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**Office of General Manager, Construction Unit,  
Uttarakhand Peyjal Sansadhan Vikas Evam  
Nirman Nigam, Dehradun**

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# कार्यालय परियोजना प्रबन्धक, निर्माण इकाई

## उत्तराखण्ड पेयजल संसाधन विकास एवं निर्माण निगम

### चकराता, देहरादून।

पत्रांक 86

निविदा

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दिनांक 31.01.2013

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अध्यक्ष उत्तराखण्ड पेयजल संसाधन विकास एवं निर्माण निगम की ओर से अधोहस्ताक्षरी द्वारा उत्तराखण्ड पेयजल संसाधन विकास एवं निर्माण निगम में समुचित श्रेणी में पंजीकृत ठेकेदारों से निम्न कार्य हेतु मोहरबन्द निविदायें दिनांक 06-03-2013 को अपरान्ह :12 बजे तक आमंत्रित की जाती है, उक्त निविदा दिनांक 07-03-2013 को सांय :0:2 बजे उपस्थित निविदा दाताओं के सम्मुख महाप्रबन्धक(नोडल) अथवा उनके द्वारा मनोनीत अधिकारी द्वारा महाप्रबन्धक, निर्माण विंग, उत्तराखण्ड पेयजल निगम, देहरादून में खोली जायेगी।

निविदा प्रपत्र दिनांक 12-02-2013 से दिनांक 05-03-2013 तक कार्य दिवसों में सुबह 10:00 बजे से सांय 04:00 बजे तक निर्माण इकाई, चकराता एवं निर्माण इकाई, देहरादून एवं महाप्रबन्धक(नोडल), निर्माण विंग, उत्तराखण्ड पेयजल निगम, जी0एम0एस0रोड, देहरादून से प्राप्त की जा सकती है एवं दिनांक 06-03-2013 को अपरान्ह :12 बजे तक उपरोक्त कार्यालयों में निविदा डाली जा सकती है।

क्र० सं०	कार्य का नाम	निविदा प्रपत्र विक्रय की अन्तिम तिथि	निविदा प्रपत्र का मूल्य + व्यापार कर रु०	धरोहर धनराशि रु०	कार्यो को पूर्ण करने की अवधि	ठेकेदारों की श्रेणी
1	2	3	4	5	6	7
1	पशु चिकित्सालय मसूरी के हॉस्पिटल / आवासीय भवनों का रेनोवेषन / नवनिर्माण कार्य जनपद- देहरादून (सिविल + प्लम्बिंग + रिटेनिंग वॉल)	05-03-2013	2000-00 + 13-50 % VAT	1.60 लाख	/ वर्ष	कार्यालय मुख्य महाप्रबन्धक, निर्माण विंग, उत्तराखण्ड पेयजल संसाधन विकास एवं निर्माण निगम में भवन निर्माण कार्यो हेतु पंजीकृत 'बी' श्रेणी एवं उच्च

शर्त :-

- 1- प्रपत्र का मूल्य केवल डिमान्ड ड्राफ्ट / बैंकर चैक जो कि परियोजना प्रबन्धक, निर्माण इकाई उत्तराखण्ड पेयजल संसाधन विकास एवं निर्माण निगम, चकराता पदनाम पर चकराता/ देहरादून में देय हो, प्रस्तुत करने पर निविदा प्रपत्र की प्रति निर्गत की जायेगी।
- 2- धरोहर धनराशि भारत में किसी भी अनुसूचित बैंक की जमा रसीद/ राष्ट्रीय बचत पत्र के रूप में जो कि परियोजना प्रबन्धक, निर्माण इकाई उत्तराखण्ड पेयजल संसाधन विकास एवं निर्माण निगम, चकराता के नाम बन्धक हो ली जायेगी। धरोहर धनराशि के बिना निविदा पर विचार नहीं किया जायेगा।
- 3- प्रतिभूति राशि स्वीकृत हेतु दरे तीन माह तक वैध होने का प्रमाण पत्र (रु० 100.00 के स्टाम्प पेपर पर रु० 1.00 का रसीद टिकट लगा हो) संलग्न किया जाना आवश्यक है, अनुबन्ध हेतु स्टाम्प ड्यूटी नियमानुसार देय होगी।
- 4- निर्धारित निविदा प्रपत्र, परियोजना प्रबन्धक, निर्माण इकाई उत्तराखण्ड पेयजल संसाधन विकास एवं निर्माण निगम, चकराता एवं देहरादून के कार्यालयों से पंजीकरण प्रमाण पत्र दिखाकर एवं निविदा के मूल्य तथा व्यापार कर सहित का डिमान्ड ड्राफ्ट / बैंकर चैक / राष्ट्रीय बचत पत्र जमा कर प्राप्त किया जा सकता है।

“जल संचय-जीवन संचय” “कृपया जल स्रोतों को प्रदूषित होने से बचाईये।”  
वैधानिक चेतावनी - जल स्रोतों को प्रदूषित करना दण्डनीय अपराध है।

- 5- निविदादाता निविदा डालने से पूर्व कार्य का निरीक्षण भली भाँति कर लें तथा कार्य के दौरान आने वाली कठिनाईयों से भली भाँति अवगत हो लें, इस हेतु बाद में कोई दावा मान्य नहीं होगा।
- 6- दरें केवल विभाग द्वारा विक्रय की गई निविदा प्रपत्र के शैड्यूल 'जी' पर ही स्वीकार की जायेगी।
- 7- समस्त कर जैसे वाणिज्य कर, आयकर, लेबर सैश की कटौती नियमानुसार षासन द्वारा समय समय पर निर्धारित दरों पर की जायेगी।
- 8- निविदा प्रपत्र केवल वांछित श्रेणी के पंजीकृत ठेकेदारों को ही मूल पंजीकरण प्रमाण पत्र दिखाने पर विक्रय किये जायेगे।
- 9- सशर्त एवं अपूर्ण निविदा एवं अन्य निविदा प्रपत्र पर दी गई दरें किसी भी दशा में स्वीकार नहीं की जायेगी।
- 10- डाक द्वारा निविदा प्रपत्र मांगे जाने पर निविदा प्रपत्र का मूल्य एवं व्यापार कर सहित डिमाण्ड ड्राफ्ट / बैंकर चैक के माध्यम से प्राप्त किया जा सकता है एवं डाक खर्च रु0 60.00 भी निविदा मूल्य के अतिरिक्त देना होगा।
- 11- निर्माण कार्यों में प्रयुक्त की जाने वाली सामग्री एवं कार्यों का सम्पादन भारतीय मानक ब्यूरो तथा उत्तराखण्ड लो0नि0वि0 के मानकों एवं विषिष्टियों के अनुसार किया जायेगा।
- 12- निर्माण इकाई एवं महाप्रबन्धक कार्यालय में कोई सगा-सम्बन्धी नहीं होने का प्रमाण पत्र रु0 10.00 के स्टाम्प पेपर पर भरकर निविदा प्रपत्र के साथ चस्पा करना होगा। (प्रपत्र निविदा के संलग्न है।) इन शर्तों को पूरा न करने वाले निविदा दाताओं की दरों पर विचार नहीं किया जायेगा।
- 13- यह आईटम दरें आमन्त्रण/ निविदा सूचना निविदा का ही एक हिस्सा है एवं इसकी शर्तें निविदा प्रपत्र पर अंकित शर्तों के साथ-साथ ठेकेदारों को मान्य होगी।
- 14- किसी निविदा अथवा समस्त निविदाओं को बिना बिना कोई कारण बताये अधोहस्ताक्षरी को निरस्त करने का पूर्ण अधिकार सुरक्षित है।
- 15- अन्य सभी शर्तें एवं विशिष्टियाँ निविदा प्रपत्र के अनुसार होगी, जिन्हे कार्य दिवस एवं कार्यकाल समय में देखा जा सकता है।
- 16- निविदा दाता को 42 प्रतिशत श्रमिक स्थानीय (उत्तराखण्ड) के लगाने होंगे और इसका प्रमाण पत्र भी देना होगा तभी भूगतान संभव होगा।
- 17- निविदा प्रपत्र उत्तराखण्ड पेयजल निगम की वेबसाईट [www.peyjal.uk.gov.in](http://www.peyjal.uk.gov.in) से दिनांक **05-03-2013** अपराह्न **5:00** बजे तक डाउनलोड किये जा सकते हैं। वेबसाईट से डाउनलोड करने पर निविदा प्रपत्र का मूल्य किसी राष्ट्रीयकृत बैंक का डिमान्ड ड्राफ्ट जो परियोजना प्रबन्धक, निर्माण इकाई उत्तराखण्ड पेयजल संसाधन विकास एवं निर्माण निगम, चकराता के नाम जारी किया गया हो एवं चकराता, देहरादून पर देय हो, निविदा के साथ संलग्न करना अनिवार्य होगा। निविदा प्रपत्र के मूल्य का बैंक ड्राफ्ट बिड के साथ संलग्न करना होगा, जिसके संलग्न न करने की दशा में निविदा पर विचार नहीं किया जायेगा।

(ओ0पी0सिंह)  
परियोजना प्रबन्धक

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प्रतिलिपि निम्नलिखित को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित :-

- 1- प्रबन्ध निदेशक, उत्तराखण्ड पेयजल निगम, देहरादून।
- 2- मुख्य महाप्रबन्धक, निर्माण विंग उत्तराखण्ड पेयजल निगम, देहरादून।
- 3- महाप्रबन्धक (नोडल), निर्माण विंग, उत्तराखण्ड पेयजल निगम, देहरादून को उनके सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।
- 4- परियोजना प्रबन्धक, निर्माण इकाई उत्तराखण्ड पेयजल निगम, देहरादून।
- 5- परियोजना प्रबन्धक, निर्माण इकाई उत्तराखण्ड पेयजल निगम, ऋषिकेश।
- 6- परियोजना प्रबन्धक, निर्माण इकाई (विद्युत/यांत्रिक) उत्तराखण्ड पेयजल निगम, देहरादून।
- 7- श्रीमति मिशा सिन्हा को इस आशय से प्रेषित की शिड्यूल 'जी' शीघ्र उपलब्ध कराये एवं उक्त वेबसाईट पर अपलोड कराये।
- 8- गार्ड फाईल।
- 9- नोटिस बोर्ड पर चस्पा हेतु।

परियोजना प्रबन्धक

# UTTARAKHAND PEYJAL SANSADHAN VIKAS EVAM NIRMAN NIGAM

## General Information to Tenderers

1- Sealed tenders are invited upto 3-30 PM. on 06.03.2013 by the Project Manager, Construction Unit, Uttarakhand Peyjal Nigam, Chakrata / Dehradun, The General Manager, Construction wing, Uttarakhand Peyjal Nigam Dehradun, for the following work.

### **Construction of Residential / Non residential buildings of veterinary Hospital Mossorie, Dehradun.**

2- That the works shall be completely finished to the satisfaction of the authorities of Uttarakhand Peyjal Nigam, within 12 calendar months (including raining season) as per following schedule from the date of issue of the written order to commence the work:-

20% Progress	First two months
40% Progress	Four months
60% Progress	Six months
80% Progress	Nine months
100% Progress	Twelve months

Third party quality assurance inspections will be done. The contractor has to rectify all defects as pointed out by concerned authorities, within seven days.

3- Blank forms of tenders and all other particulars regarding the proposed contract and nature of the security deposit required in the case of the proposed work may be obtained from the office of the Project Manager Construction Unit, Uttarakhand Peyjal Nigam, Chakrata on any working day during office hours upto 05.03.2013 upto 5.00 PM. on payment of Rs. 2270.00+Rs. 100.00 extra as postage charges if tender document is demanded by post. This amount is non-refundable. Nigam shall not be responsible in case the tender forms sent by post are received late by either side.

4- Each tender must be accompanied by earnest money of Rs. 160000.00 (Rs. One lacs Sixty Thousand Only) in shape of C.D.R./ FDR, which should be pledged to the Project Manager, Construction Unit, Uttarakhand Peyjal Nigam, Chakrata. Cheque or currency notes or cash deposit shall in no case be accepted. The earnest money must be sent in a separate cover along with the tender and on the top of envelop the word "Earnest Money" be mentioned. Without earnest money, the tender will not be considered.

5- The tenders will be opened at 3.30 P.M. on 07-03-2013 by the G.M. or his authorized agent, in the office of the C.G.M. Construction Wing, Uttarakhand Peyjal Nigam, Shanti Vihar, GMS. Road Dehradun. In case it is declared holiday or the office is closed due to unforeseen

circumstances, the tenders shall be opened on the next working day other than the prescribed date of opening of the tender.

6- Authority is reserved to reject any or all the tenders by the department without assigning any reason, thereof.

7- The earnest money of the successful candidate/ candidates/ firm will be forfeited in case he/ they declines to sign the agreement of contract and fail to deposit the security within seven days of being called upon to do so after the acceptance of this tender. Seven days will be counted from the date of issue of acceptance letter from the office.

8- Tenders from skilled and experienced contractors who can submit proofs of having successfully carried out similar works only will be considered. Before tendering the tenderers should visit the site of works and may see all drawing and designs of the Proposed Building in the office of Project Manager, Construction Unit, Uttarakhand Peyjal Nigam, Chakrata.

9- Proposal submitted to this invitation shall not be with-drawn by the tenderer within three months from the date of opening of the tender and also that if within the above period tenderer does withdraw his proposal, the earnest money deposited by him will be forfeited by the Uttarakhand Peyjal Nigam.

10- In case the tenderers withdraws their offer within the period mentioned in para-9 above, they can also be debarred for one year for tendering in this department, which shall be reckoned from the date of opening of the above tender. Tenderer registered with the department for the construction of Building in the relevant class, has to attach a attested copy of his registration with the tender. Registered contractors of the department shall also produce a certificate that permanent security deposited by them is not being utilized for any other work or for similar work in any office of the deptt.

11- Trade Tax (now VAT) shall be deducted as per Uttarakhand Trade tax, Act. The deducted amount shall be deposited in trade tax department by this department. The certificate for the same shall be issued by this department on demand to the contractor. In case any variation is made in such tax by the Govt. during the currency of the contract the same shall be binding upon the contractor. Therefore the contractor is supposed to quote his rates keeping such aspects in mind.

12- Income tax shall be deducted from each payment to the contractor as per Income Tax rules. In case any variation is made in this tax also by the Govt. during the currency of the contract that shall also be binding upon the contractor.

13- Stamp duty, as applicable shall be paid by the contractors, as per rules. In case any variation is done by the Govt. on such duties that shall also be binding upon the contractor.

14- No person who has retired from Govt. service as an Engineer or Gazetted officer employed on Engineering or administrative duties in an Engineering Department or who has employed any such retired Engineer or Gazetted officer is not entitled to tender for the notified work upto two years from the date of such retirement unless special permission of the Govt. has been obtained and is furnished by the contractor along-with his tender. If any contractor is found to have violated the aforesaid provision, his tender and the contract, if entered into with him shall be liable to immediate cancellation in which case his entire earnest money or the security money deposit (as the case may be) shall stand forfeited by Uttarakhand Pujal Nigam and the contractor shall have no right or claim for any compensation whatsoever on account of such action.

15- Conditional tenders may be liable for rejection.

16- The contractor has to furnish the certificates of testing by reputed manufacturer or testing laboratory of the materials to be used by him from time to time. The contractor is also required to establish field test laboratory at site and test all the materials being used by him from time to time, as per relevant IS codes, and to maintain test register at site duly signed by his authorized representative. This register will be required to be presented on demand to the inspecting officers. After completion of work, these registers will be required to be submitted in office of the Project Manager and will be the property of the Nigam. In case testing of cement, steel, sand, grit, concrete or any other material is required to be done by the Nigam from any external Institute or agency, the Nigam will be free to do so, In case the material/work is found substandard or defective, the testing charges will be borne by the contractor.

17- In case of firm, the tender must be signed by a person holding the power of attorney on behalf of the firm. An attested copy of the power of attorney on behalf of the firm duly attested by a Gazetted officer must accompany with the tender.

18- Contractor's past experience certificates as required on page 11 must be filled in with details so as to indicate a clear picture of his past experience & capability. In case of in-experienced contractors their tender may be rejected and may not be considered.

19 The tenderer shall carefully note that once the tender have been opened, no request at their own accord for reconsideration of their rates offered by them shall be entertained. The rates quoted by the tenderer shall remain firm throughout the contract period. The tenderer has to quote the rate in figures and words. In case of any discrepancy, the rate quoted in words will be taken as final. The rates will be firm during the contract period. No price escalation will be admissible on this rates. The contractor should account in the rates to be quoted the market price escalation during the currency of the contract.

20- The security is to be deposited within seven days after receipt of letter of acceptance. Security to be deposited shall be 5% of tendered cost including earnest money duly pledged to

the Project Manager Construction Unit, Uttarakhand Peyjal Nigam, Chakrata. Further, 5% security shall also be deducted from running bills. The security deposited and deducted as above, will be refunded after one year of the completion of work and rectification of all defect liabilities during this period.

21- Samples for testing shall be taken in presence of contractor or his representative and engineers / authorities of Nigam / Veterinary department /Government.

22- The address of the contractor mentioned on the body of the original tender will be deemed to be relevant for all correspondence and the letters sent on the said address will be deemed to have been delivered to the contractor.

23- Site clearance, filling, leveling, removing of shuttering etc., surplus materials, rubbish and debris shall also be done by the contractor at his own cost.

24- The tenderers are essentially required to submit a list of tools and plants available with them, specifying clearly the T & P that shall be used for this specific work only.

25- After the acceptance of the tender, agreement shall be entered on RS. 100/- Non-judicial stamp paper which is to be supplied by the contractor, within seven days.

26- The contractor shall deploy the following full time technical personnel at the aforesaid construction work for proper supervision and execution of the work :-

- (a) Senior site engineer (civil engineer degree holder with minimum 5 years experience in similar type of building works) - 01 No.
- (b) Site engineer (civil) Diploma in civil engineering having minimum 5 years experience in similar type of building works - 01 No.
- (c) Site engineer (Elect.) Diploma in electrical engineering having minimum 5 years experience in similar type of building works - 01 No.

27- The contractor shall make all arrangements for the enabling works e.g. site office, godown, arrangement for water for construction and drinking for labourers, electricity for works at site, the charges and cost of which will be borne by the contractor at his own cost.

28- The contractor should ensure that all informations and certificates furnished by him are true and if any stage, it is brought to the notice of the Nigam that any of the information, certificate is false, the Nigam will be free to rescind the contract at that particular stage and all security deposit and payment due to him will be forfeited and the contractor will have no claim for that.

**Project Manager  
Construction Unit  
Uttarakhand Peyjal Nigam,  
Chakrata**



रु0 10०00 के नॉन ज्यूडिषियल स्टाम पेपर पर  
निविदा द्वारा विभाग में कार्यरत सगे सम्बन्धी अधिकारी/कर्मचारी के सम्बन्ध में प्रधान कार्यालय,  
उत्तराखण्ड पेयजल निगम, देहरादून के कार्यालय ज्ञाप संख्या 3188 / निविदा दिनांक 17.08.2006 के  
अनुरूप षपथ पत्र का प्रारूप

: षपथ पत्र :

मै.....पुत्र श्री..... पता .....

निश्ठापूर्वक षपथ लेकर घोशणा करता हूँ कि उत्तराखण्ड पेयजल निगम के .....कार्यालय एवं उससे सम्बद्ध शाखाओं में मेरा कोई भी सगा सम्बन्धी कार्यरत नहीं है। सगा सम्बन्धी से मेरा आषय उपरोक्त संदर्भित ज्ञाप संख्या 3188 / निविदा दिनांक 17.08.2006 एवं ज्ञाप संख्या 3319 / निविदा दिनांक 25.08.2006 में यथा परिभाषित स्पष्टीकरण "अ" एवं "ब" से है। उत्तराखण्ड पेयजल निगम में कार्यरत सगा सम्बन्धी का विवरण निम्नानुसार है :-

- 1<sup>०</sup> सगा/सम्बन्धी का नाम : .....
- 2<sup>०</sup> सगा/सम्बन्धी का निविदादाता से सम्बन्ध : .....
- 3<sup>०</sup> सगा/सम्बन्धी का नामित पद : .....
- 4<sup>०</sup> सगा/सम्बन्धी वर्तमान में कार्यरत कार्यालय का नाम : .....

