- c) Incase PO/Work order/completion certificate issued by any private employer, than form 26AS should be submitted to support the genuineness of the same.

8. Tender Fee & Exemptions: -

- a) This tender is free of cost.
- b) If registered under Startups and “Micro & Medium Small Enterprises” (MSME’s), supporting documents need to be submitted to avail exemption from Earnest Money, subject to verification of certificate.



- c) *The Benefits & Exemptions for Startups and MSME Bidders (Udhyam Registration Certificate) - the exemption from prior turnover & experience & price benefit (under Class 1, 2 & 3) may be given as per the guideline.*
9. The Bidders are expected to carefully examine all the contents of the Tender documents/NIQ including instructions, conditions, terms, specifications, drawings (if any), shall inspect the Site with prior notice to NATRAX and at Bidders own cost, acquaint himself with all local conditions, means of access to the work, nature of the work and all matters pertaining thereto & take them fully into account before submitting their offer. Failure to comply with the requirements as detailed in these documents shall be at the Bidder's own risk. Bids which are not responsive to the requirements of the Tender will be rejected.
10. While all efforts have been made to avoid errors in drafting of the Tender documents, the Bidder is advised to check the same carefully. No claim on account of any errors detected in the Tender documents shall be entertained.
11. The Bidder shall carry out all the work strictly in accordance with Specification, Standard Practices and instructions of NATRAX or NATRAX's representative and deviation on any account will not be permitted. If in the opinion of NATRAX, changes have to be made and it desires the Bidder to carry out the same. The decision of NATRAX in such cases shall be final and shall not be open to arbitration.
12. The successful Bidder is bound to carry out associated work necessary for the completion of the job even though such items are not included in the quantities to achieve end results and deemed to be priced in the other items. No claim on this account shall be entertained.
13. Addendum / Corrigendum (if required) to the Tender may be issued prior to the date of opening of the Bid to clarify or to intimate any changes/modifications etc. All such addendum / corrigendum shall be treated as an integral part of the Tender.
14. Any effort by a Bidder to influence NATRAX or any of its functionaries in the process of examination, clarification, evaluation and comparison of tenders and in decisions concerning award of contract, may result in rejection of the Bid.
15. In order to afford prospective bidders, reasonable time for preparing their
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Quotes after taking into account such amendments, NATRAX may, at its discretion, extend the deadline for submission of Bids.

16. Information relating to the examination, clarification, evaluation and comparison of Bids and recommendations concerning the award of Contract shall not be disclosed to Bidders or other persons not officially concerned with such process.
17. NATRAX reserves the right to accept / reject or modify any Bids, and to annul the Tender process and reject all Bid(s)/quotation(s), at any time prior to award of Contract, or to divide the Contract between/amongst Bidders without thereby incurring any liability to the affected Bidder or Bidders or any obligations to inform the affected Bidder or Bidders of the grounds for NATRAX's action. Any Bidder not following ITB stands rejected.

18. TECHNICAL BID EVALUATION

- a) NATRAX shall follow the **Segregated Bid evaluation** system (No bearing of technical score in the financial Bid evaluation and L-1 in the financial Bid shall be deemed as successful Bidder) to determine the successful Bidder. (Bidders may also refer the SCC)
- b) The Bidder must qualify the all three MEC's.
- c) The Bidder is requested to specify what particular value he is offering for each particular requirement, rather than just stating he is fulfilling the Minimum Requirement.
- d) During the technical Bid evaluation process, NATRAX may ask clarifications to the Bidder through E-mail for confirming and consolidating their technical offers.
- e) All such clarifications are required to be answered by the bidders by E-mail, within the time specified by NATRAX.
- f) Only the technically qualified bidders shall be intimated for financial bid opening in writing.
- g) The Financial Bids of the Technically qualified Bidders shall be opened



through online mode and the Financial Bids received through off-line mode shall also be opened on the same day and time at NATRAX Hub.

19. FINANCIAL BID EVALUATION:

- a) For the evaluation of the Financial Bids, the eventual Bid prices shall be ascertained after considering all the terms and conditions associated with the Bid price specified in the Financial Bid document and after detailed scrutiny of the financial bid.
- b) No Bidder shall be allowed to propose/carry out any revision / correction / modification in his Price Bid offer.
- c) If there is a discrepancy between the sub total/s and the total price that is obtained by multiplying the unit price and quantity/adding the sub total/s, the sub total/s shall prevail and the total price shall be corrected, unless in the opinion of the Employer that there is an obvious misplacement of the decimal point in the sub total price, in which case the total price as quoted shall govern and the sub total/s shall be corrected;
- d) If there is an error in a total, corresponding to the addition or subtraction of sub totals, the subtotal/s shall prevail and the total shall be corrected; and
- e) The Bidder needs to fill the rates against each item in word as well as in figures as mentioned in BOQ (Financial Bid). In case of any discrepancy, the rate provided in word shall prevail and correct the amount against the item.
All the prices should be inclusive of all taxes and GST.
- f) The amount stated in the Letter to Bid will be adjusted by the Employer in accordance with the above procedure for the correction of errors and, shall be considered as binding upon the bidder. If the Bidder does not accept the corrected amount of Bid, the bid will be rejected.
- g) Contract negotiations, if any, will be held before the issuance of Letter of Acceptance/ Notification of Award. The negotiation shall conclude with a revised offer letter from the successful bidder, affecting the discounts if any and accepted by NATRAX.

20. Award of Work:



- a) Prior to the expiry of the period of Bid validity prescribed, NATRAX will issue to the Successful Bidder, the Work Order. The Successful Bidder shall return one copy of the Work Order to NATRAX duly acknowledged and signed by the authorized signatory, within two [2] days of receipt of the same by him.
- b) NATRAX shall notify all the unsuccessful Bidders and discharge/ return their Earnest Money Deposit. No correspondence will be entertained by NATRAX from the unsuccessful Bidders.

21. Validity of bids:

The rate quoted should be valid for a **minimum period of 90 days** from the last date of Submission of Quotation. No claim for escalation of rate will be considered at any point of time.

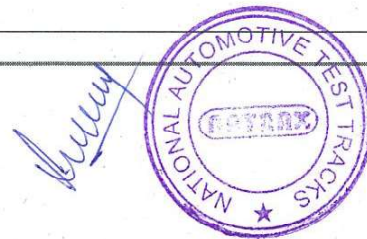
22. Prospective bidders requiring any clarification of the Tender may write to a.prabhakar@natrip.in; anuj.kumar@natrip.in,

23. The Bids / related correspondences shall be made in English language.

Annexure-I (B)

24. Special Terms & Conditions:

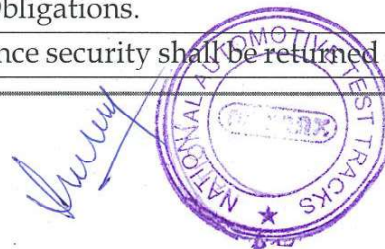
a.	Scope of work	Filling the free area of dynamic platform (T-2) with available boulder/soil & clearing/grubbing of sapling/roots/grass etc from both side of HST at NATRAX, Pithampur, Dhar (MP)
b.	Contract Period	60 days from the date of Issue of Work Order.
c.	Engineer Incharge (EIC)	Shall be notified to successful bidder.
d.	Rate Firmness	The charges/rate quoted by supplier must be firm throughout the Contract period and no escalation of any kind is permissible. The "final contract value" shall be derived on the completion of work at actual.
e.	Defect Liability/rectification Period	Defect Liability period will be 3 (Three) months from the date of completion of work as per completion certificate.



