

# STANDARD BIDDING DOCUMENT

## PROCUREMENT OF WORKS SEALED QUOTATION



FOR

CONSTRUCTION OF STORE WITH ROOM

AT

POKHARIYA SUBSTATION

POKHERIYA, PARSA

**"SEALED QUOTATION NO: NEA/BRJDC-2073.074-SQ-3(RE)"**



Nepal Electricity Authority

(Nepal Government Undertaking)

DISTRIBUTION AND CONSUMER SERVICE DIRECTORATE

HETAUDA REGIONAL OFFICE

BIRGUNJ DISTRIBUTION CENTER, BIRJUNG, PARSA

Publish Date: 2074/02/25

Last Purchase Date: 2074/03/08(Office Time)

Last Date of Submission/Opening: 2074/03/09(Time-12:00, 14:00)

Place of Submission: Birgunj Distribution Center, Birgunj, Parsa

**Issued To:**

M/S .....

Address: .....

JUNE 2017

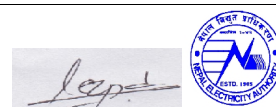
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# **SECTION - 1**

# **INVITATION FOR BIDS**





## नेपाल विद्युत् प्राधिकरण वीरगन्ज वितरण केन्द्र

### सिलबन्दी दरभाउपत्र आह्वानको सूचना

(प्रथमपटक प्रकाशित मिति : २०७४।०२।२५)

दरभाउपत्र नं.	कामको विवरण	सिलबन्दी दरभाउपत्र खरिद गर्ने अन्तिम मिति र समय	सिलबन्दी दरभाउपत्र दाखिला गर्ने र खोलिने अन्तिम मिति र समय	सिलबन्दी दरभाउपत्र फाराम दस्तुर रु.	बैंक खाता नं	दरभाउपत्र खरिद गर्ने स्थान	दरभाउपत्र दाखिला गर्ने स्थान	इंष्टिमेन्ट रकम (भ्याटसहित)	जमानीपत्रको म्याद र रकम
NEA/BRJ DC-2073/074-SQ-3 (RE)	स्टोर सहितको कोठा निर्माण कार्य ।	२०७४।०३।८ गते कार्यालय समयसम्म	२०७४।०३।९ गते दाखिला मध्यान्ह १२:०० बजे र खोल्ने २:०० बजे	रु.५००/००	नविल बैंक लिमिटेड ०१०१०५००३५३	वीरगन्ज वितरण केन्द्र, वीरगन्ज	वीरगन्ज वितरण केन्द्र, वीरगन्ज	रु. ९३१,०००।४६	७५ दिन / रु. २६,०००।००

ने.वि.प्रा., वीरगन्ज वितरण केन्द्रमा निम्न कार्य गराउनुपर्ने भएकोले नेपाल सरकारबाट सम्बन्धित कार्यको इजाजत प्राप्त मुल्य अभिवृद्धि करमा दर्ता भएको आयकार तिरका, फर्म नविकरण तथा अद्यावधिक भएका फर्म कम्पनीहरूबाट सिलबन्दी दरभाउपत्र आह्वान गरिएको छ ।  
निम्नतम जानकारी तथा दरभारूप डाउनलोड गर्न ने. वि. प्रा.को website: [www.e-nea.org.np](http://www.e-nea.org.np) तथा कार्यालय समयभित्र टेलिफोन नं.मा ०५१-५२१०५० मा सम्पर्क गर्न सकिन्छ ।



## नेपाल विद्युत् प्राधिकरण

काठमाडौं क्षेत्रीय कार्यालय

### बोलपत्र/सिलबन्दी दरभाउपत्र आह्वानको सूचना

मिति : २०७४/०२/२५

यस क्षेत्रीय कार्यालयअन्तर्गत तर्फसिल अनुसारका कार्यहरू गर्न नेपाल सरकारबाट सम्बन्धित कार्यका लागि इजाजत प्राप्त मु.अ.कर (भ्याट)मा दर्ता भएका आयकार तिरका रजिष्टर्ड फर्महरूबाट निम्न सर्तहरूका अधिनमा रही बोलपत्र/सिलबन्दी दरभाउपत्र आह्वान गरिएको छ । साथै E-Bidding बाट प्रस्ताव पेश गर्न चाहनेका लागि ने.वि.प्रा.को वेबसाईट <http://www.e-nea.org.np> बाट बोलपत्र/सिलबन्दी दरभाउपत्र फाराम डाउनलोड गरी नियमानुसार पेश गर्न सकिनेछ । उल्लेखित बोलपत्र/दरभाउपत्रसँग सम्बन्धित आवश्यक कुराहरू बुझ्नु परेमा कार्यालय समयभित्र सम्बन्धित कार्यालयबाट बुझ्न सकिनेछ ।

सि. नं.	वितरण केन्द्र	बोलपत्र/सिलबन्दी दरभाउपत्र नं.	कार्यको विवरण	बोलपत्र/सिलबन्दी दरभाउपत्र नं खरिद गर्ने कार्यालय	बोलपत्र/सिलबन्दी दरभाउपत्र नं दाखिला/खोल्ने मिति र समय	बोलपत्र/सिलबन्दी दरभाउपत्रको दस्तुर	बैंक तथा धरोटी खाता नं., ठेगाना	बिडवण्ड रकम रु	बिडवण्ड अवधि	अनुमानित लागत रकम रु (भ्याटवाहेक)
१	धुन्चे वितरण केन्द्र	NEA/DDC/2073/074/CIVIL-02	Construction of Office Building	सूचना प्रकाशित मितिले ३०औं दिनको कार्यालय समयभित्रमा ने.वि.प्रा.,काठमाडौं क्षेत्रीय कार्यालय, रत्नपार्कबाट खरिद गर्न सकिनेछ ।	प्रथम पटक सूचना प्रकाशित भएको मितिले ३१औं दिनको १२ बजेभित्र दर्ता गरी सोहि दिन २ बजे पछि खोलिनेछ	रु ३०००।-	एन.एम.वी. बैंक लि., ०२५००६०००१४६०००००५३	१,२५०००।-	कम्तिमा १२० दिन म्याद भएको	४४,००,६४१।३०



### बोलपत्र आह्वानको सूचना

**श्री प्रबन्ध तथा सभाररथी विभाग, सैनिक सामग्री प्राप्ती निर्देशनालय, प्राप्ती महाशाखा (स्वदेश शाखा), जंगी अड्डा**  
शान्ति स्थापनाथ खट्टीने मिशनको लागि आवश्यक पर्ने विभिन्न सामानहरूको बोलपत्र संशोधन गरिएको ।

(मिति २०७४/०२/२५ गते)

१. शान्ति सेना संचालन निर्देशनालयको लागि त्रिनिजोर्जित बजेटबाट RDL अन्तर्गत 1xInfantry Battalion (850) मिशनको लागि आवश्यक पर्ने सामानहरूको सिलबन्दी बोलपत्रको माध्यमबाट खरिद गर्न यस विभागबाट मिति २०७४/०२/१६ गतेको गोरखापत्र दैनिकमा प्रथम पटक प्रकाशित तपशिलमा उल्लेखित बोलपत्रहरूको बैंक जमानी पेश गर्नुपर्ने रकम अन्यथा भएको हुंदा सबैको जानकारीको लागि यो संशोधन सूचना प्रकाशित गरिएको छ ।

ठेक्का नं.	सामानको विवरण	परिमाण	बैंक जमानि पेश गर्ने अंक ने.रु.	बोलपत्र दस्तुर ने.रु.	बोलपत्र मान्य हुने अवधि	बोलपत्र खरिद गर्ने अन्तिम मिति र समय	बोलपत्र दर्ता गर्ने अन्तिम मिति र समय	बोलपत्र खोल्ने मिति र समय	कै
१५३	Catering Items	विभिन्न	३,८५,५००/-	५,०००/-	१२० दिन	२०७४।०३।०१ गतेको कार्यालय समयभित्र	२०७४।०३।०२ गतेको १२०० बजेभित्र	२०७४।०३।०२ गतेको १३०० बजे	
१५४	Communication Items	विभिन्न	३२,२६,०००/-	१०,०००/-					
१५९	Tentage & Air Condition Items	विभिन्न	३६,७६,०००/-	१०,०००/-					

- योग्य बोलपत्रदाताहरूले यस सम्बन्धि थप जानकारीको लागि यस कार्यालयको निम्न ठेगानामा सम्पर्क राख्न सक्नेछन् :  
खरिदकर्ताको नाम : श्री प्रबन्ध तथा सभाररथी विभाग, सैनिक सामग्री प्राप्ती निर्देशनालय, प्राप्ती महाशाखा (स्वदेश शाखा), जंगी अड्डा काठमाण्डौ ।  
फोन नं. : ०१-४२४१७९९, फ्याक्स नं. : ०१-४२२६०३९, ईमेल : [mgo-swodesh@nepalarmy.mil.np](mailto:mgo-swodesh@nepalarmy.mil.np)
- योग्य बोलपत्रदाताले बोलपत्र सम्बन्धी कागजातहरू यस विभाग, जि.प्र.का. र को.ले.नि.का बाट रितपूर्वकको लिखित निवेदन पेश गरी प्राप्त गर्न सक्नेछन् । निवेदनको साथमा कम्पनी/फर्म दर्ता प्रमाणपत्रको प्रतिलिपि र बोलपत्र सम्बन्धी कागजातको दस्तुर पेश गर्नु पर्नेछ ।
- सिलबन्दी गरिएको बोलपत्र प्रबन्ध तथा सभाररथी विभाग, सैनिक सामग्री प्राप्ती निर्देशनालय, प्राप्ती महाशाखा (स्वदेश शाखा), जंगी अड्डा, भद्रकाली, काठमाण्डौमा मिति २०७४/०३/०२ गतेको १२०० बजे भित्र बुझाउनु पर्नेछ । हिलो गरी प्राप्त बोलपत्र स्वीकार गरिने छैन ।
- बोलपत्र पेश गर्ने र खोल्ने दिन सार्वजनिक विदा परेमा त्यसको भोलीपल्ट पेश गर्ने तथा खोल्ने अन्तिम मिति कायम हुनेछ ।
- कुनै वा सबै बोलपत्र, पुरै वा आंशिक रूपमा स्वीकार गर्ने वा अस्वीकार गर्ने अधिकार खरिदकर्तामा निहित रहने छ ।
- उल्लेखित सामानहरूको नमुना माग गरेमा यस विभागमा पेश गर्नु पर्नेछ ।



*[Signature]*

# SECTION - II INSTRUCTION TO BIDDERS



*Handwritten signature*

## Section II. -Instructions to Bidders

### Instructions to Bidders

#### A. General

1. **Scope of Works** The Employer invites bids for the **Construction of Store With Room at Pokheriya Substation, Pokhariya, Parsa** as per attached specifications, drawings and the bill of quantities herein. The successful Bidder is expected to complete the works as mentioned in the Bidding Data.
2. **Eligible Bidder** This Invitation for Bids is open to all registered contractors with qualifications as described in the Bidding Data.
3. **One Bid per Bidder** Each Bidder shall submit only one quotation. A Bidder who submits more than one quotation shall cause all the quotations with the Bidder's participation to be disqualified.
4. **Cost of Bidding** The Bidder shall bear all costs associated with the preparation and submission of his bid and the Employer will in no case be liable for those costs.
5. **Site Visit** The Bidder at his own cost, responsibility and risk may visit the site of the works and acquire all necessary information for preparing the bid and entering into a contract for construction of the works.
6. **Content of Tender Form** The Quotation Form comprise the documents listed below:
  - Invitation for Sealed Tender
  - Instructions to Bidders
  - Forms of Bid, Letter of Acceptance and Agreement
  - General Conditions of Contract (GCC)
  - Special Conditions of Contract (SCC)
  - Technical Specification
  - Drawings
  - Bill of Quantities
  - Sample Forms of Securities
7. **Clarification of Bidding Documents** A prospective Bidder may obtain clarification on the Tender Form From the Employer.
8. **Language of Bid** All documents relating to the bid shall be in English or in Nepali.
9. **Documents Comprising Bid** The bid by the Bidder shall comprise the following:
  - Bid and Eligibility Information
  - Bid Security
  - Priced Bill of Quantities
10. **Bid Prices** The contract shall be for the whole works described in scope of works based on the priced Bill of Quantities submitted by the Bidder. The Bidder shall fill in rates and prices for all items of the works in Nepali Rupees. Items for which no rate or price is entered shall be deemed covered by the other rates and prices in the Bill of Quantities and shall not be paid separately by the Employer.



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All duties, taxes and other levies payable by the contractor under the contract shall be included in the rates, prices and total Bid Price submitted by the Bidder.

- 11. Bid Validity** The Bid shall remain valid for the period of 45 days after opening of the quotation.
- 12. Bid Security** The Bidder shall furnish a Bid Security in Nepali Rupees in the amount as stated in the document of the bid The Bid Security shall remain valid for a period of 75 days after opening of the quotation.  
The Bid Security shall be in the form of cash voucher deposited in the Bank Account of the Employer specified in the notice for "Invitation for Quotation" or a bank guarantee from a bank acceptable to the Employer.
- 13. Format and Signing of Bids** The bid shall be typed or written in indelible ink and shall be signed by an authorized person. Any entries or amendments including alternations, additions or corrections made shall be initialled by the same authorized person.
- 14. Sealing and Marking of Bids** The Bidder shall submit his bid in sealed envelopes. The envelope shall be addressed to the Employer specified in the Invitation for Quotation and shall bear the name and identification number of the quotation.
- 15. Deadline for Submission of Bids** Bids shall be delivered to the Employer at the address no later than the time and date specified in the Invitation for Quotation.
- 16. Late Bids** Any bid received by the Employer after the deadline shall not be accepted and shall be returned unopened to the Bidder upon request.
- 17. Modification and Withdrawal of Bids** Bids once submitted shall not be withdrawn or modified.
- 18. Bid Opening** The Employer shall open the bids in the presence of the Bidders' representatives who choose to attend at the time and in the place as specified in the Invitation for Quotation. The Employer shall prepare and provide minutes of the bid opening including the information disclosed to those present.
- 19. Process to be Confidential** Information relating to the examination, evaluation and comparison of bids and recommendations for the award of a contract shall not be disclosed to Bidders or any other persons not officially concerned with such process until the award to the successful Bidder has been announced. Any efforts by the Bidder to influence the Employer in the bid evaluation, bid comparison or contract award decisions may result in rejection of Bidder's bid.
- 20. Examination of Bids** Prior to the detailed evaluation of Bids, the Employer shall determine whether each bid (a) meets the eligibility criteria defined in Clause 2; (b) has been properly signed; (c) is accompanied by the required securities; and (d) is substantially responsive to the requirements of the Bidding documents.
- 21. Evaluation and Comparison of Bids**
- 21.1 In evaluating the Bids, the Employer shall determine for each bid the evaluated Bid Price by adjusting any corrections for errors. Bids shall be checked by the Employer for any arithmetic errors. Errors shall be corrected by the Employer as follows:
- a where there is a discrepancy between the amounts in figures and in words, the amount in words shall govern; and
- b. where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted shall govern



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- 21.2 If the Bidder does not accept the corrected amount, the bid shall be rejected and the Bid Security may be forfeited.
- 22. Award of Contract**
- 22.1 The Employer shall decide the award of the contract to the Bidder whose bid is within the approved estimate and who has offered the lowest evaluated Bid Price within 15 days of the opening of the quotation, provided that such Bidder has been determined to be eligible in accordance with the provisions of Clauses 2.
- 22.2 If the bid, which results in the lowest Evaluated Bid price, is unbalanced or frontloaded in relation to the Employer's estimate of the items of Work to be performed under the contract, the Employer shall ask the bidder to give clarification with detailed rate analysis for any or all items of the Bill of Quantities. If the clarification is found satisfactory then the Employer shall increase at the expense of the bidder the performance security set forth in Clause 25 by an additional 8% of the quoted amount to protect the Employer against financial loss in the event of default of the successful bidder under the contract and if the clarification is found unsatisfactory then the Employer may reject such bid.
- 23. Employer's Right to Accept any Bid and to Reject any or all Bids**
- The Employer reserves the right to accept or reject any bid or to cancel the bidding process and reject all bids, at any time prior to the award of the contract, without assigning any reasons whatsoever and without thereby incurring any liability to the affected Bidder or Bidders.
- 24. Notification of Award and Signing of Agreement**
- 24.1 The Bidder whose bid is accepted and all other participating bidders shall be notified of the award by the Employer.
- 24.2 The notification (hereafter called the "Letter of Acceptance") to the successful Bidder shall state the sum that the Employer shall pay the Bidder in consideration of the execution, completion, and maintenance of the works as described by the contract. Within 7 days of receipt of the Letter of Acceptance, the successful Bidder shall deliver the Performance Security pursuant Clause 25 and sign the Agreement.
- 24.3 Inability of the Bidder to make an Agreement within the above stated period shall result in cancellation of the Contract Award and forfeiture of the Bidder's Bid Security, upon which the Contract shall then be awarded to the next successive successful Bidder.
- 25. Performance Security**
- The successful Bidder shall deliver to the Employer a Performance Security in cash or Bank Guarantee acceptable to the Employer as stated in Condition of contract..
- 26. Additional Securities**
- The Bidder may be required to provide additional Performance Security as stated in Condition of contract to provide additional security for signing of the Contract Agreement. Bidder's failure to do provide additional security shall result in forfeiture of the Bid Security and award of the Contract to the next lowest evaluated Bidder
- 27. Corrupt or Fraudulent Practices**
- The Employer shall reject a bid for award if it determines that the Bidder recommended for award of contract has engaged in corrupt or fraudulent practices in competing for the contract in question.
- 28. Conduct of Bidders**
- 28.1 The Bidder shall be responsible to fulfil his obligations as per the requirement of the Contract Agreement, Bidding documents, GoN's Procurement Act and Regulations.



28.2 The Bidder shall not carry out or cause to carryout the following acts with an intention to influence the implementation of the procurement process or the procurement agreement :

- a) give or propose improper inducement directly or indirectly,
- b) distortion or misrepresentation of facts
- c) engaging or being involved in corrupt or fraudulent practice
- d) interference in participation of other prospective bidders
- e) coercion or threatening directly or indirectly to cause harm to the person or the property of any person to be involved in the procurement proceedings,
- f) collusive practice among bidders before or after submission of bids for distribution of works among bidders or fixing artificial/uncompetitive bid price with an intention to deprive the Employer the benefit of open competitive bid price.
- g) contacting the Employer with an intention to influence the Employer with regards to the bid or interference of any kind in examination and evaluation of the bids during the period after opening of bids up to the notification of award of contract

### 29. Blacklisting Bidder

29.1 Without prejudice to any other right of the Employer under this Contract, GoN, Public Procurement Monitoring Office may blacklist a bidder for his conduct up to three years on the following grounds and seriousness of the act committed by the bidder:

- a) if it is proved that the bidder committed acts pursuant to the Sub - Clause 28.2,
- b) if the bidder fails to sign an agreement pursuant to Sub - Clause 24.2,
- c) if it is proved later that the bidder/contractor had committed substantial defect in implementation of the contract or had not substantially fulfilled his obligations under the contract or the completed work is not of the specified quality as per the contract ,
- d) if convicted by a court of law in a criminal offence which disqualifies the bidder from participating in the contract.
- e) if it is proved that the contract agreement signed by the bidder was based on false or misrepresentation of bidder's qualification information,
- f) Other acts mentioned in the Bidding Data 29 A firm declared blacklisted and ineligible by the GON shall be ineligible to bid for a contract during the period of time determined by the PPMO.

### 30. Power of Attorney

- a. The Bid shall include a notarized power of attorney authorizing the signatory of the bid to document the Bid on behalf of Bid.



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## **Special Instruction to Bidders for E-Bidding**

### **A) Bid submission procedures through electronically (e-submission) only:**

- i. Interested eligible bidders shall, either purchase the hard copy of the bidding document directly from the Employer's office as specified in the Invitation for Bid (IFB) or may download the necessary parts of the bidding documents from e-procurement section in NEA's web site <http://www.e-nea.org.np>. In case, the bidders choose to download the bidding documents, prepare the bids on downloaded documents, and submit their bids electronically. The Bidders shall be required to deposit the non refundable fee for the bidding document (as specified in the bid notice) in the bank account specified in the IFB and electronic scanned copy (\*.pdf format) of the bank deposit voucher shall also be submitted along with the electronic bid files.
- ii. The Bidder shall fill the following documents and forms (in hard copy of issued bid documents), signed by the authorized representative with seal of the company.
  - a) Bill of Quantity (BOQ) with rate, amount, b) Forms of Bid, Qualification Information

The Bidder shall then scan the completed original documents, forms in PDF formats with appropriate filename shown in the table below.

S.No.	Document	PDF File name	Requirement	Remarks
1	Form of Bid	Bid form -1	Mandatory	
2	Bid Security (Bank Guarantee)	Bid security-2	Mandatory	
3	Company registration,	Company reg-3	Mandatory	All firms in case of JV
4	VAT/PAN registration,	VAT reg-4	Mandatory for National firms	All firms in case of JV
5	Tax clearances certificate,	Tax-5	Mandatory for National firms	All firms in case of JV
6	Power of Attorney of Bid signatory	Power of att-6	Mandatory	
7	Joint venture agreement	JV doc-7	Mandatory	Mandatory in case of JV only
8	Qualification Information	Qualifications-8	Mandatory	
9	BOQ with rate, amount and total amount	BOQ-9	Mandatory	
10	Manufacturers Authorization	Authorization -10	Not Mandatory	NA
11	Technical Data Sheet	TDS-11	Not Mandatory	NA
12	Certification Documents	Certifications-12	Not Mandatory	NA
13	Declaration Form	Declaration-13	Mandatory	

Note: **Mandatory** means the mentioned files shall be included in e-submission and non-submission of such file shall be considered as non-responsive bid.



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- iii. For e-submission purpose the Bidder shall, at first, register in the e-procurement section NEA's web site <http://www.e-nea.org.np> .
- iv. After preparing all the required bidding documents in PDF, scan the files as specified in (ii).
- v. The Bidder shall upload the PDF bid files and submit the complete bid online through e-procurement section of NEA's website <http://www.e-nea.org.np> within the specified date and time.
- vi. The e-procurement system will accept the e-submission of bid from the date after publishing of notice and will automatically disallow the e-submission of bid after the deadline for submission of bid, as specified above.
- vii. The standard time for e-submission is Nepalese Standard Time as set out in the server of MIS Department of NEA.
- viii. When a bidder submits his bid in hard copy, the e-procurement section does not allow the bidder to submit his Substitution or Modification or Withdrawal through e-procurement section of NEA's web site.
- ix. Bidders may submit his Substitution or Modification or Withdrawal either in hard copy or through e-submission.
- x. For Substitution of Bid, the Bidder shall follow similar steps as specified in ITB Clause -22 with a Substitution letter in PDF file.
- xi. For Modification or Withdrawal of bid, the Bidder is required to submit PDF scan copy of their Modification or Withdrawal letter and a written Power of Attorney of the signatory for Modification/ Withdrawal, duly signed by Authorized Representative/s of the Firm / all authorized Joint Venture partners.
- xii. When a Bidder submits electronic bid by downloading the bidding documents from the NEA's webpage it is assumed that the Bidder prepares his bid by studying and examining all the Bidding documents including specifications and conditions of contract.
- xiii. In case the Bidder choose to download the bidding documents and deposit the cost of bidding documents (as specified in the bid notice), such deposited amount shall be verified by the office during bid evaluation process. The bid shall be considered as non-responsive and shall not be evaluated if the specified cost for bidding document is not deposited in the Employer's Revenue account.
- xiv. Proposed facility for submission of bid electronically through e-submission is to increase transparency, non-discrimination, equality of access, and open competition. The Bidders shall be fully responsible to use the e-submission facility in e-procurement section of NEA's website <http://www.e-nea.org.np> in specified procedures and in no case the Employer shall be held liable for Bidder's inability to use this facility.

**B) Requirements and Conditions for e-submission of bid:**

- i. The Bidder shall submit his bid electronically in PDF files in the manner as specified above, and additional submission of hard copy of "original plus one copy of bid" is not mandatory.
- ii. In case, if both the electronic bid and original bid in hard copy are submitted to the Employer within the bid submission deadline, the Bidder's electronic bid and original bid in hard copy will be accepted for evaluation provided the facts and figures in hard copy confirm to the PDF files in electronic bid. If there is any discrepancy in fact and figures between the electronic bid and original bid in hard copy, it will be treated as two separate bids from one Bidder and hence, both the electronic bid and original bid in hard copy shall be disqualified. However, for electronically submitted bid in PDF files, the Bidder shall be required to submit documents/clarifications as specified in ITB clause within 3 days.
- iii. In case of e-submission of bid, the Bidder shall be required to submit the original completed Bid consisting of Forms of Bid, Qualification Information, Special Conditions of Contract, Bill of Quantities, Supplementary Information and other clarifications for verification purpose upon notification to do so from the Employer within 3 days.
- iv. In addition to electronically submitted PDF files, the Bidder shall be required to submit documents and clarifications as required by the Employer. Non-submission of such documents and or clarifications by the Bidder within specified time may cause forfeiture of Bid Security.
- v. In case of major discrepancy found between electronically submitted PDF bid files and documents/ clarifications provided by the Bidder, the bid shall not be considered for further evaluation.
- vi. The Bidder shall attach the Bid Security Guarantee in the format attached in the Bid Document. The Bid Security may be forfeited
  - a. If the Bidder does not respond to and/or submit the documents and or clarifications when requested by the Employer.
  - b. If major discrepancy is found between e-submitted bid information and documents/clarifications provided by the Bidder during verification process as requested by the Employer.



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**C) Bid Opening process for e-submitted bid**

- i. Electronically submitted bid shall be opened first at the Bid opening time.
- ii. The e-procurement system allows the Employer to download and open the e-submitted bid files from the bidders only after the time for opening the bids.
- iii. The e-submitted bids must be readable through open standards interfaces. Unreadable and or partially submitted bid files (not complying with the ITB Clauses) shall be considered incomplete and rejected for further bid evaluation.
- iv. After opening of e-submitted bids files, all files shall be printed and recorded at the time of bid opening.
- v. In case of "WITDRAWAL" or "MODIFICATION" or "SUBSTITUTION" by the Bidder through e-submission, the e-submitted PDF files under "WITDRAWAL" or "MODIFICATION" or "SUBSTITUTION" shall be opened and read out first. Bids for which acceptable notice of "WITDRAWAL" or "SUBSTITUTION" has been submitted pursuant to ITB Clause shall not be opened.

**D) Bid Evaluation and Comparison process for e-submitted bid**

- i. In case of e-submitted bids, the Employer evaluates the bid based on the information as per electronically submitted bid files. For clarification/ verification purpose, the Employer may request the Bidder to submit documents/ clarifications.
- ii. In case, the Bidder could not substantiate or provide evidence to prove the information provided in e-submitted bid through documents/clarifications, the bid shall not be considered for further evaluation and respective ITB Clause for forfeiture of bid security shall be applicable.

**E) Qualification Information**

In case of e-Bidding, the Bidder is required to submit the documents to prove minimum qualification requirements only and not the detail documents.

**F) Bid Security Format**

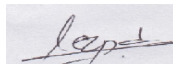
Form of Bid security shall include the provision as 'This Bank Guarantee shall not be withdrawn or released merely upon return of the original Guarantee by the Bidder unless notified by the Employer for the release of the Guarantee'.



**SECTION - III**

**SAMPLE FORMS OF BID, ELIGIBILITY  
INFORMATION, LETTER OF ACCEPTANCE  
AND AGREEMENT**

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# SECTION-III

## SAMPLE FORMS OF BID, QUALIFICATION INFORMATION, LETTER OF ACCEPTANCE AND AGREEMENT

**Bid**

Date:

To: Distribution and Consumer Services Directorate  
 Hetauda Regional Office  
 Birgunj Distribution Center  
 Birgunj, Parsa

We offer to execute the (Job Title) in accordance with the Conditions of Contract accompanying this bid for the Contract Price of NRs ... ..