निविदादाता के हस्ताक्षर

(फर्म के एक से अधिक साझेदार होने की दशा में उनके नाम एवं हस्ताक्षर)

नाम : ..... हस्ताक्षर .....

नाम : ..... हस्ताक्षर .....

नाम : ..... हस्ताक्षर .....

दो साक्षी के नाम एवं हस्ताक्षर –

नाम एवं पता : ..... हस्ताक्षर .....

नाम एवं पता : ..... हस्ताक्षर .....

नोट :- उपरोक्त षपथ पत्र में यदि निविदादाता द्वारा सूचना असत्य/त्रुटिपूर्ण तथ्य प्रस्तुत किये जाने अथवा इसकी पुष्टि होने पर निविदा निर्णितकर्ता अधिकारी को उक्त निविदा निरस्त करने का अधिकार सुरक्षित रहेगा।

Gkk+k.kk

निविदा आमंत्रित करने वाले अधिकारी का नाम—

परियोजना प्रबन्धक, निर्माण इकाई,  
उत्तराखण्ड पेयजल संसाधन विकास एवं  
निर्माण निगम, चकराता

कार्य का नाम जिसको निविदा आमन्त्रित की गई है:—

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)kok I#;

( )ukok I#; \*kouk dk

fuek.k r?kk

rRIE-./k# dk;!

निविदा की तिथि

:/&2/&52/:

निविदा प्रपत्र खरीदने वाले ठेकेदार/सप्लायर्स का नाम .....

परियोजना प्रबन्धक द्वारा निविदा प्रपत्रों पर विचार करते समय विभिन्न निविदा दाताओं द्वारा प्राप्त निविदाओं में से उपयुक्त निविदा पत्र पर ही विचार किया जायेगा। सभी निविदा दाताओं को भी निविदा प्रपत्र खोले जाने की तिथि से तीन माह तक उनके द्वारा दी गई निविदा में सभी विवरण (प्रस्ताव) मान्य होंगे। यदि कोई ठेकेदार/सप्लायर जिसके द्वारा निविदा प्रपत्र दिया गया हो तीन माह तक निविदा प्रपत्र में दी गई शर्तों तथा विभाग द्वारा उपरोक्त अवधि में निविदा सम्बन्धि किसी आदेश का समुचित पालन नहीं करता है तो उसके द्वारा सम्बन्धित निविदा के सम्बन्ध में जमा की गई अग्रिम धनराशि उत्तराखण्ड पेयजल संवि0 एवं नि0 निगम द्वारा समर्पित कर ली जायेगी।

आज दिनांक...../...../20.....की तिथि में हस्ताक्षर किये।

साक्षी:—

1- .....

2- .....

ठेकेदार/सप्लायर के हस्ताक्षर

टिप्पणी:— ठेकेदार/सप्लायर द्वारा उपरोक्त घोषणा पत्र 100/- रुपये के न्यायालय फीस स्टाम्प पर मय एक रुपये के राजस्व टिकट लगाकर निविदा पत्र के साथ संलग्न करना होगा।

शा0आ0सं0343(सात जी0सी0 16 दिनांक 13.6.75 विविध 1/80)

सेवा में,

परियोजना प्रबन्धक,  
निर्माण इकाई, उत्तराखण्ड पेयजल निगम,  
चकराता।

विषय :- )u-./k d! lE-./k e!,

महोदय,

प्रार्थी ने आपके कार्यालय परियोजना प्रबन्धक, निर्माण इकाई, उत्तराखण्ड पेयजल निगम, ऋषिकेश में दिनांक ...../...../20..... को ..... योजना के निर्माण कार्य हेतु निविदा दी थी, जिसमें मेरे द्वारा दी गयी निविदा की दरें न्यूनतम होने के कारण आपके द्वारा कार्य हेतु स्वीकार कर ली गयी है। इस प्रसंग में वांछित निम्न तथ्य आपकी सेवा में प्रस्तुत कर रहा हूँ।

1- यह कि मेरे द्वारा वर्तमान में मात्र 100.00 (एक सौ रूपये) का नॉन ज्युडिशियल स्टाम्प अनुबन्ध हेतु उच्च न्यायालय/शासन/प्रशासन की वर्तमान सहमति के अनुरूप प्रस्तुत किया जा रहा है। एतदपश्चात यदि न्यायालय/शासन/प्रशासन द्वारा कोई भिन्न आदेश जारी किये जाते हैं, तो मैं उसका अनुपालन करने के लिए सहमत हूँ, तथा तदनुसार स्टाम्प ड्यूटी प्रस्तुत/जमा करने का सम्पूर्ण उत्तरदायित्व प्रार्थी का ही होगा।

2- यह कि प्रार्थी द्वारा कार्य पर 60 प्रतिशत से अधिक श्रमिक उत्तरांचल के निवासियों को ही लगाया जायेगा तथा उनके नाम पतों की सूचना विभाग को साप्ताहिक रूप से देता रहूँगा।

3- यह कि यदि मेरे द्वारा नेपाली श्रमिक कार्य पर लगाये जाते हैं तो मैं उनके नाम पतों का विवरण पंजिका में रखूँगा और इसकी सूचना नियमित रूप से विभाग को देता रहूँगा।

4-कार्य पर लगाये जाने वाले श्रमिकों की पुलिस द्वारा सत्यापन / बीमा सम्बन्धी कार्यवाही का पूर्ण उत्तरदायित्व प्रार्थी का होगा।

अतः अनुरोध है कि उक्त कार्य/योजना का अनुबन्ध गठित कराने की कृपा करें।

ik?k#

दिनांक ...../...../20.....

नाम.....

पिता का नाम .....

पता .....

## UTTARAKHAND PEYJAL NIGAM

### FORM OF PAST EXPERIENCE

Contractor should state if they are approved contractor of the Central/State Public works Department, Uttarakhand Peyjal Nigam or Military Engineering Services and if so give class, particulars of previous contracts upon which contractors has been engaged in the form given below:

**Table-1**

<b>Item No</b>	<b>Name of Deptt under which the contractors executed the works</b>	<b>Name &amp; description of contract and works</b>	<b>Value/Period lacs.</b>	<b>Name of office &amp; Engr. Under whom worked.</b>

**NOTE:-** The above particulars are to be filled in by each tenderer and submitted along-with the tender copies of certificates duly attested by a Gazetted officer in connection with the works executed by them are also to be attached. If the tenderer does not fill in above table-1 it would be taken that he had never executed such type of works.

**Signature of the contractor**

## CONDITIONS OF CONTRACTS

1. Interpretations- In these conditions and in specifications which are here to attached the terms.

“Nigam” shall mean the Uttarakhand Peyjal Nigam.

“The Chief General Manager” shall mean the “Chief General Manager, Nirman Wing, Uttarakhand Peyjal Nigam

“The General Manager” shall mean the General Manager (Nodal), Nirman Wing, Uttarkhand Peyjal Nigam.

“The Project Manager” shall mean the Project Manager, Construction Unit, Uttarakhand Peyjal Nigam, Chakrata.

“Work” or “Works” where used in these conditions and specifications shall unless there be something either in the subject or context repugnant to such conditions, be construed, and taken to mean” works by or by virtue of the contract contracted to be executed, whether temporary or permanent and whether original, altered, substituted or additional.

2. **Time for Completion of work:-** The time allowed for carrying out the works shall be 12 calender months (including raining season) as per the following schedule.

20%	Progress	First two months
40%	Progress	Four months
60%	Progress	Six months
80%	Progress	Nine months
100%	Progress	Twelve months

The schedule shall be strictly observed by the contractor and shall be reckoned from the date on which the order to commence is given to the contractor in writing.

3. **Contractor’s liability to pay compensation:-** The work shall throughout the stipulated period of the contract be proceeded with high quality standards as per relevant Indian standards code in practice and all due delegalance (time being deemed to be of the essence of the contract) and the contractor shall pay as compensation an amount at the rate of one percent of the total contract amount for every month delay that the works remain uncommenced or incomplete after the proper dates.

The maximum delay to be covered under the above compensation shall be two months beyond which necessary action shall be taken as per clause 4.

4. **Right of Breach of Contract:-** In any case in which any clause or clauses of these conditions the contractor shall have rendered himself liable to pay compensation amounting to the whole of the security deposit ( whether deducted in one sum or deducted by instalments) the Nigam shall

have power to adopt any of the following courses as they may deemd best suited in the interest of Works :-

**4.1.** To rescind the contract (of which rescission notice in writing to the contractor under the hand of the Project Manager shall be conclusive evidence) and in which case the security deposit of contractor together with such sums due to him under this contract shall stand forfeited and be absolutely at the disposal of the Nigam.

**OR**

**4.2.** Determine the contract and call in another contractor or employ daily labour to dismantle bad work, if necessary ( the bad work to be certified by the Project Manager, whose decision shall be final) and to renew and complete the said works and pay the cost of such contractor or for daily labour and price of materials required for such dismantling renewing and completion out of the said security deposit or such sum or sums as may be due to the contractor under the contract, and if such cost be more than the amount made up of the security money and the sum or sums due to the contractor under this contract, the difference between it and the sum made up by the security money and the balance due to the contractor as afore-said shall be a debt due from the contractor to the Nigam. In the event of either of the above courses being adopted by the Project Manager, the contractor shall have no claim to compensation for any loss substained by him by reasons of his having purchased or procured any materials, or entered in to any agreements, or made any advances on account of, or with a view to the execution of the work or the performance of the contract. And in case the contract shall be rescinded under the provision aforesaid, the contractor shall not be entitled to recover or be paid any sum for any work therefore actually performed under this contract, unless and until the Project Manager shall have certified in writing the performance of such work and the value payable in respect there-of and he shall only be entitled to be paid the value so certified.

In the event of the Project Manager putting in force either of the powers (a) or (b) vested in him under the above clause, he may, if he so desires take possession of all or any tools, plant, materials and stores in or upon the works or the site there-of or belonging to the contractor or procured by him and intended to be used for the execution of the work or any part there-of paying or allowing for the same in the account at prevailing market rates, such rates to be certified by the Project Manager, whose certificates there of shall be final, otherwise the Project Manager may by notice in writing to the contractor or his other authorized agents require him to remove such tools, plants, materials or stores from the premises (within a time to be specified in such notice) and in the event of the contractor failing to comply with any such requisition, the Project Manager may remove them at the contractor's expense or sell them by auction or private sale to the account them to the contractor and at his risk in all respects, and the certificate of the

Project Manager as to the expense of any such removal and the amount of the proceeds and the expense of any such sale shall be final and conclusive against the contractor.

**5. Extension of Time:-** If the contractor shall desire an extension of time for completion of the work on the ground of this having been unavoidable hindered in its execution, or any other ground he shall apply in writing to the Project Manager within Three Days after the date of hindrance on account of which he desires such extension as aforesaid, and the Project Manager shall, if in his opinion (which shall be final) reasonable ground be shown therefore, authorize such extension of time, if any, as may in his opinion or in the opinion of any other competent authority, be necessary or proper.

**6. Certificate of Completion:-** On completion of the work the contractor shall be furnished with a certificate by the Project Manager of such completion but no such certificate shall be given nor shall the works be considered to be complete until the work shall have been measured up by the junior/assistant engineers authorized by the Project Manager, whose measurements shall be binding and conclusive against the contractor and the contractor shall have removed from the premise all scaffolding, surplus materials and rubbish and cleaning of all dirt and debris from the premises. If the contractor fails to comply with the requirements of this clause as to removal of scaffolding, surplus materials and rubbish and cleaning of all dirt and debris on or before the date fixed for the completion of the works, the Project Manager may at the expense of the contractor remove such scaffolding, surplus materials and rubbish and dispose of the same as he thinks fit and clean of such dirt and debris as aforesaid and the contractor shall forthwith pay the amount of all expenses so incurred and shall have no claim in respect of any such scaffolding or surplus materials as aforesaid except for any sum actually realized by the sale thereof after deducting the aforesaid expenses.

**7. Payments-** The contractor will submit the bills from time to time for payments to the Project Manager of minimum ten percent part of the contractor price to the Project Manager, such bills will be got verified by junior/assistant engineer who shall certify (a) the amount to be deducted from the original contract price in respect of the value of any part or parts of the work which has or have not been executed (b) the value of any extra work which has been carried out in pursuance of an order given after the contract was made. The Project Manager shall pay such sum as due to him, certifying that the works have been executed as per approved design, drawings and specification, provided that the contractor has during the said period, maintained the work to the entire satisfaction of the Project Manager.

8. No mobilisation or any other advance towards materials, T&P and executed works will be paid to the Contractor. Payments against executed items as given in Schedule 'G' will be paid after due verification, certification and satisfaction of the competent Authority.

9- **Bills To Be Submitted On Prescribed Form:-** The contractor shall submit all bills on the prescribed forms to be obtained on application from the office of the Project Manager, and the charges in the bills shall always be entered at the approved rates given in the schedule of rates here to attached or in the case of an extra work ordered in pursuance of these conditions and not mentioned or provided for in the Tender, at the rates hereinafter to be agreed upon.

10- **Materials And Plant of Contractor :-** All materials brought by the contractor upon the site of the works shall be deemed to be property of the department and shall not on any account be removed from the site of works during the execution of the works and shall at all times be open to the inspection by the Project Manager. The contractor will store and stack materials at the site of work as per the three months requirement. If the contractor wants to arrange extra materials beyond three months requirement, he may do so at his own risk, but no advance whatsoever will be made by the Nigam for purchase of materials. The storage and stacking of materials as site will not in any way hinder the living and movement of people in the adjoining buildings. The Project Manager on the completion of the works or upon the stoppage of the works, shall have an option of taking over and unused materials at prevailing market rates, with the provision that the price allowed to the contractor shall not exceed the amount originally paid by him for the same as he (the Project Manager) shall desire upon giving a notice in writing under his hand within seven days of the completion of the works to that effect, and all materials not so taken over by the Project Manager shall cease to be the property of the department and the contractor shall have no claim for compensation on account of any materials as Aforesaid which are not so taken over by the said Project Manager, unused by him (the contractor) or for any wastage in or damage to any such materials?

11- **Works To Be Executed in Accordance With The Specification:-** The contractor shall execute the whole and every part of the work in a most substantial and workmanlike manner both as regard materials and otherwise in every respect in strict accordance with the specifications and relevant IS codes. The contractor shall also conform exactly fully and faithfully to the drawings and instructions in writing to the work signed by the Project Manager. All materials to be used in work should be ISI mark and tested. (Test certificate to be furnished by contractor.)

12- **Alteration In Specification And Drawing :-** The Nigam shall have powers to make any alterations in or additions to the original specifications, drawing and instructions that may appear to him to be necessary or advisable during the progress of the work, and the contractor shall be



bound to carry out the work in accordance with any instructions which may be given to him in writing signed by the Project Manager and such alteration shall not affect this contract and any additional work which the contractor may be directed to do in the manner above specified as part of the work shall be carried out by the contractor on the same conditions in all respect on which he agreed to do the main works; and at the same rates as are specified in the schedule of rates marked for the main work. And should any alteration necessitate a curtailment of the work described in the specification and explained and shown on the drawings, it shall be lawful for the Project Manager to deduct from the sum a reasonable amount in consideration of this contract a sum equal to the amount that the curtailed portion of the work. The time for the completion of the work shall be extended if applied for by the contractor in writing in the proportion that the additional work bears the original contract work, and the certificate of the Project Manager shall be conclusive as to such extension. And if the additional work includes any class of work for which no rates provided in this contract, then such class of work shall be carried out at rates to be agreed upon between the Nigam and contractor in writing prior to the work being taken in hand. The basis for deriving such rates shall ordinarily be the current Uttarakhand P.W.D. schedule of rates for Dehradun district, Provided Always that if the contractor shall commence work or incur any expenditure in regard there to before the rates shall have been determined, as lastly there in before mentioned, then in such case he shall only be entitled to be paid in respect of the work carried out or expenditure incurred by him prior to the date of the rates as aforesaid according to such rate or rates as shall be fixed by the Nigam. In the event of a dispute, the decision of the Chief General Manager shall be final.

**13- No compensation for alteration in or work, to be carried out:-** If at any time after the commencement of the work, Nigam shall for any reason what so ever not require the whole thereof as specified in this contract to be carried out, the Project Manager shall give notice in writing of the fact to the contractor and upon the receipt of such notice in writing the works under this contract shall cease and contractor shall have no claim to any payment or compensation what so ever on account of any profit or advantage which he might have derived from the execution of the works in full, but which he did not derive in consequence of full amount of the work not having been carried out, neither shall he have any claim for compensation by reason of any alteration having been made in the original specification, drawing and instructions which shall involve curtailment of the work as originally contemplated.

**14- Action and compensation Payable in case of bad work:-** If it shall appear to the Project Manager or his subordinate in charge of the works that any work has been executed with imperfect or unskilled workmanship or with materials of any inferior description or that any materials or articles provided by the contractor for the execution of the works are unsound or of a quality inferior to that contracted for or otherwise not in accordance with the contract, the

contractor shall on demand in writing form the Project Manager specifying the works, materials or articles. Complained of, forthwith rectify, remove, demolish and reconstruct the work so specified, in whole or in part as the case may require or as the case may be remove the materials or articles so specified and provide other proper and suitable materials or articles, at his own proper charge and cost, and in the event of his failing to do so within a period to be specified by the Project Manager in his demand aforesaid then the contractor shall be liable to pay compensation the amount as the CGM/ General Manager (whose decision in writing shall be final may decide) on the amount of the cost of whole work while failure to do so shall continue, and in case of any such failure, the Project Manager may rectify, remove, demolish and construct the works or remove and replace with other, the materials or articles complained of, as the case may be, at the risk and expense in all respects of the contractor, and such expenses may be deducted or such sum as may be due to the contractor or may be deducted from such sum as may be due to the contractor or may become due to him and from his security deposit. A certificate by the Project Manager as to the amount of the expenses incurred shall be final and binding upon the contractor.

**15- Works to be open to inspection :-** All works under or in course of execution so executed in pursuance of the contract, shall at all times be open to the inspection to authorities of the Nigam, and the Government and health department and their representatives and the contractor shall at times during the usual working hours and at all other times, the contractor either himself be present to receive orders and instructions or have a responsible agent duly accredited in writing, present for that purpose. Orders given to the contractor's agent shall be considered to have the same force as if they had been given to the contractor himself.

**16- Notice to be given before work is covered up:-** The contractor shall give not less than five day's notice in writing to the Project Manager or his duly authorized assistant in charge of the work before covering up or otherwise placing beyond the reach of measurement any work in order that the same may be measured and correct dimensions thereof be taken before the same is so covered up or placed beyond the reach of measurement, and shall not cover up or place beyond the reach of measurement any work without the consent in writing of the Project Manager or his duly authorized assistant in charge of the work, and if any work shall be covered up or placed beyond the reach of measurement without such notice having been given or consent obtained the same shall be uncovered at the contractor's expense, or in default thereof no payment or allowance shall be made of such work or the materials with which the same was executed.

**17- Contractor liable for damage done and imperfection :-** If the contractor or his work people shall break, deface, injure or destroy any part of a building, in which they may be working or any building, road, fence, enclosure or grass, land or cultivated ground part of the premises on which the work or any part of it is being executed or if any damage shall happen to the work while in progress from any cause whatever or any imperfection become apparent in it within twelve months after the final certificate of its completion shall have been given by the Project Manager as aforesaid the contractor shall make the same good at his own expense, or in default the Project Manager may cause the same to be made good by the other workmen and deduct the expense ( of which the certificate of the Project Manager shall be final ) from any sums that may be due or at any time thereafter may become, due to the contractor or from his security deposit.