f.	Payment, Mode and Retention	<p>Subject to any deduction which NATRAX may be authorised to make under the Contract, the Contract Price shall be payable as follows:</p> <ol style="list-style-type: none">a) The Contractor shall, on progressive completion of work, submit to the NATRAX the IPCs bills for monthly progress, together with all necessary supporting documents, details and necessary certification. All these bills shall be processed for payment after due certification by the NATRAX Representative.b) The bills for extra work, if any, shall be submitted separately after due settlement of rates for such items of work and paid after the completion of such extra work.c) Payments due and payable by NATRAX shall be made within 14 (Fourteen) days from the date of receipt of complete and correct invoices and documents supported by requisite certification of the NATRAX Representative.d) All payments to the Contractor shall be made by RTGS mode in Indian Rupees only.e) Payments would be made as per work certification for actual quantity of work executed at site and certified for payment.f) Only 90% of each R/A Bill amount shall be paid to the contractor.g) Balance 10% will be retained as Retention Amount, until such retention is reached 5% of the total contract Value, which will be known while passing the final Bill.h) This Retention Amount will be then converted in to 'Performance Security' and the same shall be released after successful completion of the defect liability period i.e. 03 (Three) months from date of completion of work,i) The GST/Taxes & duties of Govt. will be reimbursed on actual basis upon the submission of original receipt / documentary evidence.
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g.	Advance Payment	<p>i. Advance payment: maximum 10% of contract value may be paid after receiving request from contractor and submission of bank guarantee of 110% of the requisite amount. An interest 10% per annum shall be charged on the outstanding advance payment. The said advance payment shall be released in minimum two instalments.</p> <p>ii. Contractor has to submit an utilization certificate for the said advance payment.</p>
h.	Valuation of Changes	<p>New Rate or Price shall be derived from any relevant rates or prices in the Contract or latest DSR/MPSoR.</p> <p>New Rate or Price shall be derived from reasonable Cost of executing the work, together with reasonable profit, taking into account any other relevant matters. For the purpose of this Clause, the reasonable profit shall be limited to 10%.</p> <p>Rates or prices shall be those in the Contract of that particular omitted item of work.</p>
i.	Liquidated Damages	0.1% of the Contract Price per day to a maximum of 10% of the Contract Price.
j.	Project Facility / Place of Installation/delivery	NATRAX Site NH-52, Old Agra- Mumbai Highway, Near to Pithampur Flyover, Post Khandwa (Near Pithampur), Dhar District, Madhya Pradesh-454774
k.	Tender Document Fee	Free of Cost
l.	Bid Security/EMD	Not applicable
m.	Performance Security	3% (Three) of the Contract value should be submitted as Performance Security by the Successful Bidder on award of Contract. Performance Security may be furnished in the form of an A/C Payee Demand Draft, Fixed Deposit Receipt or Bank Guarantee from a Scheduled Commercial Bank favouring " National Automotive Test Tracks " & payable at Pithampur and should remain valid for a period of Sixty days beyond the date of completion of all Contractual Obligations.
n.	Returning of	The performance security shall be returned after 15 Days of



	Performance Security (PBG)	completion of Defect Rectification/ Warranty Period.
o.	Retention Money	This Retention Amount will be then converted in to 'Performance Security' and the same shall be released after successful completion of the defect liability period i.e., 03 (Three) months from date of completion of work as per completion certificate
P.	Other Terms and conditions	<p>i. The bidder should submit list of the equipments/machines with them. In case machines/equipments are planned to hire from others the rent agreement for hiring the same should be submitted.</p> <p>ii. No extra charge is payable for to and fro, boarding and lodging for the service personnel coming to NATRAX.</p>
q.	Water supply & Electricity Charges	<p>i. Electricity: the electricity shall be provided by NATRAX from the available source on chargeable basis. Theft of electricity shall be treated as breach of contract and in such case NATRAX reserve the right for penalty or termination of contract.</p> <p>ii. Water supply: the water for drinking purpose can be use from the available source at site, misuse/wastage apart from the above use, of water shall be treated as breach of contract and in such case NATRAX reserve the right for penalty or termination of contract.</p>
r.	List of Mandatory Tests to be carried out	Any other tests other than technical specification and as required by Engineer-In-Charge.
s.	Termination of Contract	<p>If the work/service is found to be not satisfactory or not found as per the specification indicated in this document, the Contract will be terminated with short notice of 14 days in writing.</p> <p>In case of termination the balance work shall be completed by NATRAX through any other party on the risk & cost of contractor.</p>





j) The bidder should give the following, duly signed and sealed, failing to which the bids will be summarily rejected:

k) **DECLARATION:**

(To be executed on Bidder's letter head)

I/We having acquainted with the content & requirement of this Tender No. **NATRAX NATRAX/PROC/C&I/22/38**, dated _____ and do hereby accept to furnish the same in compliance with all terms & conditions. I/we have not tampered/modified the tender in any manner and breach of any such, will result in rejection of Tender and / or prosecuted.

I / We hereby declare that the firm/company has not been blacklisted or debarred in the past by any other Government organization from taking part in Government tenders.

In case the above information found false or in case of breach of any of terms and conditions at any stage of Tender or Contract, I/We are fully aware that the Tender/ Contract will be rejected / cancelled by NATRAX and Payments (for completed/partially completed), Retention, Bid Security (EMD), Performance Security, etc., shall be forfeited.

Signature of the Bidder: _____

Name and Designation: _____

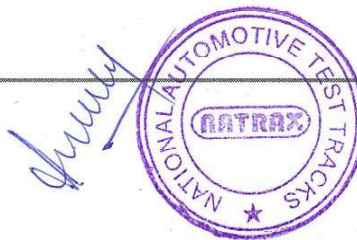
Address: _____

Contact details: _____

Place:

Date:

Seal of the Bidder's Firm



TECHNICAL SPECIFICATION

“Filling of free area of Dynamic Platform (T-2), with available boulder/soil & Clearing/Grubbing of Sapling/Roots/Grass etc. both sides of HST at NATRAX, Pithampur (near Indore)”

Preamble

1. The General Technical Specifications for the construction of the works shall be **Specifications for Road and Bridge Works (Fifth Revision) of Ministry of Road Transport & Highways, published by the Indian Roads Congress (herein after called MORTH Specifications)**. This part deemed to be bound into this document.
2. The Technical Specifications shall be read in conjunction with the other Sections of the bid documents as specified in Instruction to Bidders and other related documents
3. In case of any conflict on unit of measurement and payment in this specification and that in the BOQ, the unit in BOQ shall prevail.
4. The quantity provided in BoQ derived from the scheme drawings provided with tender Document, the work shall be executed as per approved GFCD'S only which will be submitted by contractor based on input provided in the tender documents.
5. The work in general shall be carried out as per Specifications for Ministry of Road Transport & Highways (MoRTH) Specifications for Road and Bridge Works ((Fifth Revision) and its latest amendments for which specification are not included in the specification, all such works in general shall be carried out as per latest (MoRTH) Specifications as describe below: -

I) The work in general shall be carried out as per latest (MoRTH) Specifications (updated with correction slips issued up to last date of submission of tender) unless otherwise specified in the nomenclature of the individual item or in the particular specifications for civil works and CPWD specification, and latest or 1994 for electrical work updated with correction slips issued Upto last date of submission of tender.

II) For items not covered under “(MoRTH) Specifications (Civil Works)/ latest CPWD specification (Electrical works)”, the work shall be done as per latest relevant IS Codes of Practice. In any particular matter if (MoRTH) specifications and IS specifications both are silent than any other relevant codes of practice like ASTM/AASTHO /DIN may be referred.

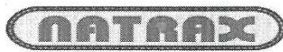


III) All electrical installation shall comply with the requirements of Indian Electricity Rules, 1956 and Indian Electricity Act – 1910 as amended upto date, and bye-Law of Pithampur & MPEB and any other concerned Department

6. In the absence of any definite provisions on any particular issue in the aforesaid Specifications, reference may be made to the latest BIS codes and specifications of BIS, BS, ASTM or AASHTO in that order. Where even these are silent, the construction and completion of the works shall conform to sound engineering practice as approved by the Engineer in charge and in case of any dispute arising out of the interpretation of the above, the decision of the Engineer-in-charge shall be final and binding on the Contractor.

7. Whenever reference is made in the Contract to specific standards and codes to be met by the goods and materials to be furnished, and work performed or tested, the provisions of the latest current edition or revision of the relevant standards and codes in effect shall apply, unless otherwise expressly stated in the Contract. Where such standards and codes are national, or relate to a particular country or region, other authoritative standards which ensure an equal or higher quality than the standards and codes specified will be accepted subject to the Engineer's prior review and written approval. Differences between the standards specified and the proposed alternative standards must be fully described in writing by the Contractor and submitted to the Engineer's at least 28 days prior to the date when the Contractor desires the Engineer's approval. In the event the Engineer determines that such proposed deviations do not ensure equal or higher quality, the Contractor shall comply with the standards specified in the documents.





PART-A TECHNICAL SPECIFICATION OF LED DISPLAY PANELS

SECTION-200 Site Clearance

SECTION-300 Earthwork, Erosion Control and Drainage

Attached herewith for ready reference





Tender No. -NATRAX/PROC/C&I/22/38

Form for the submission of Financial Bid

Financial Proposal Submission Form
(To be Executed on Letterhead of the Bidder)

FINANCIAL PROPOSAL SUBMISSION FORM

[Location, Date]

To:

The Head Procurement
NH-52, Old Agra- Mumbai Highway,
Near to Pithampur Flyover,
Post Khandwa (Near Pithampur)
Dhar District, Madhya Pradesh-454774

Dear Sir,

We, the undersigned, offer to provide the equipment & services in accordance with your Tender No. _____, dated _____ and our Technical Bid. Our attached Financial Bid includes the price in the format for financial bid provide as part of tender documents. The total price of our offer is _____ (in figures and words) and includes all the deliverables under this tender as per our Technical Bid.