The Contract shall be paid in the following currencies:

Currency	Percentage payable in currency	Rate of exchange: one foreign equals one NRs	Inputs for which foreign currency is required
1. Nepalese Rupees.	100	Not Applicable	Not Applicable

The Advance Payment required is:

Amount	Currency
1.	NRs

This bid and your written acceptance of it shall constitute a binding Contract between us. We understand that you are not bound to accept the lowest or any bid you receive.

Commissions or gratuities, if any, paid or to be paid by us to agents relating to this bid, and to contract execution if we are awarded the contract, are listed below:

Name and address of agents	Amount and currency	Purpose of commission or gratuity
1.		
2.		
<i>[if none, state "none"]</i>		

We hereby confirm that this bid complies with the bid validity and Bid Security required by the Bidding documents and specified in the Bidding Data and/or Invitation for Bids.

Authorized Signature: \_\_\_\_

Name and Title of Signatory: \_\_\_\_\_

Name of Bidder: \_\_\_\_\_

Address: \_\_\_\_\_

Please Read  
Carefully

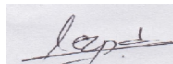
## **ELIGIBILITY INFORMATION**

### **Eligibility Requirements:**

All Bidders shall submit following documents as pre- requisites for eligibility:

- a. Constitution or legal status of Bidder: [attach copy]
- b. Up to date Registration Certificate: [attach copy]
- c. Pan Registration Certificate: [attach copy]
- d. Up to date Tax Returns/ Clearance: [attach copy]
- e. Power of Attorney: [attach copy]
- f. Place of registration: [insert]
- g. A written declaration made by the Bidder stating that the Bidder is not ineligible to participate in the bid; has no conflict of interest in the bid procurement proceedings and has not been punished for the profession or business related offence.
- h. Principal Place of business: [insert]

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## LETTER OF ACCEPTANCE

Date:

To: *[name and address of the Contractor]*

This is to notify you that your bid dated *[date]* for execution of the *[name of the Contract and identification number, as given in the Contract Data]* for the Contract Price of the equivalent, of *[amount in numbers and words in Nepalese Rupees]*, as corrected and modified in accordance with the Instructions to Bidders is hereby accepted by our Agency.

(a) We accept that *[name proposed by Bidder]* be appointed as the Adjudicator.

(b) We do not accept that *[name proposed by Bidder]* be appointed as adjudicator, and by sending a copy of this letter of acceptance to *[insert the name of the Appointing Authority]*, we are hereby requesting *[name]*, the Appointing Authority, to appoint the Adjudicator in accordance with Clause 36.1 of the Instructions to Bidders.

You are hereby instructed to precede with the execution of the said Works in accordance with the Contract documents.

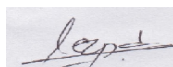
Authorized Signature: \_\_\_\_\_

Name and Title of Signatory: \_\_\_\_\_

Name of Agency: \_\_\_\_\_

Attachment: Agreement

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# **AGREEMENT**

This Agreement, made the [day] day of [month], [year] between [name and address of Employer] (hereinafter called "the Employer") and [name and address of Contractor] (hereinafter called "the Contractor").

Whereas the Employer is desirous that the Contractor execute **[Construction of Store With Room at Pokheriya Substation ,Pokheriya, Parsa]** (hereinafter called "the Works") and the Employer has accepted the bid for [insert the amount in Nepalese Rupees in numbers and words] by the Contractor for the execution and completion of such Works and the remedying of any defects therein.

Now this Agreement witnesses as follows:

In this Agreement, words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to, and they shall be deemed to form and be read and construed as part of this Agreement.

In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity in all respects with the provisions of the Contract.

The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects wherein the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

In Witness whereof the parties thereto have caused this Agreement to be executed the day and year first before written.

The Common Seal of \_\_\_\_\_

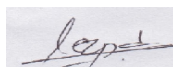
Was hereunto affixed in the presence of: \_\_\_\_\_

Signed, Sealed, and Delivered by the said \_\_\_\_\_

in the presence of: \_\_\_\_\_

Binding Signature of Employer \_\_\_\_\_

Binding Signature of Contractor \_\_\_\_\_



**SECTION-IV**  
**GENERAL**  
**CONDITIONS OF**  
**CONTRACT**  
**(GCC)**



# SECTION-IV

## GENERAL CONDITIONS OF CONTRACT

### A. General

#### 1. Definitions

1.1 Boldface type is used to identify defined terms.

**The Adjudicator is the person appointed jointly by the Employer and the Contractor to resolve disputes in the first instance, as provided for in Clauses 24 and 25 hereunder.**

**Bill of Quantities means the priced and completed Bill of Quantities forming part of the bid.**

**Compensation Events are those defined in Clause 44 hereunder.**

**The Completion Date is the date of completion of the Works as certified by the Station Manager, in accordance with Sub-Clause 55.1.**

**The Contract is the Contract between the Employer and the Contractor to execute, complete, and maintain the Works. It consists of the documents listed in Clause 2.3 below.**

**The Contractor is a person or corporate body whose bid to carry out the Works has been accepted by the Employer.**

**The Contractor's bid is the completed Bidding documents submitted by the Contractor to the Employer.**

**The Contract Price is the price stated in the Letter of Acceptance and thereafter as adjusted in accordance with the provisions of the Contract.**

**Days are calendar days; months are calendar months.**

**Day works are varied work inputs subject to payment on a time basis for the Contractor's employees and Equipment, in addition to payments for associated Materials and Plant.**

**A Defect is any part of the Works not completed in accordance with the Contract.**

**The Defects Liability Certificate is the certificate issued by Station Manager upon correction of defects by the Contractor.**

**The Defects Liability Period is the period named in the Contract Data and calculated from the Completion Date.**

**Drawings include calculations and other information provided or approved by the Station Manager for the execution of the Contract.**

**The Employer is the party who employs the Contractor to carry out the Works.**

**Equipment is the Contractor's machinery and vehicles brought temporarily to the Site to construct the Works.**

**The Initial Contract Price is the Contract Price listed in the Employer's Letter of Acceptance.**

**The Intended Completion Date is the date on which it is intended that the Contractor shall complete the Works. The Intended Completion Date is specified in the Contract Data. The Intended Completion Date may be revised only by the Station Manager by issuing an extension of time or an**



**acceleration order.**

**Materials are all supplies, including consumables, used by the Contractor for incorporation in the Works.**

**Plant is any integral part of the Works that shall have a mechanical, electrical, chemical, or biological function.**

**The Station Manager is the person named in the Contract Data (or any other competent person appointed by the Employer and notified to the Contractor, to act in replacement of the Station Manager) who is responsible for supervising the execution of the Works and administering the Contract.**

**The Site is the area defined as such in the Contract Data.**

**Site Investigation Reports are those that were included in the Bidding documents and are factual and interpretative reports about the surface and subsurface conditions at the Site. These reports also include those reports which are prepared for construction material sources.**

**Specification means the Specification of the Works included in the Contract and any modification or addition made or approved by the Station Manager.**

**The Start Date is given in the Contract Data. It is the latest date when the Contractor shall commence execution of the Works. It does not necessarily coincide with any of the Site Possession Dates.**

**A Subcontractor is a person or corporate body who has a contract with the Contractor to carry out a part of the work in the Contract, which includes work on the Site.**

**Temporary Works are works designed, constructed, installed and removed by the Contractor that are needed for construction or installation of the Works.**

**A Variation is an instruction given by the Station Manager which varies the Works.**

**The Works are what the Contract requires the Contractor to construct, install and turn over to the Employer, as defined in the Contract Data.**

**2. Interpretation**

- 2.1 In interpreting these Conditions of Contract, singular also means plural, male also means female or neuter, and the other way around. Headings have no significance. Words have their normal meaning under the language of the Contract unless specifically defined. The Station Manager will provide instructions clarifying queries about these Conditions of Contract.
- 2.2 If sectional completion is specified in the Contract Data, references in the Conditions of Contract to the Works, the Completion Date, and the Intended Completion Date apply to any Section of the Works (other than references to the Completion Date and Intended Completion Date for the whole of the Works).
- 2.3 The documents forming the Contract shall be interpreted in the following order of priority:
- a. Agreement,
  - b. Letter of Acceptance,
  - c. Contractor's bid,
  - d. Contract Data,
  - e. Conditions of Contract,
  - f. Specifications,
  - g. Drawings,
  - h. Bill of Quantities, and
  - i. Any other document listed in the Contract Data as forming part of the Contract

**3. Language and Law**

- 3.1 The language of the Contract and the law governing the Contract are stated in the Contract



- Data.
- 4. Station Manager's Decisions** 4.1 Except where otherwise specifically stated, the Station Manager will decide contractual matters between the Employer and the Contractor in the role representing the Employer fairly and impartially.
- 5. Delegation** 5.1 The Station Manager may delegate any of his duties and responsibilities to other people except to the Adjudicator, after notifying the Contractor, and may cancel any delegation after notifying the Contractor.
- 6. Communications** 6.1 Communications between parties that are referred to in the Conditions of Contract shall be effective only when in writing. A notice shall be effective only when it is delivered.
- 7. Subcontracting** 7.1 The Contractor may subcontract with the approval of the Station Manager, but may not assign the Contract without the approval of the Employer in writing. Subcontracting shall not alter the Contractor's obligations.
- 8. Other Contractors** 8.1 The Contractor shall cooperate and share the Site with other contractors, public authorities, utilities and the Employer between the dates given in the Schedule of Other Contractors, as referred to in the Contract Data. The Contractor shall also provide facilities and services for them as described in the Schedule. The Employer may modify the schedule of other Contractors and shall notify the Contractor of any such modification.
- 9. Personnel**
- 9.1 The Contractor shall employ either the key personnel named in the Schedule of Key Personnel, as referred to in the Contract Data, to carry out the functions stated in the Schedule or other personnel approved by the Station Manager. The Employer on the Station Manager's recommendation will approve any proposed replacement of key personnel only if their qualifications and abilities are substantially equal to or better than those of the personnel listed in the Schedule.
- 9.2 If the Station Manager asks the Contractor to remove a person who is a member of the Contractor's staff or work force, stating the reasons, the Contractor shall ensure that the person leaves the Site within 7 days and has no further connection with the work in the Contract.
- 9.3 A child who has not attained the age of fourteen years shall not be employed in any work as a labourer.
- 9.4 During continuance of the Contract, the Contractor and his sub-contractors shall abide at all times by all labour laws, including child labour related enactments, and rules made there under.
- 10. Employer's and Contractor's Risks** 10.1 The Employer carries the risks which this Contract states are Employer's risks, and the Contractor carries the risks which this Contract states are Contractor's risks.
- 11. Employer's Risks**
- 11.1 From the Start Date until the Defects Liability Certificate has been issued, the following are Employer's risks:
- The risk of personal injury, death, or loss of or damage to property (excluding the Works, Plant, Materials, and Equipment) which are due to use or occupation of the Site by the Employer or for the purpose of the Works, which is the unavoidable result of the Works; or negligence, breach of statutory duty or interference with any legal right by the Employer or by any person employed by or contracted to him except the Contractor.
  - The risk of damage to the Works, Plant, Materials, and Equipment to the extent that it is due to a fault of the Employer or in the Employer's design, or due to war or radioactive contamination directly affecting the country where the Works are to be executed.
- 11.2 From the Completion Date until the Defects Liability Certificate has been issued, the risk of loss of or damage to the Works, Plant and Materials is an Employer's risk except loss or damage due to



- a. a Defect which existed on the Completion Date;
- b. an event occurring before the Completion Date, which was not itself an Employer's risk; or
- c. The activities of the Contractor on the Site after the Completion Date.
- 12. Contractor's Risks** 12.1 From the Starting Date until the Defects Liability Certificate has been issued, the risks of personal injury, death and loss of or damage to property (including, without limitation, the Works, Plant, Materials and Equipment) which are not Employer's risks are Contractor's risks.
- 13. Insurance** 13.1 The Contractor shall provide, in the joint names of the Employer and the Contractor, insurance cover from the Start Date to the end of the Defects Liability Period, in the amounts and deductibles stated in the Contract Data for the following events which are due to the Contractor's risks:
- a. loss of or damage to the Works, Plant and Materials;
- b. loss of or damage to Equipment;
- c. loss of or damage to property (except the Works, Plant, Materials and Equipment) in connection with the Contract; and
- d. Personal injury or death.
- 13.2 Policies and certificates for insurance shall be delivered by the Contractor to the Station Manager for the Station Manager's approval before the Start Date. All such insurance shall provide for compensation to be payable in the types and proportions of currencies required to rectify the loss or damage incurred.
- 13.3 If the Contractor does not provide any of the policies and certificates required, the Employer may affect the insurance which the Contractor should have provided and recover the premiums the Employer has paid from payments otherwise due to the Contractor or, if no payment is due, the payment of the premiums shall be a debt due.
- 13.4 Alterations to the terms of insurance shall not be made without the approval of the Station Manager.
- 13.5 Both parties shall comply with any conditions of the insurance policies.
- 14. Site Investigation Reports** 14.1 The Contractor, in preparing the bid, shall rely on any Site Investigation Reports referred to in the Contract Data, supplemented by any information available to the Bidder. In accordance with the Instructions to Bidders, Bidders must make their own arrangements to verify the availability and suitability of construction materials when preparing their Bids.
- 15. Queries about the Contract Data** 15.1 The Station Manager will clarify queries on the Contract Data.
- 16. Contractor to Construct the Works** 16.1 The Contractor shall construct and install the Works in accordance with the Specification and Drawings.
- 17. The Works to Be Completed by the Intended Completion Date** 17.1 The Contractor may commence execution of the Works on the Start Date and shall carry out the Works in accordance with the Program submitted by the Contractor, as updated with the approval of the Station Manager, and complete them by the Intended Completion Date.
- 18. Approval by the Station Manager** 18.1 The Contractor shall submit Specification and Drawings showing the proposed Temporary Works to the Station Manager, who is to approve them if they comply with the Specifications and Drawings.
- 18.2 The Contractor shall be responsible for design of the Temporary Works.
- 18.3 The Station Manager's approval shall not alter the Contractor's responsibility for design of the Temporary Works.
- 18.4 The Contractor shall obtain approval of third parties to the design of the Temporary Works,

where required.

18.5 All Drawings prepared by the Contractor for the execution of the temporary or permanent Works, are subject to prior approval by the Station Manager before this use.

**19. Safety**

19.1 The Contractor shall be responsible for the safety of all activities on the Site.

**20. Discoveries**

20.1 Anything of historical or other interest or of significant value unexpectedly discovered on the Site shall be the property of the Employer. The Contractor shall notify the Station Manager of such discoveries and carry out the Station Manager's instructions for dealing with them.

**21. Possession of the Site**

21.1 The Employer shall give possession of all parts of the Site to the Contractor. If possession of a part is not given by the date stated in the Contract Data, the Employer will be deemed to have delayed the start of the relevant activities, and this will be a Compensation Event.

**22. Access to the Site**

22.1 The Contractor shall allow the Station Manager and any person authorised by the Station Manager access to the Site and to any place where work in connection with the Contract is being carried out or is intended to be carried out.

**23. Instructions**

23.1 The Contractor shall carry out all instructions of the Station Manager which comply with the laws of Nepal.

23.2 The Contractor shall permit the Donor Agency to inspect the Contractor's accounts and records relating to the performance of the Contractor and to have them audited by the auditors appointed by the Donor Agency, if so required by the Donor Agency.

**24. Disputes**

24.1 If the Contractor believes that a decision taken by the Station Manager was either outside the authority given to the Station Manager by the Contract or that the decision was wrongly taken, the decision shall be referred to the Adjudicator within 14 days of the notification of the Station Manager's decision.

**25. Procedure for Disputes**

25.1 The Adjudicator shall give a decision in writing within 28 days of receipt of a notification of a dispute.

25.2 The Adjudicator shall be paid by the hour at the rate specified in the Bidding Data and Contract Data, together with reimbursable expenses of the types specified in the Contract Data, and the cost shall be divided equally between the Employer and the Contractor, whatever decision is reached by the Adjudicator. Either party may refer a decision of the Adjudicator to an Arbitrator within 28 days of the Adjudicator's written decision. If neither party refers the dispute to arbitration within the above 28 days, the Adjudicator's decision will be final and binding.

25.3 In case of arbitration, the arbitration shall be conducted in accordance with the arbitration procedures published by the institution named and in the place shown in the Contract Data.

**26. Replacement of Adjudicator**

26.1 Should the Adjudicator resign or die, or should the Employer and the Contractor agree that the Adjudicator is not functioning in accordance with the provisions of the Contract; a new Adjudicator will be jointly appointed by the Employer and the Contractor. In case of disagreement between the Employer and the Contractor, within 28 days, the Adjudicator shall be designated by the Appointing Authority designated in the Contract Data at the request of either party, within 14 days of receipt of such request.

**B. Time Control**

**27. Program**

27.1 Within the time stated in the Contract Data, the Contractor shall submit to the Station Manager for approval a Program showing the general methods, arrangements, order, and timing for all the activities in the Works.

27.2 An update of the Program shall be a program showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work, including any changes to the sequence of the activities.

27.3 The Contractor shall submit to the Station Manager for approval an updated Program



*[Handwritten signature]*

at intervals no longer than the period stated in the Contract Data. If the Contractor does not submit an updated Program within this period, the Station Manager may withhold the amount stated in the Contract Data from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue Program has been submitted.

- 27.4 The Station Manager's approval of the Program shall not alter the Contractor's obligations. The Contractor may revise the Program and submit it to the Station Manager again at any time. A revised Program shall show the effect of Variations and Compensation Events.
- 28. Extension of the Intended Completion Date**
- 28.1 The Station Manager shall extend the Intended Completion Date if a Compensation Event occurs or a Variation is issued which makes it impossible for Completion to be achieved by the Intended Completion Date without the Contractor taking steps to accelerate the remaining work, which would cause the Contractor to incur additional cost.
- 28.2 The Station Manager shall decide whether and by how much to extend the Intended Completion Date within 7 days of the Contract asking the Station Manager for a decision upon the effect of a Compensation Event or Variation and submitting full supporting information. If the Contractor has failed to give early warning of a delay or has failed to cooperate in dealing with a delay, the delay by this failure shall not be considered in assessing the new Intended Completion Date.
- 29. Acceleration**
- 29.1 When the Employer wants the Contractor to finish before the Intended Completion Date, the Station Manager will obtain priced proposals for achieving the necessary acceleration from the Contractor. If the Employer accepts these proposals, the Intended Completion Date will be adjusted accordingly and confirmed by both the Employer and the Contractor.
- 29.2 If the Contractor's priced proposals for acceleration are accepted by the Employer, they are incorporated in the Contract Price and treated as a Variation.
- 30. Delays Ordered by the Station Manager**
- 30.1 The Station Manager may instruct the Contractor to delay the start or progress of any activity within the Works.
- 31. Management Meetings**
- 31.1 Either the Station Manager or the Contractor may require the other to attend a management meeting. The business of a management meeting shall be to review the plans for remaining work and to deal with matters raised in accordance with the early warning procedure.
- 31.2 The Station Manager shall record the business of management meetings and provide copies of the record to those attending the meeting and to the Employer. The responsibility of the parties for actions to be taken shall be decided by the Station Manager either at the management meeting or after the management meeting and stated in writing to all who attended the meeting.
- 32. Early Warning**
- 32.1 The Contractor shall warn the Station Manager at the earliest opportunity of specific likely future events or circumstances that may adversely affect the quality of the work increase the Contract Price or delay the execution of the Works. The Station Manager may require the Contractor to provide an estimate of the expected effect of the future event or circumstance on the Contract Price and Completion Date. The estimate shall be provided by the Contractor as soon as reasonably possible.
- 32.2 The Contractor shall cooperate with the Station Manager in making and considering proposals for how the effect of such an event or circumstance can be avoided or reduced by anyone involved in the work and in carrying out any resulting instruction of the Station Manager.

### C. Quality Control



*[Handwritten signature]*

- 33. Identifying Defects** 33.1 The Station Manager shall check the Contractor's work and notify the Contractor of any Defects that are found. Such checking shall not affect the Contractor's responsibilities. The Station Manager may instruct the Contractor to search for a Defect and to uncover and test any work that the Station Manager considers may have a Defect.
- 34. Tests** 34.1 If the Station Manager instructs the Contractor to carry out a test not specified in the Specification to check whether any work has a Defect and the test shows that it does, the Contractor shall pay for the test and any samples. If there is no Defect, the test shall be a Compensation Event.
- 35. Correction of Defects** 35.1 The Station Manager shall give notice to the Contractor of any Defects before the end of the Defects Liability Period, which begins at Completion, and is defined in the Contract Data. The Defects Liability Period shall be extended for as long as Defects remain to be corrected.
- 35.2 Every time notice of a Defect is given, the Contractor shall correct the notified Defect within the length of time specified by the Station Manager's notice.
- 36. Uncorrected Defects after Completion Date** 36.1 If the Contractor has not corrected a Defect within the time specified in the Station Manager's notice, the Station Manager will assess the cost of having the Defect corrected, and the Contractor will pay this amount.
- D. Cost Control**
- 37. Bill of Quantities** 37.1 The Bill of Quantities shall contain items for the construction, installation, testing and commissioning work to be done by the Contractor.
- 37.2 The Bill of Quantities is used to calculate the Contract Price. The Contractor is paid for the quantity of the work done at the rate in the Bill of Quantities for each item.
- 37.3 The Bill of Quantities mentioned is tentative only and may vary considerably as the area is submerged presently the final volume can be measured only after dewatering, cleaning of deposits etc.
- 37.4 The Station Manager may shift the area of work for a maximum of 25% of total contract volume upstream or downstream within 40 meter from the existing ends. The contractor must act according to the instruction of the Station Manager.
- 38. Changes in the Quantities** 38.1 If the final quantity of the work done differs from the quantity in the Bill of Quantities for the particular item by more than 50 percent, provided the change exceeds ( Positive or Negative changes) 50 percent of the Initial Contract Price, the Station Manager shall adjust the rate to allow for the change for quantities above 50% only.
- 38.2 The Station Manager shall not adjust rates from changes in quantities if thereby the Initial Contract Price is exceeded by more than 10 percent, except with the prior approval of the Employer.
- 38.3 If requested by the Station Manager, the Contractor shall provide the Station Manager with a detailed cost breakdown of any rate in the Bill of Quantities.
- 39. Variations** 39.1 All Variations shall be included in updated Programs produced by the Contractor.
- 40. Payments for Variations** 40.1 The Contractor shall provide the Station Manager with a quotation for carrying out the Variation when requested to do so by the Station Manager. The Station Manager shall assess the quotation, which shall be given within seven days of the request or within any longer period stated by the Station Manager and before the Variation is ordered by him.
- 40.2 If the work in the Variation corresponds with an item description in the Bill of Quantities and if, in the opinion of the Station Manager, the quantity of work above the limit stated in Sub-Clause 38.1 or the timing of its execution do not cause the cost per unit of quantity to change, the rate in the Bill of Quantities shall be used to calculate the value of the Variation. If the cost per unit of quantity changes, or if the nature or timing of the work in the Variation does not correspond with items in the Bill of Quantities, the quotation by the Contractor shall be in the form of new rates for the relevant items of work.
- 40.3 If the Contractor's quotation is unreasonable, the Station Manager may order the Variation and make a change to the Contract Price, which shall be based on the Station

- Manager's own forecast of the effects of the Variation on the Contractor's costs.
- 40.4 If the Station Manager decides that the urgency of varying the work would prevent a quotation being given and considered without delaying the work, no quotation shall be given and the Variation shall be treated as a Compensation Event.
- 40.5 The Contractor shall not be entitled to additional payment for costs that could have been avoided by giving early warning.
- 41. Cash Flow Forecasts**
- 41.1 When the Program is updated, the Contractor shall provide the Station Manager with an updated cash flow forecast. The cash flow forecast shall include different currencies, as defined in the Contract, converted as necessary using the Contract exchange rates.
- 42. Payment Certificates**
- 42.1 The Contractor shall submit to the Station Manager monthly statements of the estimated value of the work executed less the cumulative amount certified previously.
- 42.2 The Station Manager shall check the Contractor's monthly statement (bill) and certify the amount to be paid to the Contractor.
- 42.3 The value of work executed shall be determined by the Station Manager.
- 42.4 The value of work executed shall comprise the value of the quantities of the items in the Bill of Quantities completed.
- 42.5 The value of work executed shall include the valuation of Variations and Compensation Events.
- 42.6 The Station Manager may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information.
- 43. Payments**
- 43.1 Payments shall be adjusted for deductions for advance payments and retention. The Employer shall pay the Contractor the amounts certified by the Station Manager within 28 days of the date of each certificate. If the Employer makes a late payment, the Contractor shall be paid interest on the late payment in the next payment. Interest shall be calculated from the date by which the payment should have been made up to the date when the late payment is made at the prevailing rate of interest for commercial borrowing for each of the currencies in which payments are made.
- 43.2 If an amount certified is increased in a later certificate or as a result of an award by the Adjudicator or an Arbitrator, the Contractor shall be paid interest upon the delayed payment as set out in this clause. Interest shall be calculated from the date upon which the increased amount would have been certified in the absence of dispute.
- 43.3 Unless otherwise stated, all payments and deductions will be paid or charged in the proportions of currencies comprising the Contract Price.
- 43.4 Items of the Works for which no rate or price has been entered in will not be paid for by the Employer and shall be deemed covered by other rates and prices in the Contract.
- 44. Compensation Events**
- 44.1 The following shall be Compensation Events:
- The Employer does not give access to a part of the Site by the Site Possession Date stated in the Contract Data.
  - The Employer modifies the Schedule of Other Contractors in a way that affects the work of the Contractor under the Contract.
  - The Station Manager orders a delay or does not issue Drawings, Specifications, or instructions required for execution of the Works on time.
  - The Station Manager instructs the Contractor to uncover or to carry out additional tests upon work, which is then found to have no Defects.
  - The Station Manager unreasonably does not approve a subcontract to be let.
  - Ground conditions are substantially more adverse than could reasonably have been assumed before issuance of the Letter of Acceptance from the information issued to Bidders (including the Site Investigation Reports), from information available publicly and from a visual inspection of the Site.
  - The Station Manager gives an instruction for dealing with an unforeseen condition, caused by the Employer, or additional work required for safety or other reasons.
  - Other contractors, public authorities, utilities, or the Employer do not work within

- the dates and other constraints stated in the Contract, and they cause delay or extra cost to the Contractor.
- i. The advance payment is delayed.
  - j. The effects on the Contractor of any of the Employer's Risks.
  - k. The Station Manager unreasonably delays issuing a Certificate of Completion.
  - l. Other Compensation Events described in the Contract or determined by the Station Manager shall apply.
- 44.2 If a Compensation Event would cause additional cost or would prevent the work being completed before the Intended Completion Date, the Contract Price shall be increased and/or the Intended Completion Date shall be extended. The Station Manager shall decide whether and by how much the Contract Price shall be increased and whether and by how much the Intended Completion Date shall be extended.
- 44.3 As soon as information demonstrating the effect of each Compensation Event upon the Contractor's forecast cost has been provided by the Contractor, it shall be assessed by the Station Manager, and the Contract Price shall be adjusted accordingly. If the Contractor's forecast is deemed unreasonable, the Station Manager shall adjust the Contract Price based on the Station Manager's own forecast. The Station Manager will assume that the Contractor will react competently and promptly to the event.
- 44.4 The Contractor shall not be entitled to compensation to the extent that the Employer's interests are adversely affected by the Contractor's not having given early warning or not having cooperated with the Station Manager.
- 45. Tax**
- 45.1 The Station Manager shall adjust the Contract Price if taxes, duties, and other levies are changed between the date 28 days before the submission of Bids for the Contract and the date of the last Certificate of Completion. The adjustment shall be the change in the amount of tax payable by the Contractor, provided such changes are not already reflected in the Contract Price or are a result of Clause 47.
- 46. Currencies**
- 46.1 Where payments are made in currencies other than Nepalese Rupees, the exchange rates used for calculating the amounts to be paid shall be the exchange rates stated in the Contractor's bid.
- 47. Price Adjustment**
- 47.1 Prices shall be adjusted for fluctuations in the cost of inputs only if provided for in the Contract Data. If so provided, the amounts certified in each payment certificate, after deducting for Advance Payment, shall be adjusted by applying the respective price adjustment factor to the payment amounts due in each currency. A separate formula of the type indicated below applies to each Contract currency:
- $$P_c = A_c + B_c \text{ Imc/loc}$$
- where:
- $P_c$  is the adjustment factor for the portion of the Contract Price payable in a specific currency "c".
- $A_c$  and  $B_c$  are coefficients specified in the Contract Data, representing the nonadjustable and adjustable portions, respectively, of the Contract Price payable in that specific currency "c"; and
- $\text{Imc}$  is the index prevailing at the end of the month being invoiced and  $\text{loc}$  is the index prevailing 28 days before bid opening for inputs payable; both in the specific currency "c".
- 47.2 If the value of the index is changed after it has been used in a calculation, the calculation shall be corrected and an adjustment made in the next payment certificate. The index value shall be deemed to take account of all changes in cost due to fluctuations in costs.
- 48. Retention**
- 48.1 The Employer shall retain from each payment due to the Contractor the proportion stated in the Contract Data until Completion of the whole of the Works.
- 48.2 On completion of the whole of the Works, half the total amount retained shall be repaid to the Contractor and half when the Defects Liability Period has passed and the Station Manager has certified that all Defects notified by the Station Manager to the Contractor before the end of this period have been corrected.