**18- CONTRACTOR TO SUPPLY LABOUR, PLANT, LADDERS, SCAFFOLDING ETC :-**  
The contractor shall supply at his own cost all labour, skilled, unskilled and all necessary scaffolding, struttings, pumps, mixers, vibrators, fuel, oils, packing, winches etc. as well as all other apparatus and temporary works requisite for the proper execution of the works whether original altered or substituted and whether included in the specification or other documents forming part of the contract or referred to in these conditions or not which may be necessary for the purpose of satisfying or complying with the requirements of the Project Manager as to any materials to which under these conditions he is entitled to be satisfied or which he is entitled to enquire together with carriage to and from the work. The contractor shall also supply without charge the requisite number of persons, with the means and things necessary for the purpose of setting out the work, and weighing or assisting in the measurement and examination at any time from time to time of the works done or materials supplied by him. Failing him so doing, the same may be provided by the Project Manager at the expense and risk of the contractor and the expenses (of which the certificate of the Project Manager shall be final) may had deducted form any money due to the contractor under his contract or from his security deposit. The contractor shall also provide at his own expense all necessary fencing and lights required to protect the public from accident and shall assume all liability for indemnity the Nigam against, all actions or suits arising out of or in connection with carrying out of the work, whether such actions are brought by members of the public, neighbouring owners or workmen employed on the works. The contractor shall in carrying out the works conform to the statutory and other legal enactment applicable to them and give all notices and pay all fees payable to local authorities and others in respect of them. The contractor shall be responsible for the adequacy, strength and safety of all scaffolding, strutting, shuttering, matters and things furnished by him for the purpose of this

contract, contractor shall afford all labour welfare schemes as per Central/ State Government laws inforce from time to time on his own cost for which department will not be responsible.

As there are residences and office complex close to the construction site, all arrangement for living of Labour and other skilled or unskilled workers have to be made by the contractor outside the premises of the health department.

**19- Works not to be sublet without sanction:-** This contract or any part there of shall not be assigned or sublet. And if the contractor shall assign or sublet this contract or attempt to do so or become insolvent or commence any insolvency proceedings or make any composition with his creditors or attempt to do so or if any bribe, gratuity, gift, loan, perquisite, reward or advantage, pecuniary or otherwise shall either directly or indirectly be given promised or offered by the contractor or any of his servants or agents to any public officer and person in employment of the Nigam in any way relation to this office or employment, or if any such officer or person shall be come in any way directly or indirectly interested in the contract, the Chief General Manager/ General Manager may there upon by notice rescind the contract, and the security deposit shall there upon stand forfeited and be absolutely at the disposal of the Nigam, and the same consequences shall apply as if the contract had been rescinded under clause 4 there of, and in addition the contractor shall not be entitled to recover or be paid for any work that has already been performed under this contract.

**20- Sum payable by way of compensation:** - All sums payable by way of compensation under any of these conditions shall be considered as reasonable compensation to be applied to without reference to the actual loss or damage sustained; and whether or not any damage shall have been sustained.

**21- Works to be under direction of Project Manager:-** All works to be executed under the contract shall be executed under the direction and subject to the approval in all respects of the Project Manager or his authorized representatives for the time being who shall be entitled to direct at what point or points and in what manner they are to be commenced and from time to time carried on.

**22- Decision of Chief General Manager to be final:-** In case of any dispute, except where otherwise specified in this contract, the decision of the Chief General Manager shall be final, conclusive and binding on all parties to the contract upon all questions relating to the meaning of the specifications, drawing and instructions herein before mentioned and as to the quality of workmanship or materials used on the work, or as to any other question, claim, right matter or thing whatsoever in any way, arising out of, or relating to, the concerning works of the execution or failure to execute the same, whether arising during the progress of the work or after the completion or the sooner determination thereof, of the contract.

**23-Action where no specification:-** In the case of any class of work of which there is no mention in the specification such work shall be carried out in all respect in accordance with the instructions and requirements of the Project Manager.

**24- Contractor to deploy competent technical personnel:-** During the execution of the works and until the work is taken over by the order of the Project.The contractor shall deploy the following full time technical personnel at the aforesaid construction work for proper supervision and execution of the work :-

- (a) Senior site engineer (civil engineer degree holder with  
Minimum 5 years experience in similar type of building  
works) - 01 No.
- (d) Site engineer (civil) Diploma in civil engineering  
having minimum 5 years experience in similar  
type of building works - 01 No.
- (e) Site engineer (Elect.) Diploma in electrical engineering  
having minimum 5 years experience in similar  
type of building works - 01 No.

**25- Security money:-** The Project Manager is empowered to deduct from time to time from such security money all or any sum or sums which may become due from the contractor as liquidated damage for the breach of any or all the covenants or provisions of this contract if not confiscated under provisions of this contract, the security money or such balance thereof as may be left making the deduction or deductions aforementioned, be returned to the contractor after one year after the final certificate of the completion of the works shall have been given by the Project Manager and after the Project Manager shall have satisfied himself that all terms of this contract has been duly and faithfully carried out by the contractor.

Fixed deposit receipts of the State Bank of India and other nationalised banks shall also be accepted as security provided that all such fixed deposit receipts must be issued and pledged in the name of the Nigam and that they will be accepted as security on the condition that Nigam will hold the deposit at the risk of the depositor and will not be liable in the event of the loss of the security due to the failure of the bank or to any other cause, and that if the security is lost, the loss will fall on the depositor who will have to deposit fresh security.

**26- Workman's compensation act—**(a) In every case in which by virtue of the provisions of section 12. sub-section (i) of the workmen's compensation act 1923 and any amendments thereafter till date, the contractor is obliged to pay compensation to a workman employed by him or by any sub-contractor in the execution or the said work. In case, the contractor fails to do so, Nigam will recover from the contractor the amount of the compensation and without prejudice to

the rights of Nigam under section 12 sub-section (2). of the said Act. Nigam shall be at liberty to recover such amount or any part; thereof by deducting it either from the security deposit by the contractor or any amount due to his credit under clause 27 of these conditions or from any other sum due by Nigam to the contractor whether under this contract otherwise.

(b) Nigam shall not be bound to contest any claim made against it under section 12 sub-section (i) of the said Act except on the written request of the contractor and upon his giving to Nigam full security for all costs for which Nigam might become liable in consequence of contesting the claim.

**27-** All disputes will be subject to Dehradun District Courts/ Uttarakhand Hige Court at Nainital.

Signed by contractor

Signed on behalf of the Uttarakhand Peyjal Nigam

Designation of the officer

NOTE:- THE TENDERERS HAVE TO GIVE FOLLOWING UNDER TAKING ON Rs. 100.00 NON-JUDICIAL STAMP PAPER FAILING WHICH THEIR TENDER MAY BE LIABLE FOR REJECTION. ₹ ONE REVENUE TICKET IS ALSO TO BE AFFIXED BY THE CONTRACTOR ON ABOVE STAMP PAPER.

Tender invited by General Manager, Uttarakhand Peyjal Nigam, Construction Wing, Dehradun.

Name of Work:- **Construction of Residential / Non residential buildings of vetenary Hospital, Mossorie. works”:-**

Tender Notice No. and Date. **dated**

- 1- I/we here by tender for the work specified in the written memorandum. The schedule of time specified in such memorandum at the rates given in the schedule of rate here to attached and in accordance with all the specifications and conditions which have been prepared by the General Manager, Construction Wing, Uttarakhand Peyjal Nigam, Dehradun and have been inspected at the site and understood by me/us every thing concerning with this tender and also under take to make compliance of such written instruction as may be given to me/us from time to time for carrying out the said works.
- 2- That I/we do here by solemnly state that I/we do not intend to leave the work during the period of contract/ construction period. I/we will produce tax clearance certificate from the Income/ sales Tax Deptt. at the time of final payment or taking refund of the security deposit, if demanded.
- 3- In consideration of the Uttarakhand Peyjal Nigam having the tenderer treated to be an eligible person, whose tender may be considered, the tenderer here by agree to the condition that the proposal in renponse to the above invitation shall not be withdrawn within three months from the date of opening of the tender and also to the condition that if within the above period, the tenderer does withdraw his proposal, the earnest money deposited by him may be forfeited to the Uttarakhand Peyjal Nigam in the discretion of the later.

**WITNESS:-**

(With full name & address)

**Signed**

**this..... day of**

**Month**

**.....Year.....**

**Date.**

**Signed by**

**Address:-**

**(Tenderer)**

**Witness**

**(SEAL)**

## **FORM OF THE EARNEST MONEY**

The earnest money and security shall be accepted only in the shape of FDR duly pledged to the Project Manager, Construction Unit, Uttarakhand Peyjal Nigam, Chakrata.

Tenders without earnest money will not be entertained & its rates will not be declared.

## **STAMP DUTY**

Stamp duty as applicable shall be paid by the contractor, within seven days from the date of acceptance of tender failing which earnest money will be forfeited. In case any decrease or increase is made by the Govt. in the stamp duty during the currency of the contract that shall be binding upon the contractor. Similar shall be the case regarding income tax and Trade Tax (now VAT) & cess.

**Project Manager  
Construction Unit,  
Uttarakhand Peyjal Nigam. Chakrata.**



**CHAIRMAN UTTARAKHAND PEY JAL NIGAM**

.....  
**ITEM RATE CONTRACT**

.....  
**FORM OF AGREEMENT**

THIS INDENTURE made the .....day of  
.....20..... between .....of .....

In the case of a company  
its Successors and  
assigns.

(here in after called the Contractor which expression where the  
cocontract so admits of implies includes \* his/their/its heirs,  
executers administrative and assigns) of the one part AND  
Governor of Uttarakhand (here in after called the CHAIRMAN  
UTTARAKHAND PEYJAL NIGAM which expression where the  
contact so admits of implies included his successors in office  
and assigns) of the other part.

Scope of Contract and  
power of General  
Manager

WHEREAS the CHAIRMAN  
UTTARAKHAND PEYJAL NIGAM requires the execution of  
certain work for .....  
in after called the works) at (here in after called the works) at  
and has attached drawing (SL. No. 1 to 5 included)  
General/detail specification describing the work to be prepared  
by the Public Works Department. Buildings and Roads branch  
of the Government of Uttarakhand and the same have been  
signed by or on behalf of the parties here to.  
AND WHEREAS the Contractor has agreed to execute upon  
and subject to the conditions here to attached (hereinafter  
called the "said conditions") The works shown upon said  
drawing and described in general and detailed specification for  
the sum of .....here in after called contract sum")

NOW it is here by AGREED a follows:  
(1) In consideration of i.e. contract sum to be pay by the The  
CHAIRMAN UTTARAKHAND PEYJAI. NIGAM at the time and  
in the manner set forth in the said condition the Contractor will  
upon and subject to the said conditions execute and complete  
the contract works.  
(2) The CHAIRMAN UTTARAKHAND PEYJAI. NIGAM will pay  
the contractor the contract sum or such other sum as shall  
become payable at the time and in the manner set forth in the  
said conditions.

(3) The said condition shall be constituted as forming part of the contract and the parties hereto respectively shall abide by the observed performed and comply with the terms, stipulations and agreements there it contained and on their part to be observed, performed and complied with respectively.

As witness out hands this .....day  
of.....20 ..... signed by the said.  
In the presence of.....  
Signed on behalf of the Chairman of the Uttarakhand Pey Jal  
Nigam by ..... In the presence of.....  
.....

Definition  
interpretation

and

**CONDITIONS OF CONTRACT**In these conditions the following expressions have the following meanings unless the contest otherwise requires, viz. "General Manager" means the General Managerconstruction wing Uttarakhand Peyjal Nigam, Dehradun"CONSTRUCTOR" means the person, partners of company constructing with the employer (as here in after defined by the indenture of which these conditions from part and the pronouns, he and "his" where used it refrence to the contractor shall respectively and in substituions for the ordinary meaning, have the meaning of 'they' and 'theirs' when the constructor in a partnership or the meaning of 'it' and 'its' when the constructor is a company)

"EMPLOYER mans CHAIRMAN UTTARAKHAND PEYJAL NIGAM and his successors in office or assings. (NOTICE IN WRITING" or written notice means a notice in written type on printed characters sent (unless delivered personnally of otherwise proved to have been received) by registered post to the last known private or business address or registered office of the address. Any notice so posted shall be deemed to have been received at the time when in the ordinary course of post it would have been delivered. "SITE" means the site of the Contract works including all buildings and erections thereon and land inclusively as aforesaid) allotted by the employer or General Manager for the contractor's use.  
"TAE' APPENDIX" means the appendix to his document.  
"THIS CONTRACT" means the indenture to which these conditions are attached and the general and detailed specification.

"SCHEDULE OF RATES" means the schedule which the contractor submitted with his tender and which is attached to this document.

Copy of Contract and power of executive Engineer

Copy of Contract and power of General Manager

2- For the contract sum the Contractor shall provide everything necessary for the proper execution of the works (except the supply of such materials as are specified in Schedule "A here to annexed) and shall carry out and complete the Contract work in accordance with this Contract such carrying out and completion to be in every respect to the reasonable satisfaction of the "General Manager" who may, to this end, from time to time in his absolute discretion issue further drawings and/or written detailed instruction, directions and explanations which said written orders are here in after collectively referred to as "General Manager" instructions in regard to.

(a) The variation or modification of the design, quality and quantity of the. Contract works or the addition or common or substitution of any work.

(b) Any discrepancy in the drawing or between the drawings and specifications.

(c) The Removal from the site of any materials brought thereon by the Contractor and the substitutions of other materials therefore.

(d) The removal and re-executions of any works executed by the contractor.

(e) The dismissal from the contract works for good and sufficient reason of any person employed their on.

(f) The opening up for inspection of any work Covered up.

(g) The amending and making good of defect under clause 15.

The Contractors shall forth with comply with and duly execute any work comprised in such drawing and/or "General Manager" instructions. Provided that verbal instructions, directions and explanation given to the contractor or his assistant by the "General Manager" or his assistant. If the contractor acknowledges the same to the "General Manager" writing within days of being given shall (subject to any written dissent or connection given within seven days thereafter to the contractor by the 'General Manager") be deemed to be "General Manager" instructions as here in before defined. Figured dimensions are to be preferred to the scale.

Failure by Contractor or comply with General Manager instructions

3- If the contractor after receipt of a written notice from the "General Manager" requiring compliance with in ten days fails to comply with such said, further drawing and/or General Manager" instruction, the "General Manager" may employ and pay other persons to execute all such work whatever as may be necessary to give effect there, to and all cost incurred there by or in connection there with shall be recoverable from the contractor by the "General Manager" as debit or may be deducted by him from any monies due or to become due to the Contractor.



Price for extra  
ascertainment of

7- No variation shall vitiate this contract and all authorized extra work or omissions and all variations made without the "General Manager" knowledge, if subsequently sanctioned by him in writing, shall be measured by the "General Manager" or his assistant Who shall give the contractor the opportunity being present at the time and of taking notes of the same the contractor shall be entitled to a copy of the measured bill on or before the 'General Manager" certificate in respect of such extras and omission and the valuation these or unless previously agreed shall be made by the "General Manager" in accordance with the following rules.(a) The prices in schedule of rates shall determine the valuation of the extra work where of similar character under similar conditions as work prize therein.

(b) The said prices where the extra works are not similar character and/or not executed under similar condition as afore said shall be the base of the prices for the same so far as may be reasonable, faulting which a fair valuation of the same shall be made based upon prices for similar work in the locality, current at the time the extra works are executed and such rates shall be subject to the approval of the General Manager concerned.

(c) Where extra work cannot be properly measured or valued the contractor shall be allowed day work prices therefore as stated in the schedule of Rates or if not so stated the in accordance with the local day work rates in the locality, current at the time the extra works the executed, provided that in every case the vouchers specifying the time daily and (if required by the every case the "General Manager" the names of the workman employed and the materials used shall be delivered for verification to the "General Manager" or his nominee at or about the end of the week) following that in which the work has been executed and such rates shall be subject to the approval of the General Manager consumed.

(d) The price in the original schedule of rates shall determine the value items omitted, provided that if omissions after the conditions under which any remaining items of work are carried out the prices for the such remaining items shall be valued under (b) here of and such rates shall be subject to the approval of the General Manager concerned.

(e) The value of all extras shall be added to and the value of all omissions deducted from the contractor price, if, after taking into account the additional payments on account so extra works and the deductions on account of omissions the sum payable to the contractor is less then 90 percent of the contract price than an additional sum shall be payable to the contractor. This additional sum be 5 percent of the difference between 90 percent of the original contract price and the sum payable as determined above.

Example	Rs.	Rs.	Contract Price
- 1000 Curtailment permitted	Without	Extra payment	10% of
1000	100	Valuation of extras	Nil
Curtailment	200		Net
200		Difference between actual curtailment and that allowed without extra payment	100
		Additional sum payable under this clause-5 percent of Rs. 100	
due to constructor	Rs. 800+5		Total payment 805

Closing of the work by Employers order

(f) The said measurements and valuation in respect of the whole work shall be completed within the period of final measurement stated in the appendix or if not so stated then within three months of the completion of the contractor works Any day work measurement and valuation shall be made whenever necessary to enable the "General Manager" to issue certificate under clause 21.

8- The employer may issue orders to the contractor through the "General Manager" entirely closing down the work on any given date and when the employer exercises this right the work actually executed to date of closing down including all extras, omission and variation shall be measured detail by General Manager" or his deputed assistant. All works executed shall be priced at the rates in the priced schedule submitted by the contractor with his tender and upon which is tender based but where extra works omission and variation are not of a similar character prices and rates shall have no claim to any payment compensations whatsoever on account of any profit or advantage which he might have derived from the execution of the work in fully but which he did not derive in consequence of the full amount of the work Not having been compensation by reason of his heaving purchased or procured material with a view to the execution

of the work or the performance of the contract but the "General Manager" shall have the option to take over the materials at site, if of approved quality and not in excess of the requirements of the work and to pay for them at actual cost price (of the amount of which cost a Certificate by the Engineer-in-charge

shall be binding on the contractor) in the event of this option not being exercised, certificate by the Engineer-in-charge shall be binding on the contractor in the event of this option not being exercised, the contractor may submit to the "General Manager" within one month of the date of receipt of the order closing down the work as a detailed statement of the loss that he estimates he will sustain by removing, Selling or other wise disposing of the material. This estimate will be forwarded to the government who will decide what sum, if any should as a matter of grace be paid to the contractor to compensate him for the loss suffered by him and the decision of the Government shall be final and binding the contract.

Copies of Estimate and Drawings Material and Workmanship to conform to Description

9- After execution of the contract document shall remain in the custody of the "General Manager" and shall be produced by him as and when required by the contractor, but only at his office and in accordance with such rules for the protection of original documents, as may have been issued from time to time. The "General Manager" shall on the signing of the contract documents furnish the contractor with a complete set thereof certified as a true copy of the original. Additional copies of the contract documents or parts thereof shall be supplied on demand at prices stated in the appendix. 10- All materials and workmanship unless otherwise ordered drawings and general and detailed specifications and contractor shall on the "General Manager" request furnish reasonable proof thereof provided that this provision concerning proof shall not impose on the contractor any obligation which is impossible or impracticable. The contractor shall at his own expense (in addition to or substitution for such proof arrange for and/or carry out a test of any materials which "General Manager" in writing may require.

Access for "General Manager to Works.

11- The "General Manager" and his assistant shall at the reasonable times have access to the works and/or to the workshop store of the contractor meant for this work at site and to all other places under the contractors where work is being prepared for the works.

General Manager Assistant.

12- The "General Manager" assistant shall be considered to act solely as inspector and under the "General Manager" and the contractor shall afford him every facility for examining works & materials.

Setting out works

13- The Contractor shall keep constantly on the work a competent general assistant and any directions or explanation to him any "General Manager" or his assistant shall be deemed to be given to the contractor.

14- The "General Manager" or his assistant shall fix all main buildings lines and boundaries and the employer shall indemnify the contractor against any damage, expenses, suits, claims and demands resulting therefrom.

The contractor shall then set out the works and the "General Manager" or his assistant shall within 15 days after

being notified by the contractor to check the main lines of the same.

If the "General Manager" or his assistant approves of the main lines as laid out, the contractor on receipt of a written order shall be relieved of all further responsibility there fore, but if disapproval is expressed either verbally or in writing the contractor shall await the final decision of the "General Manager" and amend in Accordance with the Engineer's instruction, any inaccuracy which may in the opinion of the "General Manager" require amendment.

Defects after completion  
Defects liability period

15 - Any defects, shrinkage or other faults appearing within the "defects liability period" stated in the appendix (or, if none stated then within one year after the completion of the works) due to materials or workman ship not in accordance with this contract or any damage whatsoever within the said period shall, within a reasonable time after the "General Manager" written direction, be made good by the contractor and (unless the "General Manager" other wise decides) at his own cost and, if the contractor fails to remedy any such defect when asked to do so in writing, by the "General Manager" may do so and deduct the cost from any moneys which may be due or become due to the contractor under this contract or his contract with the employer

Assignment or sub-letting

16- The contractor shall not assign or sub-let the contract or any part of it

Date of commencement  
and completion

17- The contractor shall start the works on the date ordered by the "General Manager" in writing and entered in the appendix and the contractor shall there upon begin the work forth with and regularly proceed with and complete the same, except such painting, papering or other decorative work as the "General Manager" may desire to delay on or before the "date of completion" stated in the appendix subject never the less to the provisions for extension of time here in after contained.