We hereby declare that all the information and statements made in this Bid is true and complete in all respects and is as per the guidelines and terms & conditions laid down in the tender document. We further understand that any information which is found false or is not as per the guidelines and terms & conditions of the tender document may lead to our disqualification.

Our Financial Bid shall be binding upon us subject to the modifications resulting from Contract negotiations, up to expiration of the validity period of the Bid.

We understand NATRAX has right to accept or reject our Bid as per its discretion.

Yours sincerely,





Tender No. -NATRAX/PROC/C&I/22/38

Authorized Signature [*In full*]: _____

Authorized Signature [*In initials*]: _____

Name and Title of Signatory: _____

Name of Firm: _____

Address: _____

[Note : To be signed in blue ink]



ANNEXURE-III
Bill of Quantities (BOQ)/Financial Bid

Bill of quantity for Soil filling both side of slalom area ditched on dynamic platform (T-2) and Jungle cleaning at Natrax Pithampur, Dhar (MP)						
Sr. No	Item Description	Unit	Quantity	Rates in Figure	Rates in word	Amount in Rs
1	Filling with excavated materials available at borrowpits near T-4 within the site premises and filling both side of slalom area ditched on dynamic platform (T-2) complete as per the directions of Engineer In charge. Width-(9+25)/2=17M					
a	CARRIAGE OF MATERIAL like Soil, Sand, stone aggregate below 40 mm by Mechanical means including loading, unloading and stacking at filling site at dynamic platform (T-2)ditches area.	Cum	5950.00			
b	Supply of Tractor Grader for spreading of material dumped through dumper in line and level including Driver and Diesel etc, complete 8 hrs per day.(8Hrs per day)	Day	8.00			
c	Supply of Vibratory rollerr 10 ton for rolling of approach road and parking with Driver and Diesel etc, complete 8hrs per day.	Hrs	8.00			
2	Clearing and Grubbing road land including uprooting rank vegetation, grass, bushes, sapling, shrubs and tree having girth upto 300mm, removal of stumps of trees cut earlier and disposal of unservicable materials and stacking of servicable material upto 1000 mtr. including removal of top organic soil not exceeding 150mm in thickness. In light Jungle area	Hect.	8.00			
	Total Amount					
	Add GST					
	Total Amount					

Surya



Signature of bidder

ANNEXURE -IV

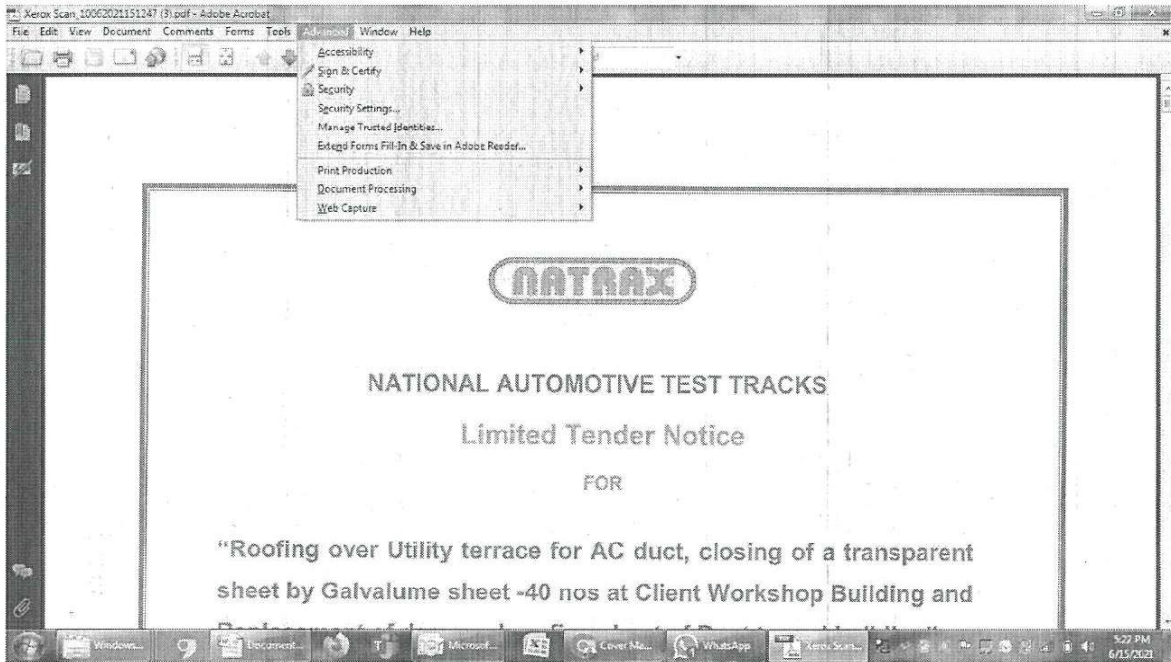
NATRAX Bank details to be used for submission of EMD/Tender Fee (if any) & procedure for passwords protection

The image shows a cancelled Bank of Baroda cheque. The form includes the following details:

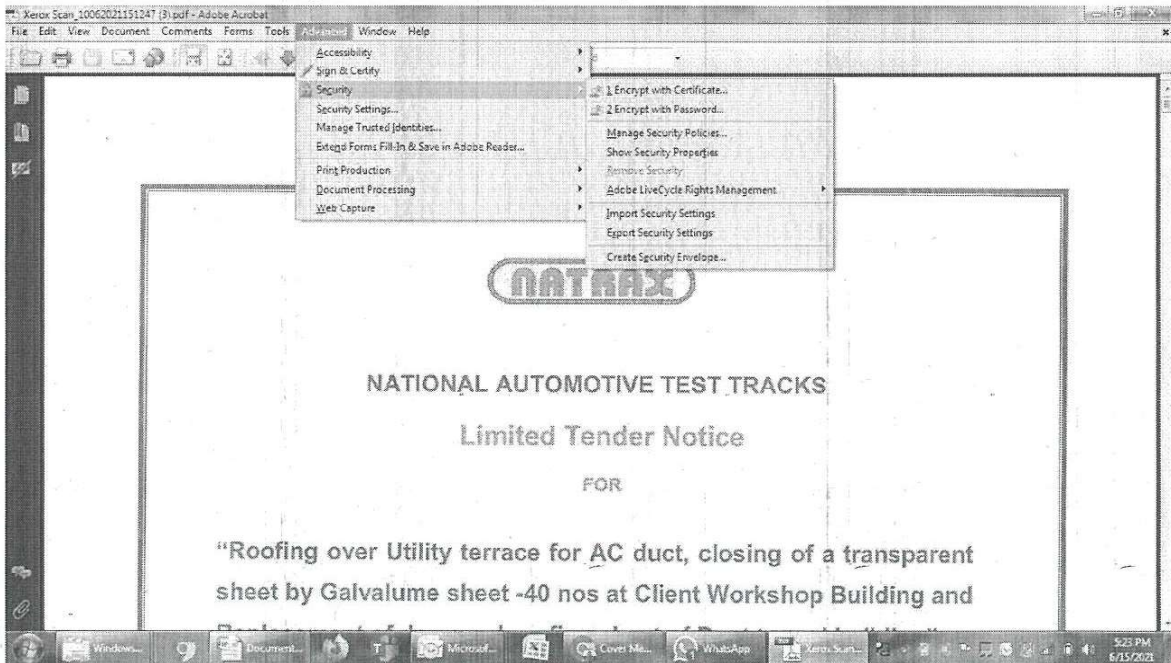
- Bank of Baroda Logo:** बैंक ऑफ बड़ोदा, Bank of Baroda
- Branch/Address:** भीमपुर MT - 555984, P.T. - JALPURA, DHAR - 484776, RTGS / NEFT FSC CODE : BAR902THAM
- Account Type:** सेविंग्स खाता SAVINGS ACCOUNT
- Account No.:** 57730100011758
- Payee:** Pay _____ or Bearer
- Amount:** Rupees रुपये _____ या धारक को
- Handwritten:** "Cancelled" is written across the cheque in blue ink.
- Signature:** A signature is present in the bottom right area.
- Stamp:** A purple circular stamp from "NATIONAL AUTOMOTIVE TEST TRACKS" with the NATRAX logo is located at the bottom center.
- Barcode:** A vertical barcode is on the left side.
- Bottom Text:** 000000 452012026 041758 31