- 48.3 On completion of the whole Works, the Contractor may substitute retention money with an “on demand” bank guarantee.
- 49. Liquidated Damages**
- 49.1 The Contractor shall pay liquidated damages to the Employer at the rate per day stated in the Contract Data for each day that the Completion Date is later than the Intended Completion Date. The total amount of liquidated damages shall not exceed the amount defined in the Contract Data. The Employer may deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages shall not affect the Contractor’s liabilities.
- 49.2 If the Intended Completion Date is extended after liquidated damages have been paid, the Station Manager shall correct any overpayment of liquidated damages by the Contractor by adjusting the next payment certificate. The Contractor shall be paid interest on the overpayment, calculated from the date of payment to the date of repayment, at the rates specified in Sub-Clause 43.1.
- 50. Bonus**
- 50.1 The Contractor shall be paid a bonus calculated at the rate per calendar day stated in the Contract Data for each day (less any days for which the Contractor is paid for acceleration) that the Completion is earlier than the Intended Completion Date. The Station Manager shall certify that the Works are complete, although they may not be due to be complete.
- 51. Advance Payment (NA)**
- 51.1 The Employer shall make advance payment to the Contractor of the amounts stated in the Contract Data by the date stated in the Contract Data, against provision by the Contractor of an Unconditional Bank Guarantee in a form and by a bank acceptable to the Employer in amounts and currencies equal to the advance payment. The Guarantee shall remain effective until the advance payment has been repaid, but the amount of the Guarantee shall be progressively reduced by the amounts repaid by the Contractor. Interest will not be charged on the advance payment.
- 51.2 The Contractor is to use the advance payment only to pay for Equipment, Plant, Materials and mobilization expenses required specifically for execution of the Contract. The Contractor shall demonstrate that advance payment has been used in this way by supplying copies of invoices or other documents to the Station Manager.
- 51.3 The advance payment shall be repaid by deducting proportionate amounts from payments otherwise due to the Contractor, following the schedule of completed percentages of the Works on a payment basis. No account shall be taken of the advance payment or its repayment in assessing valuations of work done, Variations, price adjustments, Compensation Events, Bonuses or Liquidated Damages.
- 52. Securities**
- 52.1 The Performance Security shall be provided to the Employer no later than the date specified in the Letter of Acceptance and shall be issued in an amount and form and by a bank acceptable to the Employer, and denominated in the types and proportions of the currencies in which the Contract Price is payable. The Performance Security shall be valid until a date 28 days from the date of issue of the Defects Liability Certificate in the case of a bank guarantee.
- 53. Day works**
- 53.1 If applicable, the Day works rates in the Contractor’s bid shall be used for small additional amounts of work only when the Station Manager has given written instructions in advance for additional work to be paid for in that way.
- 53.2 All work to be paid for as Day works shall be recorded by the Contractor on forms approved by the Station Manager. Each completed form shall be verified and signed by the Station Manager within two days of the work being done.
- 53.3 The Contractor shall be paid for Day works subject to obtaining signed Day works forms.
- 53.4 The hiring charge for equipment other than those specified in the Bill of Quantities shall be based on the standard method of calculation.
- 54. Cost of Repairs**
- 54.1 Loss or damage to the Works or Materials to be incorporated in the Works between the Start Date and the end of the Defects Liability Period shall be remedied by the Contractor at the Contractor’s cost if the loss or damage arises from the Contractor’s acts or omissions.

**E. Finishing the Contract**

- 55. Completion** 55.1 The Contractor shall request the Station Manager to issue a Certificate of Completion of the Works, and the Station Manager will do so upon deciding that the work is completed.
- 56. Taking Over** 56.1 The Employer shall take over the Site and the Works within seven days of the Station Manager's issuing a Certificate of Completion.
- 57. Final Account** 57.1 The Contractor shall supply the Station Manager with a detailed account of the total amount that the Contractor considers payable under the Contract before the end of the Defects Liability Period. The Station Manager shall issue a Defects Liability Certificate and certify any final payment that is due to the Contractor within 56 days of receiving the Contractor's account if it is correct and complete. If it is not, the Station Manager shall issue within 56 days a schedule that states the scope of the corrections or additions that are necessary. If the Final Account is still unsatisfactory after it has been resubmitted, the Station Manager shall decide on the amount payable to the Contractor and issue a payment certificate.
- 58. Operating and Maintenance Manuals** 58.1 If "as built" Drawings and/or operating and maintenance manuals are required, the Contractor shall supply them by the dates stated in the Contract Data. (Not Applicable)  
58.2 If the Contractor does not supply the Drawings and/or manuals by the dates stated in the Contract Data or the date instructed by the Station Manager, or they do not receive the Station Manager's approval, the Station Manager shall withhold the amount stated in the Contract Data from payments due to the Contractor. (Not Applicable)
- 59. Termination** 59.1 The Employer or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract.  
59.2 Fundamental breaches of Contract shall include, but shall not be limited to, the following:
- a. The Contractor stops work for 14 days when no stoppage of work is shown on the current Program and the stoppage has not been authorised by the Station Manager.
  - b. The Station Manager instructs the Contractor to delay the progress of the Works, and the instruction is not withdrawn within 14 days.
  - c. The Employer or the Contractor is made bankrupt or goes into liquidation other than for a reconstruction or amalgamation.
  - d. A payment certified by the Station Manager is not paid by the Employer to the Contractor within 84 days of the date of the Station Manager's certificate.
  - e. The Station Manager gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Station Manager.
  - f. The Contractor does not maintain a Security, which is required.
  - g. The Contractor has delayed the completion of the Works by the number of days for which the maximum amount of liquidated damages can be paid, as defined in the Contract Data.
  - h. If the Contractor, in the judgment of the Employer, has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.



**For the purpose of this paragraph:**

**“corrupt practice” means the offering, giving, receiving or soliciting of any thing of value to influence the action of a public official in the procurement process or in contract execution.**

**“fraudulent practice” means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Employer, and includes collusive practice among Bidders (prior to or after bid submission) designed to establish Bid Prices at artificial non-competitive levels and to deprive the Employer of the benefits of free and open competition.**

- i. The Contractor does not comply with sub-clauses 9.3 and 9.4 of the Conditions of Contract.
- 59.3 When either party to the Contract gives notice of a breach of Contract to the Station Manager for a cause other than those listed under Sub-Clause 59.2 above, the Station Manager shall decide whether the breach is fundamental or not.
- 59.4 NotwithsBirgunjng the above, the Employer may terminate the Contract for convenience.
- 59.5 If the Contract is terminated, the Contractor shall stop work immediately, make the Site safe and secure, and leave the Site as soon as reasonably possible.
- 60. Payment upon Termination**
- 60.1 If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Station Manager shall issue a certificate for the value of the work done and Materials ordered less advance payments received up to the date of the issue of the certificate and less the percentage to apply to the value of the work not completed, as indicated in the Contract Data. Additional Liquidated Damages shall not apply. If the total amount due to the Employer exceeds any payment due to the Contractor, the difference shall be a debt payable to the Employer.
- 60.2 If the Contract is terminated for the Employer’s convenience or because of a fundamental breach of Contract by the Employer, the Station Manager shall issue a certificate for the value of the work done, Materials ordered, the reasonable cost of removal of Equipment, repatriation of the Contractor’s personnel employed solely on the Works, and the Contractor’s costs of protecting and securing the Works, and less advance payments received up to the date of the certificate.
- 61. Property**
- 61.1 All Materials on the Site, Plant, Equipment, Temporary Works and Works shall be deemed to be the property of the Employer if the Contract is terminated because of the Contractor’s default.
- 62. Release from Performance**
- 62.1 If the Contract is frustrated by the outbreak of war or by any other event entirely outside the control of either the Employer or the Contractor, the Station Manager shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all work carried out before receiving it and for any work carried out afterwards to which a commitment was made.
- 63. Suspension of Donor Agency Loan/Credit/Grant**
- 63.1 In the event that the Donor Agency suspends the loan/ credit/grant to the Employer from which part of the payments to the Contractor are being made:
- the Employer is obligated to notify the Contractor of such suspension within 7 days of having received the Donor Agency’s suspension notice; and
  - if the Contractor has not received sums due him within the 28 days for payment provided for in Sub-Clause 43.1, the Contractor may immediately issue a 14-day termination notice.
- F. Additional Clauses**
- 64. Station Manger’s Duties and Authority**
- 64.1 The Station Manager’s duty and authority are restricted to the extend of as detailed in the Contract Data.



- 65. Quarries and Spoil Dumps**
- 65.1 Any quarry operated as part of this Contract shall be maintained and left in a stable condition without steep slopes and be either refilled or drained and be landscaped by appropriate planting. Rock or gravel taken from a river shall be removed over some distance so as to limit the depth of material removed at any one location, not disrupt the river flow or damage or undermine the river banks.
- The Contractor shall not deposit excavated material on land in Government or private ownership except as directed by the Station Manager in writing or by permission in writing of the authority responsible for such land in Government ownership, or of the owner or responsible representative of the owner of such land in private ownership, and only then in those places and under such conditions as the authority, owner or responsible representative may prescribe.
- 66. Safety, Security and Protection of the Environment**
- 66.1 The Contractor shall, throughout the execution and completion of the works and the remedying of any defects therein:
- a. Have full regard for the safety of all persons entitled to be upon the site and keep the site (so as the same is under his control) and the works (so far as the same are not completed or occupied by the Employer) in an orderly state appropriate to the avoidance of danger to such persons.
  - b. Provide and maintain at his own cost all lights, guards, fencing, warning signs and watching, when necessary or required by the Station Manager or by any duly constituted authority, for the protection of the Works of for the safety and convenience of the public or others.
  - c. Take all reasonable steps to protect the environment on and off the site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his methods of operation.
  - d. Ensure that any cut or fill slopes are planted in grass or other plant cover as soon as possible to protect them from erosion. This planting shall follow the recommendations given in manuals and handbooks such as "Vegetation structures for stabilizing highway slopes – A manual for Nepal", department of Roads. (Not applicable as per site condition)
  - e. Any spoil or material removed from drains shall be disposed off to designated stable tipping areas as directed by the Station Manager.
  - f. Shall not use fuelwood as a means of heating during the processing or preparation of any materials forming part of the works.
  - g. The Station Manager shall have the power to disallow any working practice or activity of the Contractor or direct that such practices or activities be modified should the Station Manager consider, on the advice of the relevant Government Departments, that the practices or activities will be harmful to wildlife.
  - j. Provide on the Site such life saving apparatus as may be appropriate and an adequate and easily accessible first aid outfit or such outfits as may be required by any government ordinance, factory act, etc., subsequently published and amended from time to time.
- 67. Local Taxation**
- 67.1 The prices tendered by the Contractor shall include all taxes that may be levied in accordance to the laws and regulations in being in Nepal on the date 28 days prior to the closing date for submissions of Bids on the Contractor's equipment, plant and materials acquired for the purpose of the Contract and on the services performed under the Contract. Nothing in the Contract shall relieve the Contractor from his responsibility to pay any tax that may be levied in Nepal on profits made by him in respect of the Contract.
- 68. Value Added Tax**
- 68.1 The Contract is not exempted from value added tax. An amount specified in the schedule of taxes shall be paid by the Contractor in the concerned VAT office within time frame specified in VAT regulation.
- 69. Income Taxes on**
- 69.1 The Contractor's staff, personal and labour will be liable to pay personal income taxes in



- Staff** Nepal in respect of their salaries and wages, as are chargeable under the laws and regulations for the time being in force, and the Contractor shall perform such duties in regard to such deductions as may be imposed on him by such laws and regulations.
- 69.2 The issue of the Final Account Certificate pursuant to clause 57 shall be made only upon submittal by the Contractor of a certificate of income tax clearance from His Majesty's Government of Nepal.
- 70. Duties, Taxes and Royalties**
- 70.1 Any element of royalty, duty or tax in the price of any goods including fuel oil, lubricating oil, cement, timber, iron and iron goods locally procured by the Contractor for the works shall be included in the Contract rates and prices and no reimbursement or payment in that respect shall be made to the Contractor.
- 70.2 The Contractor shall familiarise himself with the rules and regulations of Nepal with regard to customs, duties, taxes, clearing of goods and equipment, immigration and the like, and it will be necessary for him to follow the required procedures regardless of the assistance as may be provided by the Employer wherever possible.
- 70.3 The Contractor shall pay and shall not be entitled to the reimbursement of cost of extracting construction materials such as sand, stone/boulder, gravel, etc. from the river beds or quarries. Such prices will be levied by the local District Development Committee (DDC) as may be in force at the time. The Contractor, sub-contractor(s) employed directly by him and for whom he is responsible, will not be exempt from payment of royalties, taxes or other kinds of surcharges on these construction materials so extracted and paid for to the DDC.
- 71. Member of Government, etc, not Personally Liable**
- 71.1 No member or officer of GON or the Employer or the Station Manager or any of their respective employees shall be in any way personally bound or liable for the act or obligations of the Employer under the Contract or answerable for any default or omission in the observance or performance of any of act, matter or thing which are herein contained.
- 72. Approval of Use of Explosives**
- 72.1 No explosives of any kind shall be used by the Contractor without the prior consent of the Employer in writing and the Contractor shall provide, store and handle these and all other items of every kind whatsoever required for blasting operations, all at his own expense in a manner approved in writing by the Employer.
- 73. Compliance with Regulations for Explosives**
- 73.1 The Contractor shall comply with all relevant ordinances, instructions and regulations which the Government, or other person or persons having due authority, may issue from time to time regarding the handling, transportation, storage and use of explosives.
- 74. Permission for Blasting**
- 74.1 The Contractor shall at all times maintain full liaison with and inform well in advance, and obtain such permission as is required from all Government authorities, public bodies and private parties whatsoever concerned or affected, or likely to be concerned or affected by blasting operation.
- 75. Records of Explosives**
- 75.1 Before the beginning of the Defects Liability Period, the Contractor shall account to the satisfaction of the Station Manager for all explosives brought on to the Site during the execution of the Contract and the Contractor shall remove all unused explosives from the Site on completion of works when ordered by the Station Manager.



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- 76. Traffic Diversion** 76.1 The Contractor shall include the necessary safety procedures regarding motorised and pedestrian traffic diversion that is needed in execution of the works. The Contractor shall include in his costing of works, any temporary works or diversion that are needed during the construction period.

***All traffic diversion should be designed for the safety of both the motoring public and the men at work. It shall ensure the uninterrupted flow of traffic and minimum inconvenience to the public during the period concerned. As such, adequate warning signs, flagmen and other relevant safety precautionary measures shall be provided to warn motorists and pedestrians well ahead of the intended diversion as directed by the Station Manager.***

***All traffic devices used shall be designed in accordance with prevailing Department of Roads Guidelines or as instructed by the Station Manager. (Not applicable as per site condition).***

#### G. Provisional Sum

- 77. Definition of Provisional Sum** 77.1 "Provisional Sum" means a sum included in the Contract and so designated in the Bill of Quantities for the execution of any parts of the works or for the supply of goods, materials, plants or services, or for contingencies, which sum may be used, in whole or in part, or not at all, on the instructions of the Station Manager. The contractor shall be entitled to only such amounts in respect of the work, supply or contingencies to which such Provisional Sums relate as the Station Manager shall determine in accordance with this clause. The Station Manager shall notify the Contractor of any determinations made under this sub-clause with a copy to the Employer.
- 78. Use of Provisional Sum** 78.1 In respect of every provisional sum the Station manager shall have authority to issue instructions for the execution of work or for the supply of goods, materials, Plants, sums or services by:  
The contractor, in which case the contractor shall be entitled to an amount equal to the value thereof determined.
- 79. Production of Voucher** 79.1 The Contractor shall produce to the Station Manager all quotations, invoices, vouchers and accounts or receipts in connection with expenditure in respect of provisional sums, except where work is valued in accordance with rates or prices set out in the Tender.
- 80. Payments** 80.1 For all goods, materials, plants or services supplied by the contractor, he shall be entitled to:
- a. the actual price paid by the contractor as approved by the Station Manager,
  - b. in respect of all other charges and profit a sum being the percentage rate of actual price paid. Such percentage shall be as provide in the Bill of Quantities



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**SECTION - V**  
**SPECIAL CONDITION**  
**OF CONTRACT**  
**(SCC)**



# SECTION-V

## SPECIAL CONDITION OF CONTRACT

### General Conditions of Contract Clause Reference

1.1	<p>The Site is located at Pokheriya Substation,Pokheriya, Parsa. The Employer is: Distribution And Consumers Services, Hetauda Riginal Office, Birgunj Distribution Center Birgunj, Parsa.</p> <p>The name and identification number of the Contract is: <b>Construction of Store with Room at Pokheriya Substation, Pokheriya, Parsa. Contract No. NEA/BRJDC-2073.74-SQ-3(RE)</b></p> <p>The Supervising Engineer: will be notified at the time of Contract Agreement.</p> <p>The Start Date shall be 3 (Three) days after the signing of the Contract.</p>
2.3	<p>The following documents also form part of the Contract: Addendum, if any.</p>
3.1	<p>The language of the Contract documents is English/Nepali. The law that applies to the Contract is the law of the Federal Republics of Nepal.</p>
9.1	<p>The Schedule of Key Personnel shall be as defined in clause 4.5 of Section II, Instruction to Bidders.</p>
13.1	<p>The minimum insurance covers shall be: (N/A)</p> <ol style="list-style-type: none"> <li>The maximum deductible for insurance of the Works and of Plant and Materials is NRs 100,000 (One hundred thousands only).</li> <li>The minimum cover for insurance of the Works and Materials is 100% of the value of the works and materials as per the contract price.</li> <li>The maximum deductible for insurance of Equipment is NRs 10,000 (ten thousands only).</li> <li>The minimum cover for loss or damage to Equipment is NRs 1,000,000 (One Million only).</li> <li>The maximum deductible for insurance of other property is NRs 25,000 (twenty five thousands only).</li> <li>The minimum for insurance of other property is NRs 1,000,000 (One Million only) with unlimited numbers of occurrences.</li> <li>The minimum cover for personal injury or death insurance             <ol style="list-style-type: none"> <li>for the Contractor's employees is that specified in the Labour Act of Nepal and</li> <li>for other people including NEA staff, consultant staff and third parties is NRs 500,000 (Five hundred thousands) per person, limited to 25 persons with unlimited number of occurrence.</li> </ol> </li> </ol>



*[Handwritten signature]*

	iii.
14.1	Site Investigation Reports: N/A
17.1	The Intended Completion Date for the whole of the Works shall be 60 (Sixty ) Calendar days from the start date.
21.1	The Site Possession Date shall be within 7 (Seven) days after the signing of the contract. However, Site Possession may be provided in sections or partially.
23.2	Not Applicable.
25.1	Replace "28 days" by "84 days"
25.2	Fees and types of reimbursable expenses to be paid to the Adjudicator: to be agreed later. Replace "28 days" by " 90 days"
25.3	Arbitration will take place in accordance with Arbitration Act 2055 B.S. Place of Arbitration is Kathmandu, Nepal.
26.1	Appointing Authority for the Adjudicator: to be agreed later.
27.1	The Contractor shall submit a Program for the Works within 7 (Seven) days after the signing of the contract.
27.3	The period between Program updates is 7 days. The amount to be withheld for late submission of an updated Program is NRs 100,000 (One hundred thousands only).
35.1	The Defects Liability Period is 12 (Twelve) months.
42.2	Add Sub-Clause 42.7 in Condition of Contract. The value of Interim Payment Certificate shall be not less than NRs 2,000,000.00 (Two Million only). <b>NA</b>
43.1	The Employer shall pay the contractor the amounts certified by the Station Manager within 56 days. <b>NA</b>
44.1	The following events shall also be Compensation Events: None
47.1	The Contract is <b><u>not subject</u></b> to price adjustment.



*[Handwritten signature]*

48.1	The proportion of payments retained is 5% (five) percent of the amount certified by the Station Manager for interim payment.
48.2	After the expiry of Defects Liability Period, total amount retained shall be released upon submission of tax clearance certificates (including VAT) and certification of completeness by the Station Manager.
49.1	The liquidated damages will be calculated at 0.05 percentages per day of the value of the Contract. The maximum amount of liquidated damages is 10% (ten) percent of the Contract Price.
51.1	The Advance Payment shall not be more than 20% (Twenty percent) of the Contract Price excluding provisional sums and day-works. 15% (Fifteen percent) shall be paid to the Contractor within 21 days after the signing of the Agreement and the remaining 5% shall be paid after the Station Manager certifies the satisfactory commencement of works. <b>NA</b>
52.1	a) The Performance Security shall be for the following minimum amount equivalent as a percentage of the Contract Price: a Bank guarantee: If the bid price is within 85% of the official estimate value: five percent of the Bid Price including VAT.  b) If the bid price is less than 85% of the official estimate value: $(85\% \text{ of Estimate} - \text{Bid Price including VAT}) \times 0.5 + \text{five percent of Bid Price including VAT}$ It shall be in the currency of Bid. In case of joint venture (J/V), the Performance Security shall be in the name of J/V The standard form(s) of Performance Security acceptable to the Employer shall be "an Unconditional Bank Guarantee" acceptable to the Employer of the type presented in Section 9 of the Bidding Documents.
58.1	The date by which operating and maintenance manuals are required is: <b>Not Applicable</b> . The dates by which "as built" drawings are required is: <b>Not Applicable(NA)</b>
60.1	The percentage to apply to the value of the work not completed, representing the Employer's additional cost for completing the Works, is 15%.



# **SECTION - VI**

# **FORMS OF SECURITIES**



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# SECTION-VI

## FORMS OF SECURITIES

### Annex A

#### Bid Security (Bank Guarantee)

Whereas, *[name of Bidder]* (hereinafter called "the Bidder") has submitted his bid dated *[date]* for the construction of *[name of Contract]* (hereinafter called "the bid").

Know all people by these presents that We *[name of Bank]* of *[name of country]* having our registered office at *[address]* (hereinafter called "the Bank") are bound unto *[name of Employer]* (hereinafter called "the Employer") in the sum of *[amount]* for which payment well and truly to be made to the said Employer, the Bank binds itself, its successors, and assigns by these presents.

Sealed with the Common Seal of the said Bank this *[day]* day of *[month]*, *[year]*.

The conditions of this obligation are:

- (1) If, after bid opening, the Bidder withdraws his bid during the period of bid validity specified in the Form of Bid; or
- (2) If the Bidder having been notified of the acceptance of his bid by the Employer during the period of bid validity:
  - (a) fails or refuses to execute the Form of Agreement in accordance with the Instructions to Bidders, if required; or
  - (b) fails or refuses to furnish the Performance Security, in accordance with the Instruction to Bidders; or
  - (c) does not accept the correction of the Bid Price pursuant to Clause 27,

We undertake to pay to the Employer up to the above amount upon receipt of his first written demand, without the Employer's having to substantiate his demand, provided that in his demand the Employer will note that the amount claimed by him is due to him owing to the occurrence of one or any of the two conditions, specifying the occurred condition or conditions.

This Guarantee will remain in force up to **Seventy Five days** after the deadline for submission of Bids as such deadline is stated in the Instructions to Bidders or as it may be extended by the Employer, notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this Guarantee should reach the Bank not later than the above date.

Date \_\_\_\_\_ Signature of the Bank \_\_\_\_\_

Witness \_\_\_\_\_ Seal \_\_\_\_\_

\_\_\_\_\_ [Signature, name, and address]



*[Handwritten signature]*

**Annex B****Performance Bank Guarantee (Unconditional)**

To: *[name and address of Employer]*

Whereas *[name and address of Contractor]* (hereinafter called "the Contractor") has undertaken, in pursuance of Contract No. *[number]* dated *[date]* to execute *[name of Contract and brief description of Works]* (hereinafter called "the Contract");

And whereas it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligations in accordance with the Contract;

And whereas we have agreed to give the Contractor such a Bank Guarantee;

Now therefore we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, up to a total of *[amount of Guarantee]* *[amount in words]*, such sum being payable in the types and proportions of currencies in which the Contract Price is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of *[amount of Guarantee]* as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract or of the Works to be performed there under or of any of the Contract documents which may be made between you and the Contractor shall in any way release us from any liability under this Guarantee, and we hereby waive notice of any such change, addition, or modification.

This Guarantee shall be valid until a date 30 days from the date of issue of the Certificate of Completion.

Signature and seal of the Guarantor \_\_\_\_\_

Name of Bank \_\_\_\_\_

Address \_\_\_\_\_

Date \_\_\_\_\_



*[Handwritten signature]*

**Annex C**  
**Bank Guarantee for Advance Payment (NA)**

To: *[Name and address of Employer]*

*[Name of Contract]*

Gentlemen:

In accordance with the provisions of the Conditions of Contract, Clause 51 ("Advance Payment") of the above-mentioned Contract, *[name and address of Contractor]* (hereinafter called "the Contractor") shall deposit with *[name of Employer]* a Bank Guarantee to guarantee his proper and faithful performance under the said Clause of the Contract in an amount of *[amount of Guarantee]* *[amount in words]*.

We, the *[Bank or Financial Institution]*, as instructed by the Contractor, agree unconditionally and irrevocably to guarantee as primary obligator and not as Surety merely, the payment to *[name of Employer]* on his first demand without whatsoever right of objection on our part and without his first claim to the Contractor, in the amount not exceeding *[amount of Guarantee]* *[amount in words]*.

We further agree that no change or addition to or other modification of the terms of the Contract or of Works to be performed there under or of any of the Contract documents which may be made between *[name of Employer]* and the Contractor, shall in any way release us from any liability under this Guarantee, and we hereby waive notice of any such change, addition, or modification.

This Guarantee shall remain valid and in full effect from the date of the advance payment under the Contract until *[name of Employer]* receives full repayment of the same amount from the Contractor.