Delay and extension of  
time

18- If the work or any portion thereof (including making good of defects under clause 15) are delayed by any cause or circumstances outside the control of the contractor or if such delay directly or indirectly, is caused by or arises out of any trade disputes, the contractor shall upon his written request to the "General Manager" made soon as practicable after the extent and nature of the delay becomes apparent be entitled to a reasonable extension of time for completion or making good such defects.

Provided that if any such delay as afore said is due to the act. Negligence or default of the "General Manager" or to action or there attended action against the employer and/or contractor in respect of the use of the site or of statutory or other restrictions upon the execution of the works, then without prejudice to any other rights the contractor shall be entitled to be paid any loss or damage caused by such delay.



And provided further that the contractor not with standing anything herein contained shall to the reasonable satisfaction of the "General Manager" use his best endeavors to prevent delay and to proceed with the work.

Damage for Non  
Completion

19- Any dispute or difference between the "General Manager" and the contractor as to the rights or liabilities of the parties here to or as to any matter, or thing whatsoever, arising under this contract or concerning its construction whether such dispute or difference arise during the continuance of this contract or after its determination by completion or breach or other wise howsoever, shall in the first instance be referred to the General Manager who shall give his written decisions there on such written decision shall be final and binding on the parties unless the contractor within 14 days of the receipt there of gives the "General Manager" notice in writing to such decision, in which case and in any case in which the General Manager fails to give a written decision within 21 days after receipt of notice in writing given to him by the contractor requiring his decision such dispute or deference shall be refferd to an arbitrator agreed upon by both parties or failing such agreement to an arbitrator agreed upon by both parties or failing such agreement to an arbitrator appointed by the Chief General Manager Nirman Wing Uttarakhand Pey Jal Nigam, Dehradun and in either case the decision of the arbitrator (Including his decision as to costs) shall be final and binding on both the parties and the cost of the arbitration shall be borne by the parties in such manner as the arbitration may decide.

If any such dispute arises in consequence of an act of God, War or Civil commotion and is referred to arbitration under the provisions of this clause the arbitrator shall decide whether this contract shall continue or shall he determined and shall in either case determine the terms and conditions attendant on such continuation or determination.

Damage for Non  
Completion(To be truck of  
in all cases when the time  
allowed does not exceed  
one month.)

20- The time allowed for carrying out the work as entered in the appendix or as extended in clause 18 shall be strictly observed by the contractor (time being deemed to be of the essence of the contract on the part of the contractor) (And further to ensure good progress during the executions of the work the contractor shall be bound to complete one fourth of the value of the whole of the work within \_\_\_\_\_ from such dated the value of work within \_\_\_\_\_ from such date and three-fourths the value of half work within \_\_\_\_\_ from such dated in the event of the contractor failing to comply with this condition, he shall pay or allow to the employer the "liquid dated and ascertained damage" as stated in the appendix for the period during which the said works shall remain uncompleted and the employer may deduct such damages from any monies due of which may become due to the contractor.

## Cartificates and Payment

21 (a) – At the periods of intermediate payments named in the appendix the contractor provided he furnishes on request reasonable proof to the 'General Manager" that he is not unreasonably with holding any money due to a nominated sub—contractor shall be entitled to an account payment in bill form no 27A from the "General Manager" of the amount due to him, and on completion of the work to a final payment (in bill form no. 27B)

(b) The amount SO due as afore said shall be the total value of the work duly executed less the amount to be retained by the employer as here in after provided and less any installment previously paid under this clause Materials brought to the site will not be reckoned as work executed for the purpose, of this clause until such materials have been incorporated in the work.

(c) the amount to be retained here in after called the Retention fund shall be such a percentage of the value of the work executed as equal to 5 percent minus such a proportion as the amount of the earnest money deposited with the tender bears to the contract sum e.g. the earnest money deposited with tender is 2 percent of the contract sum then the amount to be retained and deducted from all interim payment will be 3 percent to the value of the work executed.

(d) The Retention Fund and the earnest money deposited with the Tender shall be placed on deposit at interest in the name of the Employer in the Bank named in the appendix or other wise dealt with as may be agreed and the same (with all interest) hold upon trust by the employer as security for the due completion of the contract works.

(e) Subject to any claim by the employer for damages for accrued breaches of this contract the Retention fund earns money (with all interests) forfeited on expiry of the Defects Liability Period or if any defects are detected within such period upon the same being completed remedied as Provided in Clause 15, should no defects be noticeable the Retention Fund and earnest money (without interests) may at the discretion of the General Manager he refunded before the expiry of the defects liability period.

(f) Stamp duty shall be charge extra and all other taxes deduction (sale tax, income tax excise and other taxes) shall be done as per government norms from bills of the constructors

## Notice to local and other Authorities and fees

22(a) The Contractor shall comply with and give any notice required by any act of the Indian Parliament or of the Assembly of the Uttarakhand below of any local authority and/or of any water, lighting or other company or authority relating to the contract works or with whose systems the same are or will be connected and shall pay any fees payable by law there under in respect of the Contract works. Provided that such fees if not included expressly or by implication in the contract sum or provided for by way or provisional sum shall be added to the contract sum and he payable accordingly.

Prime cost and provisional sums	<p>(b) The Contractor before making any variation from the drawings or specification necessitated by such compliance, shall give to the "General Manager" a written notice specifying the same and the reason there of and applying there in for instructions there to.</p> <p>(c) if no variation is necessitated or if the contractor receives no instructions in due course he shall proceed with the work complying as afore said and any variation necessitated as afore said shall be deemed an authorized variation and be dealt with as such in all respects.</p>
Artist and special Trades men-employment of	<p>23- All times marked "Prime cost" in respect of items to be supplied or "provisional sum" in respect of work to be done shall be items reserved for supply or execution either by the contractor or other wise as decided by the "General Manager". If the "General Manager" decides that any or all of such items shall be supplied or executed by the contractor then the difference between the actual price paid by the contractor ignoring any cash discount not exceeding 5 percent and the sum entered in the bill of quantities, shall be regarded as an extra or an omission as the case may be and shall be added to or deducted from the contract sum in accordance with clause 7(e). If the "General Manager" decides that any or all the items marked "prime cost" or "provisional sum be supplied or executed other wise then by the contractor the amounts entered against such items in the bill of quantities shall be regarded as omissions and shall be deducted from the contractor SUM in accordance with clause 7(e).</p> <p>24- The contractor shall permit the execution of any work not being the contract works by artists or special tradesmen engaged by the "General Manager" provided that the execution of the same shall not impede the progress of the works.</p>
Determination of contract by "General Manager" in case of default or insolvency of contractor	<p>25- In any of the following cases, namely:</p> <p>(a) If the contractor or where partnership is the contractor any member of the partnership is adjudged insolvent or if a receiving order is made against him under any. Bankruptcy or insolvent Act, or if he compounds with or makes any assignment for the benefit of his creditors or executes any deed of arrangement under any Act, or.</p> <p>(b) If the contractor is a company and any resolution for the winding up of the company is passed and/or order for its winding up is made or if any arrangement is made between it and its credit or</p>
Prime cost and Provisional sums	<p>(c) If the contractor suspend, or delays the performance of his part of the contract except on account of the causes mentioned in clause 18 or in consequence of not having received proper instructions for which application has been made to the "General Manager", or.</p> <p>(d) if the contractors becomes liable to pay liquidated damages under clause 20 which in the opinion of the "General Manager" are excessive.</p>

Provision in case of determination of contract by employer

Than in any Case or cases the "General Manager" may give to the contractor or to his trustee, receiver or liquidator (as the case may be) notice requiring him to proceed with the works and in case of default by the contractor or his assignee trustee, receiver or liquidator or a period of seven days its shall be lawful for the "General Manager" to take over the complication of the works and the right contractor and of his assignee, trustee receiver or liquidator or carry on or to complete the works shall there upon determine.

26- If this contract be determined under the preceding clause the following provision shall apply:(a) The "General Manager" may employ and pay a contractor or Contractors or other persons to carry out and complete the works and "General Manager" and fresh, contractor and other persons may enter up the site and use all materials, temporary building, plant and appliances there on and may purchase all materials necessary for the purpose afore said.(b) The contractor shall during the execution or after completion of the works under this clause as and when required remove from the site his temporary buildings, plant appliances and any materials within such reasonable time as the "General Manager" may specify in a written notice to him and in default the "General Manager" may (without being responsible for any loss all costs incurred for the credit of the contractor.

(c) Until after completion of the works under this clause no payment shall be made to contractor provided that upon complication as afore said the "General Manager" shall certify the amount of expenses property incurred by the employer and in such amount added to the monies paid to the contractor before such determination exceeds the total amount which would have been payable on due completion, the difference shall be paid by the contractor to the employer.

(d) if it shall appear to the "General Manager" any work already executed by the contractor was executed with unsound, imperfect or unskillful workmanship or that the material used therein was of any inferior description or that any materials or articles provided by him for the execution of the work are of unskillful workmanship or that the material used there in was of any inferior description or that any materials or articles provided by him for the execution of the work are of unsound quantity or of a quality inferior to that contracted for or are otherwise not in accordance with the contract, the Contractor shall on demand in writing from the "General Manager" specifying the work materials or articles complained of not with standing that the same may have been inadvertently passed, certified and paid for, forth with rectify or remove and reconstruct the

work so specified or remove the materials or articles so specifying and provide other proper and suitable materials or articles at his own cost and in the event of his failing to do so within a period to be specified by the "General Manager" his demand aforesaid the contractor shall be liable to pay compensation at the rate of one percent on the amount of the estimate of unsound work done or inferior materials used for every day not exceeding of unsound work done or inferior materials used for everyday not exceeding ten days while his failure to do so shall continue and the "General Manager" may thereafter rectify or remove and re-execute the work remove and replace the materials or articles accompanied of with proper and/or deduction from the contractor price such amount which would be sufficient to rectify or remove and reconstruct the work as aforesaid.

Right about concerning materials on the site of the works

27- All work and materials obtained by dismantling of any existing structure or brought and left upon the site of the works by the contractor or by his order for the purpose of forming part of the works shall be treated as the property of the employer and the contractor shall not remove the same from the site or permit removal thereof without the special license and consent in writing of the "General Manager" but the employer shall not be in any way answerable for any loss of damage to any such work or materials either by the same being lost or injured by weather or otherwise.

Claims under workmen's compensation Act.

28- In every case in which by virtue of the provisions of section 12 sub-section (1) of the work man's compensations Act, 1923 the employer is obliged to pay compensation to a workman employed by the contractor in execution of the works, the employer will recover from the contractor the amount of the compensation so paid, and without prejudice to the rights of the sub-section (1) of the workmen's compensation Act 1923, the employer is obliged to pay compensation to a workman employed by the contractor in execution of the works the employer will recover from the contractor the amount of the compensation so paid and without prejudice to the rights of the employer under section 12 subsection (2) of the said. Act The employer shall be at liberty to recover such amount or any part thereof by deduction of it from the Retention fund or earned money or from any sum due by the employer to the contractor whether under this contract or otherwise.

The employer shall not be bound to contest any claim made against him under section 12 sub-section 1 of the said Act except on the written request of the contractor and upon his giving to the employer full security, for all cost for which the employer might become liable in consequence of contesting such claim.

29(a) No brick for use on the work shall be manufactured within the limits of a municipality cantonment/or notified area or within half a mile of the site of work. Any bricks so manufactured shall be rejected by the Engineer on charge.

(b) No earth for filling or for any other purpose shall be excavated within half mile of the site of work except with the written permission of the Engineer in charge and then only on condition that the area, in which such excavation is made, shall be leveled and dressed by the contractor at his own expense in accordance with the instructions of the Engineer in charge and in such a manner as to prevent the formation of pools of stagnant water.

If the contractor fail to comply with this condition the engineer-in-charge will deduct the expenses (of which the certificate of the Engineer in charge shall be final) from any sum which may be due or may at any there after become due to the contractor or from his security deposite or from the sale there of.

(c) The contractor shall not for the execution of the Work employ any laborer under 12 years of age and within the limits of any cantonment an female laborer for every breach of this covenant the contractor shall be as the Engineer in charge may fix penalty and the Engineer in charge may rover such sum by deduction from any sum which may be due or may at any time there after become due to the contractor or from his security deposit as or from the proceeds of sale there of.

(d) The contractor shall pay this labourer such wages as shall not be less then those labor commissioner of the state.

(e) The contractor shall abide all prevailing labour laws according to the labour Act.

29- The contractor shall arrange at his own expences all tools, plants, machinery and equipment required for executation of work at his own expences.

30- Security deposite of the works shall be refunded to contractor by producing cleareances cartificate from the labour office.

31- Shades of interior and exterior finishing of distemper and water proof cement paint (snowcem) will be finalised by the General Manager and only after that such items will be carried out.

32- If the contractor dies the General Manager on behalf of the Chairman shall have the option of terminating contract without any compensation.

33- All the Malba (MALBA)/Debris obtained from scapping etc. will be removed by the contractor at its own cost.

34- The contractor will arrange all material required for construction during rainy season in advance for time period given, is including rainy season and no escalation will be paid if works not completed in given time.

# **GENERAL SPECIFICATION**

## **ORIENTATION OF BUILDING**

1. The building should be oriented in such a way that it derives maximum benefit from the elements of the nature such as the sun, wind and the rain. This will depend on the following.:
  1. Path of the sun throughout the year with respect to the site.
  2. Direction of the wind during summers and winters.
  3. Direction and intensity of the rainfall.
2. In North India the long arm of the building should preferably, be along East- West i.e, the building should be facing North.

## **SITE/PROJECT LAYOUT AND BUILDING LAYOUT**

1. Clean the site, carryout surface dressing and leveling with minor cutting and filling.
2. Marking of the boundaries of plot with theodolite.
3. Finalization of levels with respect to a fixed benchmark.
4. Carryout preliminary layout of the building, roads and ancillary structures to check their feasibility on ground as per the Site Layout Plan.
5. Mark the corners of the building with respect to the boundary line/ corners of the plot.
6. Construct pillars at approx. 02m away from corners of each building keeping height of 45 cm above GL. Top of pillars should be plastered with Centre Line marked on it. RL of the pillars to be taken with respect to the fixed benchmark.
7. Pillars should be constructed in such a way that all rooms/set backs etc., can be identified when a thread is tied across the centre of the pillars to enable the supervisory staff to check the dimensions before commencing excavations for foundations.

## **EXCAVATION**

1. Before excavation benchmark for GL, FFL/DPC etc should be taken out on some permanent structures for reference during construction.
2. Ensure removal of all loose earth, roots of plants / trees etc.

3. Check the center line dimensions of the walls, trench and foundation with the drawing.
4. Erect masonry pillars at suitable points in the area to serve as benchmarks.
5. Check Reduced Level of bottom of pit/foundation.
6. Check the dimensions at bottom of foundation pit before proceeding to the next activity leaving enough space for working (at least 60 cm).
7. Adequate shoring, shuttering should be provided to retain the earth and ensure that the trench does not cave in.
8. The excavated earth away from the edge of excavation.
9. Proper barricading must be provided for safety wherever required.
10. In deeper foundations proper slope should be given to the sides of the trenches depending upon the soil characteristics.
11. Water logging near the pits should be avoided.
12. In case of excess digging extra depth dug should be filled with PCC and not with earth.

#### **PRE CONSTRUCTION ANTI-TERMITE CHEMICAL TREATMENT**

1. All termite mounds within the building area should be destroyed by pouring chemicals into the mounds after breaking them.
2. Anti-termite treatment should not be planned on a rainy day.
3. Treatment should start when foundation trenches and pits are ready to take concrete.
4. The treatment should also be carried out under sub-base over compacted earth in accordance with IS Codes for different types of foundations.
5. Once treated, soil barriers shall not be disturbed.
6. The rate of application and its location should be planned as specified in the Code.
7. The chemical used for treatment should be of approved quality. Necessary safety precautions shall be taken in handling and use of the chemical, being poisonous.

#### **BACK FILLING, FILLING IN PLINTH/TRENCHES**

1. The earth used for filling shall be of approved quality, free from salt organic or other deleterious matter.
2. Backfilling in trenches/filling in Plinth should be done in layers of 15cm to 25cm.



3. Each layer should be properly spread, watered and rammed. Ramming /Compaction should be done by suitable equipment (as specified) depending upon the size of plinth/trench and location of filling. Recommended equipment for certain filling works are given as under:-
  1. Filling Sides of Treches: Iron rammer/Butt end of crow bar.
  2. Filling Plinth/Floor/Hard standing: Rammer of 7 Kg to 10 Kg.
  3. Filling in Large Areas: Mechanical Rammers.
4. Filling should be compacted to 90 to 95% proctor density at optimum moisture content or as specified.
5. Portions adjoining walls, columns and plinth beam sides should be rammed properly in layers of 15 cm thickness.
6. The top layer should be compacted and finished to required level and slope.
7. Care should be taken to ensure that back filled soil does not fall no brick mansonry. However, in case it falls the earth should be removed and surface washed thoroughly if required.

### **PLAIN CEMENT CONCRETE (PCC) IN FOUNDATION**

1. All loose earth should be removed from the foundation pits before placing of PCC. The base should be cleaned of all loose and deleterious materials which can be harmful to the concrete.
2. Level of the bottom of the trechces should be checked and extra excavation, if done, should be made up with PCC.
3. Dimensions of the trenches should be checked before starting PCC work and necessary shuttering done, if required.
4. Proper “thiyas” (Level Marks) for levels to be taken before start of work
5. Anti termite treatment should be carried out if included in scope of work.
6. Ensure that measurement boxes are ready before starting this activity.
7. The bottom of the foundation pit should be watered and well rammed before placing concrete.
8. Ensure availability of all T&P before starting PCC work.
9. Compaction of P.C.C. should be properly done to get smooth even leveling course.

### **REINFORCED CEMENT CONCRETE (RCC) WORK**

#### **Materials**

1. Set cement should not be used. Only fresh cement of approved quality is to be used in RCC work.
2. Cement is to be tested for its setting time and strength.
3. Aggregates to be used are required to be of the specified grading which is to be checked after carrying out the sieve analysis.
4. Fine and coarse aggregate is to be checked for silt, clay contents and any deleterious materials. Adequate quantity of aggregate should be available for the work planned.

5. Necessary correction for bulking of sand is to be done on day to day basis.
6. Water is to be tested for its suitability for use in RCC work.
7. Concrete Mix Design should have been done prior to concreting work. This is required to be done with materials from the lots which are expected to be used in the concrete.

### **Batching**

1. Volumetric batching may be resorted to only in case of M10 and M15 concrete.
2. The quantity of constituents to be used in the concrete should be arrived at after proper mix design.
3. Weigh Batching of cement, sand and coarse aggregate must be done and exact measured quantity of water is required to be added to the batch as per w/c ratio.
4. Allowance for bulking of aggregate is to be made.
5. Routine checks of the weigh batching machine should be carried out for its accuracy.
6. Weigh batching plant/ machine should be properly levelled.

### **Mixing**

1. The mixer should be properly levelled before use and it should be ensured that the same is well cleaned after the day's work is over.
2. The components of the mixer are required to be checked for their functionality. The speed and the conditions of the blades, drum, chute, hopper etc should be checked.
3. Minimum mixing time required is 1/2 to 2 minutes for the drum. (All as per manufacturer's Instructions)

### **Transporting**

1. The mixer should be positioned as close to the concreting site as possible to reduce transportation.
2. Concrete should be placed in position well before its initial setting time.
3. Segregation of concrete is to be avoided during transportation.

### **Placing**

1. Joints in shuttering should be properly sealed.
2. Shuttering and scaffolding to be checked before commencing the work.
3. Reinforcement is to be checked as per the drawing and all precautions should be taken to ensure that it does not get displaced when concrete is placed in position or when the labourers move on it. Proper chairs/walkways are to be provided.
4. Sequence of concreting must be finalized before commencement of work.
5. Concrete is to be placed in its final position before setting starts.
6. Segregation of concrete should be avoided. The height of the drop should be kept as low as possible to avoid segregation.
7. Take care while placing to avoid displacement of reinforcement, inserts, pockets, etc.