Steps for loading passwords in PDF Files-Method I

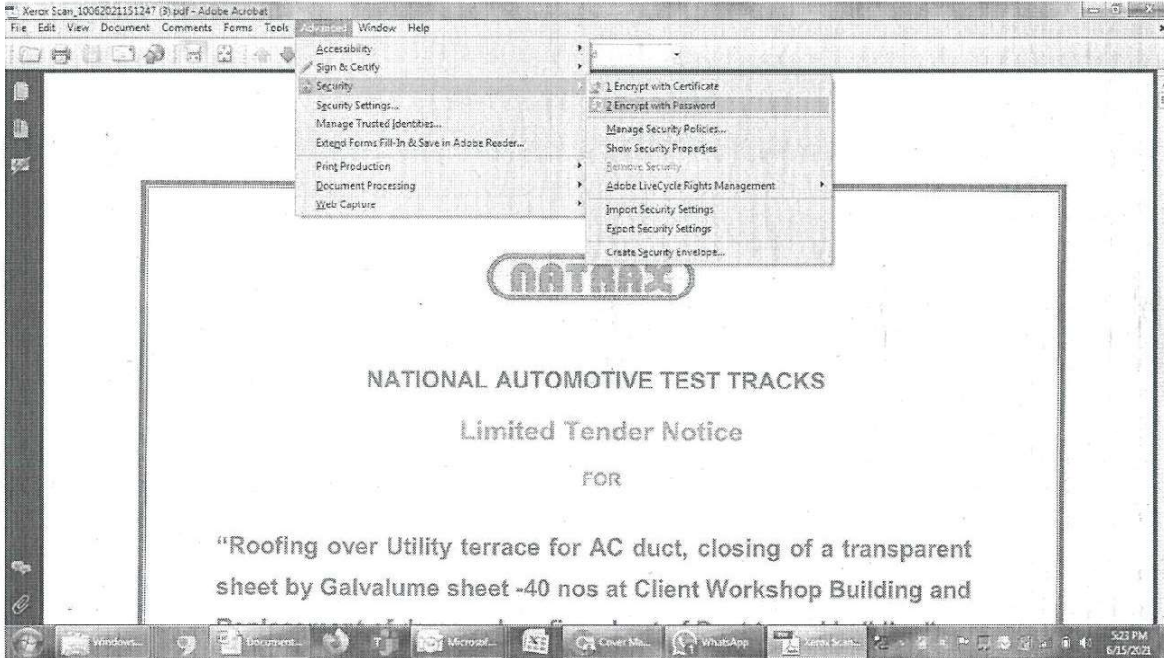
Step 1- please open PDF file and click on "Advance" tab.



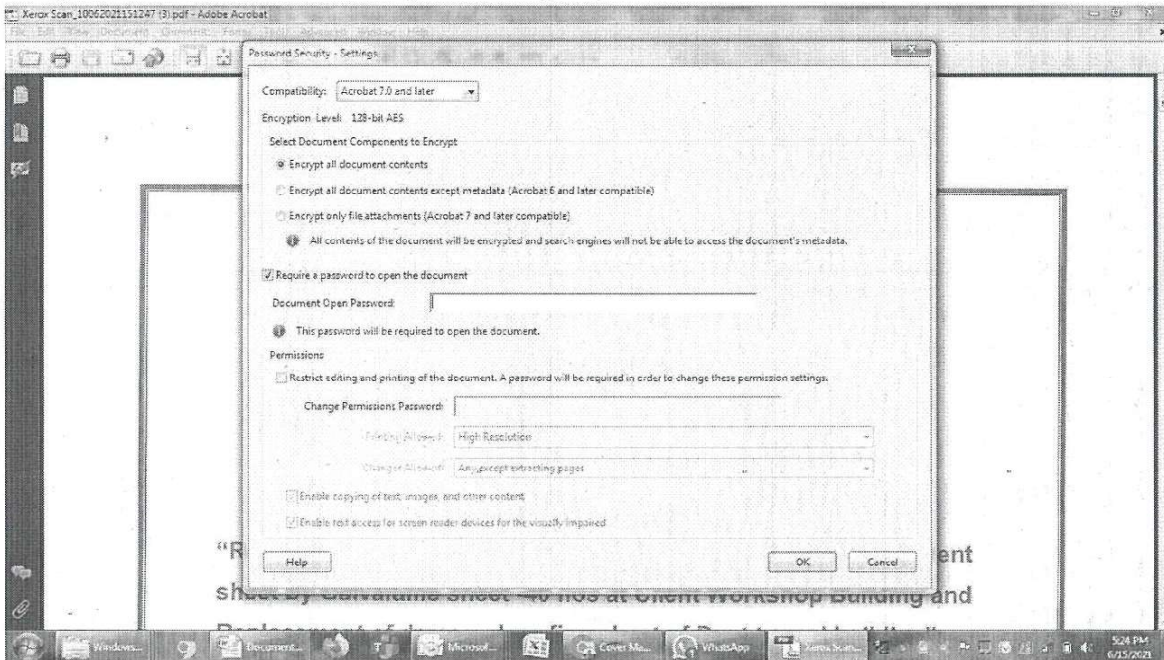
Step 2- in advance tab, please click on "Security" tab.



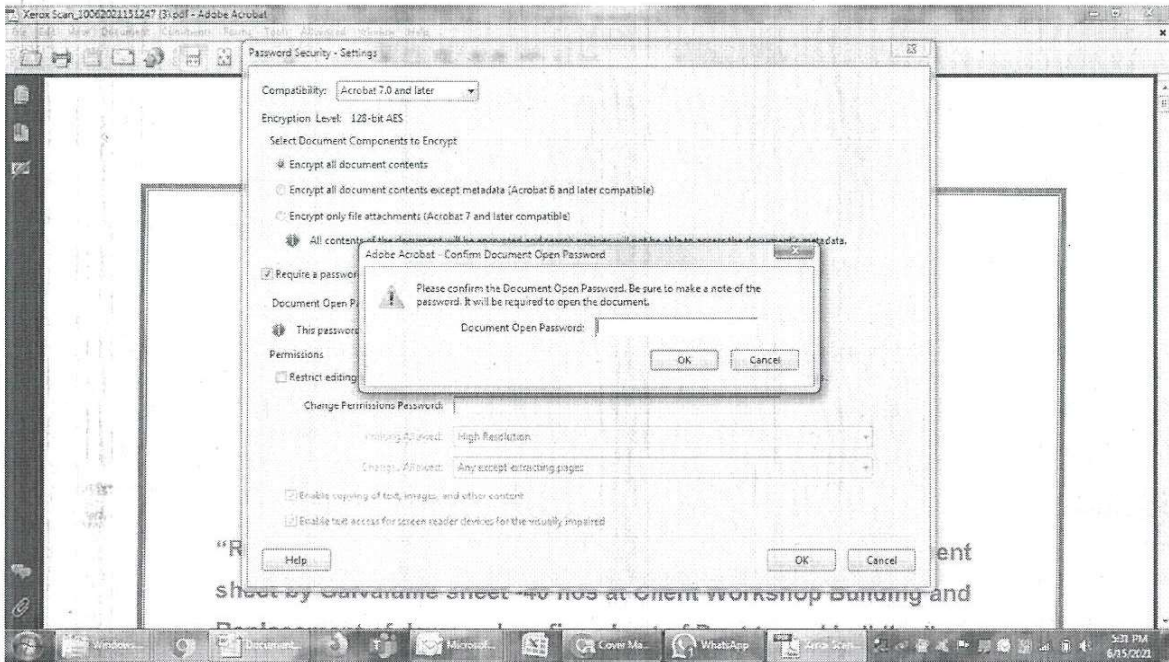
Step 3- in security tab, please click on "2 Encrypt with Password".



Step 4- after that below window will open, please check in option "Required a password to open the document". Then please fill password and click "ok".



Step 5- after that below window will be open, please fill same password again, and click "ok".



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201. CLEARING AND GRUBBING**201.1. Scope**

This work shall consist of cutting, removing and disposing of all materials such as trees, bushes, shrubs, stumps, roots, grass, weeds, top organic soil not exceeding 150 mm in thickness, rubbish etc., which in the opinion of the Engineer are unsuitable for incorporation in the works, from the area of road land containing road embankment, drains, cross-drainage structures and such other areas as may be specified on the drawings or by the Engineer. It shall include necessary excavation, backfilling of pits resulting from uprooting of trees and stumps to required compaction, handling, salvaging, and disposal of cleared materials. Clearing and grubbing shall be performed in advance of earthwork operations and in accordance with the requirements of these Specifications.

201.2. Preservation of Property/Amenities

Roadside trees, shrubs, any other plants, pole lines, fences, signs, monuments, buildings, pipelines, sewers and all highway facilities within or adjacent to the highway which are not to be disturbed shall be protected from injury or damage. The Contractor shall provide and install at his own expense, suitable safeguards approved by the Engineer for this purpose.