Yours truly,

Signature and seal: \_\_\_\_\_

Name of Bank/Financial Institution: \_\_\_\_\_

Address: \_\_\_\_\_

Date: \_\_\_\_\_

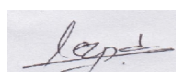


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**SECTION-VII**  
**GENERAL SPECIFICATION**

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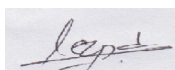
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## 1. GENERAL

### 1.1. Scope

These General Technical Specifications cover principles, responsibilities and requirements for items which are of general nature and which will be applicable to all civil engineering and building work pertinent to works. They shall be read in conjunction with the Technical Specification, the Conditions of Contract, the Bills of Quantities (BOQ) and the Drawings. The scope of works under this Contract chiefly includes Constructon of store room and office with Stone masonry foundation with Brick masonry Wall including CGI Sheet roof covering and finishing work as per BOQ, Drawing, Specification and instruction of employer. The bidders are requested to visit the site before bidding.

#### 1.1.1. General Note

- The work has to be performed under the supervision of the employee employed by NEA.
- The work shall be carried out simultaneously with the electrical, plumbing, sanitary and other trades in cooperation with the trade contractors. The building Contractor shall keep the other trade contractors informed well in advance of the proposed program of the work so that good coordination is effected. The Contractor shall further cooperate with other trade contractors in respect of any facilities required by them e.g. making holes in shuttering for pipes, electric conduits, fan hooks etc. Nothing extra shall be admissible to him for such reasonable assistance and facilities afforded to other contractors and the building contractor shall be deemed to have taken these factors into consideration while quoting his tender rates.
- The work shall be related to the drawings, which the contractor is presumed to have studied. Nothing extra will be paid for any item by reason of its shape, location or other difficult circumstances, even if the schedule makes no such distinction so long as the item is shown in the drawings.
- The materials stated in the specifications are those which are generally available. The materials not conforming to specifications shall be rejected even if they come from stated sources. The Contractor shall satisfy himself that sufficient quantities of material of acceptable specification are available from the stated or other sources.
- All Provisional items in the schedule shall be carried out at the discretion of the Employer at the contractor quoted rate and may or may not form part of the contract. In case new items are to be carried out by the contractor, the rates for which shall be settled as for extra item as stated in the conditions of contract.
- The requirement under **1: General** and **2: Material** shall be fulfilled by the contractor without any extra charge including transportation or any other taxes involved i.e. the item rates quoted shall be deemed to have taken those into account.
- "Employer" shall mean "NEA / Bigjung Distribution Center, Birgunj, Parsa.
- "Engineer" shall denote the "Engineer" as defined in the Clause 1.1 of the Condition of Contract.

### 1.2. Access to and Possession of Site

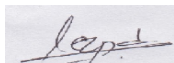
#### 1.2.1. The Site

The Site includes any designated areas and any temporary working areas described herein.

Final Possession of the Site or Parts thereof, for the purpose of carrying out the execution of the Works to be given by the Employer pursuant to Clause 21.1 of the Conditions of Contract, shall be subject to any restrictions mentioned in the Contract

#### 1.2.2. Temporary Way-leaves, Access Costs

The Contractor shall be responsible for obtaining temporary way-leaves. The cost of obtaining way-leaves for temporary working areas and for any additional areas outside the Site required by the Contractor in connection with the Works as well as for the access to all of these shall be borne by the Contractor himself. The Contractor shall arrange for the serving of any Statutory Notices as per Clause 1.5 of this specification in connection with any temporary working area and shall give to the occupier of each such area seven days notice of his intention to enter and shall ensure that his methods of working cause the minimum of disturbance to the land and to its owners and occupiers.




The Contractor shall at all times provide proper facilities for access and inspection of the Works by the Engineer, his assistants, inspectors, agents and representatives of public agencies having jurisdiction. The extent of each temporary working area and the period of time for its occupation shall be such as the Engineer considers necessary having regard to the Contractor's reasonable requirements which shall be submitted together with the Work Program to the Engineer within 7 days after the Letter of Acceptance.

The Contractor shall reinstate any temporary working areas to the condition prevailing prior to his initial entry as soon as possible after the work in those areas has been completed so as to keep the period of occupation to a minimum. The Contractor shall in any event restore the areas to a tidy and workmanlike condition. Boundary walls, fences and other structures that have been damaged, removed or otherwise interfered with by the Contractor shall be restored to a condition at least equivalent to their original condition.

Prior to commencing work in the vicinity of overhead power lines the Contractor shall acquaint himself with all the regulations of the Nepal Electricity Authority governing such work. The Contractor shall be responsible for ensuring that all persons working in such areas are aware of the relatively large distance that high voltage electricity can "short" to earth when cranes or other large masses of steel are in the vicinity of power lines.

### **1.3. Site Installations**

#### **1.3.1. Camp for Contractor's Staff**

The Contractor shall provide adequate housing with all necessary amenities and facilities for his staff and labor. The type of housing, such as accommodation containers, pre-fabricated or in-situ buildings or even rental is entirely up to him. Also the choice of one central camp or of various sub-camps is up to him as this depends greatly on the approved work program. During the whole period of existence, from setting up through operation to final removal upon completion of the Works, the Contractor shall be fully responsible for constantly carrying out all measures necessary for safeguarding the natural environment affected by his camp or camps.

He shall cause the least possible interference with existing amenities, whether man-made or natural. No trees shall be felled except as authorized by the Engineer (ref. Clause 1.3.20 of this specification). Latrine and ablution facilities and first-aid services shall be provided in sufficient type and numbers to the satisfaction of the Engineer and shall be maintained in a clean and sanitary condition at all times. On completion of the Works or as soon as the facilities provided by the Contractor are no longer required, the Contractor shall remove such facilities and clear away all surface indications of their presence.

#### **1.3.2. Contractor's Offices, Stores and Services**

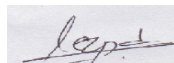
The Contractor shall provide, erect, construct, maintain and subsequently remove proper offices, stores, workshops, laboratories, storage and parking areas for his own use. Such facilities shall be sufficiently sized and equipped to enable him to manage his operations and those of his Subcontractors in a professional manner and to enable him to carry out all his obligations under the Contract.

Sheds for storage of materials that may deteriorate or corrode if exposed to the weather shall be weatherproof, adequately ventilated and provided with raised floors. Safe, dry and proper storage shall be provided for all materials, particularly for cement. The Capacity of the cement storage go-down shall at least 1000 bags installed at the site of work.

Within his offices a meeting room shall be available for site meetings with the Engineer and the Employer. These facilities of the contractor shall be subject to the same stipulations regarding sitting, interference with amenities and environmental protection as the Contractor's camp.

#### **1.3.3. Contractor's Plant**

When working in built-up areas, the Contractor shall provide and use suitable and effective silencing devices for pneumatic tools and other plant that would otherwise cause a noise level exceeding 85 dB (A) during excavation and other work. Alternatively, he shall, by means of barriers, effectively isolate the source of any such noise in order to comply with above requirement.




**1.3.4. Water Supply**

The Contractor shall make his own arrangements for the supply of all water for his camp, office and other temporary buildings as well as for the execution of the Works. Temporary water connection may be arranged with NWSC at established rates. Water for testing of pipe sections, however, shall not be taken from the mains as stipulated in the relevant Section of the Technical Specifications. When using other sources of water such as stone spouts, etc. the Contractor shall have due regard to and coordinate with other users. Water for drinking purposes shall be of drinking water quality.

**1.3.5. Sanitation**

The Contractor shall maintain the Site and all working areas in hygienic conditions. In all matters of health and sanitation he shall comply with the requirements of the local Medical Officer of Health or other competent authority.

**1.3.6. Sewage and Waste Disposal**

The Contractor shall make provision for the discharge or disposal from his camp, offices and the Works of all water as well as of all liquid and solid waste products however arising. The methods of disposal shall be to the satisfaction of the Engineer and of any authority or person having an interest in any land or watercourse over or in which water and waste products may be so discharged.

**1.3.7. Pollution**

The Contractor shall take all reasonable measures to minimize any dust nuisance, pollution of streams and inconvenience to or interference with the public (or others) as a result of the execution of the Works.

**1.3.8. Energy Supply**

The Contractor shall install, operate, maintain and subsequently remove temporary supplies of electricity for power, heating, cooling, lighting and ventilation of all camps, offices, stores, laboratories and other temporary buildings used by the Contractor in addition to all electricity requirements in connection with the construction, testing and maintenance of the Works.

The Contractor shall ensure that all proposed electrical installations comply with the requirements of the Nepal Electricity Authority and shall be responsible for and shall bear all costs associated with obtaining the written approval of that authority for such installations and their operations. Prior to placing orders for transformers, conductors, cables and associated equipment, the Contractor shall ensure by inquiry with the Nepal Electricity Authority that his proposed equipment is suitable for use with the existing or proposed medium/high tension electricity supply lines.

**1.3.9. Supply of Fuel, Lubricants etc**

The Contractor shall be responsible for arranging and ensuring that adequate supplies of petrol, diesel oil, motor oil, kerosene, lubricants and other petroleum products are available at all times to meet his requirements for the purpose of or in connection with the Contract; the Contractor's particular attention is drawn to this requirements as from time to time shortages and interruptions in the supply of fuel oils, etc., may occur. He shall make his own arrangements for the supply of all other types of fuel required for the purposes of the Contract.

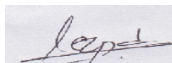
Firewood may be obtained on the open market. Under no circumstances shall the Contractor cut down trees for firewood. With regard to the transportation, storage and handling of all his fuel requirements, including all electrical connections, he must strictly comply with all relevant safety codes and regulations.

**1.3.10. Temporary Telephone Connections**

The Contractor shall arrange at his own cost for temporary telephone connections to his offices and other installations. He shall be responsible for all installations, connection/disconnection charges for his and his Representative's offices.

**1.3.11. First Aid**

The Contractor shall make his own arrangements for treatment of casualties on the Site in such first-aid units as may be thought necessary. The Contractor shall be responsible for the construction of such first-aid units and their management and operation and the removal by ambulance of injured or sick employees to nearby hospitals. The first-aid service shall cover the Contractor's own personnel as well as that of the Employer, the Engineer and all Subcontractors.




**1.3.12. Fire Protection**

No naked fire shall be used by the Contractor on or about the Site otherwise than in the open air without the permission in writing of the Engineer. If in the Engineer's opinion the use of naked fire may cause a fire hazard, the Contractor shall at no extra cost to the Employer take such additional precautions and provide such additional fire fighting equipment as the Engineer considers necessary. The term "naked fire" shall be deemed to include electric arcs and oxyacetylene or other flames used in welding or cutting metals. Compliance with the requirements of the Engineer shall not relieve the Contractor of any of his obligations under the Contract.

**1.3.13. Contractor's Canteen**

The Contractor shall provide adequate eating facilities for his employees and workmen.

**1.3.14. Site Safety**

The Contractor shall at all time in the conduct of his work and that of his Subcontractors adhere to the established rules and regulations concerning all safety matters at Site. The construction safety shall comply with the **NBC 114:1994**.

The Contractor's Safety Officer shall have the qualification and the authority to issue instructions to the Contractor's personnel regarding protection measures to prevent accidents. During construction the Contractor shall erect, maintain and subsequently remove sufficient barricades, guards, lighting, sheeting, shoring, temporary sidewalks and bridges, danger signals as well as temporary covering of potential accident areas.

If and where required the Contractor shall erect and maintain suitable and approved temporary fencing to enclose such areas of the works and areas of land occupied by the Contractor within the Site as may be necessary to implement his obligations under the Contract. All open excavations along pipelines shall be protected sufficiently to keep out livestock, and ensure the safety of workmen and members of the public and be in accordance with the directives of the police and the other local regulations.

Where work is to be carried out in the proximity of buildings, tanks or other structures, the Contractor shall take all necessary precautions, including shoring and strutting, where necessary, to ensure the safety of the structures that are at risk.

The Contractor shall be responsible for all damages or injury which may be caused on any property by trespass by the Contractor's or his Subcontractor's employees in the course of their employment, whether the said trespass was committed with or without the consent or knowledge of the Contractor.

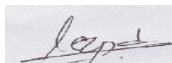
**1.3.15. Protection of Overhead and Underground Services**

The Contractor will be held responsible for any damage to known services (i.e. services that are within the Site and are shown on the drawings) and he shall take all necessary measures to protect them. All work or protective measures shall be subject to approval of the Engineer. In the event of a service being damaged, the Contractor shall not repair any such service unless instructed to do so.

Where no underground services are shown on the drawings or scheduled but the possibility of their presence can reasonably be inferred, the Contractor shall, in collaboration with the Engineer, ascertain whether any such services exist within the relevant section of the Site. The Contractor shall complete such an investigation well in advance of the start of construction work in the said section and he shall submit a report in good time to enable the Engineer to make whatever arrangements are necessary for the protection, removal or diversion of the services before any construction works commences.

As soon as any underground service not shown on the drawings is discovered, it shall be deemed to be a known service and the Contractor will be held responsible for any subsequent damage to it. If such service is damaged during the course of its discovery, the cost of making good such damage will be met by the Employer unless he establishes that the Contractor did not exercise reasonable diligence and that the damage was avoidable. Where the authority concerned elects to carry out on its own account any alterations or protective measures, the Contractor shall cooperate with and allow such authority reasonable access and sufficient space and time to carry out the required work.

Permanent alterations to or permanent diversion of services necessitated by the execution of the Works and authorized will be paid for in terms of the conditions of contract, but no such work will be paid for if it has not been previously inspected and if proper written instructions have not been given.



**1.3.16. Signboards**

Signboards of size approximately 2.15m X 2.0m shall be placed at specified approved locations. This board shall be painted in approved color with names of (1) the Project and Employer, (2) the Engineer (3) Contractor and (4) any other specialist Consultant if any. They shall be of durable construction capable of withstanding the effects of the climate until the end of the Defects Liability Period. The Contractor shall keep the name boards in good repair for the duration of the contract and shall remove them on completion of the contract. Besides these signboards the Contractor shall not, except with the written authority of the Engineer, exhibit or permit to be exhibited on the site any other form of advertisement. This board shall be provided by the contractor at his own expense.

**1.3.17. Site Roads**

The Contractor shall provide and maintain such access to the various sections of the Works as he requires for the proper execution of the work. Access roads shall be so arranged as to minimize inconvenience to adjoining landowners or occupants and to the general public. The site roads shall be of gravel or equivalent material providing a hard surface for vehicles. Temporary roads shall be removed when they are no longer required.

**1.3.18. Testing Facilities, Contractor's Laboratory**

The Contractor shall provide a site laboratory equipped and furnished with all testing facilities required to perform all mandatory tests stipulated in the various specific clauses of the Technical Specifications. Other tests which may be required upon instruction of the Engineer and which cannot be performed in the site laboratory shall be carried out on behalf of the Contractor at other laboratories acceptable to the Engineer.

The Contractor shall provide a laboratory in the site and appoint a testing lab acceptable to the engineer with equipment at his own cost within 15 days after signing the "Form of Agreement", then maintain till the entire Contract period for carrying out the tests therein under the supervision of a qualified engineer, to be removed on completion of the work. The laboratory shall be in a weatherproof building designated and used exclusively for the purpose of testing. The laboratory shall be maintained in a clean, tidy and orderly fashion to the satisfaction of the Engineer. The Contractor's laboratory shall have the following equipment in working condition, labor and materials required for tests.

Compression testing machine	1 set(NA)
Standard I.S. sieves for testing sand and aggregates up to 38mm	2 sets
Hydrometer (NA)	1 set
Penetrometer (NA)	1 set
Weighing balance up to 10 kg (NA)	1 set
Field balances minimum 1 gm (NA)	1 set
Weighing scale minimum 1 gm (NA)	1 set
Glass measuring flask ½ liter and 1 liter (NA)	4 sets
Stove and pans for sand drying (NA)	1 set
Slump cone	2 sets
Metal Cube moulds	36 sets

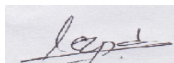
Water tank for curing of concrete cubes, workbenches, tables, etc. to the satisfaction of the Engineer

The Contractor shall maintain the equipment in good serviceable condition and any breakdown or discrepancies shall be immediately corrected or equipment replaced if it is found to be inaccurate.

The Contractor shall perform tests on materials on the site, cast concrete cubes as specified and shall submit to the Engineer two copies of the results of each test, such results being entered on forms as approved by the Engineer. The third copy of the result of each test shall be retained in the Contractor's Laboratory. Without relieving the Contractor of any of his responsibilities for the testing of materials the Engineer may, as and when desired, carry out any of the tests, using the facilities provided by the Contractor, for this Work.

**1.3.19. Clearing the Site**

The Site described and shown on the plans plus 6m all round the built-up area shall be cleared of all obstructions, loose stones and materials, rubbish of all kinds as well as brush-wood. All holes or hollows whether originally existing or produced shall be well rammed and leveled off as directed. Also the Contractor shall dress the site 6m all round the built-up area after completion, maximum cutting or filling under this item being 300mm. No extra shall be paid for this unless specified otherwise.




**1.3.20. Tree**

For the purpose of the Specification a tree shall be defined as a growth whose circumference of the trunk at 300mm from the base is not less than 900mm. Where necessary, trees shall be cut in sections from the top downwards. No tree shall be cut down until the Engineer has given written authorization for such work to commence. If possible, trees shall be felled in such a manner as to allow removal of the root together with the trunk. Individual trees indicated and marked by the Engineer as trees to be preserved shall be left sBirgunjng and uninjured. An amount of NRs 100,000/- shall be deducted from amount due to the Contractor as a penalty in respect of every such tree that is damaged or removed unnecessarily or without the authorization of the Engineer.

**1.3.21. Cleaning-up of Site**

Before application is made for the Employer to accept any substantially completed Section of the Works, all items shall be complete, ready to operate and in a clean condition. All trash, debris, unused building materials and temporary facilities shall have been removed from the Site. Tools, equipment and construction machinery not needed during the subsequent Defects Liability Period for repair and adjustment shall not remain on the Site. The temporary walkways, parking areas and roadways shall be completely swept and broomed.

**1.3.22. Site Drainage**

The Contractor shall keep each section of the works well drained until the Engineer certifies that it is substantially complete and shall ensure that, so far as is practicable, all work is carried out in the dry. Excavated areas shall be kept well drained and free from sBirgunjng water except where this is impracticable having regard to methods of Temporary Works properly adopted by the Contractor. The Contractor shall provide, operate and maintain in sufficient quantity such pumping equipment, well points, pipes and other equipment as may be necessary to minimize damage, inconvenience and interference and shall construct, operate and maintain all temporary coffer-dams, sumps, ditches, drains and other temporary works as may be necessary to remove water from the Works while construction is in progress. Such Temporary Works and plant shall not be removed without the approval of the Engineer.

NotwithsBirgunjng any approval by the Engineer of the Contractor's arrangements for the removal of water, the Contractor shall be responsible for the sufficiency thereof and for keeping the Works safe at all times and for making good at his own expense any damage to the Works. The Contractor shall be responsible to keep the Works clear of water at whatever pump rate found necessary.

**1.3.23. Measurement and Payment**

No separate measurement and payment will be made for works under Clause 1.3, the cost of which shall be deemed to be included in unit rates of the BOQ.

**1.4. Coordination with other Authorities****1.4.1. Statutory Services**

As far as possible the Contractor shall acquaint himself with the actual location of all existing public utilities such as sewers, water mains, drains, cables for electricity, telephone lines, lighting poles, masts, etc., before commencing any works likely to affect the existing utilities. The Contractor shall with the assistance of the Employer obtain such information directly from the responsible authorities as early as possible.

**1.4.2. Notices, Permits**

Well in advance of the programmed start of any work which may affect traffic or any existing utilities the Contractor shall give advance notice to the respective authority indicating the type, the exact location, the programmed starting time and the expected duration of the works and shall provide whatever particulars may be required by the authorities to issue any required permits and make all necessary arrangements. The Employer will provide whatever assistance possible to the Contractor to facilitate the permit procedure which, however, will remain the sole responsibility of the Contractor.

**1.4.3. Witnessing and Post-Construction Clearances**

It is expected that the issue of these permits will be tied to the requirement that the work may only be carried out in the presence of authorized inspectors from the authorities concerned. Their job will be to witness and assess any



damage or interference with their respective utility. Should such disturbances occur it would be at their discretion to authorize either the Contractor to correct them or to arrange for specialized repairs through their own personnel.

The Contractor shall be fully responsible for all costs whatever resulting from avoidable damages of or interference with other utilities. As proof that the works in question have been completed to the satisfaction of the authorities concerned the Contractor shall submit to the Engineer upon request official post-construction clearances issued by the respective authorities.

## **1.5. Submissions by the Contractor**

### **1.5.1. Pre-Construction Surveys and Setting Out**

Upon commencement of the Works he shall carry out all additional survey work necessary for setting out the Works in accordance with the condition of contract. He shall establish all setting out necessary for the performance of the Work to the approval of the Engineer including levels of the original ground surface at the Site and final surveys of the completed Works for the final measurement. Levels shall close within 25-mm times the square root of the length of the circuit in km. Ground levels shall be taken jointly by the Contractor and the Engineer both prior to commencing and after completion of earthworks. The result of the survey shall be recorded in the manner agreed between the Engineer and the Contractor and be signed by both.

The Contractor's methods of recording survey data shall be subject to approval and field books and tabulated data shall be well maintained and made available for inspection and checking by the Engineer when ordered.

Instruments and equipment for surveys shall be subject to rigorous inspection by both the Contractor and Engineer and any item found to be defective, in the opinion of Engineer, shall be promptly replaced, repaired or adjusted as directed. All surveying shall be done under the direct supervision of a qualified surveyor or engineer who, as an employee of the Contractor, he shall be subject to the approval of the Engineer at all times during the progress of the work.

### **1.5.2. Drawings, Instruction and Measurements**

All work shall be done according to the drawings and instructions of the Engineer, and the Contractor shall arrange to test materials and/or portions of the work at his own cost in order to prove their soundness and sufficiency. If after any such test and in the opinion of the Engineer any work or position of work is found to be defective or unsound the Contractor shall pull down and re-execute the same at his own cost. Defective materials shall be removed from the site. In addition to above,

- Contractor shall record drawings of the ground level survey prior to start of any earthwork.
- Contractor shall record drawing of any other level surveys taken for the purpose of measurement of quantities for excavation or filling.
- Survey records drawing as specified above shall be submitted within 7(seven) days after the completion of the survey works recorded on them.
- Survey notes on the depth and width of trench excavation.

### **1.5.3. As-Built Drawings**

During the course of the Works, the Contractor shall maintain a fully detailed record of all changes from the approval to facilitate easy and accurate preparation of the As-Built Drawing.

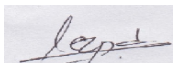
The Contractor shall submit 1 (one) set original copy and 3 (three) set of As-Built Drawings clearly named as such to the Engineer after Two weeks from date of completion.

Irrespective of the other contractual prerequisites, if the contractor does not supply the drawing with in the above stated date the sub clause 58.0 of the condition of Contract shall be applied.

### **1.5.4. Progress Reports**

The Contractor shall furnish the Engineer, at no extra cost to the Employer, at regular monthly intervals 3 copies in a form determined by the Engineer, with Progress Reports containing the following information:

- a) Physical progress for the report month and estimated progress for the next month;




- b) Completion schedules (target and actual) based on the approved construction programme as provided in Clause 27 of the Conditions of Contract;
- c) Updated S-curves for physical progress at different sections of the Works
- d) Any report which the Employer and/or the Engineer may specifically request.
- e) These monthly reports shall be submitted not later than 7 days after the end of the report month.

#### 1.5.5. Record/Progress Photographs

The Contractor shall arrange for at least 24 Nos. of photographs to be taken by a professional photographer monthly, or as ordered by Engineer as Record Photographs and shall provide the 2 color prints each on paper of a size not less than 210 mm x 297 mm (A4). Each print shall contain upon its back the date and description of the view taken. The Contractor shall ensure that no use is made of any photograph or print without permission from Employer. Out of these Record Photographs the Contractor shall select 10 characteristic ones as Progress Photographs to be attached to Progress Reports.

#### 1.5.6. Test Certificate

Contractor shall submit all the certificates of laboratory test and field test.

#### 1.5.7. Details of proposed methods

Contractor shall submit details of proposed methods as stated below

- Proposed methods of excavation transport of materials, filling and compaction.
- Proposed source of free-draining fill and methods of selective excavation or processing.
- Program for quality control of earthworks and proposals for the use of laboratories.

#### 1.5.8. Samples

Samples of each class of materials required shall be submitted by the Contractor for the approval of the Engineer and after such approval these samples shall be deposited at a safe place chosen by the Engineer. The Contractor will be required to perform all the works under the contract in accordance with these approved samples. This also includes the sample of material proposed for filling where specified or where specifically required by the Engineer.

#### 1.5.9. Levels to be recorded

Before the surface of any part of the site is disturbed or the works thereon are begun the Contractor shall take and record levels and dimensions of any such part. The Contractor shall also take and record such other levels and dimensions as are necessary during the progress of excavation to allow accurate measurement of the different categories of excavation.

All levels and dimensions shall be taken in the presence of the Engineer and recorded in the manner specified or as agreed with the Engineer, and such levels when agreed with the Engineer shall form the basis for measurement

#### 1.5.10. Measurement and Payment

No separate measurement and payment will be made for works under Clause 1.5, the cost of which shall be deemed to be included in unit rates of the BOQ.

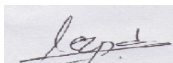
### 1.6. Quality Control

#### 1.6.1. Quality Control Plan and Procedures

The Contractor shall be responsible for establishing and maintaining procedures for quality control, which will ensure that all aspects of the Works comply with the requirements of the Contract. As soon as reasonably practicable prior to the commencement of Works the Contractor shall submit for approval a Quality Control Plan giving detailed proposals for control of quality of all aspects of work on the Site and at suppliers' workshops.

The Quality Control Plan shall include the following:

- (a) A list of the Contractor's staff engaged in quality control




- (b) A list of any outside testing agencies employed by the Contractor for work in connection with quality control
- (c) Where a testing laboratory is to be established on Site under the Contract, a list of major items of equipment and a layout of the laboratory, together details of the tests which will be carried out there
- (d) A list of manufactured items and materials, obtained by the Contractor for the Works, which require inspection at the suppliers' premises, and the proposed procedures for ensuring quality control
- (e) A list of materials and operations to be inspected by the Contractor at the various stages of construction work on Site, together with inspection procedures, test types and frequencies
- (f) Sample of proposed quality control records, testing and reporting forms.

Unless the Engineer permits otherwise, the approved Quality Control Plan shall be followed throughout the construction of the Works. Any approval by the Engineer of the Contractor's plan and procedures shall not relieve the Contractor of his obligation to ensure that the Works comply with the requirements of the Contract. The Contractor shall appoint a suitably qualified member of his staff to be responsible for all aspects of quality control and to maintain effective liaison with the Engineer.

### 1.6.2. Sampling and Testing

The Contractor shall provide for the approval of the Engineer, samples of all construction materials and manufactured items required for the Permanent Works. All samples rejected by the Engineer shall be removed from Site. All approved samples shall be stored on Site by the Contractor for the duration of the Contract, and any materials or manufactured items subsequently delivered to Site for incorporation in the Permanent Works shall be of a quality at least equal to the approved sample.

Samples shall be submitted and tests carried out sufficiently early to enable further samples to be submitted and tested if required by the Engineer. Samples for testing will generally be selected by the Engineer from materials to be utilized in the project and all tests will be under the supervision of, and as directed by, and at such points as may be convenient to the Engineer. Material requiring testing shall be furnished in sufficient time before intended use so as to allow for testing. No materials represented by tests may be used prior to receipt of written approval of said materials.