8. Concrete is to be laid in successive layers and along length and width of the structural member in such a way that it forms a uniform mass.

### **Compaction**

1. Use suitable type of immersion or surface of vibrators depending on the type of structural member.
2. Over-vibration and bleeding is to be avoided.
3. Insert immersion vibrator should be kept slightly away from the face of the shuttering to avoid displacement of the shuttering. It should be taken vertically to full depth and should be withdrawn vertically and slowly. The needle should not touch the reinforcement and the vibrator should not be dragged.
4. Keep enough spare vibrators and needles.
5. Surface vibrators should be used for flat members like slabs.

### **Finishing**

1. Finishing is carried out with suitable tools after a little stiffening of concrete has taken place.
2. While resuming concreting on old surface, chipping of old surface must be done to 10 to 15 mm depth. The surface should be thoroughly cleaned using air or water jets and neat cement slurry should be applied before placing fresh concrete. Bonding agents may also be used to ensure proper bond between old and new concrete.

### **Curing**

1. All RCC work shall be cured adequately by the method as specified.
2. The curing period in ambient temperatures above 20° C should be for minimum 07 days or the time necessary to attain 70 percent of the specified compressive strength.
3. The use of curing compounds is useful on vertical surfaces or in the event of water shortage.

### **Cover**

1. Keep various thickness cover blocks ready as per the requirement of the structural drawings well in advance and ensure that they are placed properly before concreting.

### **CENTERING/SHUTTERING**

1. Shuttering plan should be properly worked out and in special cases it may have to be designed to ensure that the shuttering and scaffolding is able to take the load of the green concrete.
2. Formwork should be rigid and there should not be any gaps between the various pieces to avoid loss of cement slurry.
3. Ensure that centering plates, planks or plywood are properly cleaned. There should not be any dirt/wood pieces or other unwanted material which can impair the strength of concrete.

4. Suitable form release agent is to be applied after cleaning of formwork and before placing reinforcement.
5. Ensure proper check for line, level and plumb before starting concreting activity.
6. Beam bottom alignment, its level and rigidity of staging to be checked.
7. Shuttering of sides of Beams to be checked for verticality and rigidity.
8. Slab shuttering and levels to be verified.
9. Fixing of sides and bottom supports to be checked for rigidity. In case the height is more than 3.2 m, vertical support ('ballies') should be stiffened with horizontal supports or double deck type shuttering should be provided.
10. Special care should be taken to check column caps supports at junction of beams.
11. Pockets, insert, conduits, junction boxes etc., to be carefully placed and checked before placing concrete. Fixing of pockets and inserts etc., should be rigid to avoid displacement during concreting.
12. Provide extra supports at joints of wall plates beam bottom. Proper care must be to prevent buckling of centering.
13. Slab form work should not be disturbed till concrete gains 70% of required strength.
14. Take care not to damage the concrete while striking the centering off.
15. After de-shuttering all the materials should be properly cleaned and stacked for reuse.

#### **REINFORCEMENT**

1. Reinforcement bars should be free from grease, oil, paint, dust or any other objectionable foreign materials and are thoroughly cleaned before fabrication.
2. Pitted and defective rods shall be rejected,
3. Straightening of bars is to be done without damaging the configuration.
4. Cutting and bending of bars shall be as per bar bending schedule.
5. Ensure that the vertical distance between the successive layer of bars in beams and other members is maintained by providing steel spacers at required intervals.
6. Check reinforcement for size, spacing, location, number, overlaps, welded joints, hooks and ties as per drawings and bar bending schedule.
7. Ensure that the reinforcement is kept in position by chairs of proper size during placing and compaction of concrete.
8. Ensure proper and adequate placement of cover blocks, embedded inserts and cutouts if any.

9. Ensure that walkways are placed in adequate numbers resting on the shuttering, to avoid displacement of reinforcement due to movement of workers.
10. No movement of personnel and equipment is to be permitted directly over reinforcement.
11. Anti corrosive paints, if required and specified in the contract is to be provided on all bars before placement. If not specified, a coat of cement slurry should be provided on the reinforcement for proper bond with concrete.

### **PLASTERING/POINTING**

1. The type of pointing/plaster, number of coats, thickness required and cement mortar should be as per contract specifications.
2. Filling of gaps in masonry and joints of beam and wall should be done two days prior to plastering with rich cement mortar 1:3.
3. Chicken wire mesh must be fixed at junctions of RCC and masonry prior to plastering wherever specified.
4. Ensure that size, shape, line and level of all RCC members like beams, columns, chajjas, facies etc are all as per the drawings, before starting plastering/pointing work.
5. Masonry wall and RCC members should be properly wetted before plastering/pointing work is undertaken.
6. All joints should be hacked to specified depth.
7. RCC surface should be closely hacked before plastering/pointing.
8. Select suitable sand as per approved sample for different type of plaster/pointing. Ensure that the sand is sieved / screened properly and there are no pebbles, shones and other organic/inorganic materials.
9. Dry mixing of cement and sand is to be a number of times to ensure a homogeneous mix.
10. Mixing should be done on an impervious platform.
11. Holes provided for scaffolding while executing brickwork must be plugged.
12. Level marking must be done in advance with plaster 'thiyas' Line, level and plumb are to be checked periodically while plastering.
13. All the necessary tools required for execution of work must be available with the mason.
14. Gaps around door and windows frames must be filled properly.
15. Ensure adequate and regular curing of plastering/pointing work.
16. Not more than 15 mm thick plaster should be provided in one go. In case extra thickness is required that should be provided in 02 layers.
17. Provide groove of specified size between RCC & Masonry surfaces.

## **SOLING/HARDCORE UNDER FLOORS**

### **Stone/Rubble Soling**

1. The rubble should be hard, durable and free from other defects. The rubble should be of suitable size and shape to give the required compacted thickness.
2. The rubble is laid in vertical position of the sub-grade but closely packed by arranging the stones.
3. The filling of the interstices should be done with quarry spawls/metal simultaneously with the placing of the rubble.
4. Ramming near the walls and column should be done properly to the required level slope, camber etc.
5. Compaction must be carried out with static roller.
6. The finishing of the surface shall be done by trimming to required level/slope as per requirement.
7. Rubble shall be laid from edge to center.

### **Bricks Soling**

1. The bricks shall be laid on edge or flat as specified with suitable interlocking pattern.
2. The bricks shall be placed as close as possible in proper grade and level.
3. Broken bricks shall be used only for closing the line.
4. The joints between the bricks should be properly filled with sand or earth as specified.

## **FLOORING**

### **Cement Concrete/Terrazzo Cast-in-Site Floor**

1. Scrapping cleaning and washing of the surface to be should be done before starting the activity.
2. Panel size and panel layout should be first drawn /marked on plan. No panel dimension should exceed 2.0 m.
3. Dividing strips of PVC/GlassMS shall be fixed as per the panel layout to correct line and level. Top of the strip must match with the required slope and finished floor level Strip fixing can be done with mortar at least one day in advance.
4. At the wall and floor junction suitable size of skirting as specified shall be planned simultaneously.
5. Casting of the concrete panels shall be done in alternate sequence only. Diagonally opposite panels shall be casted on first day and other panels on next day. Where dividing strips are used casting may however be done in continuous panels.
6. Base coarse concrete of given thickness shall be finished rough in first stage. Top 10 to 12 mm thick second layer concrete needs a richer mix with zero fines (i.e., rich mix as specified with only 6mm aggregate, cement and hardener if recommended. No sand to be used).
7. W/C ratio to be controlled in top layer to achieve manual trawling Cement slurry and excess water floats on the surface, which dries off with continuous toweling within 3 to 4 hours. In no case dry

cement spraying should be allowed. Masons have to continue trawling till surface hardens on its own and top finish is achieved.

8. Masons have to patch up the depressions in the panels, if any, during finishing operation, Edges and corners should be properly finished.
9. Curing is done by ponding water for 07 days.

### **Polished Kota Stone Flooring**

1. Stone shall be selected from a quarry where stone available is of uniform shade, hardness and texture with least lamination.
2. Stone shall be machine polished at source and of required size and thickness.
3. Hand dressing or machine cutting of the edges shall be planned as per the requirement. Hand dressed stones shall be ground with fine sand paper for obtaining sharp, straight edges.
4. Initial check shall be done for color and shade by washing the surface in shop/yard itself, followed by stacking the finished stone in different groups.
5. While laying due care should be taken to use stones from the same group to avoid the color variation.
6. Area shall be scrapped/cleaned/washed before starting the mortar bedding after finalizing flooring pattern.
7. 'Thiyas' (level markers) shall be made to required level and slope well in advance. Laying of mortar to suitable thickness with the help of the 'thiyas' and 'dori'. This is required to be checked periodically.
8. Neat cement paste shall be spread over mortar bedding and around the edges of the stone. The stone shall be fixed close to the previous stone and shall have hair line joint. Stone surface shall be pressed / tapped gently with the wooden mallets till the stone is in true line and level. Cement paste cozing out the edges should be scrapped off. The joints shall be filled up with neat cement paste to fill up the gaps and surplus mortar removed. Suitable color pigment to be used for joint sealing to match with the stone color.
9. Flooring shall continue at least 10mm inside the wall plaster line.
10. Any irregularities due to natural bends in stones should be restricted to 2mm at joints.
11. Curing of floor shall be carried out for 7 days by sprinkling water or by wetting.
12. Polishing is to be done only after adequate curing. The sequence of polishing will be as under
  - (a) First cut with 80 No rough emery stone with polishing machine to even out all irregularities. Normal cut of 02 mm is achieved with this emery.
  - (b) Floor shall be washed and all joints re-grouted with cement paste. Setting shall be allowed for at least 2 days.
  - (c) Second and third cut is to be done with finer emery stone-No. 120/220.

- (d) Joint grouting shall be done after every cut Normally 01 mm cut is achieved. Surface should be fairly level without any scratch or machine marks.
- (e) Final light coat of polishing shall be done with suitable floor polish to achieve scratch less smooth finished surface. Light polishing coat shall continue till the acceptable result is achieved.

### **Marble/Granite Flooring**

1. Marble/granite stone shall be selected from good quarry, where stone available is uniform in shade, hard and homogenous in texture, with less lamination.
2. Marble/granite stone slabs are machine cut at the edges for required size (No hand dressing).
3. Initial check shall be done for color and shade by washing the surface in shop/yard itself, followed by stacking the finished stone in at least 03 different groups. While laying, due care should be taken to use stones from the same group.
4. Area shall be scrapped /cleaned and washed before starting the mortar bedding. The flooring pattern shall be finalized before laying.
5. Flooring to continue at least 10 mm inside the wall plaster line.
6. Curing of flooring for 7 days by sprinkling water or by wetting.
7. Polishing is done only after adequate curing. The sequence will be as mentioned above for the Kota stone flooring.

### **Mosaic/Terrazzo Tile Flooring**

1. All tiles supplied at site should be of approved make, shade, size and quality.
2. Size, quantity and colour of marble chips shall be uniform in all the tiles all as per the approved sample.
3. Area must be scrapped/cleaned/washed before starting the mortar bedding.
4. 'Thiyas' (level markers) shall be made to required level and slope well in advance Laying of mortar to suitable thickness with the help of 'thiyas' and 'dori'. This is required to be checked periodically.
5. Flooring to continue at least 10mm inside the wall plaster line.
6. Flooring shall be cured for at least 07 days by sprinkling water or by wetting.
7. Polishing activity to follow only after adequate curing, Sequence of polishing will remain same as for kota stone flooring.



## Ceramic/Glazed/Granite Tiles

1. Plaster must be in true line, level, plumb and right angle. Plaster surface shall be made rough.
2. Line marking shall be done on plastered surface as per the given pattern.
3. All concealed works shall be completed and tested before starting the tile work.
4. Tiles shall be fixed with neat cement paste and tapped with wooden mallet in such a way that cement paste is uniformly spread on the back of the tile.
5. At the end of the day's work all joints shall be sealed with suitable coloured/white cement neatly and excess paste should be wiped off.
6. Right angle corners need careful jointing to give straight edge. Tiles cutting and grinding requires special tools Ensure that the tools are in good condition before use.
7. Curing is to be carried out till the tiles are well set.

## MASONRY

### Bricks Works/PCC Block Work

1. Bricks/PC block shall be of uniform shape, size and texture from the approved source and sample. Mortar shall be of the mix as specified. Check quality of bricks with special reference to:
  - Compressive strength.
  - Efflorescence.
  - Water absorption.
  - Dimensional accuracy.
  - Evenness of baking.
2. Soak the bricks/PCC blocks before starting the brick work.
3. Mixing of the mortar shall be done properly as per the specified proportion and on an impervious platform.
4. Keep the frog up while placing the bricks. Check height of courses as the work progresses.
5. Thickness of joints in bricks masonry should not exceed 10 mm (01 cm). As far as possible keep thickness of joints uniform.
6. Fill the joints between the bricks properly. Ensure to carry out RADO at every 4" layer. Supervise line, level and plumb from time to time.
7. Joints must be raked to an average depth of 10 mm when mortar is green. If pointing or plastering is not to be done, the joints should be struck flush.
8. Proper hacking of RCC surface in contact with brick masonry must be done for proper bond.
9. Coursed must be truly horizontal with suitable bond pattern to break the vertical joints. **English bond is preferable.**
10. Suitable toothing, grooving or stepping to be provided for continuation of brick work.

11. Check that no brick bats are used as queen closer.
12. Check bonding of cross walls with long walls.
13. Specified cement mortar ratio must be placed within 30 minutes after adding water.
14. Bricks on edge must not be used unless specified.
15. Do not permit joint filling by attempting to insert mortar from externally after laying the bricks.
16. Masonry may be raised up to 150 cm in a day. Rising with all connected brick work be carried out at one level.
17. For 230 mm thick wall maintain one face in line. This face can be pre-planned to take all kinds of single coat plaster. For higher thickness walls both faces should be in line.
18. First mark up layer of brickwork needs to be laid in direct supervision for door / windows / any other openings to be kept accurately as per the drawing or layout.
19. The buttress, counter forts should be built simultaneously, maintaining proper bond with main wall and not added afterwards.
20. Curing must be done for at least seven days or as laid down in specification.
21. Old or dry surface must be thoroughly cleaned and wetted: The joints should be raked before starting new construction.
22. Holes left in the brick work while execution for supporting scaffolding is filled with concrete and not with dry bricks.

### **Coursed/Random Rubble Masonry**

1. Stone must be from approved source as per specification. It must be hard, durable and tough. In Coursed Rubble masonry, it must be roughly dressed, uniform colour and of uniform size.
2. The stones must be soaked before use. The masonry work should be carried out as far as possible at one uniform level throughout, but where breaks are unavoidable the joints will be made in good long steps so as to prevent cracks between old and new work.
3. The height of each course should normally be not less than 15 cm and not more than 30 cm. In random rubble masonry, the stones may be laid without any regular courses i.e., at random.
4. In coursed masonry, all face stone in one course should be of the same height. The face joint should not be more than 25 mm.
5. Joint shall be fully filled with mortar.
6. In random rubble masonry, chips should not exceed more than 20% of the quantity of stone masonry.
7. The bond stones must be staggered at regular intervals in staggered manner. At least one bond stone or a set of bond stones shall be provided for every 0.5 sqm. Of the area of wall surface.
8. Proper curing arrangements must be made at site.

## PLUMBING

1. The type of pipes used for plumbing are: GI, rigid PVC, HDPE, of different grade and pressure range. Ensure that quality, grade and make of pipes for plumbing work are as per approved samples.
2. Ensure that pipe layout and alignment is in accordance with the drawings. The trench to received pipes must be cut to correct levels and size as given in longitudinal plan and the bottom must be carefully dressed. The gradient should be constant between the gradient change points.
3. Before laying the pipes are to be checked for any visible damage (broken edges, cracking or spilling of pipe etc.)
4. All pipes and fittings shall be fixed truly vertical and or horizontal. Pipes shall be fixed on wall with suitable holder clamps. When it is found necessary to conceal the pipes, chasing may be adopted. Use wooden wedges for leveling pipeline and remove them when backfilling is done. Do not use stones or hard materials.
5. Where a pipeline crosses a road or a drain, it shall be through C.I. or R.C.C. pipe.
6. The sides and undersides of pipeline should be packed with the same materials used for bedding. Well-rammed layer-by-layer filling should continue till a covering of about 200 mm is obtained on the pipeline. Rest of the trench can be filled with any available materials.
7. In case of subsoil water or if flooding of trench is feared, never leave the laid pipeline without covering it with topsoil. The pipeline may get dislodged by upward floating thrust. If covering with topsoil is not possible, the pipeling can be left after filling it with water.
8. The pipes are to be tested in the following manner:-
  - (a) Only moderate length of pipeline should be tested at a time.
  - (b) To prevent any movement of the pipeline under pressure, heap topsoil on each pipe length.
  - (c) After blocking of ends with plugs or blind flanges, provide an air vent at the highest point and a cock is fitted for filling water through a pump and pressure gauge.
  - (d) Support the ends of the pipeline with timber or concrete blocks resting against the trench wall and inset jacks at the ends to compensate for the setting of support when the pressure is applied. Air should be completely removed before the pressure is applied.
  - (e) After laying and joining, the pipes and fitting shall be inspected under working conditions of pressure and flow. Any joint or fitting, found leaking, shall be redone. All pipes, which are leaking, shall be removed and replaced.
  - (f) The pipes and fitting shall be tested to a hydraulic prssure of 6 Kg/cm. sq. The pressure shall be maintained for 02 hours and the pressure drop at the end of this period shall not exceed 0.5 Kg/cm. sq. The pipe shall be slowly and carefully charged with water, allowing all air to

escape and avoiding shock and water hammer. Stopcock shall then be closed and subsequently, the specified hydraulic pressure shall applied gradually.

(g) The pressure gauge must be accurate. The pipes and fitting shall be tested in sections, as the work of laying proceeds, keeping the joints exposed for inspection during the testing.

9. Usually the refilling in trenches shall be done after testing the pipes successfully. Medium sand in 200 mm depth or as specified on all sides of the trenches shall be provided and leveled.

### **GI Pipe (Exposed)**

1. When GI pipe is embedded in walls or floor, it should be painted with anti-corrosive bitumastic paint. GI pipe should be of Class B or C grade as specified.
2. In case of GI pipe the threading is to be carried out with the help of die. When the tubes are to be cut or rethreaded, the end shall be carefully filed out and then threaded with pipe die.
3. In jointing the tubes, inside of the socket and the screwed end shall be oiled and smeared by using Teflon tape round the screw end of the tube. The end shall then be tightly screw the end into the socket, tee etc.
4. Jointing can also be carried out using Hessian rope, safeda/adhesive. Thin coat of safeda/adhesive is applied round the screw end hessian rope is wrapped round the tube. The rope must be soaked prior to wrapping. Again apply safeda/adhesive over it and tightly screw the end into the socket, tee etc.
5. The threading to the pipe ends shall be done by skilled plumber. It shall also be ensured that the dye is in good condition. The tightening at the threaded joint shall be for the full threaded portion.
6. While laying the tube at GL or terrace a pedestal of brick for RCC must be prepared for laying the tube.
7. In case long pipe is to be laid stop valve must be provided at suitable interval. Union must be provided at regular intervals for purposes of maintenance.
8. All leaky joints must be made leak proof by tightening or redoing.
9. 'Gitties' and plugs fixed to the wall for GI pipe support must be well set in mortar before fixing the pipe.

### **GI Pipe (Concealed)**

1. Concealed GI pipes may be of normal or center point pattern. It might be used for hot or cold water supply as per requirement.
2. Mark the pipe layout diagram on the wall with 'dori' using chalk powder.
3. Ensure that the lay out is as per drawing.
4. Form the drawing identifies all the junction (tee and bends), connections and their location.
5. Grooves, cutting and chasses (making 'Jali') in the walls shall be as per the tube dimension.
6. At connection, tee or elbow shall be marked as per requirement.
7. The tube is to be firmly supported with the help of spikes.

8. The pipe shall be coated with bituminous paint or as specified.
9. After fixing the pipe, the hacked wall shall be made good with cement mortar.
10. In case GI pipe is to be used for hot water supply asbestos lining/jute lining of suitable size as specified shall be wrapped all round the tube in the form of coil.
11. System testing against any leaking joints/installations must be ensured.