During clearing and grubbing, the Contractor shall take all adequate precautions against soil erosion, water pollution, etc., and where required, undertake additional works to that effect vide Clause 306. Before start of operations, the Contractor shall submit to the Engineer for approval, his work plan including the procedure to be followed for disposal of waste materials, etc., and the schedules for carrying out temporary and permanent erosion control works as stipulated in Clause 306.3.

201.3. Methods, Tools and Equipments

Only such methods, tools and equipment as are approved by the Engineer and which will not affect the property to be preserved shall be adopted for the Work. If the area has thick vegetation/roots/trees, a crawler or pneumatic tyred dozer of adequate capacity may be used for clearance purposes. The dozer shall have ripper attachments for removal of tree stumps. All trees, stumps, etc., falling within excavation and fill lines shall be cut to such depth below ground level that in no case these fall within 500 mm of the subgrade. Also, all vegetation such as



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roots, under-growth, grass and other deleterious matter unsuitable for incorporation in the embankment/subgrade shall be removed between fill lines to the satisfaction of the Engineer. On areas beyond these limits, trees and stumps required to be removed as directed by the Engineer shall be cut down to 1 m below ground level so that these do not present an unsightly appearance.

All branches of trees extending above the roadway shall be trimmed as directed by the Engineer.

All excavations below the general ground level arising out of the removal of trees, stumps, etc., shall be filled with suitable material and compacted thoroughly so as to make the surface at these points conform to the surrounding area.

Ant-hills both above and below the ground, as are liable to collapse and obstruct free subsoil water flow shall be removed and their workings, which may extend to several metres, shall be suitably treated.

201.4. Disposal of Materials

All materials arising from clearing and grubbing operations shall be the property of Government and shall be disposed of by the Contractor as hereinafter provided or directed by the Engineer.

Trunks, branches and stumps of trees shall be cleaned of limbs and roots and stacked. Also boulders, stones and other materials usable in road construction shall be neatly stacked as directed by the Engineer. Stacking of stumps, boulders, stones etc., shall be done at specified spots with all lifts and upto a lead of 1000 m.

All products of clearing and grubbing which, in the opinion of the Engineer, cannot be used or auctioned shall be cleared away from the roadside in a manner as directed by the Engineer. Care shall be taken to see that unsuitable waste materials are disposed of in such a manner that there is no likelihood of these getting mixed up with the materials meant for embankment, subgrade and road construction.

201.5. Measurements for Payment

Clearing and grubbing for road embankment, drains and cross-drainage structures shall be measured on area basis in terms of hectares. Clearing and grubbing of borrow areas shall be deemed to be a part of works preparatory to embankment construction and shall be deemed to have been included in the rates quoted for the embankment construction item and no separate payment shall be made for the same. Cutting of



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trees upto 300 mm in girth including removal of stumps and roots, and trimming of branches of trees extending above the roadway shall be considered incidental to the clearing and grubbing operations. Removal of stumps left over after trees have been cut by any other agency shall also be considered incidental to the clearing and grubbing operations.

Cutting, including removal of stumps and roots of trees of girth above 300 mm and backfilling to required compaction shall be measured in terms of number according to the sizes given below:-

- i) Above 300 mm to 600 mm
- ii) Above 600 mm to 900 mm
- iii) Above 900 mm to 1800 mm
- iv) Above 1800 mm

For this purpose, the girth shall be measured at a height of 1 metre above ground or at the top of the stump if the height of the stump is less than one metre from the ground.

201.6. Rates

201.6.1. The Contract unit rates for the various items of clearing and grubbing shall be payment in full for carrying out the required operations including full compensation for all labour, materials, tools, equipment and incidentals necessary to complete the work. These will also include removal of stumps of trees less than 300 mm in girth as well as stumps left over after cutting of trees carried out by another agency, excavation and back-filling to required density, where necessary, and handling, salvaging, piling and disposing of the cleared materials with all lifts and upto a lead of 1000 m.

201.6.2. The Contract unit rate for cutting (including removal of stumps and roots) of trees of girth above 300 mm shall include excavation and backfilling to required compaction, handling, salvaging, piling and disposing of the cleared materials with all lifts and upto a lead of 1000 m.

201.6.3. Where a Contract does not include separate items of clearing and grubbing, the same shall be considered incidental to the earthwork items and the Contract unit prices for the same shall be considered as including clearing and grubbing operations.

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202. DISMANTLING CULVERTS, BRIDGES AND OTHER STRUCTURES/PAVEMENTS

202.1. Scope

This work shall consist of removing, as hereinafter set forth, existing culverts, bridges, pavements, kerbs and other structures like guard-rails, fences, utility services, manholes, catch basins, inlets, etc., which are in place but interfere with the new construction or are not suitable to remain in place, and of salvaging and disposing of the resulting materials and back filling the resulting trenches and pits.

Existing culverts, bridges, pavements and other structures which are within the highway and which are designated for removal, shall be removed upto the limits and extent specified in the drawings or as indicated by the Engineer.

Dismantling and removal operations shall be carried out with such equipment and in such a manner as to leave undisturbed, adjacent pavement, structures and any other work to be left in place.

All operations necessary for the removal of any existing structure which might endanger new construction shall be completed prior to the start of new work.

202.2. Dismantling Culverts and Bridges

The structures shall be dismantled carefully and the resulting materials so removed as not to cause any damage to the serviceable materials to be salvaged, the part of the structure to be retained and any other properties or structures nearby.

Unless otherwise specified, the superstructure portion of culverts/bridges shall be entirely removed and other parts removed below the ground level or as necessary depending upon the interference they cause to the new construction. Removal of overlying or adjacent material, if required in connection with the dismantling of the structures, shall be incidental to this item.

Where existing culverts/bridges are to be extended or otherwise incorporated in the new work, only such part or parts of the existing structure shall be removed as are necessary and directed by the Engineer to provide a proper connection to the new work. The connecting edges shall be cut, chipped and trimmed to the required lines and grades without weakening or damaging any part of the structure to be retained. Due care should be taken to ensure that reinforcing bars which are to be

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left in place so as to project into the new work as dowels or ties are not injured during removal of concrete.

Pipe culverts shall be carefully removed in such a manner as to avoid damage to the pipes.

Steel structures shall, unless otherwise provided, be carefully dismantled in such a manner as to avoid damage to members thereof. If specified in the drawings or directed by the Engineer that the structure is to be removed in a condition suitable for re-erection, all members shall be match-marked by the Contractor with white lead paint before dismantling; end pins, nuts, loose plates, etc., shall be similarly marked to indicate their proper location; all pins, pin holes and machined surfaces shall be painted with a mixture of white lead and tallow and all loose parts shall be securely wired to adjacent members or packed in boxes.

Timber structures shall be removed in such a manner as to avoid damage to such timber or lumber as is designated by the Engineer to be salvaged.

202.3. Dismantling Pavements and Other Structures

In removing pavements, kerbs, gutters, and other structures like guard-rails, fences, manholes, catch basins, inlets, etc., where portions of the existing construction are to be left in the finished work, the same shall be removed to an existing joint or cut and chipped to a true line with a face perpendicular to the surface of the existing structure. Sufficient removal shall be made to provide for proper grades and connections with the new work as directed by the Engineer.

All concrete pavements, base courses in carriageway and shoulders etc., designated for removal shall be broken to pieces whose volume shall not exceed 0.02 cu. m. and stockpiled at designated locations if the material is to be used later or otherwise arranged for disposal as directed (see Clause 202.5).

202.4. Back-filling

Holes and depressions caused by dismantling operations shall be backfilled with excavated or other approved materials and compacted to required density as directed by the Engineer.

202.5. Disposal of Materials

All materials obtained by dismantling shall be the property of Government. Unless otherwise specified, materials having any salvage



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value shall be placed in neat stacks of like materials within the right-of-way, as directed by the Engineer with all lifts and upto a lead of 1000 m.

Pipe culverts that are removed shall be cleaned and neatly piled on the right-of-way at points designated by the Engineer with all lifts and lead upto 1000 m.

Structural steel removed from old structures shall, unless otherwise specified or directed, be stored in a neat and presentable manner on blocks in locations suitable for loading. Structures or portions thereof which are specified in the Contract for re-erection shall be stored in separate piles.

Timber or lumber from old structures which is designated by the Engineer as materials to be salvaged shall have all nails and bolts removed therefrom and shall be stored in neat piles in locations suitable for loading.