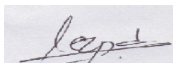
The Contractor shall give the Engineer at least 14 days notice in writing of the date on which any of the materials will be ready for testing or inspection at the suppliers' premises or at a laboratory approved by the Engineer and unless the Engineer shall attend at the appointed place and time the test may proceed in his absence. The Contractor shall in any case submit to the Engineer within 7 (seven) days after every test such number of certified copies of the test readings as the Engineer may require. Approval by the Engineer as to the placing of orders for materials or as to samples or tests shall not prejudice any of the Engineer's powers under the Contract. The provisions of this Clause shall also apply to materials supplied under any nominated subcontract.

After all construction at each Section is completed and before applying for taking-over, the Contractor shall perform field tests as called for in the Specifications. The Contractor shall demonstrate to the Engineer the proper operation of the facilities and the satisfactory performance of the individual components. Any improper operation of the system or any improper or faulty construction shall be repaired or corrected to the satisfaction of the Engineer. The Contractor shall make such changes, adjustments or replacement of equipment as may be required to make the same comply with the Specifications, or replace any defective parts or materials.

In addition to any special provision made herein as to sampling and testing materials by particular methods, samples of materials and workmanship proposed to be employed in the execution of the Works may be called for at any time by the Engineer and these shall be furnished without delay by the Contractor at his own cost. Approved samples will be retained by the Engineer who will be at liberty to reject all materials and workmanship that are not equal or better in quality and character than such approved samples. All costs incurred by the Contractor, in connection with sampling and testing of all materials and items required for the Works shall be deemed to be included and covered by the tendered Contract Rates.

NotwithBirgunjng the provisions for payment in respect of testing all costs in connection with conducting tests and delivery of samples to an approved laboratory shall be deemed to be included by the Contractor in Unit Rate of the BOQ for the following categories of tests also:

- (a) Tests conducted at the premises of the Contractor, Subcontractor, manufacturer or supplier that are normally or customarily carried out at such premises for the items or materials being supplied for the Works




- (b) Tests which are normally or customarily conducted on the items or materials being supplied for the Works by the Contractor, Subcontractor, supplier or manufacturer but which have to be conducted at an approved laboratory because the necessary testing facilities are not available on the premises of the Contractor, Sub-Contractor, supplier and manufacturer
- (c) Tests on locally obtained materials or items either on the Site or at an approved laboratory for the purpose of obtaining the approval of the Engineer to the classification, use and compliance with the Specifications of such items or materials
- (d) Routine quality control tests conducted by the Contractor to ensure compliance with the Specifications
- (e) Regular testing of concrete and other materials as specified in the relevant Chapters of the Technical Specifications
- (f) Standard shop and Site acceptance tests, including trial assemblies, of mechanical equipment.

#### 1.6.3. Preservation of Approved Samples

Where samples, including samples of materials and workmanship constructed on the Site, are submitted as a reference for materials and workmanship to be provided as part of the Permanent Works, they shall, after approval by the Engineer, be carefully preserved for this purpose on site by the Contractor to the satisfaction of the Engineer until permission is given by the Engineer for their disposal.

#### 1.6.4. Inspection and Acceptance

The Engineer may appoint Inspecting Engineers to inspect and test materials and articles on his behalf prior to their dispatch to the Site. The Inspecting Engineer will examine, test and if necessary analyze all materials and articles to be used in the Works including all items of fabricated or finished work unless the Engineer shall direct otherwise. The Inspecting Engineer shall be granted free access at all reasonable times to the premises of Contractor and/or any Subcontractor and shall be afforded every facility for making inspections, making tests, which it is normal or customary to undertake at premises of the Contractor or Sub-Contractor and for taking samples for testing and analysis.

The Contractor and/or Subcontractor shall give adequate notice to the Engineer or the Inspecting Engineer as to when any materials, articles or fabricated work will be ready for inspection and shall take into account the possibility of delays in postal communication when giving such notice. Belated requests by telephone or telex for an immediate inspection of particular items scheduled for shipment which cannot be met will not be sufficient reason for waiving inspection thereof and the Contractor shall be held solely responsible for all consequences arising out of any delay resulting from his failure to give adequate notice. The Engineer and the Inspecting Engineer shall be kept properly informed of the progress of any work being carried out on materials and articles being prepared or supplied by the Contractor or any Subcontractor for use in the Works to enable them to make such arrangements for inspection, testing and analysis as they may consider appropriate.

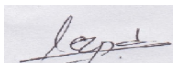
The Engineer may require to inspect work being prepared and to witness tests at supplier's premises. The Contractor shall give the Engineer adequate notice of the program of work and testing at suppliers' premises to enable the Engineer to arrange such inspections. Manufactured items and materials delivered to the Site shall be inspected by the Contractor on arrival. Any defects shall be notified to the Engineer. Minor defects to surface finishes and the like in manufactured items shall be made good in an approved manner to the satisfaction of the Engineer. Items with more serious defects shall be returned to the suppliers for correction or replacement as appropriate. Inspections or tests carried out by or on behalf of the Engineer shall not relieve the Contractor of his responsibilities in connection with quality control.

#### 1.6.5. Materials/Equipment Certificates

Where certificates are required by the Specifications or relevant Reference Standard, the original and one copy of each such certificate shall be provided by the Contractor. Certificates shall be clearly identified by serial or reference number and shall include information required by the relevant Reference Standard or Specification clause.

The timing for submittal of certificates shall be as follows:

- (a) Manufacturer's and supplier's test certificates shall be submitted as soon as the tests have been completed and in any case not less than 7 calendar days prior to the time that the materials represented by such certificates are needed for incorporation into the Permanent Works




- (b) Certificates of tests carried out during the construction or on completion of parts of the Permanent Works shall be submitted within 7 days of the completion of the test.

No materials, articles or items of fabricated or finished work to be supplied by the Contractor or Subcontractors which have been inspected and tested by the Engineer or the inspecting Engineer shall be dispatched unless a Passing Certificate has been requested by the Contractor from the Engineer and subsequently been issued by the Engineer to the effect that the same are approved. Neither the Contractor nor Sub-Contractors shall make use of any materials or articles ordered by them for the purpose of fabrication until a Passing Certificate covering the said materials and articles shall have been issued by the Engineer or inspecting Engineer.

#### 1.6.6. Site Records

Daily records of on-site testing and inspection shall be kept on forms of approved format. The responsible member of the Contractor's staff shall certify test results. All test certificates and inspection records (including any from suppliers or other outside testing agencies) shall be clearly identified with the appropriate part of the Works to which they refer, and they shall be submitted to the Engineer together with the respective Passing Certificate. Once each month, or at such longer intervals as the Engineer may allow, the Contractor shall submit in an approved form a summary of all quality control inspections and tests performed at Site and elsewhere in the intervening period.

Test results shall be summarized in tabular form or graphically or both in a way, which best illustrates the trends, specific results and specification requirements. Where the tests show that the specified requirements were not achieved, the report shall describe the action, which was taken. Each report shall also contain a forecast of quality control work likely to be carried out during the period to be covered by the succeeding report. The Contractor shall keep detailed and up-to-date inventories in an approved form of goods and materials already approved by the Engineer for which Passing Certificates have been issued as well as of all other goods and materials subject to quality control which are on order, delivered, found faulty, lost during the work or to be surplus to requirements. The Engineer shall have access to these records at all times.

#### 1.6.7. Daily Log Book/ Request for examination

The Contractor shall keep a Daily Log Book at each site. This Daily Log Book shall be in a form approved by the Engineer and shall contain, but not be limited to, the following major items of information:

- (a) Name of Contractor and Package No.
- (b) Date
- (c) Weather conditions (max./min., temperature, hours and intensity of rainfall)
- (d) Work carried out during the day per Section (description, quantities)
- (e) Major equipment used per section (on contractual work, on extra work, approximate operating time on either)
- (f) Strength of labour force per Section (on contractual work, on extra work ordered, hours worked on either)
- (g) Delays (cause, effects such as idle time etc.)
- (h) Unusual events (earthquakes, floods, fires, storms, accidents, etc.)
- (i) Visitors at Site.

Each daily log shall be signed by the responsible Site Manager of the Contractor and "noted" by the Engineer.

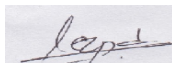
#### 1.6.8. Measurement and Payment

No separate measurement and payment will be made for works under Clause 1.6, the cost of which shall be deemed to be included in Unit Rates of the BOQ.

## 2. MATERIALS

### 2.1. General

The materials supplied and used in the Works shall comply with the requirements of these Specifications. They shall be new, except as may be provided elsewhere in the Contract or permitted by the Engineer in writing. The materials shall be from approved manufacturer, freshly procured, handled /stored properly in a approved manner and used in a professional manner to ensure completed work in accordance with the Contract. Whenever an NS, IS etc are specified, the latest version of the standard quoted shall be considered to apply.




**2.2. Sources**

The material should be from the approved source in order to maintain quality, consistency and quality required for this project. The use of any one kind or class of material from more than one source is prohibited, except by written permission of the Engineer. Such permission if granted will set forth the conditions under which the change may be made. The sources or kinds of material shall not be changed at any time without written permission of the Engineer. If the product from any source proves unacceptable at any time, the Contractor shall make such arrangements as may be necessary to assure acceptable material, either by alternations in plant operations or by a change of source. Claims for increased costs, which may be occasioned by such alternations, or changes will not be given consideration, unless the source of the unacceptable material was designated in the Contract as a source of material.

When any proprietary or manufactured product, either new or used, is furnished by the Employer, the location at which such material will be delivered to the Contractor will be designated. In such cases, the Contractor shall haul the materials from the designated delivery point to the point of use, and compensation for such hauling shall be negotiated prior to compliance, and shall include the price for placing the materials in the finished work.

**2.3. Inspection and Acceptance of Materials**

Final inspection and acceptance of materials will be made only at the site of work. The Engineer reserves the right to sample, inspect and test materials throughout the duration of the project; and to reject, order removal any or all the material not confirming to the specification (i.e. unsatisfactory quality, improper or unapproved make ) from the site at any time. A preliminary inspection of materials may be made at the source for the convenience of the Contractor, but the presence of Engineer at the source shall not relieve the Contractor of the responsibility of furnishing materials, which comply with these Specifications in the project. The Engineer shall have free entry at all times to those parts of any plant, which concern the manufacture, or production of the materials ordered.

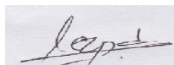
**2.4. Procurement Program, Samples and Tests**

The Contractor shall submit sample of all materials for the approval of the Engineer prior to commencement of work. The Contractor shall give immediate notification of the placing of orders for shipment of materials for testing. He shall furnish without charge all samples required and he shall afford such facilities, as the Engineer requires for collecting and forwarding such samples. The Contractor shall not make use of or incorporate into the work the materials represented by the samples until the tests have been made and the materials are found to comply with the requirements of the Specifications, except that any materials which have a satisfactory record of compliance with the Specifications may, at the discretion of the Engineer be used until the tests are completed. If the material fails to pass the tests, the Contractor shall take the necessary steps to satisfactorily correct the deficiencies subject to the approval of the Engineer.

When required by the Engineer, preliminary samples of the character and quantity prescribed shall be submitted by the Contractor for examination and shall be tested. Samples approved shall not be constructed as acceptance of materials. Acceptance or rejection shall be based on the results of the tests and inspections prescribed in these Specifications of the batches received at the site. Within two weeks from the date of signing this Contract the Contractor shall also furnish a detailed "Procurement of Materials Program" for the approval of the Engineer. This Procurement Program shall cover the programming of all sample collection, time for approvals by the Engineer, time for procurement, order, transport and arrivals at the Project Site to be completed within the first six months of the Project as assessed from the date of signing this Contract for all building and finishing materials. Failure on the part of the Contractor to comply with this clause shall be treated as a breach of contract. Assessment of the Program of work at the end of the said Project shall be evaluated by the Engineer, and should the Project not be completed in the specified time, in the light of the above, the Engineer's decision shall be final and binding on the Contractor. All samples shall arrive in sufficient time for testing and approvals keeping in mind the time required for the final procurement and arrival of the approved materials at the Project Site and this time factor shall conform to the Program of Works and Procurement.

**2.5. Defective Materials**

All materials, which do not conform to the requirements of the Contract, will be rejected whether in place or not. They shall be removed immediately from the site unless otherwise permitted by the Engineer. No rejected material, the defects of which have been subsequently corrected, shall be used in the work unless approval in writing has been given by Engineer. Failure of the Contractor to comply promptly with any order of the Engineer given under this Clause, he shall request the Employer to remove and replace the rejected materials and the cost thereof shall be deducted from any amount due to the contractor.




## 2.6. Trade Names and Alternatives

For convenience in designation in the contract, certain articles or materials to be incorporated in the work may be designated under a trade name or the name of a manufacturer and his catalogue information. The use of an alternative article or material, which is of equal quality and of the required characteristics for the purpose intended, will be permitted, subject to the following requirements:

- a) The burden of proof as to the quality and suitability of alternatives shall be upon the Contractor and he shall furnish all information necessary as required by the Engineer. He shall be the sole judge as to the quality and suitability of alternative articles or materials and his decision shall be final.
- b) Whenever the specifications permits the substitution of a similar or equivalent material or article, no tests or action relating to the approval of such substitute material will be made until the request for substitution is made in writing by the Contractor accompanied by complete data (i.e. catalogue or specification describing the dimension and quality of the product) as to the equality of the material or article proposed. Such request shall be made in ample time to permit approval to avoid delaying the work.

## 2.7. Imported Materials

Materials, which are manufactured, produced or fabricated outside Nepal, shall be delivered in time. The Contractor shall not be entitled to an extension of time for acts or events occurring outside Nepal and it shall be the Contractor's responsibility to deliver materials obtained to the point of entry into Nepal to permit timely delivery to the job site. The Contractor shall supply the facilities and arrange for any testing required at his own cost. All testing by the Contractor shall be subject to witnessing by the Engineer.

The manufacturer, producer or fabricator of imported material shall furnish to the Engineer a "Certificate of Compliance" with the specifications where required. In addition certified mill test reports clearly identifiable to the lot of material delivered shall be furnished where required by him. Where structural materials requiring mill test reports are obtained from foreign manufacturers, such materials shall be furnished only from those foreign manufacturers who have previously established, to the satisfaction of the Engineer, the sufficiency of their in-plant quality control, as deemed necessary by him or his representative, to give satisfactory assurance of their ability to furnish material uniformly and consistently in conformance with these specifications. At the option of the Engineer, such sufficiency shall be established whether by submission of detailed written proof thereof or through in-plant inspection by him or his representative.

## 3. STANDARDS, CODES AND ABBREVIATIONS

### 3.1. Reference Standards and Codes

The Works shall be carried out in accordance with the relevant quality standards, test procedures or codes of practice, collectively referred to as Reference Standards, listed in the relevant parts of the Specifications. The Contractor shall familiarize himself fully with the requirements of such standards. If no standard is indicated then the relevant ISO Standard or, in the absence of such standard, the relevant German, British, American or Indian Standards shall apply, or others, if so approved.

The Contractor may propose, at no extra cost to the Employer, the use of any alternative relevant authoritative internationally recognized Reference Standard, which shall be no less exacting, in the opinion of the Engineer, than the corresponding standard quoted in the Specification. The Contractor shall demonstrate to the Engineer that the alternative standard is suitable and equivalent to the specified standard, as well as provide proof of previous successful use. The Engineer shall decide whether or not the use of such alternative will be allowed as a Reference Standard. The Contractor shall obtain and keep on Site at least one copy of each approved Reference Standard and each Reference Standard referred to in the Specifications, and will make these accessible to the Engineer at any time upon request.

The Contractor shall obtain the Reference Standards from the addresses given below :

ISO	International Organisation for STANDARDIZATION, Rue de Varembe, Geneva, Switzerland
DIN	Deutsche Industrie Norm (German Industry Standard) from Deutsche Normenausschuss, Beuth-Vertrieb, P.O. Box 1045, W-1000, Berlin 30, Federal Republic of Germany
BSI	British Standards Institution, 101 Pantenville Road, London N1 9ND, England



AASHTO	American Association of State Highway and Transportation Officials, Suite 341 National Press Building, Washington, D.C. 2004, U.S.A.
ACI	American Concrete Institute, P.O. Box 4754, Redford Station, Detroit, MI 48219, U.S.A.
AISC	American Institute of Steel Construction, 101 Park Avenue, New York, NY 10017, U.S.A.
ASTM	American Society for Testing and Materials, 2501 Race St., Philadelphia, PA 19103, U.S.A.
AWS	American Welding Society, Inc., 2501 NW 7th St., Miami, FL 33125, U.S.A.
AWWA	American Water Works Association, 6666 West Quincy Ave. Denver, Colorado 80235, U.S.A.
IS	Indian Standards, Manak Bhawan - 9, Bahadur Shah Jafar Marg, New Delhi, 11002
SIS	Swedish Standards

### 3.2. Equivalency of Standards and Codes

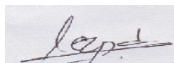
Wherever reference is made in the Contract to specific standards and codes to be met by the goods and materials to be furnished, and work performed or tested, the provisions of the latest current edition or revision of the relevant standards and codes in effect shall apply, unless otherwise expressly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

### 3.3. Metric Units

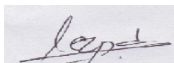
S.I. units of measurement shall be used throughout the Contract. The Contractor shall transfer all information and data originating in another system into the S.I. system.

### 3.4. Abbreviations

ACI	=	American Concrete Institute
AC	=	asbestos cement, alternating current
AASHTO	=	American Association of State Highway and Transportation Officials
ASTM	=	American Society for Testing and Materials
BOQ	=	Bill of Quantities, Schedule of Quantities
BS	=	British Standard
CBR	=	California Bearing Ratio
cm	=	centimetre
cm <sup>2</sup> /g	=	square centimetre per gram
d	=	day(s)
dia	=	diameter
DIN	=	Deutsche Industries Norm (German Standard)
DN	=	diameter nominal (=ND)
g/cm <sup>3</sup>	=	gram per cubic centimetre
g/m <sup>2</sup>	=	gram per square meter
h	=	hour
HDPE	=	high density polyethylene
HMG	=	His Majesty's Government of Nepal
HP	=	horse power
IDA	=	International Development Association
IS	=	Indian Standard
ISO	=	International Standard Organisation
kg	=	kilogram
kg/cm <sup>3</sup>	=	kilogram per cubic centimetre
kg/cm <sup>2</sup>	=	kilogram per square centimetre
km	=	kilometre
kN	=	kilo Newton
KVA	=	kilo volt ampere




l	=	litre
m	=	meter
m <sup>2</sup>	=	square meter
m <sup>3</sup>	=	cubic metre
mg/l	=	milligram per litre
min	=	minute
mm	=	millimetre
m/min	=	metre per minute
m <sup>3</sup> /d	=	cubic metre per day
m <sup>3</sup> /min	=	cubic metre per minute
m/s	=	metre per second
mm/s	=	millimetre per second
N	=	Newton
ND	=	nominal diameter (=DN)
NEA	=	Nepal Electricity Authority
nm	=	nanometer
N/mm <sup>2</sup>	=	Newton per square millimetre
NWSC	=	Nepal Water Supply Corporation
OMC	=	Optimum moisture content
PC	=	personal computer
pH	=	hydrogen concentration (acidity)
ppm	=	parts per million
RC	=	reinforced concrete
r/min	=	revolution per minute
s	=	second
SI	=	Système International d'Unités
Si	=	silicon
T	=	temperature
t	=	metric ton
uPVC	=	unplasticised polyvinyl chloride
V	=	Volt
W	=	Watt
°C	=	centigrade
°	=	degree
"	=	inch
%	=	percent
4WD	=	four wheel drive
<	=	smaller/less than
>	=	larger/more than
OPC	=	Ordinary Portland Cement




# **SECTION-VIII**

# **Technical Specification of Civil**

# **works**



## 1. GENERAL NOTES FOR CONTRACTOR AND DEFINITIONS

- 1.1 The work shall be carried out according to the specifications whether specifically mentioned in it or not. No extra in any form shall be paid unless it is definitely stated as an item in the Bill of Quantities. Whenever the specifications are not given or ambiguous, decision of the Engineer shall be considered as final and binding.
- 1.2 The work shall be related to the drawings, which the contractor is presumed to have studied. Nothing extra will be paid for any item because of its shape, location or other difficult circumstances, even if the schedule makes no distinction as long as the item is shown in the drawing.
- 1.3 The sources of materials stated in the specifications are those, from which materials are generally available. However, materials not conforming to the specifications shall be rejected even if they come from the stated sources. The contractor should satisfy himself that sufficient quantity of material of acceptable specification is available from the stated or other sources.
- 1.3.1 Where terms "Engineer", "Contractor", "Works" etc. are used, they shall have the meaning defined in the Conditions of Contract or defined in the subsequent specification.
- 1.4 "Employer" shall mean  
Nepal Electricity Authority  
**Distribution & Consumers Services Directorate**  
Birgunj Distribution Center  
Birgunj, Parsa
- 1.5 "Site Engineer" shall mean the employees deputed by the Employer.
- 1.5.1 The requirements of specifications under (2) General (3) Materials shall be fulfilled by the Contractor without extra charge including transportation or any other taxes involved that is the item rates quoted shall be deemed to have taken these into account.

## 2. GENERAL OFFICIAL ACCESSORIES

### 2.1.1 Drawing, Instructions & Measurements

All the work shall be done according to the drawings and instructions of the Site Engineer and the Contractor shall arrange to test materials and/ or portions of the works at his own cost in order to prove their soundness and sufficiency. If after any such test and in the opinion of the Site Engineer, any work or position of work is found to be defective or unsound, the Contractor shall pull down and re-execute the same at his own cost. Defective materials shall be removed from the site.

### 2.2 Preparing & Cleaning Site

The site described and shown on the drawing plans shall be cleared of all obstructions, loose stones and materials, rubbish of all kinds as well as brush-wood. All holes or hollows whether originally existing or produced shall be well rammed and levelled off as directed. Also the Contractor shall dress the site 3m, all round the site after completion, maximum cutting or filling being 300mm.

### 2.3 Measuring Materials

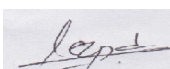
Materials requiring measuring shall be measured separately in boxes of appropriate sizes before being mixed. They should be calibrated and marked with red, if necessary in presence of Site Engineer.

### 2.4 Temporary Protection

All trenches, walls, newly laid concrete or other work requiring protection from weather or accidental injury shall be protected by means of tarpaulin or in any other way so as to keep the work safe. Nothing extra shall be paid for this matter.

### 2.5 Quality of Work

Materials, tools and plants and workmanship shall be the best of several kinds obtainable in the market and as approved by the Site Engineer.




**2.6 Leave Clean**

On completion, all work must be cleaned, rubbish removed and the works and land cleaned of surplus materials, debris and other accumulations and everything left in a clean and orderly condition.

**2.7 Samples**

Samples of each class of work required shall be submitted by the Contractor for the approval of the Site Engineer and after such approval these samples shall be deposited at a place chosen by the Site Engineer. The Contractor will be required to perform all work under the contract in accordance with these approved samples.

**2.8 Provisional Items**

All provisional items in the schedule shall be carried out at the discretion of the Site Engineer, and may or may not form part of the contract. In case, the provisional items are carried out by the Contractor, the rates shall be settled as for extra items as stated in the conditions of contract.

**2.9 Storage**

Safe, dry and proper storage shall be provided for all materials, particularly for cement. The capacity of the cement storage shall be equal to one-fourth of the total quantity to be used but at the site of work.

**3.0 MATERIALS****3.1 General**

The materials supplied and used in the works shall comply with the requirements of these Specifications. They shall be new, except as may be provided elsewhere in the Contract or permitted by the Engineer in writing. The materials shall be manufactured, handled and used in a workman like manner to ensure completed work in accordance with the Contract.

**3.2 Sources**

The source of materials should be selected and notified to the Engineer and approved by him. The use of any one kind or class of material from more than one source is prohibited, except by written permission of the Engineer. Such permission, if granted, will set forth the conditions under which the change may be made. The source or kind of materials shall not be changed at any time without written permission of the Engineer. If the product from any source proves unacceptable at any time, the Contractor shall make such arrangements as may be necessary to assure acceptable material, either by alterations in plant operations or by a change of source. Claims for increased costs, which may be occasioned by such alterations or changes, will not be given consideration, unless the source of the unacceptable material was designated in the Contract as a source of material.

**3.3 Inspection and Acceptance of Materials**

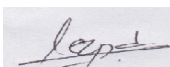
Final inspection and acceptance of materials will be made only at the site of the work. The Engineer reserves the right to sample, inspect and test materials throughout the duration of the work, and to reject any materials which are found to be unsatisfactory at the time of use.

A preliminary inspection of materials may be made at the source for the convenience of the Contractor, but the presence of Site Engineer at the source shall not relieve the contractor of the responsibility of furnishing materials, which comply with these specifications. The Site Engineers shall have free entry at all times to those parts of any plant, which concern the manufacture or production of the materials ordered.

**3.4 Samples and Tests**

The Contractor shall submit sample of all materials, for the approval of the Engineer prior to commencement of work. The Contractor shall not make use of or incorporate into the work the materials represented by the samples, until the tests have been made and the materials are found to comply with the requirements of the specifications, except for those materials, which have a satisfactory record of compliance with the Specifications may, at the discretion of the Engineer.

When required by the Site Engineer, preliminary samples of the character and quantity prescribed shall be submitted by the Contractor or producer for examination. The acceptance of a preliminary sample, however, shall not be construed as acceptance of materials from the same source delivered later. Only the materials actually delivered for



the work will be considered, and their acceptance or rejection will be based on the results of inspections prescribed in these Specifications.

### 3.5 Defective Materials

All materials, which do not conform to the requirements of the Contract, will be rejected whether in place or not. They shall be removed immediately or taken away from the site immediately thereafter. No rejected material, the defects of which have been subsequently corrected, shall be used in the work unless approval in writing has been given by the Site Engineer. Upon failure of the Contractor to comply promptly with any order of the Engineer given under this Clause, the Site Engineer shall have authority to cause the removal and replacement of rejected material and to deduct the cost thereof from any monies due to the Contractor.

## 5.0 PLAIN CEMENT CONCRETE (PCC FOR RCC)

### 5.1 Scope this specification deals with the cement concrete, plain or reinforced for general use of specified proportion. NBC 110-2050 or IS Code: 456 of Practice (latest revision) to be complied with unless permitted otherwise herein after.

#### 5.1 Material

##### 5.1.1 Aggregates:

Aggregates for the concrete shall be obtained from an approved source, shall conform with the requirements of NBC 101/2060 (Latest revision) specification for coarse and fine aggregates from natural sources and shall be washed clean. For fine aggregates any of the Grading Zones 1, 2 and 3 will be accepted except Grading Zone 4. Aggregates shall have water absorption not exceeding two percent when tested in accordance with IS 2386 (Latest revision).

Sampling and testing of aggregates shall be carried out in accordance with the requirements of the appropriate section of IS 2386. The Contractor shall satisfy the Engineer that the aggregates to be supplied will not give to an alkali reaction with the cement.

Before work on preliminary and trial mixes of concrete is commenced, the Contractor shall submit for approval samples of fifty kilograms in weight of each aggregate which he proposes to use, the samples when approved by the Engineer shall remain preserved at the site for reference.

##### 5.1.2 Storage of Aggregates

The Contractor shall provide means of storing the aggregates at each point where the concrete is made such that (a) each nominal size of coarse aggregate and the fine aggregate shall be kept separated at all times (b) contamination of the aggregates by the ground or other foreign matter shall be effectively prevented at all times and (c) each heap of aggregate shall be capable of drainage freely.

The Contractor shall ensure that the graded coarse aggregates are tipped, stored and removed from the store in manner that does not cause segregation.

Wet fine aggregate shall not be used until, in the opinion of the Engineer, it has drained to a constant and uniform moisture content, unless the Contractor measures the moisture content of the fine aggregate continuously and adjusts the amount of fine aggregate and the added water in each batch of concrete mixed to allow for the water contained in the fine aggregate. If necessary to meet the requirements of this clause, the Contractor shall protect the heaps of fine aggregate against adverse weather.