### **Rigid PVC Pipe**

1. Due to thermal expansion of rigid PVC pipes, due allowances about 10 mm of thermal gap, shall be made particularly in the pipe lines laid over ground.
2. Generally, in horizontal runs PVC pipe shall be supported at an interval of not more than ten times the outside diameter of the pipe. In vertical lines, PVC pipes shall be supported at an interval of 01 m to a maximum of 02 m.
3. PVC pipe on wall shall be fixed with wooden plugs and suitable clamps.
4. All the pipes and sockets shall be accurately cut. The ends of the pipes and fittings should be absolutely free from dirt and dust. The outside surface of the pipes and the inside of the fittings shall then be smoothed with emery paper and the solvent cement shall then be applied to the surface i.e., to the spigot end the sealing ring. Place the spigot end in to the socket containing the sealing ring. Mark the position of the socket edge on the pipe and then withdraw the pipe from the socket for the necessary thermal gap. Since solvent cement is aggressive to PVC, care must be taken to avoid applying excessive cement to the inside of pipe sockets as any surplus cement cannot be wiped off after jointing.
5. Avoid over tightening of threaded PVC pipe fittings as the threads may get damaged.

### **High Density Polyethylene (HDPE) Pipes**

1. The trench line for the proposed pipelines shall be carefully set out to the alignment as per drawing. The trenches shall be carefully excavated to required size and depth and trimmed so that the pipe when laid, rest on the natural bed throughout its full length.
2. The pipes and fittings shall be laid to line and level, in the trenches.
3. The joints of the pipes shall be made by butt-welding using an Electric hot plate or blowlamp for heating the ends to be jointed. The end of the pipe to be jointed shall be cut at right angle with 3 to 5 mm length more than the required finished length. The temperature of the hot plate/blow lamp shall be brought to 200 deg. C. On heating, the pipe swells outwards. Heating shall be continued till the swelling of the pipe is equal to the wall thickness of the pipe. The pipes shall then be pressed against a flange-forming tool and pressure shall be maintained till a uniform joint is obtained. The temperature shall be checked by thermo-chrome chalk, which shall turn blue and then black within 03 seconds. Jointing shall be carried out on ground and a suitable length of the jointed pipe shall be

lowered into the trench. Skilled persons shall only carry out jointing. Care shall be taken so that there is no displacement of the center line of the pipe while jointing.

4. Depending on the site conditions, detachable flanged joints or screwed joints may also be made.
5. Where the pipes are to be used for rain water down takes, across the floor slabs, they shall be carried through a GI sleeve to enable a water-proof joint to be made at the slab level

## **DRAINAGE / SEWERS**

### **General**

1. The type of pipes used for drainage/sewers are SWG, CI, PVC, HDPE.
2. All materials shall be as per specification and approved samples. Ensure that the pipe layout and alignment is as per drawing.
3. Extra excavation should be done under the joints of sewer pipes for filling the joints properly so that there is no infiltration.
4. Crossing of nullah etc., should be done using CI pipes.
5. Ensure that the level of inspection chamber (IC) is higher with respect to manhole level.
6. Vent must be provided at the corner of septic tank which should be approximately 6" above the ground. Ensure that the vent pipe is also provided at every head of sewer, at every drop, at every junction manhole and at 800 ft distance on straight lengths. The height of vent pipe shall follow the drainage bye-laws.
7. Ensure to plaster the IC and manhole with waterproof plaster.
8. Ensure that the socket ends of all pipes are facing upstream side.
9. The pipes are to be tested in the following manner:
  - Only moderate length of pipeline should be tested at a time.
  - To prevent any movement of the pipeline under pressure, cover topsoil on each pipe length.
  - After blocking off ends with plugs or blind flanges, provide an air vent at the highest point and provide a cock for filling water and for connection to pump and pressure gauge.
  - Support the ends of the pipeline with timber or concrete blocks resting against the trench wall and insert jacks at the ends to compensate for the setting of supports when the pressure is applied. Air should be completely removed before the pressure is applied.
  - After laying and jointing, the pipes and fitting shall be inspected under working conditions for pressure and flow. Any joint or fitting found leaking shall be redone. All pipes which are leaking shall be removed and replaced.
  - The pipes and fitting shall be tested to a hydraulic pressure of 6 Kg/cm.sq. The pressure shall be maintained for 2 hours and the pressure drop at the end of the period shall not exceed 0.5 Kg/cm sq. The pipe shall be slowly and carefully charged with water, allowing all air to escape to avoid shock and water hammer action. The draw off will take place then and stop cock shall

then be closed. The specified hydraulic pressure shall be applied gradually. The pressure gauge must be accurate. The pipes and fitting must be tested in sections, as the work of laying proceeds, keeping the joints exposed for inspection during testing.

### **Stoneware Glazed Pipes**

1. The pipes shall be checked for cross section, nominal diameter, length and depth of socket and glazing of pipe all as per approved sample.
2. The trenches for the pipes shall be excavated to required gradient, lines and levels as specified, with socket up the gradient. Also inspection chambers and manholes shall be excavated as per the size and invert levels.
3. The trenches shall be kept dry either by bailing out or pumping water. Timbering and sorting of sides of excavation shall be resorted where loose soil is encountered and depth of trench goes higher.
4. The trench width shall be nominal diameter of the pipe + 45 cm, but it shall not be less than 60cm, to allow for sufficient working space.
5. Refilling in trenches for pipes shall be commenced as soon as the joints are tested approved and hunching is done. The refilling on the top and around the drian /sewer shall be done with great care and in such a manner as will obtain the required amount of compaction level. For this purpose the approved earth shall be laid in successive layers of 15 cm, watered and rammed.
6. All pipes of shallow depth under road crossing shall be laid on P.C.C. bedding with encasing of SWG pipes.
7. The interior of the socket and the exterior of the spigot shall be cleaned thoroughly and dried. The spigot of the upper pipe shall be properly fitted into the socket of the lower pipe such that there is uniform annular space for filling with the jointing materials. Yarn for required length shall be placed around the spigot of the pipe, to centre of the spigot in the socket. Knotting to the yarn shall not be permitted. When single strand of yarn is used, overlap at the top shall not be more than 50mm. When more than single strand required for a joint, each strand shall be cut to the required length so that the ends shall meet on the opposite sides of the pipe and not on top or bottom. When the spigot is sleeved in place, the yarining materials shall be driven lightly against the inside base or hub of the socket with suitable tools.
8. Spun yarn soaked in neat cement paste shall be placed round the joint and inseted in to it by means of caulking tool. More skins of yarn shall be added if required and well rammed. Cement mortar 1:1 shall be carefully inseted by hand in to the joint. The mortar shall then be punched and caulked into the joint. The joint shall then be finished off neatly outside the socked at an angle of 45 degrees. Leak proof joints need to be ensured.
9. The joints shall be cured at least for seven days.

10. All length and joints shall be fully tested for water tightness by means of water pressure maintained for not less than 15 minutes. Testing shall be carried out from manhole to manhole. Smoke, test if specified shall be conducted for each stretch. Leaking joints must be made good prior to backfilling.

### **Cast Iron Pipes**

1. The socket spigot ends of the pipes should be cleaned first.
2. Thereafter a thin film of lubricant should be applied to the bulb seating inside the socket, but not on the hard rubber seal.
3. After cleaning the gasket shall be placed in the socket with bulb towards the back of socket so that the hard rubber head engages in the retaining groove.
4. If any loop is left it will be pressed flat for proper fit of gasket in groove.
5. In case it is difficult to press the loop, as may be in the case of larger diameter, it is advised that a second loop be formed in the opposite side. The two loops are then pressed flat one after the other.
6. A thick film of lubricant should be applied to the inner side of the gasket where the spigot end will come in contact, to facilitate the entry. The spigot end of the pipe should also be lubricated.
7. After centering the spigot should be inserted far enough into socket to make contact with the gasket. This will be the initial position for forcing the spigot end in.
8. The spigot end shall be forced into the socket carefully compressing the gasket till the spigot end reaches near the bottom of the socket.
9. If the assembly is not completed with reasonable forces, the spigot should be removed and the position of the gasket examined.

### **Cast Iron Pipes (Spun Joint)**

1. The interior of the socket and the exterior of the spigot shall be cleaned thorough and dried. The spigot of the upper pipe shall be properly fitted into the socket of the lower pipe, such that there is uniform annular space for fitting with the jointing materials. Yarn for required length shall be placed around the spigot of the pipe, to centre the spigot in the socket. Knotting of the yarn shall not be permitted; required length of the yarn shall be in one piece. When single strand of yarn material is used overlap at the top shall not be more than 50 mm. When more than single strand is required for a joint, each strand shall be cut to the required length so that the ends shall meet on the opposite sides of the pipe and not on top or bottom. When the spigot is shoved home, the yarning material shall be driven tightly against the inside base or hub of the socket with suitable tools.
2. Spun yarn soaked in neat cement paste shall be passed round the joint and inserted in it by means of caulking tool. More skins of yarn shall be added and well rammed. Cement mortar 1:1 slightly dry shall be carefully inserted by hand into the joint. The mortar shall then be punched and caulked into the joint. The joint shall then be finished off neatly outside the socket at an angle of 45 degrees. Leak proof joints needs to be ensured.



## **PVC Pipes**

1. Generally, in horizontal runs, PVC pipes shall be supported at an interval not more than ten times the outside diameter of the pipe. In vertical lines, PVC pipes shall be supported at an interval of 01m to a maximum of 02 m with wooden plug and suitable clamps.
2. PVC pipes shall be fixed on wall wooden plugs and suitable clamps.
3. The pipes and socket shall be accurately cut. Care shall be taken to cut the pipe square. The ends of the pipes and fittings should be absolutely free from dirt and dust. The outside surface of the pipes and the inside of the fittings shall then be roughened with emery paper and then solvent cement shall be applied to the surface i.e., to the spigot end and the sealing and then pass the spigot end in to the socket containing the sealing ring until pushed home fully and joined. Mark the position of the socket edge on the pipe and then withdraw the pipe from the socket for the necessary thermal gap. Since solvent cement is aggressive to PVC, care must be taken to avoid applying excessive cement to the inside of pipe sockets as any surplus cement can not be wiped off after jointing

## **High density Polyethylene Pipes (HDPE)**

1. The trenches shall be carefully trimmed so that the pipe when laid shall rest on the natural bed throughout its full length. The pipes and fitting shall be laid to line and level, in the trenches.
2. The joints of the pipes shall be made by butt welding using an electric hot plate or blow lamp. The end of the pipe to be jointed shall be cut at right angle leaving 3 to 5 mm more than the required finished length. The pipe surface shall then be scrapped by a knife on the periphery. An appropriate union shall then be inserted on the pipe. The pipe shall then be heated slowly and uniformly by means of a metal baffle held in front of the end of the pipe. The temperature of the hot plate/blow lamp shall be brought to 200 deg.C. On heating the pipe end swells outwards. Heating shall be continued till the swelling of the pipe is equal to the wall thickness of the pipe. The pipes shall then be pressed against a flange forming tool and pressure shall be maintained till uniform joints is obtained. The temperature shall be checked by thermo-chrome chalk, which shall turn blue and then black within 3 seconds. Jointing shall be carried out on ground and a suitable length of the jointed pipe shall be lowered into the trench. Jointing shall be carried out by skilled persons only. Care should be taken so that there is no displacement of the centre line of the pipe while jointing.
3. Depending on the site conditions, detachable flanged joints or screwed joints may also be made.

## **ROOF SHEETING (ACC/GI/AL)**

1. As far as possible use standard length and full width of the roof sheets with minimum cutting/joints between these.
2. The wind condition and the direction shall be considered before start of sheeting. The sheeting work should not be undertaken during high wind.

3. The painting of the sheets, if required can be done prior to the erection.
4. All the fixtures (i.e hook bolts, nuts, washers, etc.) must be as per specifications.
5. Roofing accessories like ridges, gutters, sprons, barge boards etc, shall be fixed properly and carefully.
6. The holes must be drilled with suitable drill bit and not punched. The holes should be made through the crown of the corrugations and never through the valley.
7. Cutting of sheets should be done using carpenter's saw and the sheets must not be chipped. No cracked sheets are to be used.
8. The number and the spacing of the bolts and self tapping screws must be as per drawing and specification.
9. For fixing the sheets to the purlin nut of the hook bolt (J bolt or crank bolt) should bear on a GI washer which in turn is bedded on bitumen washer. Bolt should rest against the purlin and should project above the nut by at least 10 mm.
10. Hook bolts must be well tightened.
11. End lap and side lap must be as per specification and the free overhangs must not exceed specified length.
12. Careful handling of sheets while shifting, lifting and fixing shall be supervised to avoid any kind of damage to sheets.
13. The free overhang of roofing sheets should normally not exceed 300 mm. Sheets should be mitered at corners.
14. Worker has to walk only on purlins, if required and all safety measures are to be strictly followed.

## **DOORS/WINDOWS**

### **Doors/Windows(Wooden)**

1. Ensure that wood used for the works is as per quality specified.
2. Only approved fixtures of specified materials are to be used having proper finishes.
3. Check whether verticals of door frames are minimum 50 mm below finished door level.
4. With bottom spacer Patti fixed, surface of window/door frame coming in contact with brick work/concrete needs to be painted with the material specified before fixing of the frame.
5. The frame hold fast must be grouted with cement mortar rigidly.
6. Ensure that the glass is free from waves, bubbles and other defects. Check the thickness of glass before fixing.
7. Ensure that doors/windows frame is erected in plumb, line, level and diagonals.
8. Ensure that painting/oiling is started after approval of completed wood work.
9. Suitable wooden beading to size & design should be fixed as specified.
10. Check whether top and bottom surfaces of shutters are properly painted.

11. Check easy operation of fittings.
12. Check whether proper barrels are provided where the bolt enters either masonry or wood.

### **Doors/Windows(Steel)**

1. Suitable standard rolled sections or sheet metal to be used as specified. Steel doors, windows, ventilators should be manufactured using rolled steel sections of weights specified in IS: 1038.
2. Dimensions of door/windows must be as per drawings and checked by the engineers before ordering. Sample needs to be checked.
3. Only approved fixtures of proper finish and smooth operation must be used.
4. Check whether the angle iron or T-iron is of sections specified.
5. Ensure that the slots for tower bolts, locks are as per drawings and specifications.
6. Check whether verticals of door frames are minimum 50mm below finished floor level, with a bracing tie to be embedded in the floor.
7. Surface of windows/door coming in contact with brick work must be painted with the material specified.
8. The frames hold fast must be grouted with cement mortar rigidly.
9. Check whether corner welding has been done properly and excess weld removed. The corner joints of frames must be free from welding clots.
10. Ensure that the glass is free from waves, and other defects. Check the thickness of the glass before fixing.
11. Check that door/windows frames are erected in plumb, line, level and diagonals.
12. Ensure that the work of painting/oiling is started after approval of door/windows fitted in position.
13. Glazing must be fixed to size with suitable putty and fixing pins as specified.

### **Doors/Windows(Aluminum)**

1. Aluminum section shall be as per the sectional drawings or as specified in the items of work. Each member of the Doors/Windows shall be checked for its size, shape, weight per meter, profile and finished surface.
2. Aluminum sections shall be of approved quality as per approved samples.
3. Panel materials like Glass/Laminated boards etc. shall be as per approved samples.
4. Only approved hardware fixtures shall be used as per specification.
5. Finished opening sizes should match perfectly with prefabricated Doors/Windows sizes.
6. Arrangement for all approved hardware fitting as per the drawing shall be ensured before fixing of the materials.
7. Glazing shall be fixed to the extruded sections by means of extruded aluminum beading. Glass panes shall be provided with rubber lining before fixing.

8. The aluminum frames shall be fixed to the masonry by means of aluminum/M.S.lugs fixed to the frame (by counter sunk galvanized machine screws) and the hole/pocket shall be grouted with M-15 grade concrete as per drawing. In case of concrete wall, the frames shall be fixed metallic fasteners. Any steel material coming in contact with aluminum shall be galvanized/painted.
9. The windows/ventilators/doors shall be checked to ensure smooth operation, perfect level and plumb.
10. All aluminum Doors/ Windows section should have protective film or coating. This film or coating can be removed only at the time of handing over (on completion of all civil works including painting).

### **Rolling Shutter**

1. Check that the dimensions and the gauge of materials used for the shutters are as per drawings and specifications.
2. Check whether the welding done is perfect and junctions are properly grooved.
3. Ensure that inserts, bolts, fixtures, fastening fitting are fixed in their position accurately and in alignment.
4. Ensure that the shutter is functioning smoothly with normal pull and does not require undesirable force.
5. Painting must be done by approved quality of paint and number of coats should be as specified.
6. To facilitate long life and smooth easy operation line bearing at both ends of the barrel which support the curtain should be provided.
7. Hood must be of hot galvanized sheet steel cover which fits the contours of brackets and encloses the curtain coil. It should be of neatly formed and suitably reinforced flanges/beads to prevent deflection.

### **WATERPROOFING**

1. Waterproofing could be of parapet and roof slab junction and or the roof and of WCs/toilets (sunken floors). Ensure that the item and specifications of the work are studied before carrying out the work.
2. Waterproofing material must be of make as specified and as per approved sample.
3. Check that the recommended waterproofing compound is mixed with mortar used of water-proofing plaster layer, if specified.
4. The parapets, walls, and roof surface shall be plastered if specified before application of waterproofing materials. Suitable benching shall be done at the junction of wall/parapet and slab.
5. Ensure surface scrapping and cleaning before start of activity.
6. Before starting waterproofing treatment, ensure that the proper slope and level is checked for drainage. Ridge and valleys to be marked properly and rain water down take points are benched suitably.
7. Water proofing treatment shall be undertaken strictly as per procedure laid down in specifications/relevant IS/Manufacturer's instructions.

8. In case of flat roofs, water proofing layer must be continuous. Some of the sensitive areas such as near rain water pipes outlets, near parapet, gola and expansion joints should be carefully checked for breaks in waterproofing membrane. Water proofing must be ensured on roof portion under water tanks.

### **WHITE WASHING/COLOUR WASHING/PAINTING**

#### **White Washing**

1. The wall to be white washed must be thoroughly scrapped with sand paper.
2. The first Coat of white wash is to be done within 07 days of plaster.
3. The slaked lime must be screened through coarse cloth and adhesive must be added as specified. Lime must be soaked for 24 hour in advance.
4. Application by spray, brush, coir brushes to be decided in advance.
5. Lime coat must be applied with a brush and the desired sequence must be followed.
6. Brush application needs criss-cross painting to avoid brush marks.
7. Machines, Doors, windows, floor etc shall be covered from being splashed upon.
8. The cracks and holes are required to be filled with proper adhesive after the first coat.
9. Small quantity of 'Indigo' or 'Neel' should be added in last two coats of white wash to increase the brightness and whiteness.
10. For increasing the adherence DDL/SDL/Fevicol/Gum/Vamicol can be added in the white wash.
11. A total of 03 coats are to be applied over the plastered surface.
12. Subsequent white wash is to be applied only after the preceding coat has become sufficiently dry.

#### **Colour Washing**

1. Follow same as for white washing.
2. The wash shall be prepared by adding required quantity of colour pigment to the lime wash prepared under the head white wash.
3. The mineral colours not affected by lime shall be added to white wash.
4. The colour wash shall be done after preparation of a sample of colour wash.
5. The surface to be colour washed shall be first treated with a priming coat of white wash.
6. Minimum two to three coats of colour wash shall be applied to attain uniform shade over the whole surface.

#### **Cement Base Paint**

1. The cement based paint shall be of approved make, shade and quality.
2. The surface shall be thoroughly cleaned and all loose materials be removed.
3. For cement based paints no primer is required. It comes in powder form and mixed with water for painting (mix both the cement paint & water equal quantities).
4. Efflorescence should be completely removed before painting otherwise painting will peel off.

5. The surface shall be watered thoroughly and shall be allowed to drain off before starting the cement painting.
6. Paints shall be applied by brush in criss-cross direction till uniform color shade is obtained.
7. The second coat shall be started after 24 hours of the first coat.
8. The finished surface shall be moist cured for at least 07 days.