All materials obtained from dismantling operations which, in the opinion of the Engineer, cannot be used or auctioned shall be disposed of as directed by the Engineer with all lifts and upto a lead of 1000 m.

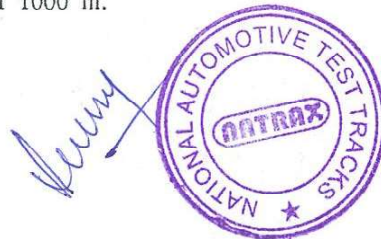
202.6. Measurements for Payment

The work of dismantling structures shall be paid for in units indicated below by taking measurements before and after, as applicable:

(i) Dismantling brick/stone masonry/ concrete (plain and reinforced)	cu. m.
(ii) Dismantling flexible and cement concrete pavement	cu. m.
(iii) Dismantling steel structures	tonne
(iv) Dismantling timber structures	cu. m.
(v) Dismantling pipes, guard rails, kerbs, gutters and fencing	linear m.
(vi) Utility services	Nos.

202.7. Rates

The Contract unit rates for the various items of dismantling shall be paid in full for carrying out the required operations including full compensation for all labour, materials, tools, equipment, safeguards and incidentals necessary to complete the work. These will also include excavation and backfilling where necessary to the required compaction and for handling, salvaging, piling and disposing of the dismantled materials within all lifts and upto a lead of 1000 m.



Earthwork, Erosion Control and
Drainage

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301. EXCAVATION FOR ROADWAY AND DRAINS

301.1. Scope

This work shall consist of excavation, removal and satisfactory disposal of all materials necessary for the construction of roadway, side drains and waterways in accordance with requirements of these Specifications and the lines, grades and cross-sections shown in the drawings or as indicated by the Engineer. It shall include the hauling and stacking of or hauling to sites of embankment and subgrade construction, suitable cut materials as required, as also the disposal of unsuitable cut materials in specified manner, trimming and finishing of the road to specified dimensions or as directed by the Engineer.

301.2. Classification of Excavated Material

301.2.1. Classification : All materials involved in excavation shall be classified by the Engineer in the following manner:

(a) Soil

This shall comprise topsoil, turf, sand, silt, loam, clay, mud, peat, black cotton soil, soft shale or loose moorum, a mixture of these and similar material which yields to the ordinary application of pick, spade and/or shovel, rake or other ordinary digging implement. Removal of gravel or any other nodular material having dimension in any one direction not exceeding 75 mm occurring in such strata shall be deemed to be covered under this category.

(b) Ordinary Rock (not requiring blasting) This shall include:

- (i) rock types such as laterites, shales and conglomerates, varieties of limestone and sandstone etc., which may be quarried or split with crow bars, also including any rock which in dry state may be hard, requiring blasting but which, when wet, becomes soft and manageable by means other than blasting;
- (ii) macadam surfaces such as water bound and bitumen/tar bound; soling of roads, paths etc. and hard core; compact moorum or stabilised soil requiring grafting tool or pick or both and shovel, closely applied; gravel and cobble stone having maximum dimension in any one direction between 75 and 300 mm;
- (iii) lime concrete, stone masonry in lime mortar and brick work in lime/cement mortar below ground level, reinforced cement concrete which may be broken up with crow bars or picks and stone masonry in cement mortar below ground level; and
- (iv) boulders which do not require blasting having maximum dimension in any direction of more than 300 mm, found lying loose on the surface or embedded in river bed, soil, talus, slope wash and terrace material of dissimilar origin.



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(c) Hard Rock (requiring blasting)

This shall comprise:

- (i) any rock or cement concrete for the excavation of which the use of mechanical plant and/or blasting is required;
- (ii) reinforced cement concrete (reinforcement cut through but not separated from the concrete) below ground level; and
- (iii) boulders requiring blasting.

(d) Hard Rock (blasting prohibited)

Hard rock requiring blasting as described under (c) but where blasting is prohibited for any reason and excavation has to be carried out by chiselling, wedging or any other agreed method.

(e) Marshy Soil

This shall include soils like soft clays and peats excavated below the original ground level of marshes and swamps and soils excavated from other areas requiring continuous pumping or bailing out of water.

301.2.2. Authority for classification : The classification of excavation shall be decided by the Engineer and his decision shall be final and binding on the Contractor. Merely the use of explosives in excavation will not be considered as a reason for higher classification unless blasting is clearly necessary in the opinion of the Engineer.

301.3. Construction Operations

301.3.1. Setting out : After the site has been cleared as per Clause 201, the limits of excavation shall be set out true to lines, curves, slopes, grades and sections as shown on the drawings or as directed by the Engineer. The Contractor shall provide all labour, survey instruments and materials such as strings, pegs, nails, bamboos, stones, lime, mortar, concrete, etc., required in connection with the setting out of works and the establishment of bench marks. The Contractor shall be responsible for the maintenance of bench marks and other marks and stakes as long as in the opinion of the Engineer, they are required for the work.

301.3.2. Stripping and storing topsoil : When so directed by the Engineer, the topsoil existing over the sites of excavation shall be stripped to specified depths constituting Horizon "A" and stockpiled at designated locations for re-use in covering embankment slopes, cut slopes, berms and other disturbed areas where re-vegetation is desired. Prior to stripping the topsoil, all trees, shrubs etc. shall be removed along with their roots, with approval of the Engineer.

301.3.3. Excavation - General : All excavations shall be carried out in conformity with the directions laid here-in-under and in a manner



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approved by the Engineer. The work shall be so done that the suitable materials available from excavation are satisfactorily utilized as decided upon beforehand.

While planning or executing excavations, the Contractor shall take all adequate precautions against soil erosion, water pollution etc. as per Clause 306, and take appropriate drainage measures to keep the site free of water in accordance with Clause 311.

The excavations shall conform to the lines, grades, side slopes and levels shown on the drawings or as directed by the Engineer. The Contractor shall not excavate outside the limits of excavation. Subject to the permitted tolerances, any excess depth/ width excavated beyond the specified levels/dimensions on the drawings shall be made good at the cost of the Contractor with suitable material of characteristics similar to that removed and compacted to the requirements of Clause 305.

All debris and loose material on the slopes of cuttings shall be removed. No backfilling shall be allowed to obtain required slopes excepting that when boulders or soft materials are encountered in cut slopes, these shall be excavated to approved depth on instructions of the Engineer and the resulting cavities filled with suitable material and thoroughly compacted in an approved manner.

After excavation, the sides of excavated area shall be trimmed and the area contoured to minimise erosion and ponding, allowing for natural drainage to take place. If trees were removed, new trees shall be planted, as directed by the Engineer. The cost of planting new trees shall be deemed to be incidental to the work.

301.3.4. Methods, tools and equipment : Only such methods, tools and equipment as approved by the Engineer shall be adopted/used in the work. If so desired by the Engineer, the Contractor shall demonstrate the efficacy of the type of equipment to be used before the commencement of work.

301.3.5. Rock excavation : Rock, when encountered in road excavation, shall be removed upto the formation level or as otherwise indicated on the drawings. Where, however, unstable shales or other unsuitable materials are encountered at the formation level, these shall be excavated to the extent of 500 mm below the formation level or as otherwise specified. In all cases, the excavation operations shall be so carried out that at no point on cut formation the rock protrudes above the specified levels. Rocks and large boulders which are likely to cause



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differential settlement and also local drainage problems should be removed to the extent of 500 mm below the formation level in full formation width including drains and cut through the side drains.

Where excavation is done to levels lower than those specified, the excess excavation shall be made good as per Clauses 301.3.3 and 301.6 to the satisfaction of the Engineer.

Slopes in rock cutting shall be finished to uniform lines corresponding to slope lines shown on the drawings or as directed by the Engineer. Notwithstanding the foregoing, all loose pieces of rock on excavated slope surface which move when pierced by a crowbar shall be removed.

Where blasting is to be resorted to, the same shall be carried out to Clause 302 and all precautions indicated therein observed.

Where presplitting is prescribed to be done for the establishment of a specified slope in rock excavation, the same shall be carried out to Clause 303.

301.3.6. Marsh excavation : The excavation of soils from marshes/swamps shall be carried out as per the programme approved by the Engineer.

Excavation of marshes shall begin at one end and proceed in one direction across the entire marsh immediately ahead of backfilling. The method and sequence of excavating and backfilling shall be such as to ensure, to the extent practicable, the complete removal or displacement of all muck from within the lateral limits called for on the drawings or as staked by the Engineer, and to the bottom of the marsh, firm support or levels indicated.