The Contractor shall make available to the Engineer such samples of the aggregate, as he requires. Such samples shall be collected at the point of discharge of the aggregate to the batching plant. If any such sample doesn't confirm with the specification, the aggregate it represents shall be promptly removed from the site and the Contractor shall carry out such modifications to the storage arrangements as may be necessary to secure compliance with the specification.

##### 5.1.3 Water

Water for concrete shall be clean and free from injurious amounts of oils, acids, salts, sugars, organic materials or other substances that may be deleterious to concrete or steel. Whenever required to do so by the Engineer, the Contractor shall take samples of the water being used or which it is proposed to be used for mixing concrete and test them for quality. The details of test shall be as per the recommendations in the **IS: 3025-1964** (latest revision).

Permissible limits, maximum for Solids

Organic 200mg/l



Inorganic	3000mg/l
Sulphates	500 mg/l
Chlorides	2000mg/l for PCC works And 1000mg/l for RC works
Suspended matter	2000mg/l

5.1.4 Cement

The cement shall be ordinary Portland cement of approved brand and manufacture and shall comply in all respects with the NS 49/2041 and IS: 8112 (latest revision) for ordinary Portland cement. It shall be delivered on the site in packages with an unbroken seal fixed by the makers and plainly marked with the name of brand and date of manufacture. It shall be stored in a dry place, in regular piles not exceeding ten bags high and in such a manner that it will be efficiently protected from moisture and contamination, and that the consignments can be used up in the order in which they are received. Set cement shall be immediately removed from the work and replaced by the Contractor at his own expense. If desired, tests shall be made by taking samples of cement from stores or elsewhere from the works. The selection of samples and procedure for testing shall comply with appropriate IS.

5.1.5 Admixture

Admixture shall mean material added to the concrete materials during mixing for the purpose of altering the properties of the concrete mix.

If the Contractor wishes to use admixtures, otherwise than as expressly ordered by the Engineer, he shall first obtain the Engineer’s written permission. The methods of use and the quantities of admixture used shall be subject to the Engineer’s approval, which or otherwise shall in no way limit the Contractor’s obligations under the Contract to produce concrete with the specified strength and workability. The engineer may order not to use any admixtures, if required.

**IS and BS grading requirements for Coarse Aggregate**

IS Sieve	Percentage passing for single sized aggregate of nominal size						Percentage passing for graded aggregate of nominal size			
	63mm	40mm	20mm	16mm	12.5mm	10mm	40mm	20mm	16mm	12.5mm
80mm	100	-	-	-	-	-	-	-	-	-
63mm	85-100	100	-	-	-	-	-	-	-	-
40mm	0-30	85-100	100	-	-	-	95-100	100	-	-
20mm	0-5	0-2	85-100	100	-	-	30-70	95-100	100	100
16mm	-	-	-	85-100	100	-	-	-	90-100	-
12.5mm	-	-	-	-	85-100	100	-	-	-	90-100
10mm	-	0-5	0-20	0-30	0-45	85-100	10-35	25-55	30-70	40-85
4.75mm	-	-	0-5	0-5	0-10	0-20	0-5	0-10	0-10	0-10
2.36mm	-	-	-	-	-	0-5	-	-	-	-

**IS, BS and ASTM grading requirements for Fine Aggregate**

IS Sieve Designation	Percentage Passing (By Weight)				Standard C.33-57
	Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV	
10mm	100	100	100	100	100
4.75mm	90-100	90-100	90-100	95-100	95-100



2.36mm	60-95	75-100	85-100	95-100	80-100
1.18mm	30-70	55-90	75-100	90-100	50-85
600 micron	15-34	35-59	60-79	80-100	25-60
300 micron	5-20	8-30	12-40	15-50	10-30
150 micron	0-10	0-10	0-15	0-15	2-10

**5.2 Grades of Concrete**

5.2.1 General

Structural concrete shall be either ordinary or controlled and in three grades designated as **M150 (M15 in SI unit)**, **M200 (M20 in SI unit)** and **M350 (M35 in SI unit)**, as specified in NBC 110-1994 – latest revision.

**Ordinary Concrete**

Ordinary concrete is recommended only when accurate control is impracticable and not necessary. However, if ordinary concrete is allowed by the Engineer, it shall be used only in the concrete of Grades M150, M200 and M350. Ordinary concrete does not require preparation of trial mixes.

Concrete mix proportion for ordinary concrete shall be as per NBC 110-1994 or IS: 456 - latest revision – and as follows:

**Mix Proportion (By Weight) Expected to Give Degrees of Workability with Different Water Cement Ratios and Specified Strength**

(For Guidance)						
Workability	Water Cement Ratio	Compressive Strength in 28 days kg/cm <sup>2</sup>	Ratio by Weight of Cement to Gravel Aggregate		Ratio by Weight of Cement to Crushed Stone Aggregate	
			20mm size	38mm size	20mm size	38mm size
Very low Slump 0-25mm	0.4	360	1:4.8	1:5.3	1:4.5	1:5.0
	0.5	290	1:7.2	1:7.7	1:6.5	1:7.4
	0.6	220	1:8.5	1:8.6	1:7.8	1:8.4
	0.7	160	1:9.0	1:9.0	1:8.7	1:8.9
Very low Slump 25-30mm	0.4	360	1:3.9	1:4.5	1:3.5	1:4.0
	0.5	290	1:5.5	1:6.7	1:5.0	1:5.5
	0.7	160	1:8.0	1:8.5	1:7.4	1:8.0
Medium Slump 25-100mm	0.4	360	1:3.5	1:3.8	1:3.1	1:3.6
	0.5	290	1:4.8	1:5.7	1:4.2	1:5.0
	0.7	160	1:6.8	1:7.9	1:6.2	1:7.0
High Slump 100-175mm	0.4	360	1:3.2	1:3.5	1:2.9	1:3.3
	0.5	290	1:4.4	1:5.2	1:3.9	1:4.6
	0.6	220	1:5.4	1:6.7	1:4.7	1:5.7
	0.7	160	1:6.2	1:7.4	1:5.5	1:6.5

Not with Birgunj anything mentioned herein before, the maximum total quantity of aggregates by weight per 50 kg. of cement shall not exceed 150 kg. except where otherwise specifically permitted by the Engineer.

The minimum cement content for each grade of concrete shall be as follows:

Grade of Concrete	Minimum Cement Content per cum. of Finished Concrete
M150	325 kg
M200	360 kg
M250	420 kg
M350	-----

At least four trial batches are to be made at site during casting and six test cylinders/cubes taken for each batch noting the slump on each mix. These cylinders/cubes shall be tested in a testing laboratory approved by the

Engineer at 7 days and others at 28 days for obtaining the unlimited compressive strength. The test reports shall be submitted to the Engineer. The cost of the mix design and testing shall be borne by the Contractor.

On the basis of the above test reports, proportion of mix by weight and water – cement ratio will be approved by the Engineer; the proportions so decided for different grades of concrete shall be adhered to during all concreting operations. If, however, at any time, the Engineer feels that the quality of the materials being used, has been changed from those used for preliminary mix design, the Contractor shall have to run similar trial mixes design, and the Contractor shall ascertain the mix proportion and water – cement ratio for obtaining the desired strength and consistency. It will be within the competency of the Engineer to reduce the number of trial batches and the number of test specimens mentioned above.

The mixes once approved must not be varied without prior approval of the Engineer.

In **designing the mix proportions** of concrete, the quantity of both cement and aggregate shall be determined by weight. The Engineer may allow the quantity of aggregates to be determined by equivalent volume basis after the relationship between the weight and volume is well established by trial and the same shall be verified frequently. If the design mix is allowed, the proportion of aggregate, sand and cement shall be determined as per design concrete grade.

Water shall be either measured by volume in calibrated tanks or weighted.

All measuring equipment shall be maintained in a clean and serviceable condition and their accuracy periodically checked.

To keep the water – cement ratio to the designed value, allowance shall be made for the moisture content in both fine and coarse aggregates and determination of the same shall be made as frequently as directed by the Engineer. The determination of moisture contents shall be according to IS: 2386 (Part III) – (latest revision).

**5.3 Strength Requirement**

Where ordinary Portland cements conforming to NS 49/2041 (latest revision): Ordinary Portland Cement /IS: 269- latest revision is used, the compressive strength requirements for various grades of concrete shall be as shown in Table – IV and shall apply to both controlled concrete and ordinary concrete.

The acceptance of strength of concrete shall be as per clause in “Sample size and Acceptance Criteria” of NBC 110-1994 – latest revision / IS-456 (latest revision) subject to the stipulations and/or modifications stated elsewhere in this specification.

Concrete work found unsuitable shall have to be dismantled and replacement to be done as per specification by the Contractor. No payment for the dismantled concrete, the relevant formwork and reinforcement embedded fixtures, etc. shall be made. In course of dismantling, if any damage is done to the embedded items or adjacent structures, the same shall be made good free of charge by the Contractor to the satisfaction of the Engineer.

Compressive strengths for different grades of concrete as specified in Table – IV shall always refer to the cylinder/cubes strength based on test conducted on 15cm diameter and 30cm height or strength of cylinder based on test conducted on 15cm X 15cm X 15cm cube. Other requirements of concrete strength as may be desired by the Engineer shall be in accordance with NBC 110-1994/IS 456 (latest revision).

In exceptional circumstances, the Engineer may accept a concrete of lower strength than specified and which is otherwise unacceptable according to the “Acceptance Criteria” of NBC 110-1994/ IS 456 – (latest revision), provided the strength is never less than 80% of the specified strength. All concrete having strength less than 80% of that specified shall always be rejected. Payment for concrete of lower strength than specified or approved by the Engineer shall always be made at a reduced rate on pro– rata basis to the strength obtained.

**Strength Requirement of Concrete**

Grade of Concrete	Compressive strength of 15cm diameter and 30cm high cylinder or 15cm cube at 28 days after mixing, conducting in accordance with NBC 110-1994 – latest revision	
	Preliminary test kg/cm <sup>2</sup>	Work test kg/cm <sup>2</sup>
<b>M150</b>	200	150
<b>M200</b>	260	200
<b>M250</b>	320	250
<b>M350</b>	430	350



With permission of the Engineer, for any of these above mentioned grades of concrete shall also be increased proportionately to keep the ratio of water to cement same as adopted in trial mix design for each grade of concrete. No extra payment for the additional cement will be made.

#### 5.4 Workability

The workability of the concrete shall be checked at frequent intervals by slump test. Where facilities exist and if required by the Engineer, alternatively, the compacting factor test in accordance with IS: 1199 – (latest revisions), shall be carried out. The degree of workability necessary to allow the concrete to be well consolidated and to be worked into the corners of formworks and around on the type and nature of structure and shall be based on experience and tests within the preferred limits of consistency as specified in Table below for various types of structures.

##### Limits of Consistency

Degree of Workability	Slump in mm		Use for which concrete is suitable
	Min.	Max	
Low	20	40	Mass concrete foundations without vibrations, simple reinforced section with vibration.
Medium	50	100	Normal reinforced beams, columns, slabs without heavily reinforced section with vibration.
High	100	150	Section with congested reinforcement not normally suitable for vibration.

**Note:** However, the slump to be obtained for work in progress shall be as per direction of the Engineer.

#### 5.5 Load Test

Load test of structural members may be required by the Engineer when the strength of job control cylinders/cubes falls below the required strength and is not acceptable as per "Acceptance Criteria" of NBC 110-1994 – (latest revision). If the load testing is decided by the Engineer, the member under consideration shall be subjected to a superimposed load equal to one and quarter (1¼) times the specified superimposed load used for design and this load shall be maintained for a period of 24 hours before removal. The detailed procedure of the test is to be decided by the Engineer.

If the member shows evident failure, such changes as are necessary to make the structure adequately strong shall be made free of cost. If on the other hand the failure becomes evident, the Engineer under special circumstances (with the approval of the designer), can retain the portion of the structure under test, provided suitable modification for strengthening and/or dispersion of design load is feasible. Cost of such modification of dispersion of load shall be borne by the Contractor.

The entire cost of load testing shall be borne by the Contractor. If a portion of the structure is found to be unacceptable, it shall be dismantled and replaced by a fresh structure as per specification. The cost of dismantling and the cost of concrete, formwork and reinforcement involved in the dismantled portion shall not be paid to the Contractor.

If in the course of dismantling, any damage is done to the embedded items and or other adjacent structures, the same shall be made good free of charge by the Contractor to the satisfaction of Engineer.

#### 5.6 Workmanship

##### 5.6.1 General

All workmanship shall be according to the latest and best possible standards.

##### 5.6.2 Mixing of Concrete

The proportion of fine and coarse aggregate, cement and water shall be as determined by the preliminary tests or according to fixed proportions in case of ordinary concrete and shall always be approved by the Engineer. The quantities of fine and coarse aggregates shall be determined by weight. The water shall be measured accurately after giving proper allowance for surface water present in the aggregates for which regular check shall be made by the Contractor. Due allowance shall be made for bulking in case of volume batching in accordance with IS: 2386 (Part III) – latest revision.

Concrete shall be always mixed in a mechanical mixer unless specifically approved by the Engineer for concrete to be used in unimportant structure. The water shall not be poured into the drum of the mixer until



all the cement and aggregates constituting the batch are already in the drum and mixed for at least one minute. Mixing of each batch shall be continued until there is uniformity in colour and consistency, but in **no case shall mixing be done for less than two minutes** and at least forty revolutions after all the materials and water are in the drum. When absorbent aggregates are used or when the mix is very dry, the mixing time shall be extended as may be directed by the Engineer. Mixer shall not be loaded above their rated capacity as this prevents thorough mixing.

The entire contents of the drum shall be discharged before the ingredient for the next batches are fed into the drum. No partly set or remixed or excessively wet concrete shall be used and it shall be immediately removed from site.

Each time the work stops, the mixer shall be thoroughly cleaned and when the next mixing commences, the **first mix shall have 10% additional cement** at no extra cost to the Employer to allow for loss in the drum.

When **hand mixing** is permitted by the Engineer for concrete to be used in unimportant structures, it shall be carried out on a watertight platform and care shall be taken to ensure that mixing is continued until the mass is uniform in colour and consistency. In case of hand mixing, **extra cement @ 10%** shall be added to each batch with no extra cost to the employer. **However, the engineer may not allow the hand mixing for concrete at all.**

#### 5.6.3 Conveying Concrete

Concrete shall be handled and conveyed from the place of mixing to the place of final deposit as rapidly as practicable by approved means before the initial setting of the cement starts. Concrete should be conveyed in such a way as will prevent segregation or loss of any of the ingredients. If segregation does occur during transport, the concrete shall be remixed. During the very hot or cold weather, if directed by the Engineer, concrete shall be transported in deep containers, which will reduce the rate of loss of water, by evaporation and loss of heat. Conveying equipment for concrete shall be well maintained and thoroughly cleaned before commencement of concrete mixing. Such equipment shall be kept free from set concrete.

#### 5.6.4 Placing Concrete

Formwork and reinforcement shall be approved in writing by the Engineer prior to placing of concrete. Concrete shall be placed in its final position without segregation. The forms shall be well wetted and all shavings, dirt and water that may have collected at the bottom shall be removed before concrete is placed. The interval between adding the water to the dry materials in the mixer and the completion of the final placing inclusive of compaction of the concrete shall be not more than initial setting time of the cement, normally 30 minutes for ordinary Portland cement. The concrete shall be well placed in the formwork by means approved by the Engineer and shall not be dropped from a height or handled in a manner, which may cause segregation. Any drop above 180cm shall have to be approved by the Engineer. Once the concrete is placed, it shall not be disturbed. After the concrete has been placed, it shall be spread and thoroughly compacted by approved mechanical vibration to a maximum subsidence without segregation and thoroughly worked around reinforcement or other embedded fixtures into the concrete form and shape. Vibration shall not be used for pushing and shovelling on concrete. Vibration must be operated by experienced men and over vibration shall not be permitted. Hand tamping in some cases may be allowed subject to the approval of the Engineer.

No concrete shall be placed in open, while it rains. If there has been any sign of separation of cement and sand by washing, the concrete shall be entirely removed immediately. Suitable precautions shall be permitted on freshly laid concrete. Slabs, beams and similar members shall be poured in one operation normally. Bleeding of under layer, if any, shall be effectively removed. Moulding, drip course, etc. shall be poured as shown on the drawing or as directed by the Engineer. Holes shall be provided and bolts sleeve, anchors fastenings or other fixtures shall be embedded in concrete as shown on the approved drawings or as directed by the Engineer. Any deviation from the drawing shall be set right by the Contractor at his own expenses as instructed by the Engineer.

#### 5.6.5 Construction Joints

When the work is to be interrupted, the concrete shall be rebated at the joint to such shape and size as may be required by the Engineer or as shown on the drawing. All vertical construction joints shall be made step boards, which are rigidly fixed and slotted to allow for the passage of the reinforcing steel. If desired by the Engineer, keys and/or dowel bars shall be provided at the construction joints. In the case of water retaining structure water stops of approved materials shall be provided if so specified in the drawings or desired by the Engineer. Construction joints shall be provided in positions as described, the joints shall be in accordance with the followings;

In a column, the joints shall be formed about 75mm below the lowest soffit of the beams forming into it.



**Concrete in a beam** shall be placed throughout without a joint, but if the provision of a joint is unavoidable, the joint shall be **vertical at the middle** of the span. A joint in suspended floor slab shall be vertical at the middle of the span at right angle to the principal reinforcement. The locations of construction joint shall be planned by the Contractor well in advance of pouring and will have to be approved by the Engineer.

Before fresh concrete is placed, the cement skin of the partially hardened concrete shall be thoroughly removed and surface made rough by hacking, sand blasting, water jetting, air jetting or any other method as directed by the Engineer. The rough surface shall be thoroughly wetted for about two hours and shall be dried and coated with 1:1 freshly mixed cement sand slurry before placing the new concrete. The new concrete shall be worked against the prepared surface before the slurry sets. Special care must always be taken to see that the first layer of concrete placed after a construction joint is cold. Joints during pour shall be treated with 1:1 freshly made cement sand slurry only after removing all loose materials.

#### 5.6.6 Protection and Curing of Concrete

Newly placed concrete shall be protected by approved means from rain, sun and wind. As the concrete has hardened sufficiently for the surface to be marked, it shall be covered either with sand, Hessian, canvas or similar materials and kept continuously wet for at least fourteen days after final setting. This period may be extended at the discretion of the Engineer.

#### 5.6.7 Control Tests on Concrete

Six test cylinders/cubes for each type of work shall be taken by the Contractor for each 8 hours or less of concreting. If the value of concrete poured is less than 20m<sup>3</sup> on any day per mixing plant, the Engineer may exempt or reduce the number of test cylinders/cubes. The samples of concrete shall be tested in approved laboratory in presence of the Engineer and the test results shall be submitted in triplicate to the Engineer. The Contractor shall carry out the sampling and testing according to the provisions of this specification at his own cost. No payment shall be made for the concrete used in specimens.

To control the consistency of concrete from every mixing plant, slump tests shall be carried out by the Contractor free of charge every two hours or as directed by the Engineer. The amount of mixing water shall not be changed without prior approval of the Engineer. Slumps corresponding to the test cylinders shall be recorded for reference. The Engineer if he so desires may order special tests to be carried out on cement, sand or coarse aggregate, water, reinforcing steel, or traverse tests in accordance with NBC or I.S. recommendations. If the materials tested are found to be suitable for the intended use, the cost of these special tests shall be borne by the employer. If the material is found to be not suitable for the intended use the cost of these special tests shall be borne by the Contractor. Further, during the progress of the work if the Engineer has doubt about the quality of any material in use he can instruct suspension of its use till the material is proved acceptable by test. Any consequent loss arising out of the suspension shall be borne by the Contractor.

#### 5.6.8 Exposed Surface

##### **Interior**

Imperfect surface, where strength is not required shall be patched and rubbed smooth with carborundum stone, immediately after the formwork is stripped off, fins and projections shall be removed and the concrete surface affected thereby shall be rubbed smooth to the satisfaction of the Engineer.

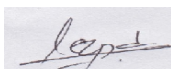
##### **Anchor Bolts, Anchors, Openings, Sleeves, Insets and Other Built – in Fixtures**

The Contractor shall leave all openings, grooves, chases etc. in concrete work as shown on the drawings or as specified by the Engineer. He shall build into concrete work all the materials noted below and shall embed and secure the same as and when required. The material is required to be supplied by the Contractor, shall be of best quality available of approved manufacture and shall be up to the satisfaction of the Engineer.

##### **Material to be embedded**

- i) Inserts, hangers, opening frames, manholes, covers, floor clips, sleeves and conduits.
- ii) Anchor bolts and plates for machinery, equipment and for structural steel work
- iii) Dowels bars, etc. for concrete work falling under scope of future works.
- iv) Lugs or plugs for door and window frames occurring in concrete work
- v) Flashing and jointing in concrete work
- vi) Any other built – in fixtures as may be required

Correct location, exact alignment, etc. of all these shall be entirely the responsibility of the Contractor.




5.6.9 Expansion & Isolation Joints etc.

**Expansion Joints and Isolation Joints:** Expansion joints in concrete structures shall be provided at specified places as indicated on the drawings. The materials and types of joints shall be as specified below. In case of liquid retaining structures, additional precaution shall be taken to prevent leakage of liquids as may be specified on the drawings or as directed by the Engineer. The Engineer may demand test certificates for the materials and/or get them tested.

**Bitumen Boards:** Bitumen impregnated fibre of approved manufacture as per NBC / IS: 1838 – latest revision shall be used as fillers for expansion joints. It must be durable and waterproof. At the exposed end, the joint shall be sealed with approved sealing compound to a depth of 25mm after application of an approved primer. The sealing compound and the primer shall be applied as specified by the manufacturer

**Bitumen Compound:** The gap for expansion joints shall be thoroughly cleaned and the bitumen compound laid as per manufacture specifications. The compound to be used shall be of approved manufacture and shall conform to the requirement of NBC / IS: 1834 – latest revision.

**Separation Joints:** Strong and tough alkathene sheet or equivalent of about 1mm in thickness as approved by the Engineer shall be used. It shall be stuck by an approved sticker to the cleaned surface of the already set concrete to cover it fully. Fresh concrete shall be laid against the sheet, care being taken not to damage the sheet in any way.

**Rubber Pad:** Hard foundation quality rubber pads of required thickness and shape are to be placed below machine or other foundations where required as shown on the drawings or as directed by the Engineer. The rubber shall be of best quality of approved manufacturer, durable, capable of absorbing vibration and must be chemically inert continue unbroken in contact with moist or dry earth under normal conditions.

5.6.10 Waterproofing Joints

The materials shall conform to the respective NBC or IS Code – latest revision, where applicable. The Engineer’s approval to the materials shall be obtained by the Contractor before procurement. If desired by the Engineer, test certificates for the materials shall be submitted by the Contractor. The materials shall be of best quality available indigenously, fresh and thoroughly clean.

5.6.11 Water Proofing Admixture

**In Concrete:** The admixture shall be of right variety and procured freshly. The admixture shall be approved by the Engineer. The method of application and other details shall exactly conform to the manufacturer specification. The concrete shall have the services of the manufacturer supervision at no extra expense to the Employer to supervise the work if desired by the Engineer.

**In plaster:** The concrete surface to be plastered shall be hacked to the Engineer’s satisfaction. The plaster shall be made of cement and sand as approved by the Engineer. If desired by the Engineer, the Contractor shall have the work supervised by the manufacture supervisor at no extra cost to the employer.

5.6.12 Other Admixture in Concrete

The Engineer may or may not in his direction, allow the Contractor to use any admixture in the concrete.

**No Payment shall be made extra over the price on concrete for these admixture, whatsoever.**

5.6.13 Measurement and Rates

The measurement shall be done in **cubic meter** calculated as per the drawing. The rates for items shall include cost of all materials consumed in the work at all levels, hire charges of materials, tools and plant, cost of labour, insurance, all transport, services, accommodations, supervision, storage, protection etc. all complete.

**5.6.14 REINFORCEMENT WORK**

5.6.15 Scope:

Supplying and fixing Thermo Mechanically Treated (TMT) steel (Grade Fe500 TMT) reinforcement in RCC work including bending, bending with wires, placing in position including the cost of binding wires, as per Drawing, specification and instruction of engineer.....kg/MT.

5.6.16 Reinforcement Bar

Bar reinforcement described, as “Deformed Steel” shall be hot rolled deformed bars and cold twisted, shall conform to NS 191-2046. The standard "TMT" bars shall mean thermo mechanically treated, conforming to NS 501-2058 / IS 1786. With respect to manufacture, quality, physical properties and related requirements, reinforcement bar of the fore – going description shall comply with appropriate parts of NS 191-2046/NS 501-2058 / IS 1786 and IS Standards Nos. 432 – 1966 (or latest version), 139 – 1966 (or latest version) and 1786 – 1966 (or latest version) for TMT bars, Mild Steel and Deformed Steel respectively.



Reinforcement bar shall be free from pitting due to corrosion, loose rust, mill scale, paint, oil, grease, adhering earth, ice or other materials that may impair the bond between the concrete and the reinforcement or that may in the opinion of the Engineer's Representative cause corrosion of the reinforcement or cement grout shall not be permitted.

Bars Recommended are as follows:

**TMT Bars Fe 500 grade:** for non structural members, slabs, staircase, foundation footings, Beams and columns or as per drawings.

#### 5.6.17 Certificate and tests for reinforcement bars

For each consignment of reinforcement bars used in the Works, the Contractor shall, if required, supply a certificate giving the ultimate strength, yield stress and elongation and the result of the cold bend test for each type and each size of bar. Tests for the purpose of obtaining the information shall conform to relevant NBC 101-1994 / IS code.

The Engineer's Representative shall select as many test pieces as he deems necessary where the reinforcement bars are supplied for which the makers test sheet or other records are not available, or where in the opinion of the Engineer's Representative materials have been subject to corrosion or other bad effect and the Contractor shall supply and deliver the test pieces free of cost without reimbursement and pay the cost of preparing and testing them as well.

#### 5.6.18 Dimensions of reinforcement bars

The size of reinforcement bars described on the Working Drawings or elsewhere shall be the minimum and the rolling margin and other tolerance shall be wholly above this size. The length of a reinforcement bar shall be not less than the length on the Drawing or elsewhere and shall not be more than 50mm. in excess of that length. Bar bending schedule shall be prepared by the Contractor and submitted for approval of the Engineer's Representative. Such schedules shall be prepared based on reinforcement details, prior to the execution of the work. Nothing extra shall be paid for this.

#### 5.6.19 Bending of reinforcement bars

Reinforcement bars shall be bent by approved means producing a gradual and even motion. Bars shall comply with the dimensions described in the Drawings. Overall dimensions of bend or internal dimensions of bending or the like shall be within a tolerance of 30mm. Any discrepancies or inaccuracies found by the Contractor in the Drawings or other documents shall be immediately reported to the Engineer whose interpretation and requirements relating there to shall be accepted. The internal radius of bends shall be not less than twice the diameter of the bars unless described to the contrary on the bending lists or elsewhere in the Drawing. Hooks and other end anchorage bends for mild steel shall be bent to an internal radius of twice the diameter of the bar. This internal radius of the bends of corner binders or stirrups or links shall be half. Bars which have been bent shall not be straightened or re-bend for incorporation in the works without the prior approval of the Engineer's Representative.

#### 5.6.20 Fixing reinforcement bars

Reinforcement bars shall be accurately fixed and by approved means and maintained in the position described. Bars intended to be in contact shall be securely wired together at all such points with 16 gauge soft iron tying wire. Binders, stirrups and links shall tightly embrace the bars with which they are intended to be in contact and shall be securely wired or, if approved, spot welded thereto.