### **Oil Bound Distemper/Water Bound Distemper/Acrylic Bound Distemper**

1. The distemper shall be diluted with mineral turpentine oil or any other thinner in a manner recommended by the manufacturer, sufficient quantity of distemper for a day's work shall be prepared.
2. On any surface, after the primer coat has dried for at least 48 hours, the surface shall be lightly sand prepared to make it smooth for receiving the distemper, taking care not to rub out the priming coat.
3. All loose particles shall be dusted off after rubbing. Minimum two coats of distemper shall be applied with brushes in horizontal strokes followed immediately by vertical strokes which together shall constitute one coat. The subsequent coats shall be applied after a time interval of least 24 hours to allow proper drying of the preceding coat. The finished surface shall be even and uniform without patches, brush marks, distemper drops etc.
4. Sufficient quantity of distemper shall be mixed to finish one room at a time. The application of a coat in each room shall be even and uniform without patches, brush marks, distemper drops etc.
5. After a day's work all brushes shall be thoroughly washed in hot water, soap solution and allowed to dry. Old brushes which are dirty and caked with distemper shall not be permitted to be used.
6. The surface of doors, windows, ventilators, articles of furniture and machines etc. and such other part of the building shall be protected from being splashed upon. On completion surfaces shall be cleaned of any distemper splashes.

### **Plastic Emulsion Paint**

1. Plastic paint is slightly rough compared to O.B.D. but washable. It has more adhesion too and covers larger surface area than the O.B.D. They get less affected with alkalis present in cement surfaces.
2. Before pouring into small containers for applying the paints shall be stirred thoroughly in its container. Also, the paint shall be continuously stirred in the smaller container, so that its consistency is kept uniform.
3. The paint shall be applied evenly and smoothly in the prescribed manner. The steps involved consist of covering the area with paint, brushing the surface hard for the first time, then brushing alternately in opposite directions two or three times and finally brushing lightly in direction at right angles to the same. In this process, no brush marks shall be left after the coat is finished. This full process of painting shall constitute one coat. No hair line marks from the brush or clogging of paint puddles in the corners of panels, angles of moldings etc. shall be left on the work.

4. The paint shall be applied with brush for first two coats and final finishing shall be done with roller.
5. Old brushes, if they are to be used with emulsion painting, shall be completely dried after washing in warm soap water or with turpentine oil. Brushes shall be quickly washed in water immediately after use and shall be kept immersed in water during break period to prevent the paint from hardening on the brush.
6. In the preparation of walls for plastic emulsion painting no oil base putties shall be used in filling cracks, holes etc.
7. Splashes on floors etc. shall be cleaned without delay before these get hardened.
8. Washing of surfaces treated with emulsion paint shall not be within 3 to 4 weeks of application.

### **Enamel Paint Glossy (Flat, Pearl Luster and Matt as Specified)**

1. Brushing operation shall be adjusted to the spreading capacity advised by the manufacturer of particular paint. The paint shall be applied evenly and smoothly in the prescribed manner. The steps involved consist of covering the area with paint, brushing the surface hard for the first time, then brushing alternately in opposite directions two or three times and finally brushing lightly in direction right angles to the same. In this process, no brush marks shall be left after the coat is finished. This full process of painting shall constitute one coat. No hair marks from the brush or clogging of paint puddles in the corners of panels, angles of molding etc. shall be left on the work.
2. Each coat shall be allowed to dry completely and lightly rubbed with very fine grade of sand paper and loose particles shall be brushed off before next coat is applied. Each coat shall very slightly in shade and need to be got approved by the Engineer incharge before next coat is started.
3. Each coat shall be lightly rubbed down with fine sand paper and cleaned of dust before the next coat is applied. No hair marks from the brush, clogging of paints, puddles in the corners of panels, angles of molding etc. shall be left on the work.
4. Special care shall be taken while painting over bolts, nuts, rivets, overlaps etc.
5. In the preparation of walls for enamel painting, no oil base putties shall be used in filling cracks, holes etc.
6. Splashes on floors etc. shall be cleaned immediately after the work. The surface of doors, windows, ventilators, articles of furniture and machines etc. and such other part of the building which are not to be painted shall be protected from being splashed upon. On completion surfaces shall be cleaned of paint splashes, if any.
7. Washing of surface treated with enamel paint shall not be done within 3 to 4 weeks after application.

### **Painting of Structural Steel**

1. All the surfaces of the structural steel work to be painted shall be thoroughly cleaned of all loose scale, rust, grease, dirt and other foreign matter. All welding, blurs, drilled holes, gas cut edges need proper surface cleaning. Welding shall be properly and adequately grinded to give smooth finish.

2. Oil and grease removal shall be carried out either by solvent or by using any alkali type degreasing agents. To remove grease material the surface shall be cleaned with solvents containing emulsifier.
3. De-rusting and de-scaling of steel shall be carried out manually, mechanically or chemically as required/specified.
4. Sand blasting wherever specified for removing rust, scales, blurs etc. shall be carried out properly till the entire steel surface is exposed shining.
5. Common primers used for metallic surfaces are zinc chromate (yellow colour) and red oxide (red colour).
6. Painting to steel surface with approved paint shall be carried out in the manner prescribed above for the enamel paint.
7. Ensure that the sides, top and bottom edges of the door & windows shutters are also painted. The rebates in joinery, unexposed surfaces of beads in glazing and fan hooks should also be painted, where specified.

### **ROAD WORK**

#### **WBM/Soling in Sub-base**

1. The entire width of road surface must be cleaned of all bushes, trees and loose material.
2. The sub grade must be prepared by cutting to required depth with required camber, sub grade dressing and rolling.
3. Due allowances must be considered for compaction of sub grade.
4. Ensure that specified widths of berms are kept on either side in embankment and slopes are timed and dressed to designed slope.
5. Necessary drainage arrangement must be made before completing the embankment rolling.
6. Different types of soil, 'murrum'/'kankar' or soft rock strata must be segregated and stacked suitably for re-use.
7. Ensure that the required machinery like rollers, rammers and compacting equipments are brought on site.
8. Ensure that the rubble of specified size and quantity are brought on site from approved quarry.
9. Soling must be laid in the required cross section and depth, so that the required thickness is achieved after consolidation.
10. Check that the rubble is hand packed closely bedded firmly and interstices are filled by quarry spawns/hand broken material.
11. The dry rolling must be carried out by 8-10 T rollers by spreading approved quality of murrum. Water sprinkling is adequately done before starting wet rolling to form water bound macadam.
12. Rolling must commence from edges, proceeding towards the centre by over lapping half the roller width.



### **WBM in Base Course**

1. Check that the sub grade for WBM is in specified grade and camber.
2. Check that a layer of screening is spread on sub grade before laying metal aggregates.
3. Ensure that metal aggregates is laid in required thickness and bonded with binding materials murrum/stone screening of 12.5 mm size.
4. Check whether the top of WBM surface is true to the line, grade and cross section.
5. Consolidation must be done by using road roller of 8-10 T capacity to achieve proper camber and gradient. During rolling the grade and camber shall be checked regularly and corrected for any higher spot or depressions, which become apparent by removing or adding fresh materials.

### **Grannular Sub-base**

1. The surface shall be prepared by removing all vegetation and other extraneous matter. If required, sprinkle the water and roll the surface by two passes of 8-10 Ton smooth wheel roller.
2. The sub base material shall be spread on the prepared sub grade manually or with the help of motor grader as specified, maintaining the required line grade and cross sections.
3. The water content shall be kept one percent above or two percent below OMC. However, due allowances shall be made for evaporation losses.
4. If the single layer thickness does not exceed 100 mm, a smooth wheeled roller of 8-10 Ton capacity may be used. For compacted thickness up to 225mm, the compaction shall be done with vibratory roller of 8-10 Ton static load.
5. Rolling shall commence at the lower edge and proceed towards upper edge longitudinally.
6. Each pass of roller shall uniformly overlap not less than one third of the track made in preceding pass. During rolling the grade and camber shall be checked regularly and corrected for any higher spot or depressions, which become apparent by removing or adding fresh material.
7. The speed of roller shall not exceed 5 Km/hr.
8. Rolling shall continue till the density achieved is at least 98% of maximum dry density.

### **Wet Mix Macadam (WMM)**

1. The surface of sub grade/sub base/ base to receive Wet Mix Macadam course shall be prepared to specified lines and camber made free of dust and other extraneous matter. Any weak spots shall be corrected by rolling, if required by sprinkling water.
2. The thickness of individual layer should be between 75 mm to 200 mm all as specified.
3. The work of laying of Wet Mix Macadam shall not be done while raining.
4. If WMM is to be laid on existing bituminous surfacing the surface should be prepared by cutting 50 mm X 50 mm furrows at 45 degree to center line at 01 m interval.

5. Ensure the lateral confinement of WMM by laying materials adjoining shoulders along with WMM layer. Mix shall be prepared in approved mixing plant/pug mill mixer.
6. Due allowances shall be kept for evaporation losses while watering, However, water content should not vary by more than +/-01%.
7. The mixed material should be transported directly to site, Stock piling of mixed materials should be avoided. To avoid moisture loss due to evaporation, mix should be covered with tarpaulin.
8. The mix may be spread either by paver finisher or motor grader or combination of both. Hauling of mix over freshly completed structure is not to be allowed.
9. If the single layer thickness does not exceed 100mm, a smooth wheel roller of 8-10 Ton weight may be used. For single layer thickness up to 200 mm the compaction shall be done by vibratory roller at minimum 8-10 static weight.
10. The speed of roller shall not exceed 5 Km/hr.
11. Rolling shall proceed from edge to center. In portion having uni-directional cross fall/super elevation, rolling shall commence from the lower edge and progress gradually towards the upper edge.
12. Rolling shall not be done when sub grade is soft or yielding or when it causes a wave like motion. Rolling shall continue till the density achieved is at least 98% of maximum dry density.
13. WMM to be laid in at least 500mm length to minimize the joints.
14. After final compaction the WMM shall be allowed to dry for 24 hours before over laying any bituminous layer.
15. No vehicular traffic should be allowed on finished WMM surface till it has dried and wearing course is laid.

### **Hot Bituminous Mixes (Prepared in Hot Mix Plant)**

1. The base course surface shall be thoroughly swept clean, scraped and made free from dust, caked mud and other deleterious material.
2. The work of laying shall not be taken up during rainy or foggy weather. Water destroys the adhesion and binding of bituminous mix.
3. The tack coat shall be applied uniformly by mechanical spreader as per specification. The rate of application shall be established by initial trials. Manual application can however be permitted for small areas.
4. The mixed material should be transported directly from Hot Mix Plant to site of work by tippers of suitable capacity. To avoid loss of temperature, the mix should be covered with tarpaulin. The temperature of mix shall be recorded and maintained as specified, at all the stages starting from mixing drum, discharge hopper, tipper, laying to rolling.
5. Over heating and under heating of mix shall be avoided. Both the states are harmful for the quality of mix.

6. The mix transported from the hot mix plant to the site shall be spread by means of self-propelled mechanical paver of specified make and capacity.
7. The rolling shall be done with tandem vibratory roller, smooth wheeled roller and or pneumatic tyred roller as specified, to achieve dense and smooth finished surface.
8. The wheels of roller shall be kept moist to prevent mix from sticking to the wheels.
9. Rolling shall commence longitudinally from edge to centre except on super elevated points, where it should progress from lower to upper edge.
10. The roller shall overlap the preceding one by half the width of rear wheel. The rolling shall be continued till the density is achieved at least 98% of that of laboratory Marshall Specimen.
11. Rolling operation shall be completed fully before the temperature of the mix falls below 100 degree C as under heating hinders proper penetration. Overheating beyond 200 degree C is also to be avoided as it deprives asphalt of its elasticity and makes it unsuitable for road work.
12. Super-elevation and smooth curves shall be provided at junction of roads.
13. Longitudinal & transverse joints and edges shall be offset at least by 250 mm from those in lower course and joint on top most layer shall not be allowed to fall within the wheel path.
14. All transverse joints shall be cut vertically to full thickness of previously laid mix with asphalt cutter and surface painted with hot bitumen before placing fresh material.
15. Traffic may be allowed after completion of the final rolling when the mix has cooled down to surrounding temperature.
16. For patch repairs it is better to use bitumen emulsions which can be applied in cold state (without heating) and on damp surfaces also.
17. On all horizontal curves some extra width of the carriageway should be provided depending upon the radius of the curve. The widening is gradually provided from some distance behind through a transition curve.

## **Schedule A**

1-The work under this contract is intended for building works and their appurtenant for Training Institute Building of Trade Taxat Dehradun. All the contractors are request to inspect the site of work and form idea as regard to approach etc. for carting of various materials before tendering. The site of work is situated at Mussuri By-Pass (Ladpur) Dehradun.

2- The details of the materials which are to be issued by the department are shown in schedule 1.

3- The drawings of the works to be executed can be seen in the office during office hours on any working day.

4- The contractor shall employ proper and efficient staff during the execution and maintenance period of the work narrated under this contract. A responsible person shall always remain available at site to receive and carry out instructions from the department at Engineers. The work shall always remain open for inspection by the Engineer-in-charge and his staff.

## **Schedule B**

List of drawing /Plans to be attached with the contract bond as per requirement of work.

1- Site plan

2- Structural Drawing

The work will be carried out by the contractors strictly according to drawing and as per plans of buildings to be repaired Engineer-in-charge in charge described by the higher. Contractor may inspect the site/drawing/plan not attached with the tender during office hours at the Unit office on all working days. These will however be incorporated in the contract bound of the contractor whose tender is accepted at the time of entering in to the agreement and shall form part of the contract Bond.

# Schedule C

## LIST OF EQUIPMENT FOR FIELD TEST LABORATORY

(Note: The list of equipment for field laboratory depends on the type/ size/ volume of work at site. The list given hereunder is for guidance and may be modified where considered by the General Manager)

### For Building Works

1. Weight balance
  - a. 7 kg to 10 kg capacity, semi-self indicating type, Accuracy- 10 gm.
  - b. 500 gm. Capacity, accuracy 10 gm.
  - c. Pan Balance – 5 Kg. capacity, 10 gm.
2. Ovens- Electricity operated, thermostatically controlled up to 220 C Sensitivity loc.
3. Sieves: as per IS 460 – 1962
  - a. IS Sieves- 450 mm internal dia, of sizes 100 mm, 80 mm, 63 mm, 50 mm, 40 mm, 25 mm, 20 mm, 12.5 mm, 10 mm, 6.3 mm, 4.75 mm complete with lid and pan.
  - b. IS Sieves- 200 mm internal dia, (brass frame) consisting of 2.36 mm, 1.18 mm, 500 microns, 425 microns, 300 microns, 212 microns, 150 microns, 150 microns, 90 microns, 75 microns with lid and pan.
4. Sieve shake capacity of 200 mm dia and 300 mm dia, sieves, manually operated with timings switch assembly.
5. Equipment for slump test – Slump Cone, Steel plate, tamping rod, steel scale, scoop.
6. Dial gauges 25 mm travel, 0.01 mm/ division Least Count – 2 Nos.
7. 100 tonnes compression testing machine, electric com manually operated.
8. Graduated measuring cylinder 200 ml capacity – 3 Nos.
9. Enamel trays (for efflorescence test for bricks).
  - a. 300 mm x 250 mm x 40 mm – 2 Nos.
  - b. Circular plates of 250 mm dia – 4 Nos.
10. Measuring devices like Water Levels, Screw Gauge, Theodolite, Vernier Calipers, Wire Gauge, and Straight Edges etc.
11. MS moulds of required sizes and in required numbers.
12. Moisture meter.

## Schedule D

The following samples shall be submitted free of cost by the contractor to the General Manager. Construction Unit, U.K. Peyjal Nigam, Dehradun or his authorised representative for approval within order to supply the work.

- |  |         |                |
|--|---------|----------------|
| 1. Fine Sand   | 0.1 cum |                |
| 2. Coarse sand   | 0.1 cum |                |
| 3. Stone aggregates of various gauges                          | 0.1 cum |                |
| 4. Spun yam (machine dade)                                     | ¼ kg    |                |
| 5. Refind pig lead for jointing pipes                          | ¼ kg    |                |
| 6. All other material/items under execution/or under agreement |         | - One nos each |

**Note :-** 1. The contractor will be maintain stock register of cement at site and will be made available at all time

at site for all inspacting staff of the construction agency.

2. Any other samples that may be required by the Project Manager during the progress of work from

time to time, the materials brought on the sites for use on the works Engineer-in-charge can be

tested by the Engineer at the cost of the contractor.

## **Schedule E**

All the tests shall be done as per latest I.S. codes or U.K. P.W.D. specification.

1. The contractor shall give guarantee for all the works to be done by him as per detailed specifications mentioned in the technical specifications for will have to be rectified various type of work as per norms relevant IS code.
2. Any cutting of road for laying pipe, rectify to the satisfaction of Engineer-in-charge
3. In case of R.C.C./P.C.C./masonry/plaster/flooring etc. structures they shall be done curing by the contractor at its own cost which is including in rates (at contractor's) for curing. No seepage shall be allowed out of the structure In case any seepage in visible all works in connection with rectification of the same have to be done by the contractor at his own cost.
4. (A) Ultra tech/ACC make cement PPC 43 MPA of IS code 1489-1991, Part – I only one month old batch will be allowed for construction.  
(B) High strength deformed steel bars Fe 500 D of I.S 1786-2008 of SAIL/TATA only will be used.
5. No extra claim will be considered in this connection for any items of work nor/for the expenditure Incurred by the contractor for arranging for the water supply required or testing the work is to be Met by him. Therefore he is supposed to see all such contingencie before quoting his rates.
6. All other tests of materials works unfinished or finished work as required by the Engineer-in-charge shall have to be done by the contractor at his own cost and no extra payment will be admissible to him.
7. It should be carefully noted by the contractor that no payment against water supply lines, electrical lines/switch etc. damaged or distrubed by the contractor during construction/repair ware will be done by the employer and will be done good for use as it was at its own cost.

## Schedule F

### Time of Completion

All the work as specified here in shall be completed in all respect, tested to the satisfaction of the Project Manager and handed over to the Nigam or the person Nominated by the Nigam to take over with in a Period of twelve calendar months (including rainy seasons) as per the following schedule from the date of order to the date of commencement of the Work.

20%	Progress	First two months
40%	Progress	Four months
60%	Progress	Six months
80%	Progress	Nine months
100%	Progress	Twelve months

The contractor's responsibility shall however not be over, until the defect liability period of one year Including one complete rainy season from the date of completion, of works, has been completed. The defect liability period shall be counted from the date the entire work under the contract is finally completed. The contractor shall have to remove all defects that may appear before commencement of defect liability period as soon as the defects are noticed and upto the time of defect liability period ends for the entire work for one year.

The contractor's attention is also drawn to the necessity for the employing qualified qualified and suitable workmen during the period of defect liability for immediate repairs of any defect that may be noticed or brought out any such defects. If the contractor fails to rectify the defect and if any expenditure in this connection is incurred by Project Manager, it shall be recoverable from him/his security/earnest money.

**Signature of Contractor.**

**Project Manager  
Construction Unit,  
Uttarakhand Peyjal Nigam  
Chakrata**



**CONSTRUCTION UNIT UTTRAKHAND PEYJAL SANSADHAN VIKAS**  
**EVAM NIRMAN NIGAM, RISHKESH (DEHRADUN)**

Name of Scheme – **Renovation of Hospital & Residential buildings of veterinary hospital, at Mussoorie Dehradun:-**

## **Schedule G**

### **GENERAL TERMS AND CONDITION**

1. The tenderers are supposed to see the site of work before tendering and they should will acquaint themselves well with all hindrances and difficulties likely to arise during the execution of works, availability of building materials and labour at the site of work for proper completion of work, No extra claim on any of above grounds will be entertained afterwards.

2. The tenderers should quote the rates for their rates for the items included in schedule G (in three parts Part-A Civil Works, Part-B Sanitary and Plumbing work Part-C Electrical Works) including Cost of all material and sand inclusive of the nearest quarry charges, royalty, collection and other taxes, No extra payment will be made on this account. Contractors are liable to produce the receipt of paying due royalty charges to the concerning deptt. Otherwise, deduction will be made from contractor's bill and will be paid to the concerning department.

3. The contractor shall maintain a store on the site. Its Watch and ward will be contractor's responsibility. The material brought in campus shall not be taken back by the contractor without the written permission of the Engineer-in-charge.

4. The quantities given in the schedule-G are approximate and it can vary to any extent on either side. However payment shall be made for the quantities actually executed and accepted by the department.

5. Security deducted shall be released only after completion of the maintenance period of one year.

i. The conditions for the issue of materials from the department given in schedule I.

ii. For the execution of the various items, relevant clauses of the detailed specifications or work will be applicable.

iii. The Tenderers are supposed to go through all the pages of this tender thoroughly before quoting their rates.