301.3.7. Excavation of road shoulders/verge/median for widening of pavement or providing treated shoulders : In works involving widening of existing pavements or providing treated shoulders, unless otherwise specified, the shoulder/verge/median shall be removed to their full width and to levels shown on drawings or as indicated by the Engineer. While doing so, care shall be taken to see that no portion of the existing pavement designated for retention is loosened or disturbed. If the existing pavement gets disturbed or loosened, it shall be dismantled and cut to a regular shape with sides vertical and the disturbed/loosened portion removed completely and relaid as directed by the Engineer, at the cost of the Contractor.

301.3.8. Excavation for surface/sub-surface drains : Where the Contract provides for construction of surface/sub-surface drains to Clause



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309, excavation for these shall be carried out in proper sequence with other works as approved by the Engineer.

301.3.9. Slides : If slips, slides, over-breaks or subsidence occur in cuttings during the process of construction, they shall be removed at the cost of the Contractor as ordered by the Engineer. Adequate precautions shall be taken to ensure that during construction, the slopes are not rendered unstable or give rise to recurrent slides after construction. If finished slopes slide into the roadway subsequently, such slides shall be removed and paid for at the Contract rate for the class of excavation involved, provided the slides are not due to any negligence on the part of the Contractor. The classification of the debris material from the slips, slides etc. shall conform to its condition at the time of removal and payment made accordingly regardless of its condition earlier.

301.3.10. Dewatering : If water is met with in the excavations due to springs, seepage, rain or other causes, it shall be removed by suitable diversions, pumping or bailing out and the excavation kept dry whenever so required or directed by the Engineer. Care shall be taken to discharge the drained water into suitable outlets as not to cause damage to the works, crops or any other property. Due to any negligence on the part of the Contractor, if any such damage is caused, it shall be the sole responsibility of the Contractor to repair/restore to the original condition at his own cost or compensate for the damage.

301.3.11. Disposal of excavated materials : All the excavated materials shall be the property of the Employer. The material obtained from the excavation of roadway, shoulders, verges, drains, cross-drainage works etc., shall be used for filling up of (i) roadway embankment, (ii) the existing pits in the right-of-way and (iii) for landscaping of the road as directed by the Engineer, including levelling and spreading with all lifts and lead upto 1000 m and no extra payment shall be made for the same.

All hard materials, such as hard moorum, rubble, etc., not intended for use as above shall be stacked neatly on specified land as directed by the Engineer with all lifts and lead upto 1000 m.

Unsuitable and surplus material not intended for use within the lead specified above shall also, if necessary, be transported with all lifts and lead beyond initial 1000 m, disposed of or used as directed by the Engineer.

301.3.12. Backfilling : Backfilling of masonry /concrete/hume pipe drain excavation shall be done with approved material after concrete/masonry/hume pipe is fully set and carried out in such a way as not to cause undue thrust on any part of the structure and/or not to cause differential settlement. All space between the drain walls and the side of the excavation shall be refilled to the original surface making due allowance for settlement, in layers generally not exceeding 150 mm compacted thickness to the required density, using suitable compaction equipment such as mechanical tamper, rammer or plate compactor as directed by the Engineer.

301.4. Plying of Construction Traffic

Construction traffic shall not use the cut formation and finished subgrade without the prior permission of the Engineer. Any damage arising out of such use shall be made good by the Contractor at his own expense.

301.5. Preservation of Property

The Contractor shall undertake all reasonable precautions for the protection and preservation of any or all existing roadside trees, drains, sewers or other sub-surface drains, pipes, conduits and any other structures under or above ground, which may be affected by construction operations and which, in the opinion of the Engineer, shall be continued in use without any change. Safety measures taken by the Contractor in this respect, shall be got approved from the Engineer. However, if any of these objects is damaged by reason of the Contractor's negligence, it shall be replaced or restored to the original condition at his expense. If the Contractor fails to do so, within the required time as directed by the Engineer or if, in the opinion of the Engineer, the actions initiated by the Contractor to replace/restore the damaged objects are not satisfactory, the Engineer shall arrange the replacement/restoration directly through any other agency at the risk and cost of the Contractor after issuing a prior notice to the effect.

301.6. Preparation of Cut Formation

The cut formation, which serves as a subgrade, shall be prepared to receive the sub-base/base course as directed by the Engineer.

Where the material in the subgrade (that is within 500 mm from the lowest level of the pavement) has a density less than specified in Table 300-2, the same shall be loosened to a depth of 500 mm and compacted in layers in accordance with the requirements of Clause 305.



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Any unsuitable material encountered in the subgrade level shall be removed as directed by the Engineer and replaced with suitable material compacted in accordance with Clause 305.

In rocky formations, the surface irregularities shall be corrected and the levels brought up to the specified elevation with granular base material as directed by the Engineer, laid and compacted in accordance with the respective Specifications for these materials. The unsuitable material shall be disposed of in accordance with Clause 301.3.11. After satisfying the density requirements, the cut formation shall be prepared to receive the subbase/base course in accordance with Clauses 310 and 311 to receive the sub-base/base course.

301.7. Finishing Operations

Finishing operations shall include the work of properly shaping and dressing all excavated surfaces.

When completed, no point on the slopes shall vary from the designated slopes by more than 150 mm measured at right angles to the slope, except where excavation is in rock (hard or soft) where no point shall vary more than 300 mm from the designated slope. In no case shall any portion of the slope encroach on the roadway.

The finished cut formation shall satisfy the surface tolerances described in Clause 902.

Where directed, the topsoil removed earlier and conserved (Clauses 301.3.2 and 305.3.3) shall be spread over cut slopes, where feasible, berms and other disturbed areas. Slopes may be roughened and moistened slightly, prior to the application of topsoil, in order to provide satisfactory bond. The depth of topsoil shall be sufficient to sustain plant growth, the usual thickness being from 75 mm to 100 mm.

301.8. Measurements for Payment

Excavation for roadway shall be measured by taking cross-sections at suitable intervals in the original position before the work starts and after its completion and computing the volumes in cu. m. by the method of average end areas for each class of material encountered. Where it is not feasible to compute volumes by this method because of erratic location of isolated deposits, the volumes shall be computed by other accepted methods.

At the option of the Engineer, the Contractor shall leave depth indicators during excavations of such shape and size and in such



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positions as directed so as to indicate the original ground level as accurately as possible. The Contractor shall see that these remain intact till the final measurements are taken.

For rock excavation, the overburden shall be removed first so that necessary cross-sections could be taken for measurement. Where cross sectional measurements could not be taken due to irregular configuration or where the rock is admixed with other classes of materials, the volumes shall be computed on the basis of stacks of excavated rubble after making 35 per cent deduction therefrom. When volumes are calculated in this manner for excavated material other than rock, deduction made will be to the extent of 16 per cent of stacked volumes.

Works involved in the preparation of cut formation shall be measured in units indicated below :

- | | |
|---|------------|
| (i) Loosening and recompacting the loosened material at subgrade | ... cu. m. |
| (ii) Loosening and removal of unsuitable material and replacing with a suitable material and compacting to required density | ... cu. m. |
| (iii) Preparing rocky subgrade | ... sq. m. |
| (iv) Stripping including storing and reapplication of topsoil | ... cu. m. |
| (v) Disposal of surplus material beyond initial 1000 m lead | ... cu. m. |

301.9. Rates

301.9.1. The Contract unit rates for the items of roadway and drain excavation shall be payment in full for carrying out the operations required for the individual items including full compensation for :

- (i) setting out;
- (ii) transporting the excavated materials and depositing the same on sites of embankments, spoil banks or stacking as directed within all lifts and lead upto 1000 m or as otherwise specified;
- (iii) trimming bottoms and slopes of excavation;
- (iv) dewatering;
- (v) keeping the work free of water as per Clause 311; and
- (vi) all labour, materials, tools, equipment, safety measures, testing and inc lentals necessary to complete the work to Specifications.

Provided, however, where presplitting is prescribed to achieve a



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specified slope in rock excavation, the same shall be paid for vide Clause 303.5.

301.9.2. The Contract unit rate for loosening and recompacting the loosened materials at subgrade shall include full compensation for loosening to the specified depth, including breaking clods, spreading in layers, watering where necessary and compacting to the requirements.

301.9.3. Clauses 301.9.1 and 305.8 shall apply as regards Contract unit rate for item of removal of unsuitable material and replacement with suitable material respectively.

301.9.4. The Contract unit rate for item of preparing rocky subgrade as per Clause 301.6 shall be full compensation for providing, laying and compacting granular base material for correcting surface irregularities including all materials, labour and incidentals necessary to complete the work and all leads and lifts.

301.9.5. The Contract unit rate for the items of stripping and storing topsoil and of reapplication of topsoil shall include full compensation for all the necessary operations including all lifts, but leads upto 1000 m.