Reinforcement shall be lapped, joined or spliced only at the positions described. Splices and like found to be necessary elsewhere should be formed only if and as instructed. Lapping shall be provided as shown in the Drawings and as permitted. Where practicable bars in each member shall be assembled and fixed in the form of a rigid cage or skeleton before placing in the moulds or formwork. Lap length should not be less than development length.

Immediate before concreting, the reinforcement shall be checked for position, cleanliness, and freedom from rust or retarding liquid. Measures shall be taken to ensure that reinforcement remains correctly in position with required cover during the placing and consolidating of the concrete.

Reinforcement projecting from work being concreted or already concreted shall not be bent nor correct its position for any reason unless approved and shall be protected from deformation in future. Extensions shall be thoroughly coated with cement grout wash or encased in concrete or otherwise protected from corrosion as instructed.

#### 5.6.21 Cover of Concrete and Spacing of bars

Unless otherwise described, the clear cover of concrete to the reinforcement shall be as follows or as specified in the drawings:



- **Horizontal, vertical or inclined slabs:** 20mm or the size of the bars whichever is greater
- **Short Lintels:** 20mm or the size of the bar whichever is greater
- **Beams:** 25mm or the size of the main bars whichever is greater. Binders and the like 15mm minimum.
- **Columns:** Main bars for columns not exceeding 20mm diameter shall be 35mm and the main bars in columns exceeding 20mm diameter shall be 40mm or the size of the main bars whichever is greater. Rectangular binders or links or helical binding, 15mm minimum.
- **Footing:** 50mm minimum.

5.6.22 Measurement

For the purpose of ascertaining payments due to the Contractor the basis of measurements of reinforcement bars used in the Works shall be the calculated by weight in Kg or (MT). which shall be computed from the size and lengths of the bars (not binding wires) described on the Working Drawings or elsewhere. No allowance in the weight shall be made for cutting to waste, rolling margin, extra length or other tolerance. The Contractor is deemed to have taken this factor into consideration and quoted accordingly in the tender. The Contractor’s rate for unit weight of bars reinforcement shall be deemed to include all allowances omitted in calculating the weight and for any other tolerances, and for providing tying wire, spacer bars, chairs and cover blocks as specified hereinafter for carriage and handling, for bending hooking, cranking and for fixing and maintaining in correct position in the Works. Standard laps of the lengths as shown in the Drawing or as instructed at site shall be admissible. Standard hooks (9 times the diameter for each hook for mild steel, deformed steel) shall be added to the finished length to arrive at the length of the bar for cutting and measurement.

6.0 FORMWORK

6.1.1 Design

Formwork shall be designed and constructed so that concrete can be properly placed and thoroughly compacted. Formwork shall be firmly supported and adequately strutted, braced, or tied. The formwork shall be needed for normal, **ornamental or ribbed slab** as per design. It shall be capable of adjustment to the lines and dimensions of the finished concrete and it shall be sufficiently strong to resist without distortion, the pressure of concrete during its placing and compaction and other loads to which it may be subjected. It shall not be liable to suffer distortion under the influence of the weather. When concrete is to be vibrated, special care shall be taken to ensure that the formwork will remain stable and the joints tight. The safety and adequacy of centering and shuttering shall be the sole responsibility of the Contractor. The Contractor shall if required supply to the Engineer drawings and calculations for the formwork he proposes to use.

6.1.2 Material

Material used for formwork in various parts of the structure shall be as follows:

<u>Part</u>	<u>Materials</u>
Foundations	12mm thick waterproof Ply Board
Beams, Cornice and Slab	12mm thick waterproof Ply Board and MS pipe props with threads for variable heights.
Curved Shape Beams and ribbed Slabs including all RCC works	12mm thick waterproof Ply Board cut in strips, and MS pipe props with threads for variable heights.

All forms shall be built watertight and of materials of sufficient strength to hold the concrete without bulging between supports.

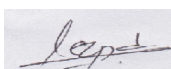
All forms shall conform accurately to the shape lines and dimensions shown on the Contract Drawings, account being taken of camber where required.

All forms shall be securely braced to maintain their true position and form.

All forms shall be checked frequently during the pouring operations and until removed so that they may be driven up if any settlement occurs.

6.1.3 Deflection and camber

The Contractor shall make allowance for any settlement or deflection of the formwork that is likely to arise during construction, so that the hardened concrete conforms accurately to the specified line and level. The Contractor shall also make allowance in the formwork for any camber specified by the Engineer to allow for the elastic deflection of structural members and deflection due creeping of the concrete. In the absence of any specified camber, the soffit of all beams and slabs shall be given a camber equal to 1/240 of the span length to ensure that the structure has the prescribed shape after removal of the forms.




#### 6.1.4 Supports

Formwork shall be constructed so that the formwork to the side's members can be removed without distributing the soffit formwork or its supports. Props and supports shall be designed to allow the formwork to be adjusted accurately to line and level and to be erected and removed in an approved sequence without injury to the concrete. Supports shall be carried to construction, which is sufficiently strong to afford the necessary support without injury to any portion of the structure. This may mean in some cases that it is carried down to the foundations or other suitable base. Steel props and bracing shall be provided for the temporary support of composite construction where separately specified.

#### 6.1.5 Joints and edges

All joints in the formwork shall be close fitting to prevent leakage of grout from the concrete. At construction joints formwork shall be tightly secured against previously cast or hardened concrete to prevent the formation of stepping or ridges in the concrete. Formwork shall be constructed to provide straight and true angles, arises or edges. Where chambers are shown on to provide a smooth and continuous accurate alignment at sides and provide a clean line at construction joints in the concrete these shall be fixed with their joints either vertical or horizontal, unless otherwise specified.

#### 6.1.6 Sundries

Formwork shall be provided to the top surface of concrete where the slope or the nature of the work requires it. **Provision shall be made for forming holes, ducts, voids and chases for civil, sanitary, electrical services and for building in pipes, conduits, lifts and other fixings, as shown on the drawings.** The material and position of any ties passing through the concrete shall be to the Engineer's approval. Except where corrosion of a metal tie is unimportant it shall be possible to remove a tie so that no part of it remaining embedded in the concrete shall be nearer to the finished surface of the concrete than the specified thickness of cover to the reinforcement. Any holes left after the removal of ties shall be filled with concrete or mortar of approved composition.

#### 6.1.7 Cleaning and treatment of formwork

Space to be occupied by concrete shall be free from all rubbish, chipping, shaving, sawdust, dirt and tying wire, etc., before concrete is placed. The formwork to be in contact with the concrete shall be cleaned and treated with suitable non-staining form oil or other approved material. Care shall be taken that oil or composition is kept away from contact with the reinforcement or with concrete at any construction joints. Surface retarding agents shall not be used except with the permission of the Engineer's Representative. Formwork shall be thoroughly cleaned after each use. Damaged or distorted formwork shall not be used.

#### 6.1.8 Striking or removal of formwork

All formwork shall be removed without shock or vibration that might damage the concrete. Before the soffit and props are removed the surface of the concrete shall be exposed where necessary in order to ensure that the concrete has hardened sufficiently. In no circumstances shall formwork be struck off until the concrete reaches cube strength of at least three times the stress to which the concrete may be subjected at the time of striking. The formwork to vertical surfaces such as walls, columns and sides of beams may be removed after 24 hours in normal weather conditions although care must be taken to avoid damage to the concrete, especially to arise and features. In cold weather a longer period may be necessary before striking. Suitable curing methods should immediately follow the removal of the formwork.

The following minimum times shall elapse before removal of formwork.

#### 6.1.9 Time of Formwork

The times given for the removal of props are based on the assumption that the total live plus dead weight to be supported at the time of removal is not more than one half the total design loads. For horizontal members where the loading is higher proportion of the total design load these may need to be increased.

#### 6.1.10 Removal of Forms

The Contractor shall record on the drawing or in some approved manner, the date on which the concrete is placed in each part of the work and the date on which the formwork is removed there from and have this record checked and countersigned by the Engineer. The Contractor shall be responsible for the safe removal of the form work but the Engineer may delay the time of removal if he considers it necessary. Any work showing signs of damage through original removal of formwork or loading shall be entirely reconstructed without any extra cost of the employer.

Forms for various types of structural component shall not be removed before the minimum periods specified below, which shall also be subjected to the approval of the Engineer.



Ordinary Portland Cement Concrete				Rapid Hardening Portland Cement Concrete	
Temp (°C)	40 -	20 – 5	5	40 – 20	20 -5
Part of Structure	Days	Days		Days	Days
a. Column & Walls	1	2	Do not remove forms until site cured test cylinders develop 50% of 28 days strength	½	2
b. Beam Sides	2	4		1	3
c. Slabs 125 mm	7	14		4	7
d. Slab below 125 mm	14	28		8	14
e. Soffit of main beam	21	28		10	16

Before removing any formwork the Contractor must notify the Engineer well in advance to enable him to inspect the concrete if he so desires.

6.1.11 Tolerance

The formwork shall be so made as to produce a finished concrete true to shape, lines, levels, plumb and dimensions as shown on the Drawings subject to the following tolerance unless otherwise specified elsewhere in this Specification or Drawings or directed by the Engineer.

- a. Sectional dimension - 5mm
- b. Plumb - 1 in 1000 of height
- c. Levels - 3mm before any deflection has taken place

6.1.12 Re – use of forms

Before re – use, all forms shall be thoroughly scraped, cleaned, joints etc. examined and when necessary repaired and inside surface treated as specified here above. Formwork shall not be used/re-used, if declared unfit or unserviceable by the Engineer.

6.1.13 Classification

Ordinary exterior grade plywood of good quality shall be used for formwork. Where an especially good finish is required and shall be made mostly of approved brand of heavy quality plywood to produce a perfectly level, uniform and smooth surface. Re-use only may be permitted after special inspection and approval by the Engineer. He may also permit utilization of used plywood for the “ordinary” class.

6.1.14 Ornament

These shall be used where ornamental and curved surface are required and shall be of selected best quality well seasoned timber which can be shaped as required. Generally, the “ordinary” class formwork shall be used elsewhere unless otherwise directed by the Engineer.

6.1.15 Rate

Rate shall include for all necessary material and labour to execute the formwork.

6.1.16 Measurement

Measurement for payment shall be done of the area on which centering shuttering has been carried out. Rate shall include centering and shuttering including propping, strutting etc. and removal of forms including applying form oil to shuttering shall be measured in sqm.

**7.0 BRICKWORK**

**7.1.1 Brick work in foundation and super structure.**

7.1.2 Scope

This Section covers the furnishing of all labour, materials, equipment and construction of chimney made brick works for superstructure(Ground & First floor) all complete in accordance with the Drawing details, specifications and instruction of engineer.



### 7.1.3 Material

#### 7.1.1 Chimney made Bricks

The Brick shall be first class Chimney made bricks of quality approved by the Engineer's Representative and free from grit and other impurities such as lime, iron and other deleterious salts, conforming NS 1 2035 / IS code (latest revision). These shall be well burnt, sound, and hard with sharp edges and shall emit ringing sound when struck with a mallet. These shall be of uniform size.

The size of the bricks shall be 22.9cm x 11.2cm x 5.5cm unless otherwise specified, with a tolerance of  $\pm 3$ mm in each direction. The compressive strength should be min.  $7.0\text{N/mm}^2$ . The bricks shall be provided with frogs.

#### 7.1.2 Machine made Bricks

Bricks shall be of uniform deep red or copper colour, thoroughly burnt without being vitrified, regular in shape and size and shall have sharp and square sides and edges and parallel faces to ensure uniformity in the thickness of the courses of brickwork.

The Brick shall be first class machine made bricks of quality approved by the Engineer and free from grit and other impurities such as lime, iron and other deleterious salts, conforming NS 1 2035 / IS code (latest revision). These shall be well-burnt, sound, and hard with sharp edges and shall emit ringing sound when struck with a mallet. These shall be of uniform size.

The size of the bricks shall be 24.0cm x 11.2cm x 5.7cm unless otherwise specified, with a tolerance of  $\pm 3$ mm in each direction. The compressive strength should be min.  $7.0\text{N/mm}^2$ .

#### 7.1.3 Samples

Samples of each type of brick taken at random from the load shall be deposited with the Architect/Engineer for his approval before being used in the work. All subsequent deliveries shall be up to the standard of the sample approved.

#### 7.1.4 Mortar

Cement mortar shall be of proportions specified for each type of work as specified in the drawings. It shall be composed of Ordinary Portland Cement and Sand. The ingredients shall be accurately gauged by measure and shall be well and evenly mixed together in mechanical mixer, care being taken not to add more water that is required. No mortar that has begun to set shall be used, unless otherwise specified. Mortar shall comply with NBC 202-1994-latest revision or IS 2250-1980 latest revision; Code of Practice for preparation and use of masonry mortar. Compressive strength for mortar (1:4) and (1:6) shall be respectively  $7.5\text{N/mm}^2$  and  $3.0\text{N/mm}^2$ .

#### 7.1.5 Cement

Portland cement conforming to NS 49/2041 – latest revision shall be used, unless otherwise specified. Cement shall be fresh when delivered at site.

#### 7.1.6 Sand

Sand shall be clean, neither too fine nor too coarse and shall fall within the grading zone III to IV given in table of IS: 382. The silt content of sand shall not exceed 5% by volume.

#### 7.1.7 Water

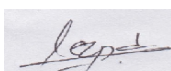
Water used for mixing mortar shall be in accordance with of NBC 110-2050. Water shall be clean and free from oil, waste, acid or other organic matter in solution or suspension. Water shall be from approved source. Storage for the water shall be of sufficient size and as directed by the Site Engineer.

#### 7.1.8 Additives

Additives like waterproofing compounds shall be of the approved type from reputed manufacture. These shall be used strictly in accordance with the manufacturer's specifications and instruction of Engineer.

#### 7.1.9 Mix Proportion

- For brickwork 230mm thick (230mm fair faced machine made or chimney made) and above, the mortar mix shall be in a proportion of 1:6 i.e. consisting of one part cement and 6 parts sand.
- For brickwork, half brick walls (108mm dachi appa or 115mm machine made or chimney made), honey combed brickwork and hollow (cavity) walls, the mortar mix shall be in a proportion of 1:4 i.e. consisting of one part cement and four parts sand.
- For brick on edge the mix shall be in a proportion of 1:4 i.e. consisting of one part cement and four part sand.




#### 7.1.10 Soaking of Bricks

All bricks shall be thoroughly soaked before use, in specially prepared vats, tubes or tanks for not less than two hours and until air bubbles stop being given off. The soaked bricks shall be kept on wooden planks or platforms to avoid earth being smeared on them.

#### 7.1.11 Mortar Mixing

Mixing of mortar shall be done in a mechanical mixer. The ingredients shall be accurately gauged by measure and shall be well and evenly mixed together in mechanical mixer, care being taken not to add more water than is required.

Hand mixing shall be resorted to only when specifically permitted by the Architect/Engineer. If hand-mixing is allowed, the operation shall be carried out on a clear watertight platform with the gauged materials and ten percent extra cement.

Cement and sand shall be mixed dry thoroughly and then water shall be added gradually. Wet mixing shall be continued till mortar of the consistency of a stiff paste and uniform colour is obtained.

Only the quantity of mortar, which can be used up within 30 minutes of its mixing, shall be prepared at a time. Mortar shall be used as soon as possible after mixing and before it has begun to set and in any case within 30 minutes after the water is added to the dry mixture. Mortar left unused for more than 30 minutes after mixing shall be rejected and removed from the site of work.

#### 7.1.12 Laying Brickwork

The brick shall be built in English bond with upwards facing frog in case of 230mm thick brickwork (for chimney made and fair faced machine made bricks both).

The brick shall be built in running stretcher bond with upwards facing frog in case of half brick wall (for chimney made, traditional dachi appa brickwork and machine made both).

Each brick shall be set with bed and vertical joints filled thoroughly with mortar. Selected bricks shall be used for the exposed brickwork as specified. The walls shall be taken up truly plumb. All courses shall be laid truly horizontal and vertical joints shall be truly vertical. Vertical joints in alternate course shall come directly over the other. The thickness of brick courses shall be kept uniform and for this purpose wooden straight edge with graduation giving thickness of each brick course including joint shall be used. Necessary tools comprising of wooden straight edge, masons spirit level, square, foot rule, plumb, line and pins etc. shall be frequently and fully used by the masons to ensure that the walls are taken up true to plumb, line and levels.

Both the faces of walls of thickness greater than 23cm shall be kept in proper plane. All the connected brickwork shall be carried up nearly at one level and no partition of work shall be raised more than one meter above the rest of the work. Any dislodged brick shall be removed and reset in fresh mortar.

Before commencing any brickwork, the Contractor shall confer with other trades to ensure that all pipes, conduits, drains, sleeves, bolts, hangers, or any other materials necessary to be installed in the brickwork at the time it is built, have been fixed or provided for.

#### 7.1.13 Joints

Bricks shall be laid that all joints are full of mortar. The thickness of joints shall be not more than 10mm. The face joints shall be raked to a minimum depth of 7mm by a raking tool during the progress of the work when the mortar is still green, so as to provide proper key for the plaster or pointing to be done. Where plastering pointing is not to be done, the joints shall be struck flush and finished at the time of laying. The face of brickwork shall be kept cleaned and mortar dropping removed.

#### 7.1.14 Openings

Openings in brickwork for air conditioning ducts, exhaust fans, grills pipes etc. shall be provided at the time of laying brickwork without any extra cost.

After installation of piping, conduits, grills, etc. all openings left around pipes, conduits, grills etc. shall be checked and caulked with cement mortar to render the whole work vermin proof and tidily finished.

The rates quoted are deemed to be inclusive of closing such pre determined openings including erection and dismantling of scaffolding if required, the placing of inserts, collars, grills etc. to be paid separately under respective items.

#### 7.1.15 Curing

All fresh brickwork shall be protected from the effects of sun, rain, etc. by suitable covering. All brickwork shall be kept constantly moist on all the faces for at least ten days.



**7.1.16 Scaffolding**

Unless otherwise instructed by the Architect/Engineer double scaffolding having two sets of vertical supports shall be provided for all building work. The supports shall be sound, strong and tied together with horizontal pieces over which the scaffolding planks shall be fixed. The Contractor shall be responsible for providing and maintaining sufficiently strong scaffolding so as to withstand all loads likely to come upon it.

**7.1.17 Putlog Holes**

The putlog holes (if inevitable for scaffolding) which provide resting space for horizontal members shall not be left in masonry under one metre in width or immediately near the skew backs of arches. The holes left in the masonry work for supporting the scaffolding shall be filled with bricks filled with mortar to fit the size of opening with proper beds and joints.

**7.1.18 Reinforced in Brickwork**

All brickwork shall be reinforced with Tor steel or equivalent reinforcement both horizontally and vertically, as per drawing and instruction of engineer. The reinforcement cleaned of rust and loose flakes with a wire brush, shall be embedded thoroughly in cement mortar at every fourth course. It shall be cast in or securely fixed to adjoining columns or walls, in a manner approved by the Engineer.

**7.1.19 Measurements**

The measurement of brickwork both 230mm (above 230mm, if any) and 115mm thick shall be product of the length, height and thickness i.e. in cubic meter for chimney made and fair faced machine made brickwork.

Deduction for doors, windows and other openings including lintels shall be made to arrive at the net quantity of work. Nothing shall be paid extra for forming such openings. However, no deductions shall be made for areas less than 0.1 sq.m overall, bearing of lintels, beams, girders and hold fasts blocks but nothing extra like form work shall be paid for embedding these. Similarly, no deductions shall be made for chimney flue left in the walls, but nothing extra shall be allowed for rendering for flue openings as specified. Unless otherwise specified nothing extra shall be admissible for cutting shape other than straight or any cutting necessary for shaping the walls to the structural design. Rate shall be inclusive of all necessary scaffolding, watering, cutting of bricks, curing, vertical & horizontal reinforcement within brickwork, materials and labour.

**8.0 PLASTERING WORKS**

*Cement-sand plastering on the floor, wall, ceiling, etc. of good finish including the racking of the joints, wetting the surface and curing the work all complete.*

**8.1 Material**

Cement: Ordinary Portland cement as per specification

Sand: River or pit sand as per specification

**8.2 Mortar**

The type and thickness of mortar mix to be used shall be as specified in the description of the item.

**8.3 Scaffolding**

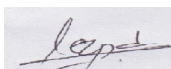
For plastering work on walls, unless otherwise specified, double scaffolding having two sets of vertical supports shall be provided. The contractor shall be responsible for providing and maintaining sufficiently strong scaffolding so as to withstand all loads likely to come upon it.

**8.4 Workmanship**

All joints in the masonry shall be raked out properly to a minimum depth of 1/2". Dust and mortar shall be brushed out. The surface shall then be thoroughly washed with water, cleaned and kept wet before plastering. The thickness of the plaster shall be as specified. The plaster may be applied in 1, 2 or 3 coats as specified or as directed by the Engineer/Site Engineer, but no single coat shall exceed 1/2" thickness.

Ceiling plaster shall be completed before the commencement of wall plaster. All wall plaster shall be started from the top and work down towards floor.

Gauges of plaster 6" x 6" shall be first applied horizontally and vertically, at not more than 6 ft. intervals over the entire surface to serve as guides for plastering and to ensure even thickness and a true surface. The surfaces of these gauged areas shall be truly in the plane of the finished plaster surface. The surface shall be finally given the type of finish as specified in the description of the item or as directed by the Engineer/Site Engineer. All corners, arises, angles




and junctions shall be truly vertical or horizontal as the case may be and shall be carefully finished. Rounding or chamfering corners, arises, junctions etc., where required shall be done without any extra payment.

In suspending work at the end of the day, the plaster shall be left, cut clean to line both horizontally and vertically. The work shall be closed on the body of wall and not nearer than 6" to any corners on arises. When recommencing, the edge of the old work shall be scraped clean and wetted before plaster is applied to the adjacent areas.

Curing shall be started 24 hours after finishing the plaster. The plaster shall be kept wet for a minimum period of 7 days. The dates of plaster shall be legibly marked on the various sections of the wall so that curing for the specified period thereafter can be watched. Any cracks, which appear in the surface and all portions, which sound hollow when tapped or are found to be soft or otherwise defective, shall be cut out in rectangular shape and redone as directed by the Engineer/Site Engineer.

### 8.5 Measurement

It shall be done in square meter of the surface over which the plaster has been done. The thickness of the plaster shall not be taken into account except for independent columns where the measurement shall be of finished surface allowing 12mm. over the designed dimensions. Opening shall be deducted in full, and jambs and soffits shall be allowed. Openings less than 1 sq.m. (10sq.ft.) shall not be deducted and nothing extra shall be paid for finishing jambs, soffits and the sides of such openings. Unless otherwise specified, nothing extra shall be allowed for plaster on independent columns and beams, short with or on curved surface.

### 9.0 CEMENT PUNNING

*Cement sand punning on floor, skirting etc. including wetting the surface, mixing, laying and rubbing with steel trowel to a hard smooth and shining surface and curing for quality finish all complete*

#### 9.1 Material

Cement: Ordinary Portland cement as per specification

Sand: River or pit sand as per specification

#### 9.2 Proportion & Mixing

As specified in the schedule.

#### 9.3 Workmanship

The base surface shall be properly watered and cleaned of dust and dirt. A screed of c/s in the specified ratio shall be laid over it. Before applying cement sand punning, the first coat should be swept clean of any dust or loose particles. The average thickness of punning shall not be less than 3mm. The pattern of the surface should be as per instruction of the Site Engineer. The coat shall be finished by rubbing with a steel trowel and any depression shall be filled in and rubbed to a shining surface. All corners and edges shall be rounded. The Contractor shall prepare a sample square meter of the punning as per instruction of the Site Engineer until the quality, texture and finish required is obtained and approved by the Site Engineer, after which all punning executed shall confirm with the respective approved sample. All punning shall be finished smooth, even and truly level and as per instructions of the Site Engineer. The punning shall be kept wet for 7 days.

#### 9.4 Measurement

The measurement shall be taken in square meter for the finished surface. The rate shall include all the materials and labour complete.

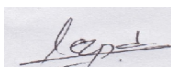
### 10.0 Brickwork Class I:

#### 10.1 Bricks:

All bricks shall be of first class of standard specifications, made of good brick earth thoroughly burnt, and shall be of deep cherry red or copper colour. Bricks shall be regular in shape and their edges shall be sharp and square and shall emit clear ringing sound on being struck. And shall be free from cracks. Chips. Flaws and lumps of any kind. Bricks shall not absorb water more than one sixth of their weight after one hour of soaking by immersion in water. First class bricks shall have a crushing strength of 140 kg per sq.cm.

#### 10.2 Mortar :

Mortar shall be as specified and materials of mortar shall be of standard specifications.




For cement mortar, cement shall be fresh port land cement of standard specifications. Sand shall be sharp clean and free from organic and foreign matters. For rich mortar coarse of medium sand shall be used. Proportion of cement and sand shall be 1:4 in ratio. Cement and first mixed dry to have a uniform colour in a clean masonry platform. Clean water shall be slowly and gradually added to have workable consistency and mixed thoroughly by turning at least their times. Such freshly mixed mortar shall be used for the construction purpose, which shall be used for a maximum period for one hours work only. Old and stale mortar beyond this time shall be used at all.

**10.2 Soaking of Bricks.**

Bricks shall be fully soaked by submerging them in a tank of water till formation of air bubble stops.

**10.3. Laying of Bricks:**

Brick shall be well bonded and laid in either in English bond or Flemish bond unless otherwise specified. Every course shall be truly horizontal and wall shall be truly plumb vertical. Vertical joints of consecutive course shall not come directly over one another. No damaged or broken bricks shall be used. Closer shall be of clean cut bricks shall be placed near the ends of walls but not at the outer edge. Selected best-shaped bricks shall be used for face work. Joints shall not exceed 6 mm in thickness, which shall be fully filled with mortar. Bricks shall be laid with frogs upward except in the top course where frogs shall be placed downward. Bricks shall be laid out for maximum 1 (one) meter height at a time. When one part of the wall has to be delayed, stepping of bricks shall be left at an angle of 45 degree. Corbelling or projections, where made shall be more than ¼ brick projection in one course.

All joints shall be raked and faces of wall cleaned at the end of each day's work.

**10.4 Curing :**

The brickwork shall be kept wet for a period of at least 10 days after laying. At the end of day's work the tops of walls be flooded with water by making small weak mortar edging to contain at least 2.5 cm. (1 inch) deep water.

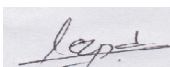
The brickwork shall be protected from the effects of sun, rain, frost and adverse effects of nature the construction and until such time it is fully cured.

**10.5 Scaffolding:**

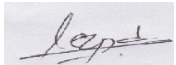
Necessary and suitable scaffolding shall be provided to facilitate the construction of beams & pillars. Scaffolding shall be sound and strong and supports and members sufficiently strong so as to withstand all load likely to come upon them.

**10.6 Measurement :**

Brickwork shall be measured in cum. Different kinds of bricks with different mortar shall be taken under separate items. The rate shall be for the complete work including scaffolding and all tool and plants.