6. Extra item if any will be done by the contractor as per schedule of rates with the prior sanction of General Manager.

**Name of Work:- Renovation of Hospital & Residential Buildings of Veterinary Hospital At Mussorie, Dehradun.**

**SCHEDULE - G**

Item No.	Description of Items	Qty.	Unit	Contractor's Rate		Amount	
				In Figures	In Words		
1	2	3	4	5	6	7	8
<b>A</b>	<b>CIVIL WORK:</b>						
1	Earth work in excavation by mechanical means (Hydraulic Excavator )/ manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 Sqm on plan) including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil.	311.62	Cum				
2	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	388.81	Cum				
3	Supplying and filling in plinth with Jamuna sand under floors including, watering, ramming consolidating and dressing complete.	20.50	Cum				
4	Excavating trenches of required width for pipes, cables, etc including excavation for sockets and dressing of sides, ramming of bottoms, depth upto 1.5 m including getting out the excavated soil and then returning the soil as required, in layers not exceeding 20cm in depth including consolidating each deposited layer by ramming, watering, etc and disposing of surplus excavated soil as directed, within a lead of 50 m Pipes, cables etc. exceeding 80 mm dia. but not exceeding 300 mm dia.	46.50	Rm				
5	Diluting and injecting chemical emulsion for POST-CONSTRUCTION treatment (including the cost of chemical emulsion). With Chlorpyriphos/Lindane E.C. 20% with 1% concentration.	223.65	Sqm				
6	Supplying earth brought from out side lead upto 10 Km	125.19	Cum				

7	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level 1:4:8 (1 Cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size).	42.12	Cum			
8	Providing and laying damp-proof course 50mm thick with ce concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size).	16.68	Sqm			
9	Applying a coat of residual petroleum bitumen of penetration 80/1 of approved quality using 1.7kg per square metre on damp course after cleaning the surface with brushes and finally wit piece of cloth lightly soaked in kerosene oil.	16.68	Sqm			
10	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering all work in 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	1.93	Cum			
11	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering all work in 1:5:10 (1 cement : 5 coarse sand : 10 graded stone aggregate 40 mm nominal size)	18.15	Cum			
12	Making plinth protection 50mm thick of cement concrete 1:3: cement :3 coarse sand : 6graded stone aggregate 20mm no size) over 75mm bed by dry brick ballast 40mm nominal siz rammed and consolidated and grouted with fine sand includin finishing the top smooth	45.85	Sqm			
13	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of centring, shuttering, finishing and reinforcement - All work upto plinth level 1:1.5:3 (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size)	73.20	Cum			
14	Reinforced cement concrete work in walls (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers,abutments, posts and struts etc. upto floor five level excluding cost of centring, shuttering, finishing and reinforcement 1:1.5:3 (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size)	176.60	Cum			

15	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete. Mild steel and Medium Tensile steel bars.	298.40	Qtl			
(i)	Centring and shuttering including strutting, ropping etc. and removal of form for Foundations, footings, bases of columns, etc. for mass concrete.	416.26	Sqm			
(ii)	Suspended floors, roofs, landings, balconies and access platform.	638.05	Sqm			
(iii)	Lintels, beams, plinth beams, girders, bressumers and cantilevers.	319.11	Sqm			
(iv)	Columns, Pillars, Piers, Abutments, Posts and Struts.	360.68	Sqm			
(v)	Stairs, (excluding landings) except spiral-staircases.	56.74	Sqm			
16	Brick work with F.P.S. bricks of class designation 75 in foundation and plinth in Cement mortar 1:6 (1 cement : 6 coarse sand)	40.49	Cum			
17	Brick work with F.P.S. bricks of class designation 75 in superstructure Cement mortar 1:6 (1 cement : 6 coarse sand)	140.98	Cum			
18	Half brick masonry with F.P.S. bricks of class designation 75 in superstructure above plinth level upto floor V level Cement mortar 1:4 (1 cement : 4 coarse sand)	303.33	Sqm			
19	Brick edging 7cm wide 11.4cm. deep to plinth protection with bricks of class designation 75 including grouting with cement mortar 1:4 (1 cement : 4 fine sand)	45.85	R.M			
20	Random rubble masonry with hard stone in foundation and plinth levelling up with cement concrete 1:6:12 (1 cement: 6 coarse sand aggregate 20mm nominal size) at plinth level with Cement mortar 1:6 (1 cement : 6 coarse sand)	82.80	cum			
	Providing and fixing ISI marked flush door shutters conforming to IS: 2202 (Part I) non-decorative type, core of block board construction with frame of 1st class hard wood and well matched commercial 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters 35 mm thick including ISI marked Stainless Steel butt hinges with necessary screws.	72.58	Sqm			

(i)	Extra for providing lipping with 2nd class teak wood battens 25 mm minimum depth on all edges of shutters (over all area of door shutter to be measured) Over item no. 21	72.58	Sqm				
22	Providing and fixing M.S. grills of required pattern in frames of win M.S. flats, square or round bars etc. all complete. Fixed to steel windows by welding.	914.94	Kg				
23	Providing and fixing fly proof galvanised M.S wire gauge to windows and clerestory windows using galvanised M.S. wire gauge with average width of aperture 1.4 mm in both directions with wire of dia. 0.63 mm. (With 12 mm mild steel U beading.)	70.38	Sqm				
24	Providing and fixing ISI marked oxidised M.S.sliding door bolts with nuts and screws etc 300x16mm	25.00	Nos				
25	Providing and fixing ISI marked oxidised M.S. tower bolt black finish, (Barrel type) with necessary screws etc.						
(i)	250X10 mm	72.00	Nos				
(ii)	150x10 mm	120.00	Nos				
26	Providing and fixing ISI marked oxidised M.S. handles conforming to IS:4992 with necessary screws etc.						
(i)	125 mm	72.00	Nos				
(ii)	100 mm	120.00	Nos				
27	Extra for glazing in fixed portion	3.69	Sqm				

28	Providing and fixing factory made ISI marked steel glazed d windows and ventilators side /top /centre hung with beading members such as K11 B and K12 B etc. complete of standar steel sections, joints mitred and flash butt welded and sash tenoned and riveted with 15x3mm lugs, 10cm long, embedde cement concrete blocks 15x10x10cm of 1:3:6 (1 cement : 3 sand : 6 graded stone aggregate 20mm nominal size) or with plugs and screws or rawl plugs and screws or with fixing clips bolts and nuts as required, including providing and fixing of pivots, float glass panes with glazing clips and special metal sash of approved make and a priming coat of approved steel pri excluding the cost of metal beading and other fittings exce necessary hinges or pivots complete as per approved design.	70.38	Sqm			
29	Providing and fixing T-iron frames for doors, windows and ventilators of mild steel Tee-sections with (40x40x6), joints mitred and welded with 15x3 mm lugs 10cm long embedded in cement concrete blocks 15x10x10 cm of 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) or with wooden plugs and screws or rawl plugs and screws or with dash fastener or with fixing clips or with bolts and nuts as require including fixing of necessary butt hinges and screws and applying a priming coat of approved steel primer.	839.37	Kg			
30	Providing and fixing circular/ Hexagonal cast iron or M.S. sheet bo ceiling fan clamp of internal dia 140mm, 73mm height, top lid of 1. thick M.S. sheet with its top surface hacked for proper bonding, to shall be screwed into the cast iron/ M.S. sheet box by means of 3. dia. round headed screws, one lock at the corners. Clamp s made of 12mm dia M.S. bar bent to shape as per standard drawing	20.00	Nos.			
31	Steel work welded in built up section/framed work including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using steel etc. as required. In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works.	609.45	Kg			
32	P/F M.S. Structural glazing.	17.14	Sqm			

33	Cement concrete flooring 1:2:4 (1 cement: 2 coarse sand : 4 graded stone aggregate) finished with a floating coat of neat cement including cement slurry, but excluding the cost of nosing of steps etc. complete. 40mm thick with 20mm nominal size stone aggregate.	213.98	Sqm			
34	40 mm thick marble chips flooring, rubbed and polished to granolit layer 3mm thick cement concrete 1:2:4 (1 cement: 2 coarse sand aggregate 12.5mm nominal size) and top layer 9mm thick with whi grey, yellow or green marble chips of sizes from 4mm to 7mm no cement marble powder mix 3:1 (3 cement: 1 marble powder) by w of 4:7 (4 cement marble powder : 7 marble chips) by volume inclu etc. complete. Dark shade pigment with Ordinary cement	203.81	Sqm			
35	Providing and fixing glass strips in joints of terrazo/ cement concrete floors. 40 mm wide and 4 mm thick.	1076.31	Rm			
36	Providing and fixing M.S. angle 50x50x5 mm to act as nosing with of M.S. flat 10x5 mm 10cm long forked at end 60cm apart three lugs to be provided) including necessary welding and ap priming coat of approved primer on exposed surface etc. complete.	468.88	Kg.			
37	Providing and laying Ceramic glazed floor tiles 300x30mm(thickness) to be specified by the (manufacturer) of 1st quality conforming to IS :15622 of approved make in colours such as White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick Cement Mortar 1:4 (1Cement :4Coarse sand) including pointing the joints with white cement and matching pigment etc., complete.	190.36	Sqm			
38	Providing and laying vitrified floor tiles in different sizes (thickness by the manufacturer) with water absorption's less than 0.08% and IS : 15622 of approved make in all colours and shades, laid on 20 mortar 1:4 (1 cement: 4 coarse sand) including grouting the joints					
(i)	Size of Tile 60x60 cm	162.42	Sqm			
39	Providing gola 75x75 mm in cement concrete 1:2:4 (1 ceme coarse sand : 4 stone aggregate 10mm and down gauge) in finishing with cement mortar 1:3 (1 cement : 3 fine sand) standard design : In 75x75mm deep chase	80.01	Rm			

40	Making khurras 45x45 cm with average minimum thickness o cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 grad aggregate of 20 mm nominal size) over P.V.C. sheet 1mx1mx400micron, finished with 12mm cement plaster 1:3 (1 ce 3 coarse sand) and a coat of neat cement rounding the edg making and finishing the outlet complete.	5.00	Nos.				
41	Providing and fixing M.S. holder bat clamps of approved design to water pipes embedded in and including cement concrete blocks 10 1:2:4 mix (1 cement: 2 coarse sand : 4 graded stone aggregate 2 and cost of cutting holes and making good the walls etc.						
(i)	100 mm diameter	10.00	nos.				
(ii)	Single tee with door 110x110x110 mm	5.00	nos.				
(iii)	Bend 87.5° 110 mm bend	5.00	nos.				
(iv)	Shoe (Plain) 110 mm Shoe	5.00	nos.				
42	12 mm thick cement plaster in 1:6 ( 1 cement and 6 fine sand) mortar including supply of all material , labour and T&P etc. required for proper completion of the work.	896.39	Sqm				
43	15 mm thick cement plaster in cement mortar 1:6 on Rough face of brick wall including supply of all material , labour and T&P etc.	1496.98	Sqm				
44	6 mm cement plaster 1:3 (1 cement: 3 fine sand) finished with a floating coat of neat cement and thick coat of Lime wash on top of walls when dry for bearing of R.C.C. slabs and beams.	716.31	Sqm				
45	White washing with lime to give an even shade: New work (three or more coats)	691.67	Sqm				
46	Distemping with oil bound washable distemper of approved brand and manufacture to give an even shade						
	New work (two or more coats) over and including priming coat with cement primer	1496.98	Sqm				
47	Finishing wall with water proofing cement paint of required shade New work (Two or more coats applied @ 3.84 kg/10 sqm).	921.03	Sqm				
48	Applying priming coat With ready mixed pink or Grey primer of approved brand and manufacture on wood work (hard and soft wood)	159.68	Sqm				



49	Applying priming coat With ready mixed red oxide zinc chromate primer of approved brand and manufacture on steel galvanised iron/steel works	239.05	Sqm			
50	Painting with synthetic enamel paint of approved brand and manuf colour to give an even shade Two or more coats on new work over an under coat of suitable sha paint of approved brand and manufacture.	398.73	Sqm			
51	Providing and fixing water closet squatting pan (Indian type W.C. pan ) with 100mm White Vitreous china Orissa pattern W.C. pan of size 580x440mm foot rests.	3.00	Nos			
52	Providing and fixing white vitreous china pedestal type water closet (European type ) W.C. pan with ISI marked white solid plastic seat and lid.	6.00	Nos			
53	Providing and fixing wash basin with C.I. brackets, 15 mm C.P. brass pillar taps,32 White Vitreous China Wash basin size 630x450 mm with a pair of 1 pillar taps.	8.00	Nos			
54	Providing and fixing Stainless Steel AISI 304 (18/8) kitchen sink as per IS 13983 Kitchen sink with drain board 510x1040 mm bowl depth 250mm.	2.00	Nos			
55	Providing and fixing P.V.C. waste pipe for sink or wash basin including P.V.C. 32mmdia	10.00	Nos			
56	Providing and fixing mirror of superior glass (of approved quality) and of Rectangular shape 453x357mm	8.00	Nos			
57	Providing and fixing PTMT towel rail complete with brackets fixed to wooden of 450mm long towel rail with total length of 495mm, 78mm wide and effective height of 88mm, weighing not less than 170gms.	8.00	Nos			
58	Providing and fixing Upvc nahani trap 100x100mm dia.	12.00	Nos			
59	Providing and fixing Upvc terminal guard 100mm dia.	7.00	Nos			
60	Providing and fixing Upvc door band 100mm dia.	14.00	Nos			
61	Providing and fixing G.I. medium class pipes complete with G.I. medium fittings and clam cutting and making good the walls etc. Internal work - Exposed on 15 mm dia. nominal bore	84.80	RM			

62	Providing and fixing G.I. medium class pipes complete with G.I. medium class fittings and clam cutting and making good the walls etc. Internal work - Exposed on 25 mm dia. nominal bore	19.10	RM			
63	Providing and fixing G.I. pipes complete with G.I. medium class Concealed pipe with anti corrosive bitumastic paint, cutting chases and making good the wall 15 mm dia nominal bore	75.70	RM			
64	Providing and fixing PTMT soap Dish Holder having length of 138mm 102mm, height of 75mm with concealed fitting arrangements weigh than 106 gms.	8.00	Nos			
65	Providing and fixing G.I. medium class pipes complete with G.I. medium class fittings including refilling etc. (external work) 25 mm dia. nominal bore	50.00	RM			
66	Providing and fixing gun metal gate valve with C.I. wheel of appro (screwed end) 25 mm nominal bore	2.00	Nos			
67	Providing and fixing gun metal gate valve with C.I. wheel of appro (screwed end) 20 mm nominal bore	7.00	Nos			
68	Providing and fixing ball valve (brass) of approved quality complete for High or low pressure with plastic floats of 20 mm nominal bore	3.00	Nos			
69	Providing and fixing with G.I. medium class fittings for PVC tanks.	3.00	Set			
70	Providing and placing on terrace (at all floor levels) polyethylene w tank ISI : 12701 marked with cover and suitable locking arrangement necessary holes for inlet, outlet and overflow pipes but without fitti base support for tank	7000.00	Lit.			
71	Providing and fixing C.P. brass bib cock of approved quality conforming to IS:8932 of 15 mm nominal bore	19.00	Nos			
72	Providing and fixing C.P. brass stop cock (concealed) of standard design and of approved make conforming to IS:8931. of 15mm nominal bore.	17.00	Nos			
73	Providing and fixing PTMT grating of approved quality and colour. Circular type. of 100 mm nominal dia.	16.00	Nos			
74	Providing and fixing unplasticised P.V.C. connection pipe with PTMT approved quality and colour. 15 mm nominal bore with 45 cm length.	17.00	Nos			

75	Providing, laying and jointing glazed stoneware pipes grade 'A' with stiff mixture with cement mortar 150 mm diameter	46.50	R.M			
76	Providing and laying cement concrete 1:5:10 (1 cement : 5 coarse sand : 10 graded 150 mm diameter S.W, pipe	46.50	R.M			
77	Providing and fixing square-mouth S.W. gully trap grade 'A' complete with C.I. 100x100 mm size P type With F.P.S. Bricks class designation 75	7.00	Nos			
78	Constructing brick masonry manhole in cement mortar 1:4 ( 1 cement : 4 coarse Inside size 90x80 cm and .45 cm deep including C.I. cover with fra 455x610 mm internal dimensions total weight of cover and frame t than 38 kg (weight of cover 23 kg and weight of frame 15 kg): With F.P.S. bricks with class designation 75	10.00	Nos			
79	Extra for depth for manholes Size 90x80x45 cm With Sewer bricks conforming to IS : 4885	2.20	R.M			
80	Making soak pit 2.5 m diameter 3.0 metre deep with 45 x 45 cm dry brick honey With F.P.S. bricks	1.00	Nos			
81	Providing and laying water proofing treatment in sunken porti WCs, bathroom etc., by applying cement slurry mixed with proofing cement compound consisting of applying : a) First la slurry of cement @ 0.488 kg/sqm mixed with water proofing compound @ 0.253 kg/sqm. This layer will be allowed to air cure f hours. b) Second layer of slurry of cement @ 0.242 kg/sqm with water proofing cement compound @ 0.126 kg/sqm. This will be allowed to air cure for 4 hours followed with water curing fo hours. The rate includes preparation of surface, treatment an sealing of all joints, corners, junctions of pipes and masonry polymer mixed slurry.	80.86	Sqm			

82	<p>Providing and laying integral cement based water proofing treat including preparation of surface as required for treatment of balconies, terraces etc consisting of following operations: a) Appl a slurry coat of neat cement using 2.75 kg/sqm. of cement ad with water proofing compound conforming to IS. 2645 and appro by Engineer-in-charge over the RCC slab including adjoining upto 300mm height including cleaning the surface before treatm b) Laying brick bats with mortar using broken bricks/brick bats 25 to 115mm size with 50% of cement mortar 1:5 (1 cement : 5 sand) admixed with water proofing compound conforming to IS : 2 and approved by Engineer-in-charge over 20 mm thick layer cement mortar of mix 1:5 (1 cement :5 coarse sand ) admi water proofing compound conforming to IS : 2645 and appro Engineer-in-charge to required slope and treating similarly th walls and slabs c) After two days of proper curing applying a sec coat of cement slurry using 2.75kg/ sqm of cement admixed water proofing compound conforming to IS : 2645 and appro Engineer-in-charge. d) Finishing the surface with 20 mm thic jointless cement mortar of mix 1:4 (1 cement :4 coarse san admixed with water proofing compound conforming to IS : 264 approved by Engineer-in-charge including laying glass fibre cl approved quality in top layer of plaster and finally finishing the surf with trowel with neat cement slurry and making pattern of mm square 3mm deep. e) The whole terrace so finished sha flooded with water for a minimum period of two weeks for curing for final test. All above operations to be done in order and as direct and specified by the Engineer-in-Charge : With average thickness at khurra as 65 mm</p>	155.44	Sqm				
83	Dismantling & Removal of Old Material	L.s	Job				

I / We have gone through all the instructions, conditions, specifications and bill of quantities etc. of the tender form which shall be part of the agreement and here by agree to abide by them fully and offer to execute the work on the rates quoted above by me / us in the bill of quantities.

Opened By

**SCHEDULE 'H'**

S.No.	Description of Works	Quantity	Rate Tendered			Amount	Ramark
			Quantities	In Figures	In Words		

**Project Manager**  
 Construction Unit,  
 Uttrakhand Pey Jal Nigam,  
 Chakrata

## **SCHEDULE 'I'**

All required material for construction of building such as Bricks, Sand, Stone, Grit, Cement, Steel, Doors, Windows etc supplied by the contractor. The rates of all such items will be included in the work's rate.

**SUMMARY OF COST**

<b>Sl.No.</b>	<b>DESCRIPTION</b>	<b>Amount Rs.</b>	<b>Remarks</b>
<b>Total of Schedule "G"</b>			

[Empty rectangular box for stamp or signature]

Total Amount of tender

in words.....

.....

Name of Contractor.....

Address.....

Date.....

Witness.....

Date.....

Tender opened by .....

**General Manager**

Construction Wing  
Uttarakhand peyjal Sansadhan Vikas  
Evam Nirman Nigam  
Dehradun (Dehradun)

In presence of :

1.....

2.....

3.....

4.....

5.....

6.....