301.9.6. The Contract unit rate for disposal of surplus earth from roadway and drain excavation shall be full compensation for all labour, equipment, tools and incidentals necessary on account of the additional haul or transportation involved beyond the initial lead of 1000 m.

302. BLASTING OPERATIONS

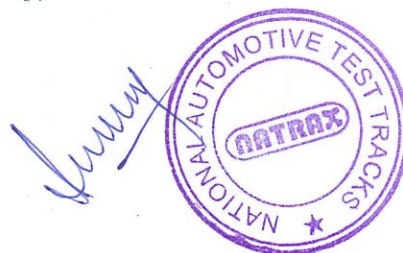
302.1. General

Blasting shall be carried out in a manner that completes the excavation to the lines indicated in drawings, with the least disturbance to adjacent material. It shall be done only with the written permission of the Engineer. All the statutory laws, regulations, rules, etc., pertaining to the acquisition, transport, storage, handling and use of explosives shall be strictly followed.

The Contractor may adopt any method or methods of blasting consistent with the safety and job requirements. Prior to starting any phase of the operation the Contractor shall provide information describing pertinent blasting procedures, dimensions and notes.

The magazine for the storage of explosives shall be built to the designs and specifications of the Explosives Department concerned and located at the approved site. No unauthorized person shall be admitted.

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into the magazine which when not in use shall be kept securely locked. No matches or inflammable material shall be allowed in the magazine. The magazine shall have an effective lightning conductor. The following shall be hung in the lobby of the magazine:

- (a) A copy of the relevant rules regarding safe storage both in English and in the language with which the workers concerned are familiar.
- (b) A statement of up-to-date stock in the magazine.
- (c) A certificate showing the last date of testing of the lightning conductor.
- (d) A notice that smoking is strictly prohibited.

All explosives shall be stored in a secure manner in compliance with all laws and ordinances, and all such storage places shall be clearly marked. Where no local laws or ordinances apply, storage shall be provided to the satisfaction of the Engineer and in general not closer than 300 m from the road or from any building or camping area or place of human occupancy. In addition to these, the Contractor shall also observe the following instructions and any further additional instructions which may be given by the Engineer and shall be responsible for damage to property and any accident which may occur to workmen or the public on account of any operations connected with the storage, handling or use of explosives and blasting. The Engineer shall frequently check the Contractor's compliance with these precautions.

302.2. Materials, Tools and Equipment

All the materials, tools and equipment used for blasting operations shall be of approved type. The Engineer may specify the type of explosives to be allowed in special cases. The fuse to be used in wet locations shall be sufficiently water-resistant as to be unaffected when immersed in water for 30 minutes. The rate of burning of the fuse shall be uniform and definitely known to permit such a length being cut as will permit sufficient time to the firer to reach safety before explosion takes place. Detonators shall be capable of giving effective blasting of the explosives. The blasting powder, explosives, detonators, fuses, etc., shall be fresh and not damaged due to dampness, moisture or any other cause. They shall be inspected before use and damaged articles shall be discarded totally and removed from the site immediately.

302.3. Personnel

The blasting operation shall remain in the charge of competent and experienced supervisor and workmen who are thoroughly acquainted with the details of handling explosives and blasting operations.



302.4. Blasting Operations

The blasting shall be carried out during fixed hours of the day preferably during the mid-day luncheon hour or at the close of the work as ordered in writing by the Engineer. The hours shall be made known to the people in the vicinity. All the charges shall be prepared by the man in charge only.

The Contractor shall notify each public utility company having structures in proximity to the site of the work of his intention to use explosives. Such notice shall be given sufficiently in advance to enable the companies to take such steps as they may deem necessary to protect their property from injury. In advance of any blasting work within 50 m of any railway track or structures, the Contractor shall notify the concerned Railway Authority of the location, date, time and approximate duration of such blasting operations.

Red danger flags shall be displayed prominently in all directions during the blasting operations. The flags shall be planted 200 m from the blasting site in all directions. People, except those who actually light the fuse, shall be prohibited from entering this area, and all persons including workmen shall be excluded from the flagged area at least 10 minutes before the firing, a warning siren being sounded for the purpose.

The charge holes shall be drilled to required depths and at suitable places. Blasting should be as light as possible consistent with thorough breakage of the material necessary for economic loading and hauling. Any method of blasting which leads to overshooting shall be discontinued.

When blasting is done with powder, the fuse cut to the required length shall be inserted into the hole and the powder dropped in. The powder shall be gently tamped with copper rods with rounded ends. The explosive powder shall then be covered with tamping material which shall be tamped lightly but firmly.

When blasting is done with dynamite and other high explosives, dynamite cartridges shall be prepared by inserting the square cut end of a fuse into the detonator and finishing it with nippers at the open end, the detonator gently pushed into the primer leaving 1/3rd of the copper tube exposed outside. The paper of the cartridge shall then be closed up and securely bound with wire or twine. The primer shall be housed into the explosive. Boreholes shall be of such size that the cartridge can easily go down. The holes shall be cleared of all debris and



explosive inserted. The space of about 200 mm above the charge shall then be gently filled with dry clay, pressed home and the rest of the tamping formed of any convenient material gently packed with a wooden rammer.

At a time, not more than 10 such charges will be prepared and fired. The man in charge shall blow a siren in a recognised manner for cautioning the people. All the people shall then be required to move to safe distances. The charges shall be lighted by the man-in-charge only. The man-in-charge shall count the number of explosions. He shall satisfy himself that all the charges have been exploded before allowing the workmen to go back to the work site.

After blasting operations, the Contractor shall compact the loose residual material below subgrade and replace the material removed below subgrade with suitable material.

302.5. Misfire

In case of misfire, the following procedure shall be observed:

- (i) Sufficient time shall be allowed to account for the delayed blast. The man-in-charge shall inspect all the charges and determine the missed charge.
- (ii) If it is the blasting powder charge, it shall be completely flooded with water. A new hole shall be drilled at about 450 mm from the old hole and fired. This should blast the old charge. Should it not blast the old charge, the procedure shall be repeated till the old charge is blasted.
- (iii) In case of charges of gelnite, dynamite, etc., the man-in-charge shall gently remove the tamping and the primer with the detonator. A fresh detonator and primer shall then be used to blast the charge. Alternatively, the hole may be cleared of 300 mm of tamping and the direction then ascertained by placing a stick in the hole. Another hole may then be drilled 150 mm away and parallel to it. This hole shall then be charged and fired when the misfired hole should explode at the same time. The man-in-charge shall at once report to the Contractor's office and the Engineer all cases of misfire, the cause of the same and what steps were taken in connection therewith.

If a misfire has been found to be due to defective detonator or dynamite, the whole quantity in the box from which defective article was taken must be sent to the authority directed by the Engineer for inspection to ascertain whether all the remaining materials in the box are also defective.

302.6. Account

A careful and day to day account of the explosive shall be maintained by the Contractor in an approved register and manner which shall be open to inspection by the Engineer at all times.



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303. PRESPLITTING ROCK EXCAVATION SLOPES

303.1. General

Presplitting is defined as the establishment of a specified excavation slope in rock by the controlled use of explosives and blasting accessories in properly aligned and spaced drill holes.

The presplitting technique shall be used for forming rock excavation slopes at locations shown on the plans or as otherwise decided by the Engineer.

303.2. Construction Operations

Prior to starting drilling operations for presplitting, the Contractor shall furnish the Engineer a plan outlining the position of all drill holes, depth of drilling, type of explosives to be used, loading pattern and sequence of firing. The drilling and blasting plan is for record purposes only and will not absolve the Contractor of his responsibility for using proper drilling and blasting procedures. Controlled blasting shall begin with a short test section of a length approved by the Engineer. The test section shall be presplit, production drilled and blasted and sufficient material excavated whereby the Engineer can determine if the Contractor's methods have produced an acceptable slope.

All overburden soil and weathered rock along the top of the excavation for a distance of about 5 to 15 m beyond the drilling limits, or to the end of the excavation, as decided by Engineer shall be removed before drilling the presplitting holes. Particular care and attention shall be directed to the beginning and end of excavations to ensure complete removal of all overburden soil and weathered rock and to expose fresh rock to an elevation equal to the bottom of the adjacent lift of the presplitting holes being drilled.

Slope holes for presplitting shall be drilled along the line of the planned slope within the specified tolerances. The drill holes shall be not less than 60 mm nor more than 75 mm in diameter. Drilling operations shall be controlled by the use of proper equipment and technique to ensure that no hole shall deviate from the plane of the planned slope by more than 300 mm nor shall any hole deviate from being parallel to an adjacent hole by more than two-third of the planned horizontal spacing between holes.

The length of presplit holes for any individual lift shall not exceed 9 m.