# SECTION -IX BILL OF QUANTITIES



## SECTION IX BILL OF QUANTITIES

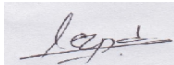
### A. Preamble

1. The Bill of Quantities shall be read in conjunction with the Instructions to Bidders, Conditions of Contract, Contract Data, Standard and Special Specifications, and Drawings.
2. The quantities given in the Bill of Quantities are estimated and provisional, and are given to provide a common basis for bidding. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Project Manager and valued at the rates and prices bid in the priced Bill of Quantities, where applicable, and otherwise at such rates and prices as the Project Manager may fix within the terms of the Contract.
3. The rates and prices bid in the priced Bill of Quantities shall, except insofar as it is otherwise provided under the Contract, include all Constructional Plant, labor, supervision, materials, erection, maintenance, insurance, profit, taxes, and duties, together with all general risks, liabilities, and obligations set out or implied in the Contract.
4. A rate or price shall be entered against each item in the priced Bill of Quantities, whether quantities are stated or not. The cost of Items against which the Contractor has failed to enter a rate or price shall be deemed to be covered by other rates and prices entered in the Bill of Quantities.
5. The whole cost of complying with the provisions of the Contract shall be included in the Items provided in the priced Bill of Quantities, and where no Items are provided, the cost shall be deemed to be distributed among the rates and prices entered for the related Items of Work.
6. General directions and descriptions of work and materials are not necessarily repeated nor summarized in the Bill of Quantities. References to the relevant sections of the contract documentation shall be made before entering prices against each item in the priced Bill of Quantities.
7. Provisional Sums included and so designated in the Bill of Quantities shall be expended in whole or in part at the direction and discretion of the Project Manager.
8. The method of measurement of completed work for payment shall be in accordance with the Standard Method of Measurement and Specifications. All units of measurement shall follow the rules of the International System of Units. Different items of work shall be measured in accordance with the procedures set forth in the relevant sections of the Specifications and shall be read in conjunction with the Conditions of Contract.

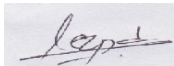


The quantities shall be computed net from the Drawings and no allowance shall be made for bulking, shrinkage, or waste. The works executed shall be measured notwithstanding any custom to the contrary. The net measurement or weight of the finished work in place shall always be taken except otherwise specified.

9. Errors will be corrected by the Employer for any arithmetic errors in computation or summation as follows:
  - (a) where there is a discrepancy between amounts in figures and in words, the amount in words will govern; and
  - (b) where there is a discrepancy between the unit rate and the total amount derived from the multiplication of the unit price and the quantity, the unit rate as quoted will govern, unless in the opinion of the Employer, there is an obviously gross misplacement of the decimal point in the unit price, in which event the total amount as quoted will govern and the unit rate will be corrected.
  - (c) Rock is defined as all materials, which in the opinion of the engineer, require blasting or the use of metal wedges and sledgehammers, or the use of compressed air drilling for their removal, and which cannot be extracted by ripping with a tractor of at least 150 brake hp with a single, rear mounted heavy duty ripper.
10. The units of measurement and abbreviations used in the Bill of Quantities are:



Unit	Abbreviation
cubic meter	Cu m or m <sup>3</sup>
day	day
hectare	ha
hour	hr
kilogram	kg
kilometer	km
lump sum	sum
meter	m
tone (1000 kg)	t
millimeter	mm
month	mon
number	nr
provisional sum	P.S.
square meter	sq m or m <sup>2</sup>
week	wk



Nepal Electricity Authority  
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 Birgunj Distribution Center, Shripur, Parsa

**"BILL OF QUANTITY SHEET"**

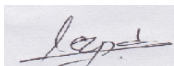
<b>JOB : CONSTRUCTION OF STORE WITH ROOM (Sealed Quotation No : NEA/BRJDC-2073.074-SQ-3(RE))</b>					<i>Fiscal Year = 2073/74</i>		
<b>LOCATION : POKHERIYA SUB STATION, POKHERIYA, PARSA</b>							
<u>Item No</u>	<u>Description of Works</u>	<u>Unit</u>	<u>Quantity</u>	<u>Rate(WITHOUT VAT)</u>		<u>T.Amount</u>	<u>Remarks</u>
				<u>In Figure</u>	<u>In Words</u>		
<b>1.0</b>	<b>EARTH WORK :</b>						
	Earth work excavation of hard type soil mixed soil with haulage 10m and 1.5m lift facilities as per drawing or in instruction of Engineer.	M <sup>3</sup>	14.44				
<b>2.0</b>	<b>DRY STONE SOLING :</b>						
	Providing of approved quality boulder for dry stone soling work in floor foundation finishing as per drawing, specification or instruction of the Site Engineer, all complete	M <sup>3</sup>	7.27				
<b>3.0</b>	<b>BORROW EARTH FILLING :</b>						
	Borrow earth filling work with proper compaction in layer of 150mm thickness as per drawing, Specification or instruction of Engineer.	M <sup>3</sup>	15.30				
<b>4.0</b>	<b>P.C.C. FOR R.C.C.</b>						
	Providing and laying, plain cement concrete for R.C.C. columns, beams, slabs, lintels, columns footings, and all kinds of R.C.C. works with cement, sand and stone ballast 19 mm gauge including mixing, laying, curing finishing etc. excluding reinforcement, centering and shuttering as per drawings, specification and instruction of the Site Engineer, all complete.						
4.1	a) P.C.C.of (1:3:6) mix	M <sup>3</sup>	1.31				
4.2	b) P.C.C.of (1:2:4) mix	M <sup>3</sup>	3.40				
4.3	b) P.C.C.of (1:1.5:3) mix	M <sup>3</sup>	4.35				
<b>5.0</b>	<b>STEEL REINFORCEMENT</b>						



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				<u>In Figure</u>	<u>In Words</u>		
	Providing and laying, steel reinforcement bar including straightening, cleaning, cutting, bending, binding with 20 SWG annealed tying wire and fixing in positions as per drawings, specifications and instructions of the Site Engineer, all complete.	Kg	512.21				
<b>6.0</b>	<b>FORMWORK</b>						
	Providing and laying, centering and shuttering with approved materials for all kinds RCC works including all necessary mild steel propping, scaffolding, staging, supporting, etc. as per drawings, specifications and instructions of the Site Engineer. all complete.	M <sup>2</sup>	38.46				
<b>7.0</b>	<b>STONE MASONRY WORK (1:4) MIX:</b>						
	Stone masonry work in 1:4 cement sand mortar for wall foundation work as per drawing and instruction of Engineer.	M <sup>3</sup>	12.45				
<b>8.0</b>	<b>BRICK WORK (1:4)</b>						
	Providing and laying 9" thick brick work in foundation & superstructure with approved quality first class brick in perfect line and level, finished including wetting the bricks, packing the joints and curing the work complete in all types and thickness of walls. columns, etc. as per drawings, specification and instruction of site Engineer. all complete.	M <sup>3</sup>	9.22				
<b>9.0</b>	<b>SCREEDING OF FLOORS</b>						
	Providing and laying, 50 mm thick screeding with 1:2:4 screed on proper slope after scraping, cleaning and watering the old surface as per drawing, specification and instruction of site engineer, all complete.	M <sup>2</sup>	36.00				
<b>10.0</b>	<b>CEMENT SAND PLASTER</b>						




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				<u>In Figure</u>	<u>In Words</u>		
	Providing and laying, cement sand plastering on floor, wall, ceiling, skirting, etc.of good finish, including raking the joints, cleaning and wetting the surface and curing the works all complete, as per drawing, specification and instruction of site Engineer. all complete.						
10.1	20MM Thick cement plaster	M <sup>2</sup>	36.00				
10.2	12.5MM Thick cement plaster in 1:4 mix cement sand	M <sup>2</sup>	85.01				
<b>11.0</b>	<b>CEMENT PUNNING (1:1)</b>						
	Providing and laying, 3 mm thick cement sand punning (1:1) on skirting , dado etc. including cleaning and wetting surface, mixing, laying and rubbing with steel trowel to a hard, smooth and shining surface and curing for a quality finish as per drawing, specication instruction of site engineer, all complete.	M <sup>2</sup>	36.00				
<b>12.0</b>	<b>ANGLE FRAME DOOR SHUTTER</b>						
	Providing of 2"MS Equal angle for door frame cutting in size, fixing, welding in accurate line level included 22 gauge plain colour sheet for shutter and1.5" MS square pipe shutter frame with 8" L-Dropall, 4" hinges & 4" tower bolt etc. allcomplete set of angle frame door shutter as per drawing or instruction of engineer. all complete.	M <sup>2</sup>	7.43				
<b>13.0</b>	<b>ALUMINIUM WINDOWS</b>						
	Supplying and fitting brown colour anodized Aluminium windows of double fly mesh shutter of 101×45×1.5 mm section frame with 5mm tinted glass and necessary accessories as per drawing,Specification and instruction of engineer,all complete.	M <sup>2</sup>	8.10				
<b>14.0</b>	<b>PAINTING &amp; COLORING</b>						



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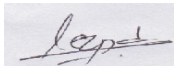
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				<u>In Figure</u>	<u>In Words</u>		
	Supplying and painting, Inside and outside coloring with approved color and paints with necessary primer to give uniform color after rendering surface clean and moist as per specifications and instruction of the site engineer, all complete.						
	a) Plastic emulsion paint/shield	M <sup>2</sup>	85.01				
	b) Enamel Paint on door shutter	M <sup>2</sup>	11.55				
<b>15.0</b>	<b>GRILL WORK :</b>						
	Providing & making, fixing of 20x4MM thick strip frame with 12x12MM square ms solid pipe grill as per drawing or instruction of engineer.	M <sup>2</sup>	10.80				
<b>16.0</b>	<b>TRUSS WORK</b>						
	Providing and fixing of ms black pipe (H-Class) for roofing truss work including necessary cutting in size, cleaning, welding in line, level and accurate position etc, with different dimension and size of ms black pipe with base plate ,clamps, nut bolts as per requirement ,drawing or instruction of the site engineer. all complete	Kg	556.18				
<b>17.0</b>	<b>COLOUR CGI ROOFING</b>						
	Providing and fixing of 24 gauge colour c.g.i.sheet 0.52mm thick metal base and 82 kg/bdl laying in perfect line and level for roofing with necessary fittings,nutbolt,clamps,j-hook ,bitumen washer etc. as per drawing or instruction of the engineer, all complete	M <sup>2</sup>	43.43				
<b>18.0</b>	<b>COLOUR GI PLAIN SHEET</b>						
	Providing and fixing of 24 gauge heavy colour g.i. plain sheet 0.52mm thick metal base for gutter and ridge work in perfect line and level with necessary frame supports, fittings, nutbolt, clamps, j-hook , bitumen washer etc. as per drawing or instruction of the engineer. all complete	Rm	16.00				



Nepal Electricity Authority  
 (Government Of Nepal Undertaking)  
 Distribution and Consumers Services Directorate  
 Hetauda Regional Office, Hetauda  
 Birgunj Distribution Center, Shripur, Parsa

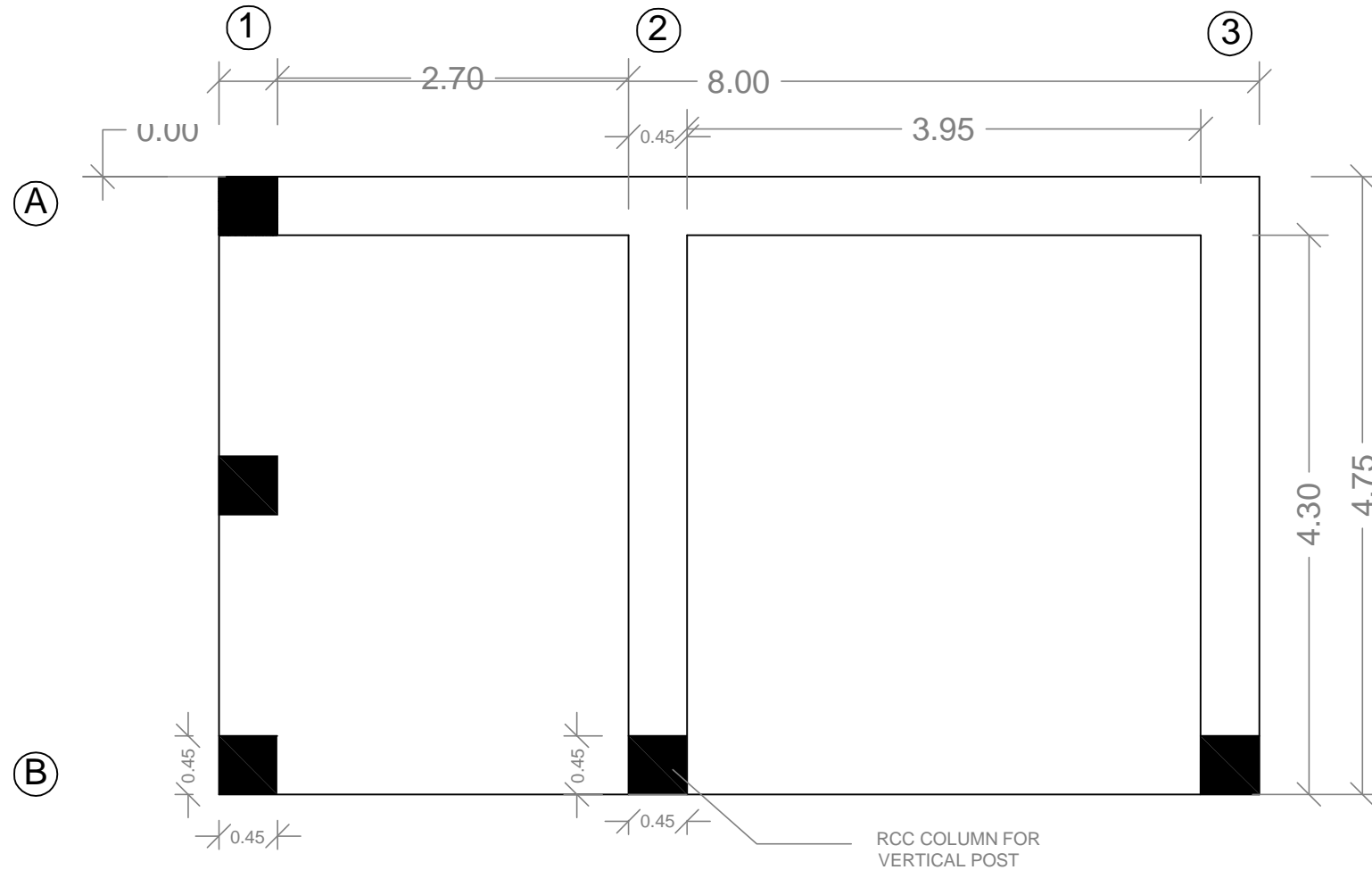
**"BILL OF QUANTITY SHEET"**

<b>JOB : CONSTRUCTION OF STORE WITH ROOM (Sealed Quotation No : NEA/BRJDC-2073.074-SQ-3(RE))</b>					<i>Fiscal Year = 2073/74</i>		
<b>LOCATION : POKHERIYA SUB STATION, POKHERIYA, PARSA</b>							
<u>Item No</u>	<u>Description of Works</u>	<u>Unit</u>	<u>Quantity</u>	<u>Rate(WITHOUT VAT)</u>		<u>T.Amount</u>	<u>Remarks</u>
				<u>In Figure</u>	<u>In Words</u>		
<b>19.0</b>	<b>FALSE CEILING WORK</b>						
	Supplying and fixing of 12 mm thick gypsum board ply for false ceiling work with necessary frames,clamps,screws etc as per requirement or instruction of engineer all complete	M <sup>2</sup>	16.58				
<b>20.0</b>	<b>MISCELLANEOUS</b>						
	Site clearance before starting and after completion of whole job or as per instruction of Engineer.	Nos.	4.00				
						<b>Sub-Total Amount in NRs.=</b>	
						<b>Vat with 13% =</b>	
						<b>Grand Total Amount in NRs.=</b>	
	Amount in Words:						
	Bidder Name and Signature:						
	Bidder Address						
	Date						



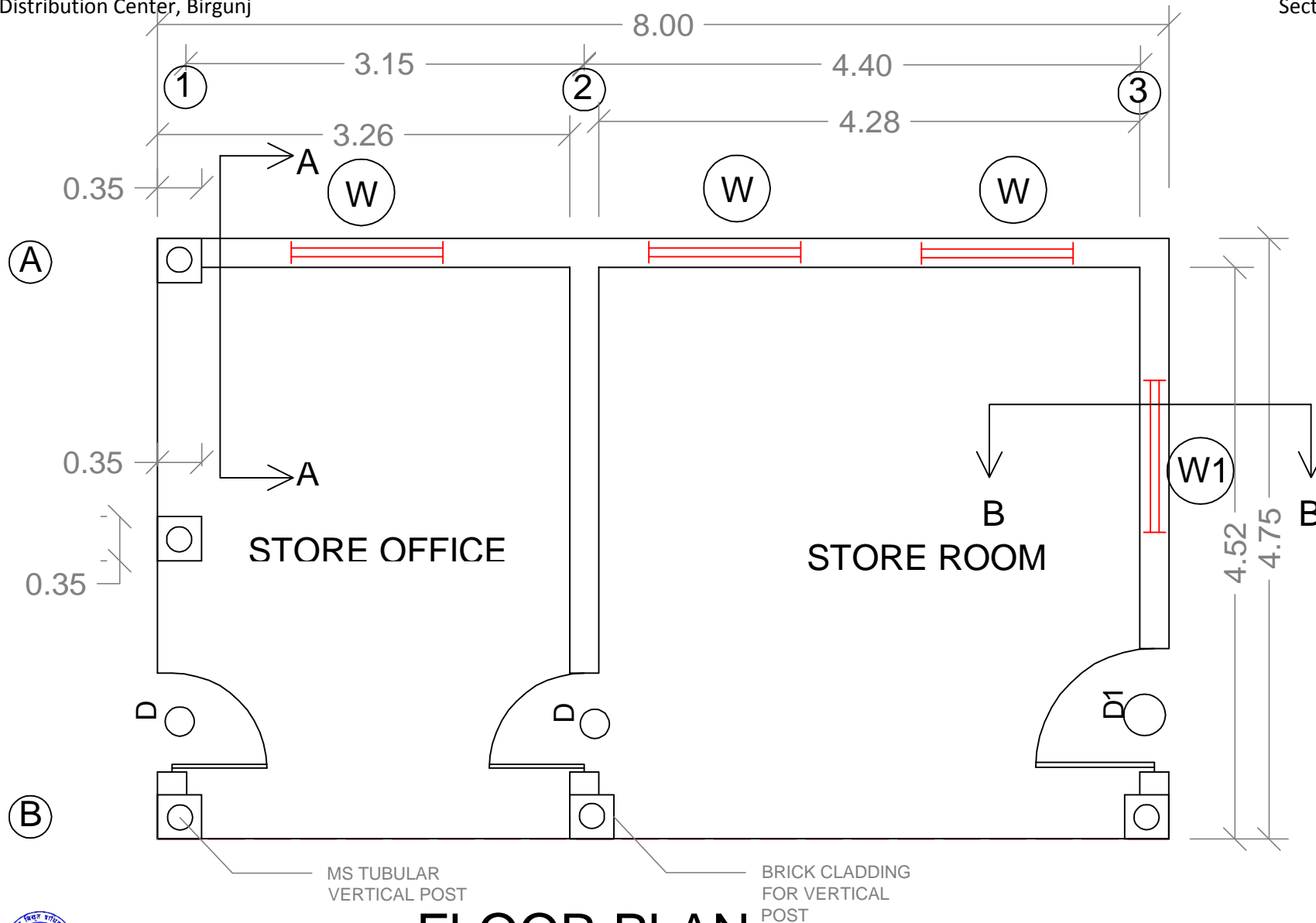

## SECTION-X DRAWINGS





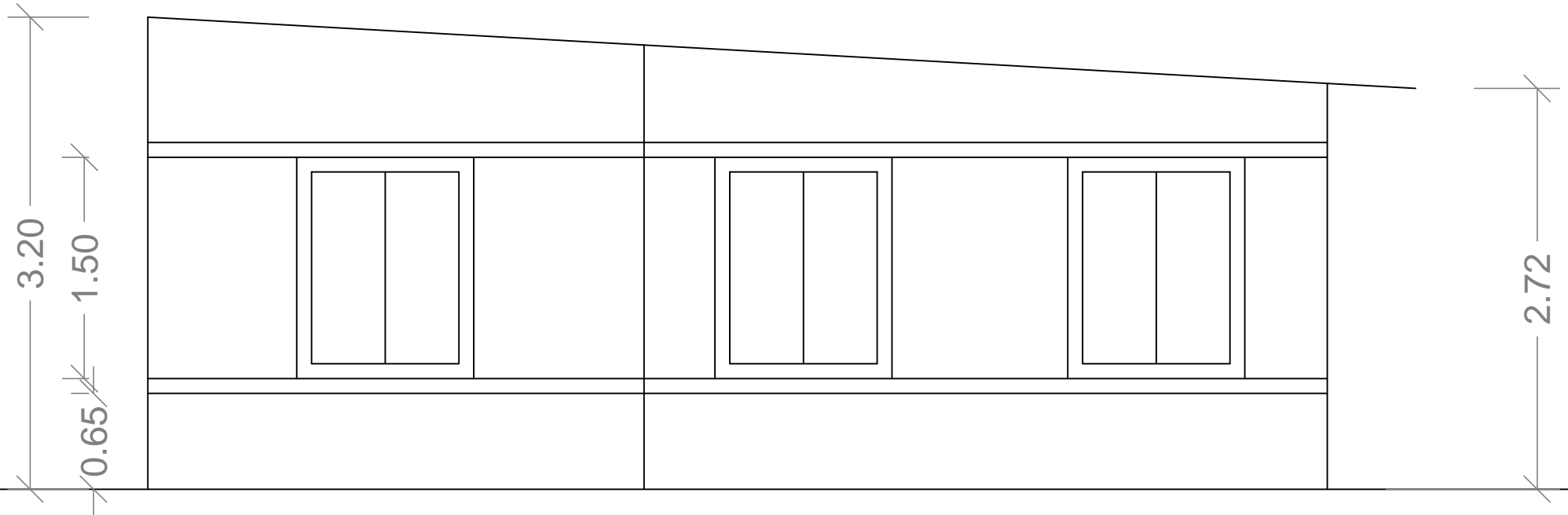
# TRENCH LAYOUT PLAN

ALL DIMENSION ARE IN METER  
OTHERWISE STATED



# FLOOR PLAN

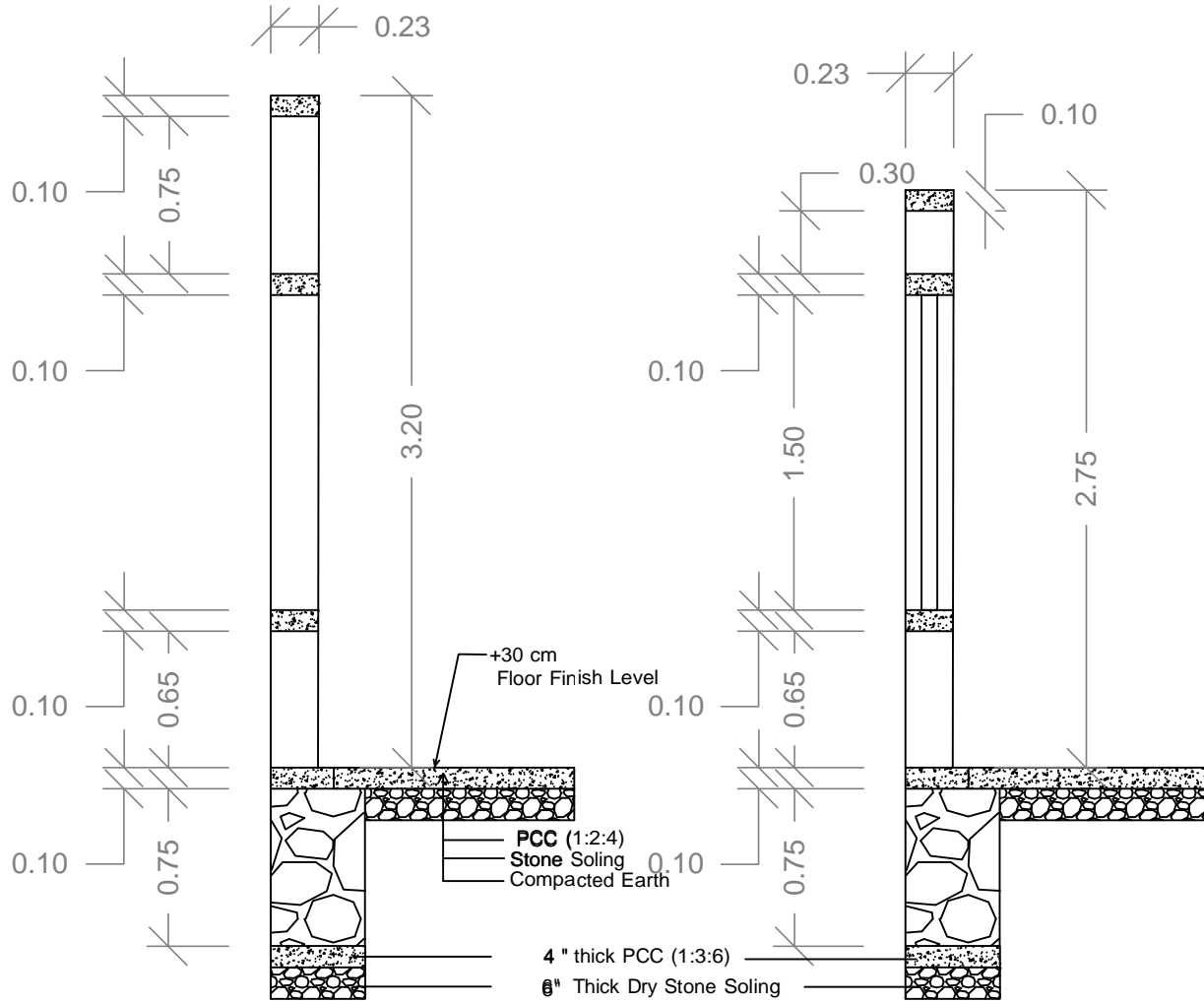




# SIDE ELEVATION

*Signature*





**LEGEND**

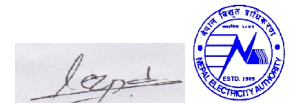
- DOOR-D=1.2 X 2.25 M = 1NOS
- DOOR-D1=1.05 X 2.25 M = 2 NOS
- WINDOW - W = 1.2 X 1.50 M = 6 NOS
- WINDOW - W1 = 1.80 X 1.50 M = 1 NOS

**SECTION AT A-A**

**SECTION AT B-B**

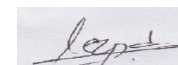


# Section -XI Declaration Form



**Nepal Electricity Authority**  
**Birgunj Distribution Cenetr,Birgunj**  
**Declaration Form (for E-bidding)**

S.No	Description	Status			
		Issued to (as applicable)	Issued by (as applicable)	Date of Issue	No. of Pages
1	Notarized Power of Attorney from the Company to Sign on Company's behalf (For Single Bidder)				
2	Joint Venture Agreement; <i>If any</i>				
3	Notarized Power of Attorney to Sign the Bid on Company's behalf (Each Partner in case of JV)				
4	Notarized Power of Attorney to Sign the Bid (On Behalf of JV)				
5	Registration Certificate of the Bidder (and each partners in case of JV)				
6	Bid security				
7	Price Schedule				
8	Bid Form				
9	Qualification Forms				
10	Complete Certified Audited Report of the Bidder (and each partner in case of JV)	Year 1			
		Year 2			
		Year 3			
11	Performance(or user) Certificate/s (Bidder)	1			
		2			
		3			
		4			




12	Manufacturer's Authorization/s	1				
		2				
		3				
		4				
		.				
13	Power of Attorney from the Company to Issue the Manufacturers Authorization on Company's behalf					
14	Business License of Manufacturer/s	1				
		2				
		3				
		4				
		.				
15	User Certificate/s (Manufacturer)	1				
		2				
		3				
		4				
		.				
16	ISO Certificate/s	1				
		2				
		3				

		4				
		.				
17	Type Test Report/s (if required as per specification)	1				
		2				
		3				
		4				
		.				
18	Technical Data Sheet	1				
		2				
		3				
		4				
		.				
19	Other Certification (as per requirements)	1				
		2				
		3				
		4				
		.				